

Norfolk Boreas Offshore Wind Farm Scoping Opinion

DCO Document 6.5

Applicant: Norfolk Boreas Limited
Document Reference: 6.5
Pursuant to APFP Regulation: 5(2)(a)

Date: June 2019
Revision: Version 1
Author: The Planning Inspectorate

Photo: Ormonde Offshore Wind Farm



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SCOPING OPINION

Proposed Norfolk Boreas Offshore Wind Farm

Planning Inspectorate Reference: EN010087

June 2017

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EXECUTIVE SUMMARY

This is the Scoping Opinion (the Opinion) provided by the Secretary of State (SoS) in respect of the content of the Environmental Statement (ES) for the Norfolk Boreas Offshore Wind Farm.

This report sets out the SoS's Opinion on the basis of the information provided in **Vattenfall Wind Power Limited's ('the Applicant') report** entitled '**Norfolk Boreas Offshore Wind Farm Environmental Impact Assessment Scoping Report**' (May 2017) ('**the Scoping Report**'). The Opinion can only reflect the proposals as currently described by the Applicant.

The SoS has consulted on the Scoping Report and the responses received have been taken into account in adopting this Opinion. The SoS is satisfied that the topic areas identified in the Scoping Report encompass those matters identified in Schedule 4, Part 1, paragraph 19 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) ('the EIA Regulations 2009').

The SoS draws attention both to the general points and those made in respect of each of the specialist topic areas in this Opinion. The main potential issues identified are impacts on:

Offshore

- Benthic ecology, including Annex I habitats;
- Cromer Shoal Chalk Beds Marine Conservation Zone;
- Ornithology – displacement, indirect effects and collision risk;
- Marine mammals from construction noise;
- Commercial fisheries;
- Shipping and navigation; and
- Archaeology and cultural heritage.

Onshore

- Ecology;
- Land Use;
- Traffic and transport;
- Socio-economics; and
- Archaeology and cultural heritage.
- Landscape and visual impacts of the key onshore infrastructure

Matters are not scoped out unless specifically addressed and justified by the Applicant, and confirmed as being scoped out by the SoS.

The SoS notes the potential need to carry out an assessment under The Conservation of Habitats and Species Regulations 2010 (as amended) (the Habitats Regulations).

1 INTRODUCTION

Background

- 1.1 On 8 May 2017, the SoS received the Scoping Report submitted by Vattenfall Wind Power Limited under Regulation 8 of the EIA Regulations 2009 in order to request a Scoping Opinion for the proposed Norfolk Boreas Offshore Wind Farm (**'the Proposed Development'**). **This Opinion is made in response to this request and should be read in conjunction with the Applicant's Scoping Report.**
- 1.2 The Applicant has formally provided notification under Regulation 6(1)(b) of the EIA Regulations 2009 that it proposes to provide an ES in respect of the Proposed Development. Therefore, in accordance with Regulation 4(2)(a) of the EIA Regulations 2009, the Proposed Development is determined to be EIA development.
- 1.3 The SoS notes that the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (2017 Regulations) came into force in England and Wales on 16 May 2017. Regulation 37 of the 2017 Regulations provides transitional arrangements for the continued applicability of the EIA Regulations 2009 to any application for an order granting development consent or subsequent consent where before the commencement of the 2017 Regulations an Applicant has requested the SoS or the relevant authority to adopt a Scoping Opinion (as defined in the EIA Regulations 2009) in respect of the development to which the application relates. Consequently **since the Applicant's request** for a Scoping Opinion was made before the 16 May the EIA Regulations 2009 continue to apply and this Opinion has been prepared in accordance with those Regulations.
- 1.4 The EIA Regulations 2009 enable an Applicant, before making an application for an order granting development consent, to ask the SoS **to state in writing their formal opinion (a 'Scoping Opinion')** on the information to be provided in the ES.
- 1.5 Before adopting a Scoping Opinion the SoS must take into account:
- (a) the specific characteristics of the particular development;*
 - (b) the specific characteristics of development of the type concerned; and*
 - (c) the environmental features likely to be affected by the development.*
- (EIA Regulations 2009, Regulation 8 (9))*
- 1.6 This Opinion sets out what information the SoS considers should be included in the ES for the Proposed Development. The Opinion has taken account of:
- the EIA Regulations 2009;

- the nature and scale of the Proposed Development;
 - the nature of the receiving environment; and
 - current best practice in the preparation of an ES.
- 1.7 The SoS has also taken account of the responses received from the statutory consultees (see Appendix 3 of this Opinion). The matters addressed by the Applicant 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 SoS will take account of relevant legislation and guidelines (as appropriate). The SoS will not be precluded from requiring additional information, if it is considered necessary in connection with the ES submitted with that application, when considering the Proposed Development for a Development Consent Order (DCO).
- 1.8 This Opinion should not be construed as implying that the SoS agrees with the information or comments provided by the Applicant in their request for an opinion from the SoS. In particular, comments from the SoS in this Opinion are without prejudice to any decision taken by the SoS (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), Associated Development, or development that does not require development consent.
- 1.9 Regulation 8(3) of the EIA Regulations 2009 states that a request for a Scoping Opinion must include:
- (a) a plan sufficient to identify the land;*
 - (b) a brief description of the nature and purpose of the development and of its possible effects on the environment;*
and
 - (c) such other information or representations as the person making the request may wish to provide or make.*
- 1.10 The SoS considers that this has been provided in the Applicant's Scoping Report.

The SoS' Consultation

- 1.11 The SoS has a duty under Regulation 8(6) of the EIA Regulations 2009 to consult widely before adopting a Scoping Opinion. A full list of the Consultation Bodies is provided at Appendix 2. The Applicant should note that whilst the SoS's list **can inform their consultation, it should not be relied upon for that purpose.**
- 1.12 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 at Appendix 3 along with

copies of their responses, to which the Applicant should refer in undertaking the EIA.

- 1.13 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.
- 1.14 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 our website. The Applicant should also give due consideration to those comments in carrying out the EIA.

Structure of the Document

- 1.15 This Opinion is structured as follows:
- **Section 1:** Introduction
 - **Section 2:** The Proposed Development
 - **Section 3:** EIA approach and topic areas
 - **Section 4:** Other information.
- 1.16 This Opinion is accompanied by the following Appendices:
- **Appendix 1:** Presentation of the ES
 - **Appendix 2:** List of Consultation Bodies formally consulted
 - **Appendix 3:** Respondents to consultation and copies of replies.

2 THE PROPOSED DEVELOPMENT

Introduction

- 2.1 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.

The Applicant's Information

Overview of the Proposed Development

- 2.2 The Proposed Development comprises an offshore array of wind turbines, subsea inter-array and export cables, and associated onshore infrastructure. The Proposed Development would have an electricity generating capacity of up to 1,800 megawatts (MW).

Offshore

- 2.3 The Proposed Development comprises the following offshore infrastructure (as described in Section 1.5.2 of the Scoping Report):
- up to 257 no. wind turbine, each with a generating capacity of up to 20MW, maximum rotor diameter of 303m, maximum hub height of 200m and maximum tip height 325m (it is possible that more than one wind turbine generator model would be used across the site);
 - wind turbine foundations (and associated scour protection) comprising one or more of the following types (Table 1.5 of the Scoping Report):
 - monopiles;
 - jackets on pin piles (three or four legs) or suction caissons (on three or four legs);
 - gravity base structures; and
 - floating (mooring line or buoyancy stabilised).
 - offshore substation platforms (OSPs) – up to six if a high voltage alternating current (HVAC) solution is used, or two if a high voltage direct current (HVDC) solution is used (see below);
 - an offshore accommodation vessel or a fixed offshore platform (possibly shared with an offshore substation platform or a standalone accommodation and operation & maintenance (O&M) platform);
 - up to 650km of 66kV (or higher) inter-array cabling; and

- mattresses or other protective substrate associated with cable crossings (if required).
- 2.4 Table 1.2 of the Scoping Report summarises the various indicative parameters of the above offshore infrastructure.
- 2.5 Two different electrical connection options are proposed; HVAC or HVDC, as described in section 1.5.1 of the Scoping Report. The decision as to which option would be used for the project would be agreed post consent and would depend on availability, technical considerations and cost.

Landfall and onshore

- 2.6 The offshore export cables would extend westwards from the array with three landfall locations being considered in a 10km stretch between Bacton and Eccles-on-Sea (see Figures 1.2 and 1.4 of the Scoping Report).
- 2.7 From the landfall location, underground onshore transmission cables would extend approximately 50km inland to connect to the National Grid via an existing substation at Necton.
- 2.8 The key components of the Proposed Development at the landfall and onshore, as described in section 1.5.4 of the Scoping Report, are:
- up to six transition pits to connect the onshore and offshore cables at the landfall location;
 - Horizontal Directional Drilling (HDD) to install ducts for the offshore cables between the transition pits to the intertidal zone (short HDD) or the subtidal zone (long HDD) (depending on ground conditions);
 - jointing pits at 500-1000m intervals along the cable route (10m x 3m x 2m depth);
 - temporary mobilisation areas for welfare, parking and storage;
 - a new substation of up to 300m x 250m with maximum building heights of 25m (alongside an additional 200m x 100m mobilisation area);
 - an extension to the existing Necton substation and a connection of up to 12 no. 400kV interface cables to connect to the new substation;
 - reconfiguration of the existing 400kV overhead powerlines around the Necton substation;
 - temporary construction areas and access roads; and
 - if HVAC is chosen:
 - up to 18 no. onshore underground cables within separate ducts in six separate trenches (i.e. three cables per trench) and up to six fibre optic cables (i.e. one per trench);

- link boxes (a type of jointing bay comprising underground chambers or above ground cabinets housing low voltage electrical equipment);
- **cable relay station to 'condition' electricity** for grid export (150m x 75m with equipment up to 8m in height) (the indicative location zones of which are shown in Figure 1.3 of the Scoping Report).
- if HVDC is chosen:
 - up to four onshore cables each in separate ducts in two trenches (i.e. two cables per trench) and up to two fibre optic cables.

2.9 **Section 1.5.4 of the Applicant's Scoping Report describes** two potential scenarios that relate to the possibility of shared infrastructure and / or co-location between the Proposed Development and the Norfolk Vanguard project:

- Scenario 1 - Norfolk Vanguard project is consented and constructs the following transmission infrastructure which would be used by the Proposed Development:
 - cable ducts;
 - access routes to jointing pit locations;
 - extension of the Necton National Grid substation and overhead line modifications (as described at section 1.5.4.4 and 1.5.4.5 of the Scoping Report); and
 - landscaping and planting around infrastructure.
- Scenario 2 - Norfolk Vanguard is not consented and / or constructed and the Proposed Development will need to deliver the above infrastructure as part of the DCO.

Description of the application site and surrounding area

Offshore

- 2.10 **The 'offshore scoping area' comprises the offshore array area and the offshore cable corridor**, as shown on Figure 1.1 of the Scoping Report. The array area covers 725km² and is located approximately 72km from the shore at its closest point.
- 2.11 The provisional offshore cable corridor has been designed to accommodate cables from both Norfolk Vanguard and the Proposed Development and both projects will include this area as part of their DCO applications.
- 2.12 Section 1.1.3 of the Scoping Report provides contextual information regarding the offshore area, including areas of sand ridges, the associated peaks and troughs and the water depth which ranges between 22-41m. Section 2.2 of the Scoping Report provides more detail on the physical characteristics of the offshore area.

- 2.13 The offshore site is dominated by slightly gravelly sand, with areas of sand, slightly gravelly muddy sand and sandy gravel, as illustrated by Figures 2.2 and 2.3 of the Scoping Report.
- 2.14 A meteorological mast owned and operated by East Anglia Offshore Wind Limited is located in the north-east of the array area (Figure 1.1). The meteorological mast and an associated 250m buffer are excluded from the application site.
- 2.15 Section 2.14 of the Scoping Report describes the numerous human activities and existing infrastructure within and surrounding the application site. This includes:
- one active gas platform, five active wells and five associated pipelines within the array area;
 - two pipelines which cross the offshore cable corridor (the Bacton-Zeebrugge interconnector and the Balgzand-Bacton Line (BBL) gas pipeline)
 - numerous licensed oil and gas licensed blocks (yet to be developed) within the array area;
 - the UK-Netherlands 14 telecommunications cable which runs from Winterton-on-Sea to Egmond in the Netherlands and intersects the provisional offshore cable corridor;
 - aggregate dredging licences approximately 45km west south-west of the array area;
 - one disused marine disposal site (HU202) that runs through the array area and the provisional offshore cable corridor and a number of closed disposal sites in the surrounding area; and
 - other wind farm developments.
- 2.16 The **area is considered to be 'busy' in terms of** passing vessel traffic, as shown in Figures 2.18 – 2.20 of the Scoping Report. The array area lies between International Maritime Organisation (IMO) routing measures. This includes the West Friesland Traffic Separation Scheme (TSS) and the Off Brown Ridge TSS which are linked via a Deep Water Route.
- 2.17 The Proposed Development lies within the Southern North Sea candidate Special Area of Conservation (cSAC). The offshore cable corridor passes through the Haisborough Hammond and Winterton Site of Community Importance (SCI); the Greater Wash Marine proposed Special Protection Area (pSPA); and the Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ). These designations are shown on Figures 2.26 and 2.27 of the Scoping Report.

Landfall and onshore

- 2.18 **The 'onshore scoping area' has been defined as a result of an ongoing** site appraisal process which has considered the connection needs for

both Norfolk Vanguard and the Proposed Development (see Section 1.2 of the Scoping Report for further information).

- 2.19 The onshore scoping area includes the 200m wide cable corridor plus areas suitable for landfall, the cable relay station (if required), the substation and the works required at the National Grid Necton substation. The scoping area also includes 250m on either side of the cable corridor and 500m around cable relay station and substation zone. Figure 1.2 of the Scoping Report identifies the onshore scoping area and Figures 1.3 and 1.4 show, in greater detail, the landfall option areas and the substation search areas respectively (the latter of which also shows the potential areas of overhead line modification and substation extension areas around the Necton substation).
- 2.20 The precise cable route and location of the substation and the potential cable relay station (only required under HVAC solution) will be further refined following further consultation.
- 2.21 The onshore scoping area extends westward from the landfall search area within the county of Norfolk and is dominated by arable farming, tourism and the Bacton Gas Terminal in the north.
- 2.22 There are several small villages including Happisburgh, Bacton and Walcott within or in close proximity to the landfall zones and onshore cable corridors as they head inland towards the substation.
- 2.23 The onshore scoping area includes a number of roads (notably the A140, the A1067 and the A4); numerous public rights of way (including the Norfolk Coast Path and national cycle routes).
- 2.24 The Norfolk Coast Area of Outstanding Natural Beauty (AONB) and the Broads National Park are located outwith, but to the north and south of the onshore scoping corridor, respectively (as shown in Figures 4.3 and 4.9 of the Scoping Report).
- 2.25 There are numerous heritage assets within the onshore scoping corridor, including:
- two Scheduled Monuments;
 - seven Grade I Listed Buildings;
 - five Grade II* Listed Buildings;
 - forty eight Grade II Listed Buildings;
 - four Conservation Areas (including Bacton, Happisburgh, Blickling and Aylsham) plus proximity to three others); and
 - one Grade II* and one Grade II Registered Parks and Gardens.
- 2.26 These assets are further described at Section 3.8.1 and Figures 3.13 and 3.14 of the Scoping report and discussed further in Section 3 of this Opinion.

- 2.27 The onshore scoping corridor encompasses river systems with associated canal networks and lakes, including the Rivers Bure, Wissey and Wensum.
- 2.28 The majority of the onshore scoping corridor is located within Flood Zone 1; however, it does cross areas of Flood Zone 2 and 3 where it intersects with watercourses and at the landfall location, as shown on Figure 3.8 of the Scoping Report.

Alternatives

- 2.29 The Applicant discusses the site selection process and approach to consideration of alternatives to the Proposed Development at Part 1 of the Scoping Report (Section 1.2, Paragraphs 43 to 99). This section includes considerations in relation to (but not limited to):
- site selection and onshore / offshore site boundaries;
 - provisional offshore cable routing;
 - landfall and cable relay station locations;
 - onshore cable corridors; and
 - grid connection and substation options.
- 2.30 Section 1.6.5 of the Scoping Report describes the proposed outline of the ES which includes a specific chapter to be titled Site Selection and Assessment of Alternatives.

Access

Offshore

- 2.31 A 'dockside marshalling facility' would be required to store offshore infrastructure prior to loading onto construction barges or vessels. The location of such a facility has not yet been identified as described in Section 1.1.5 of the Scoping Report.
- 2.32 Paragraph 35 of the Scoping Report states that the primary base for an O&M facility that would be required for the Proposed Development would likely be a suitable port facility on the coast of East Anglia (including but not limited to Great Yarmouth, Lowestoft or Wells-next-the-Sea).

Onshore

- 2.33 The Scoping Report also identifies the need for temporary haul roads for the onshore cables installations and jointing pits; as well as permanent access to the cable relay stations and substation. At this stage the locations for these features have not been identified.

Construction

Offshore

- 2.34 The Proposed Development would be constructed in phases; either two phases of 900MW (HVDC option) or three phases of 600MW (HVAC option) as described in Section 1.5.5 of the Scoping Report. The precise location of each phase would be determined on the results of the EIA and post consent site investigations (and therefore will not be decided by the time of DCO application).
- 2.35 Based on a three phase (HVAC) development, offshore construction would start in 2025 and be completed in 2028. Each of the three phases would be commissioned separately with the first being commissioned in 2027 and the last in 2029. The Scoping Report has not identified the construction period for a two phase (HVDC) development.
- 2.36 Construction methods are detailed in Section 1.4.6 of the Scoping Report. The turbines and substations would likely be installed using specialist installation vessels (e.g. jack-up or dynamic position technology). Depending on the type of foundations used for turbines and offshore platforms, installation could require dredging, piling and the use of scour protection as outlined in Table 1.6 and Paragraph 199 of the Scoping Report.
- 2.37 The offshore cables would be installed using either a water jetting, ploughing, trenching or cable injection technique and would be buried between 1-3m below the seabed (subject to post-consent burial risk assessment) as described at Section 1.5.6.2 of the Scoping Report. Additional cable protection would be required in some locations and could include rock dumping, frond mats or grout bags.

Landfall and Onshore

- 2.38 The landfall ducts would be installed between 2024 and 2025. This would be achieved by HDD from the land above the seacliffs to the intertidal zone (short HDD) or into the subtidal zone (long HDD). A pit would be excavated at the exit point on the seabed. HDD installation at the landfall location is described further in Section 1.5.6.4 of the Scoping Report.
- 2.39 Onshore substation infrastructure and ducting for the onshore cables would be established prior to commissioning the first phase of the offshore works. For a three phase (HVAC) project, onshore construction would start in 2024 and continue until 2027.
- 2.40 Paragraphs 195-196 of the Scoping Report explain that the early onshore construction activities for the Proposed Development would likely overlap with the later construction phases of the Norfolk Vanguard project. It is also anticipated that, under Scenario 2 (as described in Section 1.5.4 of the Scoping Report), ducts to

accommodate all phases of the Proposed Development would be installed during construction of the first phase.

2.41 For the onshore cables, the installation methodology would be largely dependent on whether Scenario 1 or 2 is implemented as described in Paragraphs 217-231 of the Scoping Report.

2.42 Under Scenario 1:

- access to jointing pits established by Norfolk Vanguard project may need to be reinstated;
- jointing pits would need to be excavated to uncover ducts previously installed by Norfolk Vanguard;
- cable pulling system would be required to pull through and join cables at sequential jointing pits; and
- jointing pits would be backfilled with excavated material (access points and markers would be created at link box locations).

2.43 Under Scenario 2:

- temporary access roads and a running track along the cable corridor would be installed;
- cable trenches would be excavated and material stored locally before installing the ducts, infilling the trench and reinstating the land;
- HDD, micro-tunnelling and / or other trenchless techniques could be used at some crossing locations (Figures 1.2 and 3.4a-3.4f **show the illustrative locations of these 'HDD zone' crossings**); and
- transition and jointing pits would be mechanically excavated, constructed from concrete and then backfilled and reinstated.

2.44 Under both scenarios, the construction of access roads, grading, earthworks, drainage and foundations would be required prior to the installation of the cable relay station and substation. The delivery of this equipment may require abnormal load deliveries due to their potential size. Foundations for both the substation and cable relay station may require piling depending on prevailing ground conditions.

2.45 For the proposed substation, building structures and equipment required would vary slightly depending on whether the HVAC or HVDC option is taken forwards as described in Section 1.5.4.3 of the Scoping Report.

Operation and Maintenance

Offshore

2.46 The operation and control of the wind farm would be managed by a System Control and Data Acquisition (SCADA) system connecting each turbine to one or more off-site control rooms.

- 2.47 Maintenance of offshore infrastructure, including wind turbine generators (WTGs), foundations, cables and offshore substations would follow either:
- an onshore strategy: O&M or supply vessels and/ or helicopters to transfer personnel and equipment direct to the wind farm;
 - an offshore strategy: maintenance activities primarily undertaken from an offshore accommodation vessel (OAV) or a fixed offshore platform (with transfer vessels / helicopters to and from the OAV or platform); or
 - a combination of the above onshore and offshore strategies.
- 2.48 It is possible that large components (e.g. wind turbine generator blades or substation transformers and other components) could require replacement during the operational phase. This may require large jack-up or heavy lift vessels for significant periods to carry out these major maintenance activities. The anticipated requirements for replacement of large components will be further developed through the EIA and project consultation processes.
- 2.49 There would be no planned maintenance or replacement of the subsea cables; however, repairs could be identified by periodic surveys.
- 2.50 The Scoping Report outlines that the lease for the Proposed Development would be 50 years (Table 1.4) and that the agreement for lease was awarded to the Applicant in 2016 (Paragraph 58 of the Scoping Report).

Landfall and Onshore

- 2.51 No routine maintenance is expected at the landfall although access would be required for any unplanned works.
- 2.52 The substation at Necton and cable relay station near the coast would not be permanently manned. However, routine checks and maintenance would likely be made on an approximately monthly basis.
- 2.53 Planned maintenance campaigns would be required annually every summer and would require 24/7 working, typically for periods of one week although possibly up to two months.
- 2.54 Occasional access would be required at jointing pits and link boxes. In the event of onshore cable failure, invasive works would be needed in order to repair or replace the affected sections of cable.

Decommissioning

- 2.55 It would be a statutory requirement for the Proposed Development to be decommissioned at the end of its operational life. The detail and scope of the decommissioning works would be determined by the

relevant legislation and guidance at the time of decommissioning and agreed with the appropriate authority.

- 2.56 The offshore decommissioning could include the removal of all of the turbine components, part of the foundations (those above seabed level), the inter-array cables, and the export cables.
- 2.57 The substation and cable relay station equipment would likely be removed and reused or recycled. The building may be reused for a future development or demolished. If removing the building, the foundations would be removed to below ground level and the ground covered in topsoil and re-vegetated to return the site to its initial state. The jointing pit and transition pits would also be reinstated to ground level. Any access tracks would be reinstated if required. It is expected that the onshore cables will be removed from ducts and recycled, with the transition pits and ducts left in situ.
- 2.58 As an alternative, the wind farm could be repowered; this would be subject to a new consent application.

The SoS' Comments

Description of the application site and surrounding area

- 2.59 In addition to detailed baseline information to be provided within topic specific chapters of the ES, the SoS would expect the ES to include a section that summarises the site and surroundings. This would identify the context of the Proposed Development, any relevant designations and sensitive receptors. This section should identify land that could be directly or indirectly affected by the Proposed Development and any associated auxiliary facilities, landscaping areas and potential off site mitigation or compensation schemes that are to be included as part of the Proposed Development.
- 2.60 To this end, the SoS welcomes the proposed approach as outlined at **Section 1.6.3 of the Scoping Report ('Characterisation of the Existing Environment')** and **expects that, following refinement of the cable route and the identification of the sites for the landfall, transition pits, jointing boxes and substation, further and more specific details on the existing (baseline) environment will be provided within the ES**

Description of the Proposed Development

- 2.61 The SoS welcomes the proposed refinement of the Proposed Development shown in Plate 1.2 of the Scoping Report from initial site selection works through to DCO application. The Applicant should ensure that the description of the Proposed Development that is being applied for is as accurate and firm as possible as this will form the basis of the EIA. It is understood that at this stage in the evolution of the scheme the description of the proposals and even the location of the site may not be confirmed. The Applicant should be aware that the description of the Proposed Development in the ES

must be sufficiently certain to meet the requirements of Paragraph 17 of Schedule 4 Part 1 of the EIA Regulations 2009 and there should therefore be more certainty by the time the ES is submitted with the DCO.

- 2.62 The Applicant should clearly define what elements of the Proposed Development **are integral to the NSIP and which is 'Associated Development' under the Planning Act 2008** (as amended) (PA2008) or is an ancillary matter. Associated Development is defined in the PA2008 as development which is associated with the principal development. Guidance on Associated Development can be found in the Department of Communities and Local Government (DCLG) **publication 'Planning Act 2008: Guidance on associated development applications for major infrastructure projects'**.
- 2.63 Any proposed works and/or infrastructure required as Associated Development, or as an ancillary matter, (whether on or off-site) should be assessed as part of an integrated approach to environmental assessment. The SoS welcomes the Applicants intention to assess the additional works at the Necton substation and the reconfiguration of 400kV overhead lines as part of the EIA.
- 2.64 The SoS recommends that the ES should include a clear description of all aspects of the Proposed Development, at the construction, operation and decommissioning stages, and include:
- land use requirements, including the area of the offshore elements;
 - site preparation;
 - construction processes and methods;
 - transport routes;
 - operational requirements including the main characteristics of the production process and the nature and quantity of materials used, as well as waste arisings and their disposal;
 - maintenance activities including any potential environmental or navigation impacts; and
 - emissions - water, air and soil pollution, noise, vibration, light, heat, radiation.
- 2.65 The environmental effects of all wastes to be processed and removed from the site should be addressed. The ES will need to identify and describe the control processes and mitigation procedures for storing and transporting waste off site. All waste types should be quantified and classified.
- 2.66 The SoS understands that if both Norfolk Vanguard and Norfolk Boreas are constructed, there would be up to 36 onshore cables in up to 12 trenches for HVAC and up to eight onshore cables in up to four trenches. These would be within the 200m onshore cable corridor.

Each project would also require its own landfall, substation and cable relay station (if HVAC). The SoS understands that by the time the Norfolk Boreas application is submitted more detail will be available in respect of Norfolk Vanguard including the locations of specific elements. Therefore, the SoS expects the ES to clearly explain the relationships between the two developments and conduct the assessment accordingly.

- 2.67 The Scoping Report provides a thorough description of the Proposed Development; however, the SoS considers that the ES would benefit from further clarification, as detailed below.

Offshore

- 2.68 Table 1.4 of the Scoping Report identifies up to six OSPs. Whilst it is appreciated this detail may not be known at this stage, the number of offshore substation platforms should be set out within the ES.
- 2.69 Paragraph 142 of the Scoping Report states that ***“It is anticipated that the layout of WTGs will be regular in plan (i.e. turbines will be set out in rows)”***. If this layout is relied upon as mitigation (for example in relation to navigation), the Applicant should ensure that this principle is secured through the DCO. Where flexibility is sought, the Applicant should consider a worst case approach with regard to the assessment on a topic specific basis. For example, the SoS notes reference to micro-siting of WTGs in order to mitigate impacts to benthic ecology (paragraph 434 of the Scoping Report). The SoS considers that the ES should explain clearly how micro-siting tolerances have been considered as part of the assessment of the **‘worst case’ scenario and** iterates the need for a holistic approach in terms of considering differing design mitigation demands.

Landfall and onshore

- 2.70 The Scoping Report explains that a 200m onshore cable corridor has been defined which allows for a 50m easement strip for both Norfolk Boreas and Norfolk Vanguard and a further 50m per project for micro-siting. The SoS is unclear whether the application for the Proposed Development will include the full 200m width for the two onshore cable corridors. This should be clarified within the ES and the assessment undertaken on the worst case basis that would be permitted through the DCO.
- 2.71 The Scoping Report notes that there is rapid cliff erosion on the coast of north east Norfolk. The ES should explain how erosion rates have been taken into account in determining the depth of cable burial at the landfall, the depths of transition pits and the set-back distance of the cable relay station from the coastline.
- 2.72 The Scoping Report identifies the need for jointing pits at regular intervals along the cable route (every 500-1000m) and that the precise location of the jointing pit would be determined during

detailed design. It also notes the need for link boxes at 'a number of locations within the cable corridor'. The ES should identify a worst case scenario for the number of jointing pits and link boxes. The SoS welcomes the proposal to locate jointing pits at the edge of field boundaries or roads wherever possible. Where any such commitments are made in specific locations, these should be secured for example perhaps through a construction method statement or Code of Construction Practice (CoCP)/Construction Environmental Management Plan (CEMP). The SoS welcomes reference at section 1.6.6 of the Scoping Report to a CoCP being provided as part of the application documents.

- 2.73 Given the length of the onshore cable, there is the potential for numerous points at which the cable will need to cross roads, railways, watercourses, gas, water and electrical infrastructure. The ES should identify the locations and type of all such crossings. Where commitments are made within the ES to use a specific method as mitigation (e.g. trenchless techniques at sensitive locations), the Applicant should ensure that such commitments are adequately secured. Similarly, the Scoping Report states that HDD would be used **at the landfall (either by 'long' or 'short' HDD methods); therefore its use at this location should also be secured.**
- 2.74 **The SoS draws the Applicant's attention** to the comments received on behalf of the Police and Crime Commissioner (PCC) for Norfolk that **the 'Secured by Design' principles are followed in the design of onshore infrastructure and that such measures are considered as part of the EIA.**

Grid connection

- 2.75 The connection of a proposed offshore wind farm into the relevant electricity network is an important consideration. Therefore, the SoS welcomes the intention to include within the proposed DCO application the export cable to shore, the onshore cabling, the cable relay station and substation as part of the overall project so that the potential effects can be assessed within the accompanying ES.
- 2.76 The SoS recommends that careful consideration should be given as to how the Applicant meaningfully consults on, and properly assesses, the likely impacts arising from the proposed on-shore cable route. It is hoped that the adoption of an iterative approach will result in a more specific route corridor allowing for a robust EIA to be carried out.
- 2.77 In respect of the Necton substation extension and any overhead line re-alignment works, the SoS expects the ES to include greater clarity in the description of the Proposed Development and its interaction with any works that may be subject to separate consent by National Grid or any other organisation. Paragraph 239 of the Scoping Report implies that the necessary works will be completed by the Applicant either as part of the construction of Norfolk Boreas or Norfolk

Vanguard. It should be clear whether such works are being considered as part of the Proposed Development or as part of the cumulative assessment.

Flexibility

- 2.78 **The SoS notes the Applicant's intention to apply a Rochdale Envelope approach to the assessment and that, where the details of the scheme cannot be defined precisely for the EIA, a likely worst case scenario will be assessed. The SoS welcomes the reference to Planning Inspectorate Advice Note nine 'Using the 'Rochdale Envelope' in this regard but also directs attention to the 'Flexibility' section in Appendix 1 of this Opinion which provides additional details on the recommended approach.**
- 2.79 The Applicant should make every attempt to narrow the range of options and explain clearly in the ES which elements of the scheme have yet to be finalised and provide the reasons. The ES must be capable of demonstrating how any changes to the Proposed Development including any proposed parameters have been assessed as part of the EIA and that the Proposed Development would not result in significant effects beyond those assessed.
- 2.80 The Scoping Report has identified a number of potential design options, particularly within the offshore area e.g. the size of turbine, type of foundation, the numbers of substations, the need for scour protection and offshore cable installation processes. The Applicant should ensure that they carefully define and justify their worst case scenario to be assessed within ES; bearing in mind that the worst case may differ between topics. The Applicant should also be mindful of the need for consistency in the project description across multiple references within the ES. For example, table 1.4 of the Scoping Report implies there will be one offshore accommodation platform or vessel, whereas paragraph 243 of the Scoping Report implies there could be two offshore accommodation vessels.
- 2.81 As the type of electrical connection (i.e. HVAC or HVDC) is to be determined post-consent of the DCO, the ES should clearly present a description of the necessary infrastructure, construction methodologies and phasing (i.e. timings) for each option. The ES should justify which option is to be considered for the assessments, **noting that a defined "worst case" could vary for different technical disciplines.** The Applicant should consider whether one option could result in a greater level of impact if a more intensive construction period, albeit for a shorter length of time, is adopted.
- 2.82 The Scoping Report has identified the overall size of the substation compound and the maximum height of buildings and notes that the appearance of the substation will depend on whether HVAC or HVDC would be used. The ES should provide details of the number of and dimensions of the buildings required for each option, along with site

layouts. The Applicant should also carefully consider how this will be assessed, particularly in terms of the landscape and visual impacts.

- 2.83 Similarly, the Scoping Report provides details of the size of the cable relay station compound and the likely maximum height of any equipment. Plate 1.3 provides some further details of heights of various elements within the cable relay station. In addition to heights, the ES should provide the lengths and widths of the elements as these are not easy to deduce from Plate 1.3. The same applies to the onshore substations.
- 2.84 In relation to the overhead line modification, it is acknowledged that limits of deviation may be required to allow flexibility at the detailed design phase. However, in order to undertake a meaningful assessment, the SoS would expect the locations to be defined by the time of application.
- 2.85 The SoS does not consider it appropriate as part of this Opinion to address the content of a proposed draft DCO, since these are matters for the Applicant, but does draw the attention of the Applicant to the **Planning Inspectorate's published guidance and advice** on preparing a draft DCO and accompanying application documents. The ES should support the application as described.
- 2.86 It should be noted that if the Proposed Development changes substantially during the EIA process, prior to application submission, the Applicant may wish to consider the need to request a new Scoping Opinion.

Proposed access

Offshore

- 2.87 The location of the dockside marshalling facility for the construction phase has not yet been chosen. The SoS notes and welcomes paragraph 36 of the Scoping Report which states that ***"Port facilities are outside the Order Limits for the DCO application but will be considered where appropriate, e.g. when assessing impacts on traffic and transport"***.
- 2.88 However, paragraph 1313 of the Scoping Report explains that, in the **absence of a final decision on 'base port' location, the traffic impacts** of the primary base port will be assessed when the location has been announced; it is unclear when this announcement would take place in the project timeline. This point is discussed further in relation to Traffic and Transport in section 3 of this Opinion.

Onshore

- 2.89 The SoS acknowledges that at this stage of the design it is not possible to provide details of the access roads. However, it is expected that by the time the DCO application is made, these details should be known. Therefore, the ES should identify the locations,

detail their construction methodology and identify those which would be temporary and those which would be permanent.

Alternatives

- 2.90 The EIA Regulations 2009 require that the **Applicant provide 'An outline of the main alternatives studied by the Applicant and an indication of the main reasons for the Applicant's choice, taking into account the environmental effects'** (see Appendix 1).
- 2.91 The SoS therefore welcomes the proposal to consider alternatives within Volume 2 of the ES. The Applicant should ensure that the environmental effects considered for different options are clearly identified alongside the main reasons for choosing the final design (taking into account environmental effects).
- 2.92 The Scoping Report notes that the Norfolk Vanguard Scoping Report explains the key decision made prior to its publication in October 2016. The SoS would expect the Norfolk Boreas ES to include this information and for there to be no need to cross refer to Norfolk Vanguard documents.

Construction

- 2.93 The SoS considers that information on the construction phase (covering onshore and offshore activities) should be clearly indicated in the ES, including:
- phasing of programme including anticipated start and end dates;
 - construction methods and activities associated with each phase;
 - size and siting of construction compounds (including on and off site);
 - types of machinery and construction methodology and their anticipated noise levels;
 - lighting equipment/requirements; and
 - number, movements and parking of construction vehicles (both HGVs and staff).
- 2.94 The above information should be provided for both cabling options (i.e. HVAC and HVDC).
- 2.95 The Scoping Report identifies the working hours for the construction of the landfall, the cable relay station and the substation as 07:00 to 19:00; however, has not provided working hours for other construction works. This information should be provided within the ES. Any need for unsocial hours of working should be detailed.
- 2.96 The Scoping Report states that a CoCP would be developed as part of the overall mitigation package. The SoS welcomes that a draft CoCP will be appended to the ES and recommends that clear cross

referencing is made between the two documents to give confidence that mitigation proposed in the ES is appropriately secured.

Offshore

- 2.97 The ES should identify the location and quantity of any additional cable protection required and of cable/pipeline crossings.
- 2.98 The Scoping Report identifies a short and long option for HDD at the landfall. The Applicant should consider the worst case for assessment and clearly set out the parameters within the ES.
- 2.99 It is noted that piling would be required to construct the turbines. The piling method should be clearly described within the ES and the associated impacts assessed as part of the EIA.
- 2.100 The Scoping Report identifies the potential for dredging to be undertaken as part of the seabed preparation. The ES should identify the quantities of dredged material and identify where it would be disposed.

Onshore

- 2.101 The maximum corridor widths would be 50m for HVAC and 35m for HVDC, except for short sections at major crossings and engineering constraints where it may be wider. These locations should be identified within the ES.
- 2.102 The SoS welcomes that the location and size of the onshore temporary mobilisations areas (construction compounds) will be defined in the EIA.

Operation and maintenance

- 2.103 Information on the operation and maintenance of the Proposed Development should be included in the ES and should cover but not be limited to such matters as:
- the number of full/part-time jobs;
 - the operational hours and if appropriate, shift patterns; and
 - the number and types of vehicle movements generated during the operational stage (including HGVs, LGVs and staff vehicles).
- 2.104 The SoS notes that key maintenance activities associated with the onshore component would take place every summer (taking up to two months) and would potentially require 24/7 working during this period. The SoS would expect to see specific consideration of any 24/7 maintenance working as part of the relevant topic chapters of the ES, and in particular potential impacts on nearby sensitive receptors (including tourism locations) and any mitigation measures proposed.

2.105 The ES should further consider (to the extent that it is possible):

- quantification of the planned maintenance visits / vessel trips required for offshore infrastructure (including cabling);
- the need for large-scale offshore components (e.g. turbine blades or substation transformers) to require maintenance or **replacement during operation and the 'significant' periods** which these activities may require (paragraph 244 of the Scoping Report);
- frequency of periodic conditions surveys of cables and potential remedial maintenance activities; and
- based on experience from other wind farms, an indication of the frequency of **'occasional access' that would be required at joint bays / link boxes** and the need for and type of unplanned works that may be required at the landfall location.

Decommissioning

2.106 In terms of decommissioning, the SoS acknowledges that the further into the future any assessment is made, the less reliance may be placed on the outcome. However, the purpose of such a long term assessment is to enable the decommissioning of the works to be taken into account in the design and use of materials such that structures can be taken down with the minimum of disruption. The process and methods of decommissioning should be considered and options presented in the ES.

2.107 It is a condition of the Crown Estate lease for the wind farm site that the Proposed Development be decommissioned at the end of its operational lifetime. To this end a decommissioning plan will need to be prepared.

2.108 The SoS welcomes that consideration has been given to decommissioning in the Scoping Report and that the Applicant intends to assess decommissioning impacts within the ES.

2.109 The Scoping Report explains that ground at the substation and cable relay station would be covered in topsoil and re-vegetated to return the site to its initial state. The ES should explain in more detail what is meant by 'initial state' and how this would be achieved.

3 EIA APPROACH AND TOPIC AREAS

Introduction

- 3.1 This section contains the SoS's **specific comments on the approach to the ES and topic areas** as set out in the Scoping Report. General advice on the presentation of an ES is provided at Appendix 1 of this Opinion and should be read in conjunction with this Section.

EU Directive 2014/52/EU

- 3.2 The SoS draws the **Applicant's attention to** European Union (EU) Directive 2014/52/EU (amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment) which was made in April 2014.
- 3.3 Under the terms of the 2014/52/EU Directive, Member States were required to bring into force the laws, regulations and administrative provisions necessary to comply with the Directive by 16 May 2017.
- 3.4 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 have now been made and came into force on 16th May 2017. The Applicant should be aware that these Regulations include for a revocation and transitional provision relevant to the 2009 Regulations.
- 3.5 On 23 June 2016, the UK held a referendum and voted to leave the EU. There is no immediate change to infrastructure legislation or policy. Relevant EU Directives have been transposed in to UK law and those are unchanged until amended by Parliament.

National Policy Statements (NPS)

- 3.6 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 recommendations to the SoS **and include the Government's objectives** for the development of NSIPs.
- 3.7 The relevant NPS' for the Proposed Development are the Overarching NPS for Energy (EN-1), the NPS for Renewable Energy Infrastructure (EN-3) and the NPS for Electricity Networks (EN-5). These set out both the generic and technology-specific impacts that should be considered in the EIA for the Proposed Development. When undertaking the EIA, the Applicant must have regard to both the generic and technology-specific impacts and identify how these impacts have been assessed in the ES.
- 3.8 The SoS must have regard to any matter that the SoS thinks is important and relevant to the SoS's **decision. This could include the draft NPS** if the relevant NPS has not been formally designated.

Environmental Statement Approach

- 3.9 The information provided in the Scoping Report sets out the proposed approach to the preparation of the ES. Whilst early engagement on the scope of the ES is to be welcomed, the SoS notes that the level of information provided at this stage is not always sufficient to allow for detailed comments from either the SoS or the consultees.
- 3.10 The SoS welcomes that an Evidence Plan Process (EPP) will be undertaken to structure technical stakeholder consultation for both EIA and HRA matters. The SoS suggests that this would be an appropriate mechanism through which to agree wherever possible the timing and relevance of survey work as well as the methodologies to be used. The outcomes of the EPP relevant to EIA matters should be documented as part of the ES.
- 3.11 The ES should not be a series of separate reports collated into one document, but rather a comprehensive assessment drawing together the environmental impacts of the Proposed Development. This is particularly important when considering impacts in terms of any permutations or parameters to the Proposed Development.
- 3.12 The SoS recommends that in order to assist the decision making process, the Applicant may wish to consider the use of tables:
- to identify and collate the residual impacts after mitigation on the basis of specialist topics, inter-relationships and cumulative impacts;
 - to demonstrate how the assessment has taken account of this Opinion and other responses to consultation;
 - to set out the mitigation measures proposed, as well as assisting the reader, the SoS considers that this would also enable the Applicant to cross refer mitigation to specific provisions proposed to be included within the draft DCO; and
 - to cross reference where details in the Habitats Regulations Assessment (HRA) (where one is provided) such as descriptions of sites and their locations, together with any mitigation or compensation measures, are to be found in the ES.

Baseline characterisation

- 3.13 The Applicant should ensure that appropriate consultation is undertaken with the relevant consultees in order to agree wherever possible the timing and relevance of survey work as well as the methodologies to be used. The SoS notes and welcomes the intention to finalise the scope of investigations in conjunction with ongoing stakeholder liaison and consultation with the relevant regulatory authorities and their advisors.
- 3.14 The SoS welcomes that study areas will be defined as the EIA progresses and agreed with relevant stakeholders through the EPP.

The extent of the study areas should be on the basis of recognised professional guidance, whenever such guidance is available. The physical scope of the study areas should be identified under all the environmental topics and should be sufficiently robust in order to undertake the assessment. The scope should also cover the breadth of the topic area and the temporal scope, and these aspects should be described and justified.

- 3.15 The technical chapters of the Scoping Report provide a thorough overview of the existing baseline environment and there is a large amount of existing survey data to draw upon, a lot of which comes from East Anglia THREE and East Anglia FOUR surveys. Where existing survey data is relied upon, their suitability for Norfolk Boreas should be agreed with relevant consultees; in particular the spatial and temporal scope of the surveys should be considered. The SoS expects and recognises that this is likely to be a key objective of the Evidence Plan Process.
- 3.16 **Section 1.6.4.8 of the Scoping Report details the Applicant's intention** to include projects which are sufficiently implemented during the site characterisation for Norfolk Boreas to be considered as part of the baseline for the EIA; this includes Norfolk Vanguard. The SoS notes that the applications for Norfolk Vanguard and Norfolk Boreas are intended to be a year apart; therefore, should Norfolk Vanguard be granted development consent, it would not be constructed before the Norfolk Boreas application is made. As such, it is not possible for it to be present during any surveys undertaken to inform the environmental baseline for Norfolk Boreas. The SoS considers that the environmental baseline be established having regard to conditions present at the time of surveys and that Norfolk Vanguard should be considered within the cumulative impact assessment(s) (CIA).
- 3.17 The SoS welcomes the proposal to consider the evolution of the baseline in the absence of the project, taking into account climate change and biodiversity loss.

Assessment of impacts

- 3.18 As detailed above in this Opinion, the Scoping Report identifies two separate construction scenarios - one where infrastructure would be shared with Norfolk Vanguard and one where it would not. The Applicant proposes that all identified onshore impacts will be assessed against both scenarios within the ES. The SoS also notes that the ES will consider both HVAC and HVDC options. The Applicant will need to take care to ensure the presentation of information is clearly presented and easy to understand for all of the different options.
- 3.19 The Scoping **Report presents the Applicant's approach to assessing** potential effects from the Proposed Development. It is noted that the latest guidance or best practice will be used and the definitions of sensitivity and magnitude of impact will be tailored to each receptor. Whilst this is acknowledged and welcomed, the SoS recommends the

approach to assessment and interpretation of significance levels is as consistent as possible across all technical topics. Where matrices are used, they should be consistent across the topics so that a given magnitude/ sensitivity combination results in the same level of significance, irrespective of the topic. Terminology used to define magnitude and sensitivity should also be consistent, where possible.

- 3.20 Where the matrix-based approach is not used to determine significance, and instead expert / professional judgement is applied, this should be explained and fully justified.
- 3.21 The ES should clearly distinguish between significant and non-significant residual effects.
- 3.22 **The SoS welcomes the Applicant's intention to assign** a level of confidence to the assessment. Where lower confidence levels are identified, the SoS will expect a precautionary approach to the assessment of impacts and the potential need for mitigation measures.
- 3.23 The ES should report on any data limitations encountered in establishing the baseline environment.
- 3.24 Each technical section of the Scoping Report has provided detailed information on the potential impacts of the Proposed Development. In some cases, the scoping text has stated that a certain impact is not expected to be significant; however, the impact is not requested to be scoped out of the EIA and a tick (✓) has been provided in the summary table. Consequently the SoS considers that the ES will assess all impacts identified in the summary table.
- 3.25 There are a number of technical topics where there is little detail regarding the proposed assessment methodologies. The lack of detail makes it difficult for the SoS to comment with any certainty on the methodology proposed. However, the SoS notes and welcomes the **Applicant's intent as stated in the Scoping Report to discuss and agree** (with the appropriate consultees) the assessment methodologies. This includes working to agree an Evidence Plan that will support the broad approach to the assessments for the ES.

Mitigation

- 3.26 The ES should include sufficient detail regarding mitigation in order to understand the extent to which any measures proposed will be effective. This is particularly important where the mitigation proposed is by way of management plans or similar e.g. construction method statements. The SoS also recommends the Applicant provides a visual representation (organogram (or similar)) of such plans so as to understand any interrelationships and hierarchy between the plans and their components. It should also be clear how such mitigation is secured as part of the application.

- 3.27 The Scoping Report identifies active gas platforms and wells within the application site. These assets are currently anticipated to have been decommissioned by 2023, prior to the construction of the wind farm. However, as this is not certain, the Applicant should identify measures that would be put in place to avoid impacts on these structures.

Cumulative effects

- 3.28 The SoS welcomes the proposed CIA and the consideration of the Planning Inspectorate Advice notes nine and seventeen.
- 3.29 Section 1.6.4.8 of the Scoping Report states that ***“only projects which are reasonably well described and sufficiently advanced to provide information on which to base a meaningful and robust assessment will be included in the CIA”***. The tiered approach set out in **Advice note seventeen enables Applicant’s to group plans and projects according to the level of information available; the SoS recommends that this approach is adopted.**
- 3.30 **The SoS welcomes the Applicant’s intention to** minimise cumulative impacts between the Proposed Development and Norfolk Vanguard through the alignment of the onshore cable route and the proposal for Norfolk Vanguard to pre-install ducts and undertake other enabling works for Norfolk Boreas. The close relationship of the Proposed Development with Norfolk Vanguard will need to be carefully considered.
- 3.31 The SoS has noted the uncertainty regarding the planned approach to the assessment taking into account the current status of the Norfolk Vanguard DCO. The Applicants assessment should ensure that the scenarios applied in respect of Norfolk Vanguard appropriately reflect the situation at the time of making the application for the Proposed Development. If the EIA relies upon assumptions made in respect of the Norfolk Vanguard development procedure this should be clearly explained and justified.
- 3.32 Therefore, in assessing potential cumulative effects with Norfolk Vanguard, the SoS would expect to see a commitment to the shared construction of infrastructure between the two projects. Alternatively, the SoS would expect a worst case cumulative scenario to be assessed which would assume that both projects could be constructed in their entirety and independently of one another (but potentially along similar timescales).
- 3.33 **The SoS welcomes the Applicant’s commitment to work with DONG Energy to identify potential interactions between the cable routes of the Proposed Development, Norfolk Vanguard and the Hornsea Project 3 Offshore Wind Farm. Any measures proposed to minimise impacts should be secured appropriately.**

Environmental Statement Structure

3.34 Section 1.6.5 of the Scoping Report proposes the following structure for the ES:

- Volume 1 Non-Technical Summary
- Volume 2 Environmental Statement
 - Part 1: Introductory chapters
 - Introduction
 - Need for the Project
 - Policy and Legislative Context
 - Site Selection and Assessment of Alternatives
 - Project Description
 - EIA Methodology
 - Part 2: Offshore environment
 - Marine Geology, Oceanography and Physical Processes
 - Marine Water and Sediment Quality
 - Benthic and Intertidal Ecology
 - Fish and Shellfish Ecology
 - Marine Mammal Ecology
 - Offshore Ornithology
 - Commercial Fisheries
 - Shipping and Navigation
 - Offshore Archaeology and Cultural Heritage
 - Aviation and Radar
 - Infrastructure and Other Users
 - Part 3: Onshore environment
 - Ground Condition and Contamination
 - Air Quality
 - Water Resources and Flood Risk
 - Land Use
 - Onshore Ecology
 - Onshore Ornithology
 - Onshore Archaeology and Cultural Heritage
 - Noise and Vibration
 - Traffic and Transport
 - Health

- Part 4: Wider Scheme Aspects
 - o Landscape and Visual
 - o Socio-economics
 - o Tourism and Recreation
- Part 5: Cumulative and Transboundary Impacts
 - o CIA within the former East Anglia Zone
 - o Wider Offshore CIA
 - o Transboundary Impacts
 - o Onshore CIA
- Part 6: Summary of Impacts
- Volume 3: Technical appendices

Matters to be Scoped out

- 3.35 Matters are not scoped out unless specifically addressed and justified by the Applicant, and confirmed as being scoped out by the SoS.
- 3.36 The Scoping Report has proposed to scope out a number of topics as a whole, as detailed below. Where certain matters within a topic are proposed to be scoped out, these are addressed within the relevant topic sections of this Opinion.
- 3.37 Whilst the SoS has not agreed to scope out certain topics or matters within the Opinion on the basis of the information available at the time, this does not prevent the Applicant from subsequently agreeing with the relevant consultees to scope matters out of the ES, where further evidence has been provided to justify this approach. This approach should be explained fully in the ES.
- 3.38 In order to demonstrate that topics have not simply been overlooked, where topics are scoped out prior to submission of the DCO application, the ES should still explain the reasoning and justify the approach taken.

Offshore Air Quality

- 3.39 The Scoping Report considers that the number of vessels (up to approximately 12 during construction) and the associated atmospheric emissions would be small in comparison to the total shipping activity in the southern North Sea. It also notes that, marine exhaust emissions are limited in line with the provisions of International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78. Section 2.4 of the Scoping Report therefore proposes to scope out impacts on offshore air quality due to the likely negligible increases of air pollutants on site and the distance from any shore-based receptors.

- 3.40 On this basis, the SoS agrees that offshore air quality can be scoped out of the ES.

Offshore Airborne Noise

- 3.41 The Scoping Report acknowledges the potential for increases in airborne noise levels during construction, operation and decommissioning. However, the Scoping Report considers that given the distance of Norfolk Boreas from shore, any offshore works would not result in significant airborne noise to onshore receptors. Any offshore receptors would likely be transitory and the noise impact of construction works will be temporary and intermittent nature.
- 3.42 The Scoping Report acknowledges the potential for onshore receptors to be impacted by vessel noise and noise from activities during nearshore cable laying works and confirms that this will be considered further within the onshore noise EIA.
- 3.43 On this basis, the SoS agrees that offshore airborne noise can be scoped out of the ES.

Topic Areas – Offshore Environment

Marine Geology, Oceanography and Physical Processes (see Scoping Report Section 2.2)

- 3.44 The SoS welcomes the proposal for surveys to develop the understanding of the seabed conditions across the site. The SoS recommends that the scope of these surveys are agreed with the relevant consultees, including the Environment Agency (EA), the Marine Management Organisation (MMO) and Natural England (NE). The survey methodology should be set out within the ES.
- 3.45 The Scoping Report makes numerous references to the use of modelling (both conceptual and empirical) to undertake the assessments; however no details of these have been provided. The ES should provide details of all models used including any assumptions and limitations and how these have been factored in to the assessment.
- 3.46 Scour mitigation measures should be detailed within the ES; the EIA should outline a clear justification for the quantity and area to be covered, in addition to the total area of seabed likely to be covered by hard substrata.
- 3.47 The SoS welcomes the consideration of the potential effects of sedimentary processes on Haisborough, Hammond and Winterton SCI.
- 3.48 Section 2.2.17 of the Scoping Report identifies coastal erosion at all of the three landfall zones; however, the potential effects of the Proposed Development on erosion rates have not been considered.

The SoS considers this could result in an 'alteration to coastline', which is noted in paragraph 905. The potential impacts of landfall works on coastal processes, including erosion and deposition, should be addressed with appropriate cross reference to other technical reports including landscape and visual impacts. Consideration should be given to the interaction with the Bacton seascaping project.

Marine Water and Sediment Quality (see Scoping Report Section 2.3)

- 3.49 Table 2.3 of the Scoping Report (Concentrations of dissolved trace metals in sub-surface seawater from offshore locations) contains data from 1991-1992. Similarly, Table 2.4 (Summary of potential contaminant levels typically found in surface water of the North Sea) contains data from 2001. The Applicant should ensure they use the most up to date data available. If not available, this should be explained within the ES along with justification as to the validity of datasets used.
- 3.50 The Scoping Report states that *"Modelling of sediment plumes completed as part of the East Anglia ONE EIA (EAOL, 2012) showed that coarser material is likely to settle out within a short distance (between a few hundred meters and 1km) of the activity and limit the overall footprint of the affected area"*. However, no reference has been made to the distance which finer material may settle. As such, the assertion that designated bathing waters (3.1km and 3.9km from the landfall search area) are unlikely to be affected has not been fully justified. Any such statements should be clarified within the ES, with reference to guidance or studies from which the conclusions have been drawn.
- 3.51 Paragraph 358 of the Scoping Report proposes to scope out accidental release of contaminants during construction, operation and maintenance on the basis that good practise techniques and procedures would be employed and that all vessels would comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78. Table 2.6 also proposes to scope out accidental release of contaminants during decommissioning. The SoS agrees that, with the implementation of such measures, any potential impacts on water and sediment quality are unlikely to be significant and therefore further assessment is not required. However, the SoS seeks assurances that such measures would be employed and therefore considers the matter should still be covered within the ES, along with details of the measures to be employed and how they are secured by the DCO (through the marine license or otherwise). The SoS would expect a draft version of any plans containing such measures to be provided with the DCO application.
- 3.52 The Scoping Report explains that aggregate extraction for the Bacton Gas Terminal sandscaping scheme, if consented, is likely to be completed long before the construction of Norfolk Boreas, therefore cumulative impacts are not expected. The ES should identify the

anticipated dates of the Bacton Gas Terminal sandscaping scheme. The timescales for both projects should be kept under review and, if necessary, cumulative impacts should be assessed.

- 3.53 The Scoping Report explains that a proportion of the sediment samples will be analysed for contaminants and compared to Environmental Quality Standards. The Applicant is advised to address the comments of the MMO (see Appendix 3 of this Opinion) regarding contaminant analysis.
- 3.54 The Scoping Report further proposes that, given the likely level of impact as informed by evidence from the East Anglia ONE and East Anglia THREE ES's, the assessment of potential impacts on marine water and sediment quality for the Proposed Development should take the form of a desk-based review. The SoS considers this to be acceptable; however advises that sufficient information is provided within the ES and that conclusions drawn are clearly justified.
- 3.55 The green and blue stars used within Figure 2.4 of the Scoping Report are difficult to differentiate due to the colours used. The Applicant should ensure that all figures with the ES are clear and colours can be easily distinguished to avoid any accidental misinterpretation.

Benthic and Intertidal Ecology (see Scoping Report Section 2.6)

- 3.56 The SoS welcomes the benthic survey campaign proposed for summer 2017 and that the methodology is agreed with the MMO and NE. The methodology has not been provided within the Scoping Report for further comment; however, the SoS expects this detail to be provided within the ES.
- 3.57 The Scoping Report notes there is no epibenthic trawl data available for the offshore cable corridor, although grab surveys indicate it is broadly comparable with the benthic ecology in the array area. The Applicant should agree with relevant consultees whether or not there is a need for epibenthic trawls within the cable corridor and document any agreement within the ES.
- 3.58 **The Applicant's attention is drawn to the suggestion of the MMO** (see Appendix 3 of this Opinion) to inform site characterisation with newly published satellite Suspended Particulate Material (SPM) data covering 1998-2015, which is available on the Cefas Data Hub.
- 3.59 The Scoping Report proposes **to scope out impacts from the 're-mobilisation of contaminated sediments' during operation on the basis that "given the likely levels of sediment contamination no pathway exists for impacts from contaminants"**. The SoS agrees that impacts during operation can be scoped out as the potential to mobilise contaminants during operation is so small as to render significant effects unlikely.

- 3.60 An assessment of the potential impacts on Annex I sandbanks and biogenic reefs should be presented within the ES.
- 3.61 The Scoping Report identifies the presence of *Sabellaria spinulosa* (*S. spinulosa*) reef within the array area and the offshore cable corridor. The ES should consider potential direct impacts from construction, and also the potential impacts from maintenance activities on reef that may colonise the cables during the operational phase. **The Applicant's attention is drawn to the comments of NE** (see Appendix 3 of this Opinion) regarding *S. spinulosa*.
- 3.62 The SoS notes the offshore cable would pass through the Cromer Shoal Calk MCZ; in particular it could pass through the mixed **sediment feature**. **The Applicant's attention is drawn to the concerns** of NE (see Appendix 3 of this Opinion) that due to the features of the MCZ and the scale of the proposed works, there is a possibility that NE will consider the impacts on the MCZ are such that the conservation targets for the site cannot be met. The ES should consider mitigation and Measures of Equivalent Environmental Benefit (MEEB), as well as the longer term impacts and recoverability of the mixed sediment feature.
- 3.63 When assessing the potential impacts from loss of habitat, the ES should give consideration not only to habitat loss resulting from scour that occurs around foundations, but also to habitat loss resulting from the introduction of required scour protection.
- 3.64 Consideration should also be given to the impacts of colonisation of hard structures by non-**native species**. **The Applicant's attention is drawn to the comments of NE** (see Appendix 3 of this Opinion) in this regard.
- 3.65 The SoS welcomes the consideration of underwater noise and vibration during the construction phase in this chapter and the Fish Ecology and Marine Mammal Ecology chapter. The methodology should be agreed with the relevant statutory consultees and clearly explained within the ES. The baseline environment should be established and potential noise and vibration impacts should be assessed against the baseline. The methods and modelling software should be detailed within the ES; along with the project specific detail that it utilises.
- 3.66 The Scoping Report proposes to scope out underwater noise and vibration during the operational phase. This is on the basis that monitoring studies of operational turbines (North Hoyle, Scroby Sands, Kentish Flats and Barrow wind farms) have shown noise levels from wind farms to be only marginally above ambient noise levels and there is no evidence to suggest that this low level of noise and vibration has a significant effect on benthic ecology. The SoS has had regard to the comments from the MMO (see Appendix 3 of this Opinion) in this respect, who note that there is some existing research which indicates that effects from noise to benthic ecology

cannot be ruled out. On this basis, the SoS does not agree that this can be scoped out at this stage and recommends that further discussions are held with the MMO on this matter.

- 3.67 Paragraph 428 of the Scoping Report proposes to scope out electromagnetic fields (EMF) on benthic species as effects are likely to be highly localised, and as EMFs are strongly attenuated and decrease as an inverse square of distance from the cable. The Scoping Report references studies which show EMFs do not impact benthic species and habitats. The SoS accepts the evidence presented by the Applicant and is content with the proposed approach. The SoS notes that paragraph 201 of the Scoping Report suggests the cable would be buried between 1-3m deep. The applicant should be aware of the statements within NPS EN-3 that if it is proposed to install offshore cables to a depth of at least 1.5m below the sea bed, the applicant should not have to assess the effect of the cables on subtidal or intertidal habitat.
- 3.68 The Scoping Report states that potential cumulative impacts with proposed adjacent offshore wind farms could occur. However, it also states that there is unlikely to be significant overlap in impact zones during construction given the predicted localised nature of potential impacts and staggered construction programmes. The SoS notes construction of the offshore elements of the Proposed Development would be between 2025-2028 and that the Norfolk Vanguard Scoping Report identified construction between 2023-2027. The SoS therefore considers that there is a high likelihood of overlapping construction periods. The Applicant should take this into account in the cumulative assessment.
- 3.69 The ES should provide evidence to support the assertion that the recoverability of the species found, mean that cumulative impacts are unlikely to be significant.
- 3.70 The SoS welcomes the consideration of mitigation measures at this stage and recommends these are discussed and agreed during the EPP.

Fish and Shellfish Ecology (see Scoping Report Section 2.7)

- 3.71 The SoS is broadly content with the proposed approach for Fish and Shellfish Ecology and has no specific comments to make on the proposed assessment scope. However, the SoS draws the Applicant's attention to the comments of the MMO (see Appendix 3 of this Opinion) and recommends that these are addressed.

Marine Mammal Ecology (see Scoping Report Section 2.8)

- 3.72 The Applicant's attention is drawn to paragraph 2.6.92 of NPS EN-3 and the need to provide details of likely feeding areas; known birthing areas/haul out sites; nursery grounds; and known migration or commuting routes.

- 3.73 Where modelling is undertaken to determine the abundance of cetaceans, the ES should explain the methodology used.
- 3.74 **The Applicant's attention is drawn to the existence of the Defra Marine Noise Registry** which could inform the baseline noise environment.
- 3.75 Paragraph 518 of the Scoping Report proposes to scope out disturbance to seal haul out sites from construction activity at the landfall given the distance of the landfall is a minimum of 8.5km from a significant haul-out site. However, the Applicant proposes to assess impacts of disturbance to seals from vessels during construction. The SoS agrees to this approach.
- 3.76 Similarly, paragraph 529 of the Scoping Report proposes to scope out disturbance to seal haul out sites during operation. This is on the basis that the landfall is a minimum of 8.5km from a significant haul-out site and as any vessel transits would be less than during construction and likely to be within current baseline vessel movements. The SoS agrees this can be scoped out.
- 3.77 The Scoping Report proposes to scope out EMF impacts on marine mammals and provides references to literature demonstrating that there is no evidence to suggest that existing cables have influenced cetacean movements or that pinnipeds respond to electromagnetic fields. The SoS agrees this can be scoped out of the assessment.
- 3.78 The SoS welcomes consideration of construction noise impacts on marine mammals. NE has provided advice on this matter in their consultation response (see Appendix 3 of this Opinion); specifically the need to consult them regarding revised injury thresholds.
- 3.79 The SoS welcomes the proposal for both soft-start piling and the preparation of a marine mammal mitigation plan (MMMP) in consultation with key stakeholders. **However, the Applicant's attention is drawn to NE's comments** (see Appendix 3 of this Opinion) regarding the potential need for additional measures beyond that of soft-start piling.
- 3.80 The ES should set out in full the potential risk to European Protected Species (EPS) and confirm if any EPS licences will be required for example, for harbour porpoises and grey seals.
- 3.81 **The Applicant's attention is drawn to the comments of NE** (see Appendix 3 of this Opinion).

Offshore Ornithology (see Scoping Report Section 2.9)

- 3.82 The SoS recommends that the Applicant seeks agreement with NE regarding the suitability of the ornithological data proposed to be utilised for the offshore cable corridor.

- 3.83 The ES should explain how population estimates/densities will be calculated.
- 3.84 The ES should consider impacts on prey species during construction not only from construction of the array, but also from the offshore cable corridor.
- 3.85 Paragraph 572 of the Scoping Report proposes to scope out disturbance and displacement impacts resulting from maintenance or repair activities along the cable route as any potential impacts would be highly localised and episodic. The SoS agrees this can be scoped out.
- 3.86 The Scoping Report proposes to scope out indirect impacts to bird species during the operational phase on the basis that there is growing evidence from existing offshore wind farms that underwater noise, EMF and elevated suspended sediment could cause prey to avoid the operational area and affect their physiology and behaviour. The SoS notes that this approach contradicts proposals within the Fish and Shellfish Ecology Chapter to assess impacts on fish and shellfish (Table 2.16). Accordingly, the SoS does not agree to scope this out.
- 3.87 The SoS agrees that indirect impacts on prey species and habitat along the export cable can be scoped out of the operational phase assessment on the basis that maintenance or repair operations would be localised and episodic.
- 3.88 The SoS welcomes that the assessment scope and methodology will be discussed and agreed during the EPP. **The Applicant's attention is drawn to the comments of NE (see Appendix 3 of this Opinion), for example regarding the use of Band (2012) model for collision risk.**
- 3.89 Paragraph 575 of the Scoping Report refers to matrices in order to assess the potential effects of displacement on sensitive species. This approach is agreed and commented upon by NE in its consultation response (see Appendix 3 of this Opinion). The ES should clearly set out the methodology associated with the use of matrices.
- 3.90 The potential for cumulative construction impacts should be considered, particularly with Norfolk Vanguard.

Commercial Fisheries (see Scoping Report Section 2.10)

- 3.91 The SoS welcomes the proposed consultation with local fisheries organisations and individual fishermen, as well as the appointment of a Fisheries Liaison Officer (FLO) as part of the pre-application process. The continuation of the FLO appointment into the construction and operational phase should be considered.
- 3.92 The loss or restricted access to traditional fishing grounds may have subsequent effects on alternative fishing grounds such as those which

are fished by smaller vessels. Impacts on alternative fishing grounds should fully be assessed within the ES.

- 3.93 Exclusion of certain types of fishing may make an area more productive for other types of fishing. The assessment should include detailed surveys of the effects on fish stocks of commercial interest and the potential reduction or increase in such stocks that will result from the presence of the wind farm development and of any safety or buffer zones.
- 3.94 The SoS welcomes that the proposed cumulative assessment will take into account other wind farm developments within the former East Anglia Zone. However, consideration should be given to the wider cumulative impacts arising from other wind farms off the Norfolk Coasts which lay outside this zone. This also applies to the shipping and navigation assessment.
- 3.95 **The Applicant's attention is drawn to the comments of the MMO** (see Appendix 3 of this Opinion).

Shipping and Navigation (see Scoping Report Section 2.11)

- 3.96 As the layout of the array will not be fixed at the point of the application, the ES should consider a worst case scenario in its navigation assessment. The ES should set out how such a worst case scenario has been determined.
- 3.97 The SoS welcomes the proposed Navigational Risk Assessment (NRA) **and directs the Applicant's attention to the** comments of the Maritime and Coastguard Agency (MCA) and Trinity House (see Appendix 3 of this Opinion) for their comments on the proposed assessment. The ES should provide details of the collision risk modelling used within the NRA.
- 3.98 Paragraph 639 of the Scoping Report notes that the Davy Gas Field, comprising two wells and a normally unmanned platform, is located within the offshore area. It is expected the platform will be decommissioned and removed prior to the construction of the Proposed Development. However, the SoS welcomes that consideration has been given within the ES to the site and advises that the assessment should represent existing conditions. Any cumulative impacts resulting from the removal of the gas field should be considered within the CIA.
- 3.99 Paragraphs 689 and 695 of the Scoping Report state that the NRA modelling for operational collision and allision risk will assume a 10% increase in future traffic. The ES should provide justification in support of the use of the 10% future case increase.
- 3.100 Paragraphs 677 and 701 of the Scoping Report states that gear snagging is considered in section 2.10. However, the only reference to gear snagging is in relation to equipment lost overboard during

construction (paragraph 618). The SoS considers that exposed cables could create a snagging risk to vessel anchors and recommends that this is assessed accordingly within the ES.

3.101 The SoS welcomes the proposed consultation with the stakeholders identified in paragraph 724 of the Scoping Report.

3.102 **The SoS notes the proposal to determine the 'overall severity of consequence' within the EIA. The Applicant is reminded of the need** within the EIA Regulations 2009 to consider the significance of effects. The ES should therefore clearly identify whether or not an effect is considered to be significant.

3.103 Figure 2.16 of the Scoping Report identifies existing oil and gas infrastructure. These do not appear to correlate with the names of gas fields listed in paragraph 639. The Applicant should ensure textual descriptions and figures within the ES accurately correspond with one another.

Offshore Archaeology and Cultural Heritage (see Scoping Report Section 2.12)

3.104 Paragraphs 751 and 756 of the Scoping Report propose to scope out impacts to the setting of onshore heritage assets from the offshore elements of the Proposed Development during construction and operation. This is because the turbines would be located approximately 72km from the coast and would not be viewed from the shore. The SoS agrees that this can be scoped out; however notes and welcomes that consideration will be given to potential impacts on the setting of onshore heritage assets during installation of offshore export cables close to the coast and activities at the landfall.

3.105 The SoS welcomes the proposed production of a project Written Scheme of Investigation (WSI) and recommends that a draft WSI is provided with the DCO application.

3.106 **The Applicant's attention is drawn to the comments of Historic England** (see Appendix 3 of this Opinion).

Aviation and Radar (see Scoping Report Section 2.13)

3.107 The SoS agrees that impacts on military training areas can be scoped out of the assessment on the basis that the RAF Lakenheath North Aerial Tactics Area has a base height above the turbine height and that any potential effects on radar will be assessed.

3.108 The SoS notes that an unacceptable impact is predicted on the Cromer Primary Surveillance Radar and welcomes that the Applicant is working with NATS to develop mitigation measures. **The Applicant's attention is drawn to the comments made by NATS** (see Appendix 3 of this Opinion) relating to safeguarding.

3.109 The Scoping Report identifies potential impacts relating to Helicopter Main Routes and therefore the SoS welcomes the proposed consultation with offshore helicopter aviation operators.

Infrastructure and Other Users (see Scoping Report Section 2.14)

3.110 It would be useful for figures within the ES to identify the locations of international wind farm developments in addition to those located within UK waters.

3.111 The Scoping Report proposes to scope out a number of matters within this topic which the SoS agrees to, as below:

- Potential interference with other wind farms during all phases of the development - as there is no spatial overlap of wind farm infrastructure and as consideration will be given to crossing of **other wind farms' cables**.
- Initiation of unexploded ordnance (UXO) during all phases of the development – as detailed geophysical survey and investigations would identify abandoned UXO and this is a health and safety risk which will be carefully mitigated rather than being an environmental issue. The SoS advises that the mitigation proposed in the event that UXO is found should consider environmental impacts (e.g. on species and habitats) and that the geophysical survey and mitigation is secured by a suitably drafted condition within the draft Deemed Marine Licence.
- Impacts on Ministry of Defence (MoD) activities during all phases of the development - due to the distance of the site from the nearest Military Practice and Exercise Area (PEXA) (43.5km at its closest point).
- Physical impacts on subsea cables and pipelines during operation – as standard industry techniques would be followed for **maintenance and/or replacement to ensure that other operators' cables and pipelines are not impacted**.

3.112 The Scoping Report states that there is no spatial overlap of aggregate licence areas with Norfolk Boreas and therefore there are limited pathways for impacts upon aggregate dredging activities. The SoS agrees potential impacts on aggregate dredging operations can therefore be scoped out. However, the SoS welcomes that if the project programme for the proposed dredging by the Bacton Gas Terminal changes (currently proposed to be in 2017), so that it overlaps with the Norfolk Vanguard construction, impacts will be assessed.

3.113 The Scoping Report proposes to scope out impacts on disposal sites during all phases of the development on the basis that there is no overlap between Norfolk Boreas and disposal sites. The Scoping Report states that the Warren Springs disposal site (HU202), shown on Figure 2.25, is disused and therefore there is no pathway for

impact upon it from export cable installation. The ES confirms that consideration of any impacts on water and sediment quality due to interactions between the Proposed Development and Warren springs will be covered in the Marine Water and Sediment Quality chapter of the ES. With this assurance, the SoS agrees impacts on disposal sites can be scoped out of the Infrastructure and Other Users chapter of the ES.

- 3.114 The Scoping Report proposes to scope out potential interference with oil and gas operations during operation as it is anticipated the assets will have been decommissioned prior to construction of the wind farm. As there are currently no assurances that decommissioning will take place, the SoS does not agree this can be scoped out.
- 3.115 The SoS notes that the offshore cable corridor passes through the CON29M Coal and Brine Consultation Areas. The potential for impacts on this area should be considered within the ES and the SoS recommends consultation with the Coal Authority in this regard.
- 3.116 The SoS is pleased to note that the Applicant is in discussion with other infrastructure users and encourages the Applicant to continue with this engagement. **In this regard the Applicant's attention is drawn to the comments of BBL Company Limited (see Appendix 3 of this Opinion) regarding the potential interactions of the Proposed Development with the BBL pipeline system.** However, it is unclear from the Scoping Report how the potential significance of impacts on other infrastructure users will be assessed. The methodology for the assessment should be detailed within the ES.

Offshore Designated Sites Summary (see Scoping Report Section 2.15)

- 3.117 The SoS notes the summary of designated sites within this chapter of the Scoping Report and the proposal to consider the impacts on these within the relevant chapters of the ES.

Offshore inter-relationships (see Scoping Report Section 2.16)

- 3.118 The SoS welcomes the proposal to consider interrelationships, The SoS has noted some discrepancies in these tables. For example it is stated in Table 2.32 that some topics (e.g. Marine, Geology, Oceanography and Physical Processes) would affect another topic (e.g. Fish and Shellfish Ecology); yet the latter is not stated to be affected by the former. The Applicant is encouraged to cross check any similar tables within the ES to ensure consistency.

Cumulative and transboundary impacts (see Scoping Report Section 2.17)

- 3.119 Section 2.17 of the Scoping Report identifies the offshore wind farms to be considered as part of the CIA. The Applicant is advised to agree the projects to be included within the CIA with relevant consultees

and in this regard the SoS welcomes that the CIA will be discussed during the EPP.

- 3.120 The Applicant should ensure that all projects that have the potential interact with the Proposed Development are considered and should demonstrate that they have not focussed solely on offshore wind farms, for example by determining whether there are any other developments in the marine area with potential for cumulative impacts.
- 3.121 The SoS welcomes the proposal to consider transboundary impacts throughout the ES.

Topic Areas – Onshore Environment

Ground Conditions and Contamination (see Scoping Report Section 3.2)

- 3.122 The ES should identify and assess potential impacts on the Mineral Safeguarding Areas underlying the onshore scoping area (see the comments of Norfolk County in Appendix 3 of this Opinion).
- 3.123 Paragraph 318 of the Scoping Report notes there is rapid cliff erosion on the coast of north east Norfolk. The potential impacts of landfall works on coastal processes, including erosion and deposition, should be addressed with appropriate cross reference to other technical reports including landscape and visual impacts. Reference to consideration of the Kelling to Lowestoft Ness Shoreline Management Plan at paragraph 887 of the Scoping Report is welcomed.
- 3.124 The SoS welcomes the proposal to employ a CoCP during site works to ensure that all appropriate Pollution Prevention Guidelines and good practice guidelines are followed. The proposal to provide a draft CoCP with the DCO application is welcomed and the SoS recommends that this document contains sufficient information as to the minimum measures required and relied upon to achieve the requisite level of mitigation and residual significance of effect.
- 3.125 The Scoping Report has scoped out all operational impacts on ground conditions and contamination at paragraph 907. The only justification for this is that operation and maintenance activities would follow standard procedures. Despite the limited justification provided, the SoS does not consider there would be any significant effects from operation and therefore agrees this can be scoped out.
- 3.126 The SoS welcomes the identification and consideration of construction impacts on Water Framework Directive (WFD) groundwater bodies (see Section 4 of this Opinion for further details) and designated geological sites. Further comments on WFD assessment are provided in the Water Resources and Flood Risk section of this Opinion below.

- 3.127 The ES should justify the extent of the study areas used in the assessment in relation to the general 250m and 500m buffer zones around temporary and permanent infrastructure respectively used to define the onshore scoping area as described at paragraph 883 of the Scoping Report.

Air Quality (see Scoping Report Section 3.3)

- 3.128 The SoS recommends that the methodology and choice of air quality receptors are agreed with the relevant Environmental Health Officers of the local authorities and the EA as appropriate.
- 3.129 As no site specific air quality monitoring surveys are proposed (paragraph 967 of the Scoping Report), the Applicant should justify their position that existing air quality monitoring data coverage is appropriate having undertaken the desk based review and therefore that additional baseline surveys are not required.
- 3.130 The Scoping Report proposes to scope out operational air quality impacts as O&M activities will not lead to a significant change in vehicle flows within the study area; however, no vehicle movement figures have been provided in either this chapter or the Traffic and Transport Chapter of the Scoping Report to support this assertion. Nevertheless, the SoS considers that given the nature of the development, this conclusion is likely and therefore agrees that onshore operational air quality can be scoped out of the assessment.
- 3.131 The SoS welcomes the provision of an Air Quality Management Plan to be developed as part of the CoCP and recommends that a draft version is provided with the DCO application.
- 3.132 The ES should clearly set out the methodology for assessing the potential impacts of dust and road traffic emissions. In particular, paragraphs 940 – 942 of the Scoping Report set out the criteria for identifying sensitive receptors to construction air quality impacts and these should be set out in the context of relevant guidance such as that of the Institute of Air Quality Management (IAQM) as referenced in section 3.3.4 of the Scoping Report.

Water Resources and Flood Risk (see Scoping Report Section 3.4)

- 3.133 The SoS welcomes the proposal for a Flood Risk Assessment (FRA) and a WFD compliance assessment; these assessments should form an appendix to the ES. Section 4 of this Opinion provides further comments as to the need for WFD assessment. The scope of these assessments should be discussed and agreed with relevant consultees including the Environment Agency, the relevant internal drainage **boards and local planning authorities. Norfolk County Council's** response (see Appendix 3 of this Opinion) has provided comments in this regard.

- 3.134 Consideration should be given to the potential impacts on the coastal defence works proposed around Bacton, as noted within NE's response (see Appendix 3 of this Opinion).
- 3.135 The SoS welcomes reference to the preparation of a draft drainage strategy at paragraph 1006 of the Scoping Report and recommends that this be provided with the ES. The location of any swales and/or attenuation basins used to mitigate flood risk should be identified. The assessment should consider potential effects of the Proposed Development on existing field drainage patterns and any potential inter-related effects on the quantity and quality of productive farmland. The SoS welcomes the proposal that all drainage systems would be fully reinstated in consultation with landowners and drainage contractors (paragraph 1081 of the Scoping Report). Advice from Norfolk County Council on a drainage strategy is provided in Appendix 3 of this Opinion.
- 3.136 The SoS welcomes the proposal to develop a CoCP in line with the relevant CIRIA guidance and Pollution Prevention Guidelines. On-going monitoring should also be identified, agreed with the relevant authorities and secured as part of the DCO to ensure that any mitigation measures are effective.
- 3.137 In relation to HDD activities, the ES should address potential risks to both groundwater resources and surface water bodies from leakage of drilling fluid and provide details of measures that will be implemented to address such risks and how they will be secured as part of the CoCP or otherwise in the DCO. **The Applicant's attention is** also drawn to the consultation response from the EA in this regard (Appendix 3 of this Opinion).
- 3.138 The SoS notes that the onshore cable corridor crosses six watercourses that are designated as main rivers and other minor watercourses. Paragraph 1016 of the Scoping Report explains that a targeted survey will be undertaken to further characterise the watercourses to assist in the method selection process for each crossing type that will be required (open or trenchless techniques). The SoS will expect to see a detailed schedule of crossings building on Table 3.7 of the Scoping Report to demonstrate the crossing methods for each and how they have been considered as part of the EIA.
- 3.139 The Applicant is advised to consider the necessary responsibilities in relation to working over or crossing of main rivers including any permits or licences that may be required (for example Flood Risk Activity Permits under the Environmental Permitting regulations). References to any water resources licensing that may be required should be outlined as part of the ES, particularly where the residual effects reported in the ES are wholly or partly reliant on the grant of such licenses.

Land Use (see Scoping Report Section 3.5)

- 3.140 **The Applicant's attention is drawn to the responses of Anglian Water, National Grid and the Health and Safety Executive (see Appendix 3 of this Opinion) which have provided comments relating to the water infrastructure, major hazard sites, electricity and gas infrastructure within the onshore scoping area.**
- 3.141 Safeguarded operational, permitted and allocated sand and gravel extraction sites should within the onshore scoping area should be identified and considered within the ES.
- 3.142 Careful consideration should be given to the siting of the onshore infrastructure in relation to agricultural land; the potential temporary and permanent loss of ALC land should be assessed and quantified within the ES. Limited information is provided around the approach to the assessment of significance of temporary and permanent loss of agricultural land. **The SoS recommends reference to NE's guidance note on the protection of best and most versatile agricultural land (TIN049) in addition to the references cited in paragraph 1092 of the Scoping Report.**
- 3.143 The potential for sterilisation of land along the cable route should be assessed within the ES, including interrelated socioeconomic effects. The SoS does not agree that the effects of diversions of PRow during construction can be scoped out of the assessment given the nature and duration of the proposed works as well as the potential cumulative effect with Norfolk Vanguard. The SoS does recognise that this is scoped in as part of section 4.4 of the Scoping Report (tourism). Cross referencing should be made between these topics as appropriate. **Similarly, the SoS notes the applicant's proposal to scope out loss of land during construction with no justification for doing so. The SoS does not agree that this can be scoped out of the assessment (even on the basis that this assessment could be captured as part of the operational loss of land) as the SoS understands the areas of land take associate with construction and operation to be different.**
- 3.144 The Scoping Report identifies the Norfolk Coast Path, Public Rights of **Way and Cycle Trails. Norfolk County Council's response (see Appendix 3 of this Opinion) identifies a number of long distance trails which should be acknowledged e.g. Paston Way and the Weavers Way. Appropriate cross reference should be made to the tourism and recreation chapter of the ES.**
- 3.145 The potential effects on soil quality should be considered and relevant mitigation measures proposed. The SoS therefore welcomes the proposal for a Soils Management Plan and recommends a draft is provided with the DCO application. The relationship with and role of this plan alongside other relevant plans should also be specified (e.g. if it is to be appended to any CoCP, CEMP or similar and there is to be a separate Materials Management Plan (MMP) as is implied in

paragraph 924 of the Scoping Report). These plans should set out sufficient detail as to how the land will be reinstated so as to understand the extent to which they have been relied upon in mitigating potential effects.

Onshore Ecology (see Scoping Report Section 3.6)

- 3.146 The list of ecological surveys in Table 3.19 is noted. The SoS welcomes the statement in paragraph 1137 that the approach to assessment and data gathering will be agreed through the EPP prior to commencement. The Applicant is strongly encouraged to agree the methods used to collect baseline data, the likely effects of the project and to determine significance of effect with NE, representatives of the local authorities and any other relevant stakeholders. NE has provided advice on the additional surveys that they consider should be carried out (see Appendix 3 of this report); the Applicant should address these points through the EPP.
- 3.147 The intention to undertake the ecological impact assessment using the **Chartered Institute of Ecology and Environmental Management's** (CIEEM) Guidelines for Ecological Impact Assessment (EclA) is welcomed. The ES should make it clear how the zone of influence for the project has been defined and how this has been used to identify the ecological receptors likely to be affected by the proposals.
- 3.148 The summary of impacts provided in Table 3.13 excludes effects during operation from permanent/temporary habitat loss, temporary/permanent habitat fragmentation and the spread of non-invasive species. While it is acknowledged that effects from non-invasive species are more likely to occur during the construction and decommissioning phases it is not clear why effects on permanent habitat loss and fragmentation have been scoped out. The SoS does not agree that sufficient evidence has been presented to allow these effects to be scoped out.
- 3.149 The intention to produce an Invasive Species Management Plan is **welcomed. The Applicant's attention is drawn to the comments from** NE and the EA in Appendix 3 regarding the presence of invasive species, particularly in relation to aquatic habitats, and the need to provide a detailed assessment of biosecurity requirements in the ES.
- 3.150 In accordance with EN-1, the Applicant should demonstrate the efforts made to ensure that activities will be confined to the minimum areas required for the works.
- 3.151 The Scoping Report states that direct effects on statutory designated sites and ancient woodland will be avoided through the use of micrositing and trenchless techniques. If this approach is being relied on to avoid effects on statutory sites then it should be clear how this has been secured through the DCO. If this cannot be achieved then an assessment of the effects should be included within the ES.

- 3.152 The Applicant is strongly advised to consider the advice from NE and the EA on the potential risks associated with the use of Horizontal Direct Drilling (HDD) under the River Wensum (see Appendix 3 of this report) and how these might be minimised.
- 3.153 It is not entirely clear from the Scoping Report whether effects on the River Wensum SAC/SSSI will be covered in the onshore ecology section of the ES or in the section dealing with water resources and flood risk. Given the statutory ecological designations covering the River Wensum the SoS recommends that the ecological effects are reported in the onshore ecology chapter with appropriate cross referencing to the water resources chapter.
- 3.154 **The Applicant's attention is drawn to the comments from the Forestry Commission in Appendix 3 on the need to consider how HDD (or other trenchless techniques) would affect ancient woodland.**
- 3.155 The intention to consider effects on County Wildlife Sites, UK Habitats of Principal Importance, Norfolk Local Biodiversity Action Plan habitats and (indirect effects) on ancient woodland is welcomed. The Applicant is advised to agree the scope of the assessment with NE, the local authorities and other relevant stakeholders.
- 3.156 The Applicant should ensure that all mitigation measures proposed within the ES are secured. The SoS welcomes the proposal to include drafts of the Ecological Management Plan and Landscape and Environmental Strategy with the DCO application. The Applicant should also consider providing drafts of the other plans referred to in section 3.6.3 of the Scoping Report to assist the Examining Authority to examine whether the relevant mitigation is adequate and has been sufficiently secured. The methods to be used to reinstate habitats lost or harmed during the construction of the Proposed Development should be set out in the ES.
- 3.157 **The Applicant's attention is drawn to the comments from NE in Appendix 3 of this Opinion about the potential cumulative effects from the Norfolk Boreas, Norfolk Vanguard and Hornsea Three wind farms onshore cables and coastal defence works.** The Applicant is advised to specifically discuss the potential for these cumulative effects through the EPP so as to inform the EIA cumulative assessment.
- 3.158 The SoS notes the possible need for an Appropriate Assessment in view of the **development site's location in relation to European sites** (see Section 4 of this Opinion). The Applicant should also have regard to the comments from NE in relation to consideration of effects on European sites in Appendix 3 of this report.

Onshore Ornithology (see Scoping Report Section 3.7)

- 3.159 The Scoping Report states that the internationally designated sites within 5km of the scoping area and other designated sites within 1km

will be considered. However it is not clear why these distances have been **used**. **The Applicant's attention is drawn to the comments** above about the need for the ES to show how the zone of influence of the project has been defined and how this has been used to identify the receptors that are likely to be affected.

- 3.160 The intention to agree the approach to assessment and data gathering through the EPP is welcomed. The Applicant is strongly encouraged to agree the methods used to collect baseline data, the likely effects of the project and to determine significance of effect with NE, representatives of the local authorities and any other relevant stakeholders.
- 3.161 Table 3.22 scopes out impacts on legally protected and notable species during operation and temporary/permanent habitat loss during decommissioning. It is not clear from the wording of the Scoping Report why these impacts would not occur – for instance, if access to buried cables was required as suggested in paragraph 1169 whether there is potential for direct effects on birds. Equally if the effects of decommissioning are predicted to be similar to those of construction, habitat loss should be equally relevant to the decommissioning phase. The SoS does not feel that there is sufficient evidence to agree to the scoping out of these effects.
- 3.162 The comments above in the '**onshore ecology**' in relation to mitigation measures also apply to onshore ornithology.
- 3.163 **The Applicant's attention is drawn to the comments of NE** (see Appendix 3 of this Opinion).

Onshore Archaeology and Cultural Heritage (see Scoping Report Section 3.8)

- 3.164 Paragraph 1188 of the Scoping Report explains that the onshore archaeological study area is as described in section 1.1.4 of the Scoping Report. The SoS considers the defined areas to be relatively limited in terms of the archaeological assessment, particularly for potential consideration of indirect effects. The Applicant should ensure that the study area around the cable route corridor, cable relay station and substation are sufficiently broad to give consideration to heritage assets that could be indirectly impacted.
- 3.165 This applies equally in the context of the reconfiguration of the overhead lines which does not appear to be specifically referred to as part of section 3.8 of the Scoping Report. The SoS expects the potential for direct and indirect effects of these reconfiguration works to be specifically considered as part of the archaeological assessment.
- 3.166 The SoS agrees that direct impacts on archaeological remains during operation can be scoped out of the assessment.

- 3.167 The SoS welcomes references to the preparation of an outline WSI to be submitted as part of the ES to outline mitigation commitments. The SoS expects that the preparation of the WSI will be in conjunction with Historic England and the relevant local planning authorities and that agreements as to spatial and temporal coverage **(as well as it's delivery through DCO requirements) will be sought as part of the EPP.** The SoS notes references at paragraph 1233 of the Scoping Report that a WSI has been prepared in respect of the Norfolk Vanguard project and that there will be significant overlap **between WSI's across both projects.**
- 3.168 Appropriate cross reference should be made to the Landscape and Visual Impact Assessment (LVIA) section of the ES particularly in terms of viewpoint selection within the LVIA which should incorporate views from cultural heritage assets and should be agreed with the relevant authorities.
- 3.169 **The Applicant's attention is drawn to the comments of Historic England (see Appendix 3 of this Opinion).**

Onshore Noise and Vibration (see Scoping Report Section 3.9)

- 3.170 The SoS recommends that the baseline survey and assessment methodology and choice of noise receptors should be agreed with the relevant Environmental Health Officers and with the Environment Agency. The choice of receptors and assessment of effects during construction and operation should be based on a justified worst case scenario taking into particular account:
- the relationship to Norfolk Vanguard (ie scenarios 1 and 2);
 - HVAC or HVDC options; and
 - works associated with the reconfiguration of the overhead lines and upgrades to the existing Necton substation.
- 3.171 The ES should provide a description of the noise generation aspects of the Proposed Development for both the construction and operation stage. Any distinctive tonal, impulsive or low frequency characteristics of the noise should be identified.
- 3.172 Information should be provided on the types of vehicles and plant to be used during the construction phase. The assessment should **consider a 'worst case' for receptors, i.e. that within the application site the vehicles and plant are located at the closest possible point to a receptor.**
- 3.173 Information should be provided on the layout of onshore infrastructure (e.g. the cable relay station and the substation) and the main sources of noise from these elements should be identified. **This should account for a 'worst case' scenario in terms of proximity to potential receptors as well as design layout and technology types as described above.**

- 3.174 The SoS welcomes reference at paragraph 1246 to noise impacts being specifically addressed at sensitive receptors. This should consider any potential noise disturbance at night and other unsocial hours such as weekends and public holidays.
- 3.175 Paragraph 1245 of the Scoping Report states that **"vibration will only be considered as an issue where significant piling works are required"**; however, no explanation has been given as to what 'significant piling works' are and the Scoping Report has not justified why vibration will not be considered for other construction and related activities e.g. HGV movements. The SoS is of the view that the ES should consider all potential sources of vibration, particularly those in proximity to residential and other sensitive receptors.
- 3.176 Paragraph 1263 of the Scoping Report states that **"there are considered to be no other significant sources of vibration associated with the operational scheme"**, however this statement has not been justified. For example, no details on potential operational vibration from the cable relay station and the substation have been provided and at this stage their location and proximity to receptors has not yet been determined; therefore the SoS does not agree this can be scoped out at this stage. This is particularly pertinent due to the proximity of proposed infrastructure associated with the Proposed Development and the Norfolk Vanguard project.
- 3.177 Consideration should be given to the potential noise impacts resulting from the maintenance campaigns referred to in paragraph 248 of the Scoping Report, which are started to take place every summer and would require 24/7 working.
- 3.178 The SoS welcomes that the best practice measures will be set out in the CoCP.
- 3.179 The Scoping Report identifies potential operational mitigation measures, including the installation of acoustic enclosures and barriers and the construction of a landform/embankment around the substation. Where such measures are being relied upon as delivering specific acoustic attenuation (e.g. the 10dB reduction that is quoted in paragraph 1276), these assumptions should be clearly stated and justified as part of the assessment methodology. These measures should also be taken into account in other technical assessments, for example the landscape and visual assessment, ecological and flooding / drainage assessments.
- 3.180 Paragraph 1285 of the Scoping Report states that the spatial coverage of the construction noise assessment would be **"400m from the cable corridor routes where significant activities could affect noise sensitive receptors"**. The ES should clearly set out what 'significant activities' would comprise.
- 3.181 The SoS welcomes consideration of noise impacts on nature conservation areas. Consideration should also be given to ecological

receptors (e.g. protected species) and appropriate cross reference made to the Onshore Ecology chapter of the ES.

- 3.182 Consideration should be given to monitoring noise complaints during construction and when the development is operational. Although this is referred to at Paragraph 1276 in terms of operation, there is no reference in terms of construction. The CoCP and any operational noise management strategies should identify such measures.

Traffic and Transport (see Scoping Report Section 3.10)

- 3.183 The SoS welcomes the proposal to confirm the scope of the assessment with Norfolk County Council and Highways England and recommends that this includes agreement over the sensitive receptors to be considered. Advice from Norfolk County Council and Highways England on the assessment of traffic is provided in Appendix 3 of this Opinion. In particular, the SoS notes the comments of Highways England in respect of the traffic generation associated with the Necton substation works and the cable crossings of the A47.
- 3.184 Sensitive receptors are referred to within the Scoping Report; these should be specifically identified and their levels of sensitivity defined within the ES against defined criteria.
- 3.185 The SoS welcomes that potential impacts associated with employee and HGV movements for the offshore construction and operation will be considered; however, does note that this is dependent upon a port being chosen before the application is made.
- 3.186 The ES should set out the traffic demand that has been assumed for the assessment. The assumptions made in deriving the traffic demand should be clearly explained within the ES and it is welcomed that this has been initially calculated and set out in Table 3.31 and that the maximum parameters will be applied in terms of the Rochdale envelope approach to the assessment.
- 3.187 The cumulative assessment should specifically consider the Highways England schemes along the A47 which are noted in paragraph 1293 of the Scoping Report.
- 3.188 The SoS considers that a Construction Traffic Management Plan (CTMP) would be appropriate for the Proposed Development and recommends that a draft is provided with the DCO application. Reference to CTMP at paragraph 1328 is therefore welcomed. Necton Parish Council has provided comments on the contents of a CTMP (see Appendix 3 of this Opinion).

Health (see Scoping Report Section 3.11)

- 3.189 The SoS notes the proposed provision of a health impact review. The **Applicant's attention is drawn to the responses from Public Health** England and the Health and Safety Executive (see Appendix 3 of this

Opinion) for their comments in relation to assessing impacts on public health. See also section 4 of this Opinion for further information.

Onshore inter-relationships (see Scoping Report Section 3.12)

- 3.190 The SoS welcomes the proposal to consider interrelationships between onshore topic areas as summarised in Table 3.37 of the Scoping Report, although there is no reference to the potential for overlap between onshore and offshore topic area interrelationships, for example at the landfall locations.

Cumulative impacts (see Scoping Report Section 3.13)

- 3.191 The SoS generally welcomes **the Applicant's** proposed approach to the assessment of onshore cumulative effects. Where relevant, particular comments have been made in the relevant topic sections of this opinion. The SoS considers a key aspect will be the approach to the explanation and assessment of the cumulative effects associated with the Norfolk Vanguard scheme, particularly in light of the potential scenarios 1 and 2 (as described at section 1.2 of the Scoping Report) and the possibility of shared infrastructure (or independent infrastructure as the case may be). These potential options will need to be reflected as is acknowledged in paragraph 1395 of the Scoping Report.
- 3.192 The SoS also welcomes the Applicant's commitment to working with DONG Energy on identifying the potential interactions between the Norfolk Boreas, Norfolk Vanguard and Hornsea Project 3 Offshore Wind Farm onshore cable routes as outlined at paragraph 1396 of the Scoping Report.
- 3.193 The comments of Necton Parish Council in relation to the expanding residential area around the A47 are noted and the Applicant should ensure that the potential additional traffic movements are captured as part of the assessment of the **Proposed Development's effects**, particularly during construction.

Topic Areas –Wider Scheme Aspects

Landscape and Visual (see Scoping Report Section 4.2)

- 3.194 The SoS notes the proposed study areas and that these will be defined by a number of factors as noted in paragraph 1409 of the Scoping Report. The SoS recommends that the ES identifies clearly justified study areas and considers that further justification for their choice - in addition to that within the Scoping Report - could be provided. For example, it is noted that the proposed study areas would be 5km for the substation and 3km for the cable relay station. The SoS notes these structures would be different maximum heights (25m and 8m respectively), however the Scoping Report does not state whether this has influenced the study areas. Justifications for

study areas should make clear reference to the proposed Zones of Theoretical Visibility (ZTVs) and fieldwork to verify actual visibility.

- 3.195 Section 4.2.1.7 of the Scoping Report has identified a number of potential visual receptors and states that the LVIA would include a baseline assessment of the relevant principal visual receptors. The SoS advises that principal visual receptors are agreed with relevant consultees.
- 3.196 The SoS notes the preliminary viewpoint lists in the Scoping Report and welcomes that the final list of viewpoints would be agreed with statutory consultees.
- 3.197 The Scoping Report proposes to scope out landscape, visual and cumulative impacts of offshore components for all phases of the development given the distance from onshore landscape and visual receptors (72km); the relative sensitivity of the offshore receptors; and the existing influence of other offshore development and shipping vessels. The SoS agrees a significant effect is unlikely and that this can be scoped out of the EIA, but welcomes that the potential temporary impacts from the presence of construction vessels close to the coast will be assessed in respect of onshore receptors. The spatial extent of effects close to the coast should be defined i.e. at what distance from the coast they become indiscernible.
- 3.198 The Scoping Report proposes to scope out the potential effects from the landfall and the cable relay station on local landscape character during construction and operation given the small scale of the landfall in respect of the scale of the local landscape character areas; and on landscape designations given the low-lying level of works and distance to designated areas. Given these elements form part of a wider development (including the onshore cable), the SoS considers that impacts on landscape character should be considered for the development as a whole during the construction phase. However, the SoS agrees to scope this out for the operational phase.
- 3.199 The SoS agrees that operational impacts from the landfall and onshore cable route can be scoped out on the basis that consideration will be given to the impact of vegetation loss and the mitigation measures which would take place through replanting.
- 3.200 The SoS advises that the ES should make use of photomontages to illustrate the cable relay station and the substation. In producing visualisations, including photomontages and wireframes, views should be verified and visualisations should accord with industry standards.
- 3.201 Table 4.4 of the Scoping Report proposes to scope out cumulative landscape and visual impacts of the landfall for all phases of the Proposed Development and of the onshore cable route for operation and decommissioning. The SoS agrees with this approach for operation and decommissioning; however, as the projects to be considered in the CIA have not yet been determined, the SoS does

not agree that construction phase cumulative impacts can be scoped out at the landfall at this stage. It cannot be certain that other large developments may not be constructed concurrently in proximity to these elements (including the Norfolk Vanguard project).

- 3.202 The SoS welcomes the consideration of advanced planting to mitigate potential effects. Any proposed mitigation by way of vegetation and planting should be considered within the ecological assessment. The Applicant is advised to submit a draft landscaping plan with their application.
- 3.203 The SoS notes the comments of East Rushton and Necton Parish Councils that the EIA should consider, in detail, the potential effects of lighting in and around the onshore infrastructure during both construction and operation. The operational lighting assessment should also be considered in the context of the landscaping strategy as referred to above.

Socio-economics (see Scoping Report Section 4.3)

- 3.204 The Scoping Report refers to guidance documents for the assessment; however has not set out the methodology for assessing impacts. It is noted and welcomed that the approach will be discussed as part of the EPP. The methodology should be set out within the ES.

Tourism and Recreation (see Scoping Report Section 4.4)

- 3.205 The Scoping Report proposes to scope out the potential for visual impacts on recreation and tourism from the landfall and onshore cable route during operation. The SoS agrees this can be scoped out.
- 3.206 Paragraph 1595 of the Scoping Report notes the potential for obstruction or disturbance to tourism assets from maintenance works at various onshore locations; however, Table 4.10 proposes to scope this out. The SoS considers there is the potential for reductions in visitor numbers and that this should not be scoped out.
- 3.207 The Scoping Report has not set out the methodology for assessing impacts; although it is noted and welcomed that the approach will be discussed as part of the Evidence Plan Process. The methodology should be set out within the ES.

4 OTHER INFORMATION

- 4.1 This section does not form part of the SoS's **Opinion as to the** information to be provided in the ES. However, it does respond to other issues that the SoS has identified which may help to inform the preparation of the application for the DCO.

Pre-application Prospectus

- 4.2 The Planning Inspectorate offers a service for Applicants at the Pre-application stage of the NSIP process. Details are set out in the **prospectus 'Pre-application service for NSIPs'**¹. The prospectus explains what the Planning Inspectorate can offer during the Pre-application phase and what is expected in return. The Planning Inspectorate can provide advice about the merits of a scheme in respect of national policy; can review certain draft documents; as well as advice about procedural and other planning matters. Where necessary a facilitation role can be provided. The service is optional and free of charge.
- 4.3 The level of Pre-application support provided by the Planning Inspectorate will be agreed between an applicant and the Planning Inspectorate at the beginning of the Pre-application stage and will be kept under review.

Preliminary Environmental Information (PEI)

- 4.4 Consultation forms a crucial aspect of environmental impact assessment. As part of their Pre-application consultation duties, Applicants are required to prepare a Statement of Community Consultation (SoCC). This sets out how the local community will be consulted about the Proposed Development. The SoCC must state whether the Proposed Development is EIA development and if it is, how the Applicant intends to publicise and consult on PEI. Further information in respect of PEI may be found in Advice Note seven 'Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping'.

Habitats Regulations Assessment (HRA)

- 4.5 The SoS notes that European sites² could be potentially affected by the Proposed Development. The Habitats Regulations require

¹ The prospectus is available from:
<http://infrastructure.planninginspectorate.gov.uk/application-process/pre-application-service-for-applicants/>

² The term 'European sites' in this context includes Sites of Community Importance (SCIs), Special Areas of Conservation (SACs) and candidate SACs, Special Protection Areas (SPAs), possible SACs, potential SPAs, Ramsar sites, proposed Ramsar sites, and any sites identified as compensatory measures for adverse effects on any of the above. For a full description of the designations to which the Habitats Regulations

competent authorities, before granting consent for a plan or project, to carry out an appropriate assessment (AA) in circumstances where the plan or project is likely to have a significant effect on a European site (either alone or in combination with other plans or projects). Applicants should note that the competent authority in respect of NSIPs is the relevant SoS. **It is the Applicant's responsibility to** provide sufficient information to the competent authority to enable them to carry out an AA or determine whether an AA is required.

- 4.6 **The Applicant's attention is drawn to Regulation 5(2)(g) of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) ('the APFP Regulations')** and the need to include with the DCO application a report identifying European sites to which the Habitats Regulations applies and Ramsar sites, which may be affected by the Proposed Development.
- 4.7 The report to be submitted under Regulation 5(2)(g) of the APFP Regulations with the application must deal with two issues: the first is to enable a formal assessment by the competent authority of whether there is a likely significant effect; and the second, should it be required, is to enable the carrying out of an AA by the competent authority.
- 4.8 **The Applicant's attention is also** drawn to UK Government policy³, which states that the following sites should be given the same protection as European sites: possible SACs (pSACs); potential SPAs (pSPAs); and (in England) proposed Ramsar sites and sites identified, or required, as compensatory measures for adverse effects on any of the above sites. Therefore, Applicants should also consider the need to provide information on such sites where they may be affected by the Proposed Development.
- 4.9 Further information on the HRA process is contained within Planning Inspectorate's Advice Note **ten** 'Habitat Regulations Assessment relevant to nationally significant infrastructure projects', available on our website. It is recommended that Applicants follow the advice contained within this advice note.
- 4.10 Further information with regard to the HRA process is contained **within Planning Inspectorate's Advice Note ten** 'Habitat Regulations Assessment relevant to nationally significant infrastructure projects' available on our website.

Plan To Agree Habitats Information

- 4.11 A Plan may be prepared to agree upfront what information in respect of Habitats Regulations the Applicant needs to supply to the Planning

apply, and/or are applied as a matter of Government policy, see the Planning Inspectorate's Advice Note **ten**

³ In England, the NPPF paragraph 118. In Wales, TAN5 paragraphs 5.2.2 and 5.2.3.

Inspectorate as part of a DCO application. This is termed an Evidence Plan for proposals in England or in both England and Wales, but a similar approach can be adopted for proposals only in Wales. For ease **these are all termed 'evidence plans' here.**

- 4.12 An evidence plan will help to ensure compliance with the Habitats Regulations. It will be particularly relevant to NSIPs where impacts may be complex, large amounts of evidence may be needed or there are a number of uncertainties. It will also help Applicants meet the requirement to provide sufficient information (as explained in Advice Note ten) in their application, so the ExA can recommend to the SoS whether or not to accept the application for Examination and whether an AA is required.
- 4.13 The SoS therefore welcomes that the applicant has already commenced an Evidence Plan Process that will encompass not only HRA matters, but also EIA matters

Sites of Special Scientific Interest (SSSIs)

- 4.14 The SoS notes that a number of SSSIs are located close to or within the Proposed Development. Where there may be potential impacts on the SSSIs, the SoS has duties under sections 28(G) and 28(I) of the Wildlife and Countryside Act 1981 (as amended) (the W&C Act). These are set out below for information.
- 4.15 Under s28(G), the SoS **has a general duty** '... to take reasonable **steps, consistent with the proper exercise of the authority's functions,** to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is of special scientific interest'.
- 4.16 Under s28(I), the SoS must notify the relevant nature conservation body (NCB), NE in this case, before authorising the carrying out of operations likely to damage the special interest features of a SSSI. Under these circumstances 28 days must elapse before deciding whether to grant consent, and the SoS must take account of any advice received from the NCB, including advice on attaching conditions to the consent. The NCB will be notified during the Examination period.
- 4.17 If Applicants consider it likely that notification may be necessary under s28(I), they are advised to resolve any issues with the NCB before the DCO application is submitted to the SoS. If, following assessment by applicants, it is considered that operations affecting the SSSI will not lead to damage of the special interest features, applicants should make this clear in the ES. The application documents submitted in accordance with Regulation 5(2)(I) could also provide this information. Applicants should seek to agree with the NCB the DCO requirements which will provide protection for the SSSI before the DCO application is submitted.

European Protected Species (EPS)

- 4.18 Applicants should be aware that the decision maker under the PA2008 has, as the competent authority (CA), a duty to engage with the Habitats Directive. Where a potential risk to a European Protected Species (EPS) is identified, and before making a decision to grant development consent, the CA must, amongst other things, address the derogation tests in Regulation 53 of the Habitats Regulations. Therefore the Applicant may wish to provide information which will assist the decision maker to meet this duty.
- 4.19 If an Applicant has concluded that an EPS licence is required the ExA will need to understand whether there is any impediment to the licence being granted. The decision to apply for a licence or not will rest with the Applicant as the person responsible for commissioning the proposed activity by taking into account the advice of their consultant ecologist.
- 4.20 Applicants are encouraged to consult with NE and, where required, to agree appropriate requirements to secure necessary mitigation. It would assist the Examination if Applicants could provide, with the application documents, confirmation from NE whether any issues have been identified which would prevent the EPS licence being granted.
- 4.21 Generally, NE are unable to grant an EPS licence in respect of any development until all the necessary consents required have been secured in order to proceed. For NSIPs, NE will assess a draft licence application in order to ensure that all the relevant issues have been **addressed. Within 30 working days of receipt, NE will either issue 'a letter of no impediment' stating that it is satisfied, insofar as it can make a judgement, that the proposals presented comply with the regulations or will issue a letter outlining why NE consider the proposals do not meet licensing requirements and what further information is required before a 'letter of no impediment' can be issued.** The Applicant is responsible for ensuring draft licence applications are satisfactory for the purposes of informing formal Pre-application assessment by NE.
- 4.22 Ecological conditions on the site may change over time. It will be the **Applicant's responsibility** to ensure information is satisfactory for the purposes of informing the assessment of no detriment to the maintenance of favourable conservation status (FCS) of the population of EPS affected by the proposals. Applicants are advised that current conservation status of populations may or may not be favourable. Demonstration of no detriment to favourable populations may require further survey and/or submission of revised short or long term mitigation or compensation proposals.
- 4.23 In England the focus concerns the provision of up to date survey information which is then made available to NE (along with any resulting amendments to the draft licence application). Applicants

with projects in England (including activities undertaken landward of the mean low water mark) can find further information in Advice Note eleven, Annex C⁴.

Other Regulatory Regimes

- 4.24 The SoS recommends that the Applicant should state clearly what regulatory areas are addressed in the ES and that the Applicant should ensure that all relevant authorisations, licences, permits and consents that are necessary to enable operations to proceed are described in the ES. Also it should be clear that any likely significant effects of the Proposed Development which may be regulated by other statutory regimes have been properly taken into account in the ES.
- 4.25 It will not necessarily follow that the granting of consent under one regime will ensure consent under another regime. For those consents not capable of being included in an application for consent under the PA2008, the SoS will require a level of assurance or comfort from the relevant regulatory authorities that the proposal is acceptable and likely to be approved, before they make a recommendation or decision on an application. The Applicant is encouraged to make early contact with other regulators. Information from the Applicant about progress in obtaining other permits, licences or consents, including any confirmation that there is no obvious reason why these will not subsequently be granted, will be helpful in supporting an application for development consent to the SoS.

Water Framework Directive

- 4.26 **EU Directive 2000/60/EC ('the Water Framework Directive')** establishes a framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters and groundwater. Under the terms of the Directive, Member States are required to establish river basin districts and corresponding river basin management plans outlining how the environmental objectives outlined in Article 4 of the Directive are to be met.
- 4.27 In determining an application for a DCO, the SoS must be satisfied that the Applicant has had regard to relevant river basin management plans and that the Proposed Development is compliant with the terms of the WFD and its daughter directives. In this respect, the **Applicant's attention is drawn to Regulation 5(2)(I) of the APFP** Regulations which requires an application for an NSIP to be accompanied by:

⁴ Advice Note eleven, Annex C – Natural England and the Planning Inspectorate available from: http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/10/PINS-Advice-Note-11_AnnexC_20150928.pdf

'where applicable, a plan with accompanying information identifying.....(iii) water bodies in a river basin management plan, together with an assessment of any effects on such sites, features, habitats or bodies likely to be caused by the Proposed Development'.

- 4.28 In particular, any WFD assessment should, as a minimum, include:
- the risk of deterioration of any water body quality element to a lower status class;
 - **support for measures to achieve 'good' status (or potential) for water bodies;**
 - how the application does not hinder or preclude implementation of measures in the river basin management plan to improve a surface water body or groundwater (or propose acceptable alternatives to meet river basin management plan requirements); and
 - the risk of harming any protected area.

The Environmental Permitting Regulations and the Water Resources Act

Environmental Permitting (England and Wales) Regulations 2016

- 4.29 The Environmental Permitting (England and Wales) Regulations 2016 require operators of certain facilities, which could harm the environment or human health, to obtain permits from the Environment Agency (EA). Environmental permits can combine several activities into one permit. There are standard permits **supported by 'rules' for straightforward situations and bespoke permits for complex situations.** For further information, please see the **Government's advice on determining the need for an environmental permit**⁵.

- 4.30 The EA's environmental permits cover:
- industry regulation;
 - waste management (waste treatment, recovery or disposal operations);
 - discharges to surface water;
 - groundwater activities;
 - radioactive substances activities; and
 - flood risk activities (eg. works in, under, over or near a main river (including where the river is in a culvert); on or near a flood

⁵ Available from: <https://www.gov.uk/environmental-permit-check-if-you-need-one>

defence on a main river; in the flood plain of a main river; or on or near a sea defence).

4.31 Characteristics of environmental permits include:

- they are granted to operators (not to land);
- they can be revoked or varied by the EA;
- operators are subject to tests of competence;
- operators may apply to transfer environmental permits to another operator (subject to a test of competence); and
- conditions may be attached.

The Water Resources Act 1991

4.32 Under the Water Resources Act 1991 (as amended), anyone who wishes to abstract more than 20m³/day of water from a surface source such as a river or stream or an underground source, such as an aquifer, will normally require an abstraction licence from the EA. For example, an abstraction licence may be required to abstract water for use in cooling at a power station. An impoundment licence is usually needed to impede the flow of water, such as in the creation of a reservoir or dam, or construction of a fish pass.

4.33 Abstraction licences and impoundment licences are commonly referred to as 'water resources licences'. They are required to ensure that there is no detrimental impact on existing abstractors or the environment.

4.34 Characteristics of water resources licences include:

- they are granted to licence holders (not to land);
- they can be revoked or varied;
- they can be transferred to another licence holder; and
- in the case of abstraction licences, they are time limited.

4.35 For further information, please see the EA's guidance⁶.

Role of the Applicant

4.36 It is the responsibility of Applicants to identify whether an environmental permit and / or water resources licence is required from the EA before an NSIP can be constructed or operated. Failure to obtain the appropriate consent(s) is an offence.

4.37 The EA allocates a limited amount of Pre-application advice for environmental permits and water resources licences free of charge.

⁶ Available from: <https://www.gov.uk/government/publications/water-abstraction-application-for-a-water-resources-licence>

Further advice can be provided, but this will be subject to cost recovery.

- 4.38 The EA encourages Applicants to engage with them early in relation to the requirements of the application process. Where a project is complex or novel, or requires a HRA, Applicants are encouraged to **“parallel track” their applications to the EA with their DCO applications to the Planning Inspectorate**. Further information on the **EA’s role in the infrastructure planning process** is available in Annex D of the **Planning Inspectorate’s Advice Note eleven (working with public bodies in the infrastructure planning process)**⁷
- 4.39 When considering the timetable to submit their applications, Applicants should bear in mind that the EA will not be in a position to provide a detailed view on the Proposed Development until it issues its draft decision for public consultation (for sites of high public interest) or its final decision. Therefore the Applicant should ideally submit its application sufficiently early so that the EA is at this point in the determination by the time the DCO reaches Examination.
- 4.40 It is also in the interests of an applicant to ensure that any specific requirements arising from their permit or licence are capable of being carried out under the works permitted by the DCO. Otherwise there is a risk that requirements could conflict with the works which have been authorised by the DCO (e.g. a stack of greater height than that authorised by the DCO could be required) and render the DCO impossible to implement.

Health Impact Assessment

- 4.41 The SoS considers that it is a matter for the Applicant to decide whether or not to submit a stand-alone Health Impact Assessment (HIA). However, the Applicant should have regard to the responses received from the relevant consultees regarding health, and in particular to the comments from the Health and Safety Executive and Public Health England.
- 4.42 The methodology for the HIA, if prepared, should be agreed with the relevant statutory consultees and take into account mitigation measures for acute risks.

Transboundary Impacts

- 4.43 The SoS notes that the Scoping Report has acknowledged the potential for transboundary impacts and recommends that the Applicant should provide to the SoS as soon as possible any additional available information about potential significant trans-boundary effects and identify the affected state(s). In order to ensure

⁷ Available from: <http://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/>

the efficient and effective Examination of applications within the statutory timetable under s98 of the PA2008, it is important that this information is made available at the earliest opportunity to facilitate timely consultations, if required, with other EEA States in accordance with Regulation 24.

- 4.44 The ES will also need to address this matter in each topic area and summarise the position on trans-boundary effects of the Proposed Development, taking into account inter-relationships between any impacts in each topic area.

APPENDIX 1 – PRESENTATION OF THE ENVIRONMENTAL STATEMENT

A1.1 The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (SI 2264) (as amended) (APFP Regulations) sets out the information which must be provided for an application for a Development Consent Order (DCO for nationally significant infrastructure under the Planning Act 2008 (as amended) (PA2008). Where required, this includes an Environmental Statement (ES). Applicants may also provide any other documents considered necessary to support the application. Information which is not environmental information need not be replicated or included in the ES.

A1.2 An ES is described under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2263) (as amended) (the EIA Regulations 2009) as a statement:

- (a) that includes such of the information referred to in Part 1 of Schedule 4 as is reasonably required to assess the environmental effects of the development and of any associated development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile; but that includes at least the information required in Part 2 of Schedule 4.*

(EIA Regulations 2009, Regulation 2)

A1.3 The purpose of an ES is to ensure that the environmental effects of a Proposed Development are fully considered, together with the economic or social benefits of the development, before the development consent application under the PA2008 is determined. The ES should be an aid to decision making.

A1.4 The Secretary of State (SoS) advises that the ES should be laid out clearly with a minimum amount of technical terms and should provide a clear objective and realistic description of the likely significant impacts of the Proposed Development. The information should be presented so as to be comprehensible to the specialist and non-specialist alike. The SoS recommends that the ES be concise with technical information placed in appendices.

ES Indicative Contents

A1.5 The SoS **emphasises that the ES should be a 'stand-alone' document** in line with best practice and case law. Schedule 4, Parts 1 and 2 of the EIA Regulations 2009 set out the information for inclusion in ES.

A1.6 Schedule 4 Part 1 of the EIA Regulations 2009 states this information includes:

17. Description of the development, including in particular—

- (a) a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;*
- (b) a description of the main characteristics of the production processes, for instance, nature and quantity of the materials used;*
- (c) an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc) resulting from the operation of the proposed development.*

18. An outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental effects.

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

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

- (a) the existence of the development;*
- (b) the use of natural resources;*
- (c) the emission of pollutants, the creation of nuisances and the elimination of waste,*

and the description by the applicant of the forecasting methods used to assess the effects on the environment.

21. A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.

22. A non-technical summary of the information provided under paragraphs 1 to 5 of this Part.

23. An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

(EIA Regulations 2009, Schedule 4 Part 1)

A1.7 The content of the ES must include as a minimum those matters set out in Schedule 4 Part 2 of the EIA Regulations 2009. This includes **the consideration of 'the main alternatives studied by the applicant'** which the SoS recommends could be addressed as a separate chapter in the ES. Part 2 is included below for reference:

24. A description of the development comprising information on the site, design and size of the development

25. A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects

26. The data required to identify and assess the main effects which the development is likely to have on the environment

27. An outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental effects, and

28. A non-technical summary of the information provided [under the four paragraphs of Schedule 4 part 2 above].

(EIA Regulations 2009, Schedule 4 Part 2)

A1.8 Traffic and transport is not specified as a topic for assessment under Schedule 4; although in line with good practice the SoS considers it is an important consideration *per se*, as well as being the source of further impacts in terms of air quality and noise and vibration.

Balance

A1.9 The SoS recommends that the ES should be balanced, with matters which give rise to a greater number or more significant impacts being given greater prominence. Where few or no impacts are identified, the technical section may be much shorter, with greater use of information in appendices as appropriate.

The SoS considers that the ES should not be a series of disparate reports and stresses the importance of considering inter-relationships between factors and cumulative impacts.

Scheme Proposals

A1.10 The scheme parameters will need to be clearly defined in the draft DCO and therefore in the accompanying ES which should support the application as described. The SoS is not able to entertain material

changes to a project once an application is submitted. The SoS draws the attention of the Applicant to the DCLG and the Planning **Inspectorate's published advice on the preparation of a draft DCO and accompanying application documents.**

Flexibility

- A1.11 The SoS acknowledges that the Environmental Impact Assessment (EIA) process is iterative, and therefore the proposals may change and evolve. For example, there may be changes to the scheme design in response to consultation. Such changes should be addressed in the ES. However, at the time of the application for a DCO, any proposed scheme parameters should not be so wide ranging as to represent effectively different schemes.
- A1.12 It is a matter for the Applicant, in preparing an ES, to consider whether it is possible to assess robustly 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 requirements of paragraph 17 of Schedule 4 Part 1 of the EIA Regulations 2009.
- A1.13 The Rochdale Envelope principle (*see R v Rochdale MBC ex parte Tew (1999) and R v Rochdale MBC ex parte Milne (2000)*) is an accepted way of dealing with uncertainty in preparing development applications. The **Applicant's attention is drawn to the Planning Inspectorate's Advice Note Nine 'Rochdale Envelope' which is available on our website.**
- A1.14 The Applicant should make every attempt to narrow the range of options and explain clearly in the ES which elements of the scheme have yet to be finalised and provide the reasons. Where some flexibility is sought and the precise details are not known, the Applicant should assess the maximum potential adverse impacts the Proposed Development could have to ensure that the Proposed Development, as it may be constructed, has been properly assessed.
- A1.15 The ES should be able to confirm that any changes to the development within any proposed parameters would not result in significant impacts not previously identified and assessed. The maximum and other dimensions of the Proposed Development should be clearly described in the ES, with appropriate justification. It will also be important to consider choice of materials, colour and the form of the structures and of any buildings. Lighting proposals should also be described.

Scope

- A1.16 The SoS recommends that the physical scope of the study areas should be identified under all the environmental topics and should be sufficiently robust in order to undertake the assessment. The extent of the study areas should be on the basis of recognised professional

guidance, whenever such guidance is available. The study areas should also be agreed with the relevant consultees and local authorities and, where this is not possible, this should be stated clearly in the ES and a reasoned justification given. The scope should also cover the breadth of the topic area and the temporal scope, and these aspects should be described and justified.

Physical Scope

A1.17 In general the SoS recommends that the physical scope for the EIA should be determined in the light of:

- the nature of the proposal being considered;
- the relevance in terms of the specialist topic;
- the breadth of the topic;
- the physical extent of any surveys or the study area; and
- the potential significant impacts.

A1.18 The SoS recommends that the physical scope of the study areas should be identified for each of the environmental topics and should be sufficiently robust in order to undertake the assessment. This should include at least the whole of the application site, and include all offsite works. For certain topics, such as landscape and transport, the study area will need to be wider. The extent of the study areas should be on the basis of recognised professional guidance and best practice, whenever this is available, and determined by establishing the physical extent of the likely impacts. The study areas should also be agreed with the relevant consultees and, where this is not possible, this should be stated clearly in the ES and a reasoned justification given.

Breadth of the Topic Area

A1.19 The ES should explain the range of matters to be considered under each topic and this may respond partly to the type of project being considered. If the range considered is drawn narrowly then a justification for the approach should be provided.

Temporal Scope

A1.20 The assessment should consider:

- environmental impacts during construction works;
- environmental impacts on completion/ operation of the Proposed Development;
- where appropriate, environmental impacts a suitable number of years after completion of the Proposed Development (for example, in order to allow for traffic growth or maturing of any landscape proposals); and

- environmental impacts during decommissioning.

A1.21 In terms of decommissioning, the SoS acknowledges that the further into the future any assessment is made, the less reliance may be placed on the outcome. However, the purpose of such a long term assessment, as well as to enable the decommissioning of the works to be taken into account, is to encourage early consideration as to how structures can be taken down. The purpose of this is to seek to minimise disruption, to re-use materials and to restore the site or put it to a suitable new use. The SoS encourages consideration of such matters in the ES.

A1.22 The SoS recommends that these matters should be set out clearly in the ES and that the suitable time period for the assessment should be agreed with the relevant statutory consultees.

A1.23 The SoS recommends that throughout the ES a standard terminology **for time periods should be defined, such that for example, 'short term' always refers** to the same period of time.

Baseline

A1.24 The SoS recommends that the baseline should describe the position from which the impacts of the Proposed Development are measured. The baseline should be chosen carefully and, whenever possible, be consistent between topics. The identification of a single baseline is to be welcomed in terms of the approach to the assessment, although it is recognised that this may not always be possible.

A1.25 The SoS recommends that the baseline environment should be clearly explained in the ES, including any dates of surveys, and care should be taken to ensure that all the baseline data remains relevant and up to date.

A1.26 For each of the environmental topics, the data source(s) for the baseline should be set out together with any survey work undertaken with the dates. The timing and scope of all surveys should be agreed with the relevant statutory bodies and appropriate consultees, wherever possible.

A1.27 The baseline situation and the Proposed Development should be described within the context of the site and any other proposals in the vicinity.

Identification of Impacts and Method Statement

Legislation and Guidelines

A1.28 In terms of the EIA methodology, the SoS recommends that reference should be made to best practice and any standards, guidelines and legislation that have been used to inform the

assessment. This should include guidelines prepared by relevant professional bodies.

A1.29 In terms of other regulatory regimes, the SoS recommends that relevant legislation and all permit and licences required should be listed in the ES where relevant to each topic. This information should also be submitted with the application in accordance with the APFP Regulations.

A1.30 In terms of assessing the impacts, the ES should approach all relevant planning and environmental policy – local, regional and national (and where appropriate international) – in a consistent manner.

Assessment of Effects and Impact Significance

A1.31 The EIA Regulations 2009 require the identification of the '*likely significant effects of the development on the environment*' (Schedule 4 Part 1 Paragraph 20).

A1.32 As a matter of principle, the SoS applies the precautionary approach **to follow the Court's reasoning in judging 'significant effects'**. In other words '**likely to affect**' will be taken as meaning that there is a probability or risk that the Proposed Development will have an effect, and not that a development will definitely have an effect.

A1.33 The SoS considers it is imperative for the ES to define the meaning of '**significant**' in the context of each of the specialist topics and for significant impacts to be clearly identified. The SoS recommends that the criteria should be set out fully and that the ES should set out clearly the **interpretation of 'significant' in terms of each of the EIA topics**. Quantitative criteria should be used where available. The SoS considers that this should also apply to the consideration of cumulative impacts and impact inter-relationships.

A1.34 The SoS recognises that the way in which each element of the environment may be affected by the Proposed Development can be approached in a number of ways. However it considers that it would be helpful, in terms of ease of understanding and in terms of clarity of presentation, to consider the impact assessment in a similar manner for each of the specialist topic areas. The SoS recommends that a common format should be applied where possible.

Inter-relationships between environmental factors

A1.35 The inter-relationship between aspects of the environments likely to be significantly affected is a requirement of the EIA Regulations 2009 (see Schedule 4 Part 1 of the EIA Regulations 2009). These occur where a number of separate impacts, e.g. noise and air quality, affect a single receptor such as fauna.

A1.36 The SoS considers that the inter-relationships between factors must be assessed in order to address the environmental impacts of the

proposal as a whole. This will help to ensure that the ES is not a series of separate reports collated into one document, but rather a comprehensive assessment drawing together the environmental impacts of the Proposed Development. This is particularly important when considering impacts in terms of any permutations or parameters to the Proposed Development.

Cumulative Impacts

A1.37 The potential cumulative impacts with other major developments will need to be identified, as required by the Directive. The significance of such impacts should be shown to have been assessed against the baseline position (which would include built and operational development). In assessing cumulative impacts, other major development should be identified through consultation with the local planning authorities and other relevant authorities. Applicants should refer to Planning Inspectorate Advice Note 17 Cumulative Effects **Assessment for further guidance on the Inspectorate's recommended approach to cumulative effects assessment.**

A1.38 Details should be provided in the ES, including the types of development, location and key aspects that may affect the EIA and how these have been taken into account as part of the assessment will be crucial in this regard.

A1.39 For the purposes of identifying any cumulative effects with other developments in the area, Applicants should also consult consenting bodies in other EU states to assist in identifying those developments (see commentary on transboundary effects below).

Related Development

A1.40 The ES should give equal prominence to any development which is related with the Proposed Development to ensure that all the impacts of the proposal are assessed.

A1.41 The SoS recommends that the Applicant should distinguish between the Proposed Development for which development consent will be sought and any other development. This distinction should be clear in the ES.

Alternatives

A1.42 The ES must set out an outline of the main alternatives studied by the Applicant and provide an indication of the main reasons for the **Applicant's choice, taking account of the environmental effect** (Schedule 4 Part 1 paragraph 18).

A1.43 Matters should be included, such as inter alia alternative design options and alternative mitigation measures. The justification for the final choice and evolution of the scheme development should be made clear. Where other sites have been considered, the reasons for the final choice should be addressed.

A1.44 The SoS advises that the ES should give sufficient attention to the alternative forms and locations for the off-site proposals, where appropriate, and justify the needs and choices made in terms of the form of the Development Proposed and the sites chosen.

Mitigation Measures

A1.45 Mitigation measures may fall into certain categories namely: avoid; reduce; compensate or enhance (see Schedule 4 Part 1 Paragraph 21); and should be identified as such in the specialist topics. Mitigation measures should not be developed in isolation as they may relate to more than one topic area. For each topic, the ES should set out any mitigation measures required to prevent, reduce and where possible offset any significant adverse effects, and to identify any residual effects with mitigation in place. Any proposed mitigation should be discussed and agreed with the relevant consultees.

A1.46 The effectiveness of mitigation should be apparent. Only mitigation measures which are a firm commitment and can be shown to be deliverable should be taken into account as part of the assessment.

A1.47 It would be helpful if the mitigation measures proposed could be cross referred to specific provisions and/or requirements proposed within the draft DCO. This could be achieved by means of describing the mitigation measures proposed either in each of the specialist reports or collating these within a summary section on mitigation.

A1.48 The SoS advises that it is considered best practice to outline in the ES, the structure of the environmental management and monitoring plan and safety procedures which will be adopted during construction and operation and may be adopted during decommissioning.

Cross References and Interactions

A1.49 The SoS recommends that all the specialist topics in the ES should cross reference their text to other relevant disciplines. Interactions between the specialist topics is essential to the production of a robust assessment, as the ES should not be a collection of separate specialist topics, but a comprehensive assessment of the environmental impacts of the proposal and how these impacts can be mitigated.

A1.50 As set out in EIA Regulations 2009 Schedule 4 Part 1 paragraph 23, the ES should include an indication of any technical difficulties (technical deficiencies or lack of know-how) encountered by the Applicant in compiling the required information.

Consultation

A1.51 The SoS recommends that ongoing consultation is maintained with relevant stakeholders and that any specific areas of agreement or disagreement regarding the content or approach to assessment should be documented. The SoS recommends that any changes to

the scheme design in response to consultation should be addressed in the ES.

A1.52 Consultation with the local community should be carried out in accordance with the SoCC which will state how the Applicant intends to consult on the Preliminary Environmental Information (PEI). This PEI could include results of detailed surveys and recommended mitigation actions. Where effective consultation is carried out in accordance with Section 47 of the PA2008, this could usefully assist the Applicant in the EIA process – for example the local community may be able to identify possible mitigation measures to address the impacts identified in the PEI. Attention is drawn to the duty upon Applicants under Section 50 of the PA2008 to have regard to the guidance on Pre-application consultation.

Transboundary Effects

A1.53 The SoS recommends that consideration should be given in the ES to any likely significant effects on the environment of another Member State of the European Economic Area. In particular, the SoS recommends consideration should be given to discharges to the air and water and to potential impacts on migratory species and to impacts on shipping and fishing areas.

A1.54 The Applicant's attention is also drawn to the Planning Inspectorate's Advice Note twelve 'Development with significant transboundary impacts consultation' which is available on our website⁸.

Summary Tables

A1.55 The SoS recommends that in order to assist the decision making process, the Applicant may wish to consider the use of tables:

Table X: to identify and collate the residual impacts after mitigation on the basis of specialist topics, inter-relationships and cumulative impacts.

Table XX: to demonstrate how the assessment has taken account of this Opinion and other responses to consultation.

Table XXX: to set out the mitigation measures proposed, as well as assisting the reader, the SoS considers that this would also enable the Applicant to cross refer mitigation to specific provisions proposed to be included within the draft DCO.

Table XXXX: to cross reference where details in the HRA (where one is provided) such as descriptions of sites and their locations, together

⁸ Available from: <http://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/>

with any mitigation or compensation measures, are to be found in the ES.

Terminology and Glossary of Technical Terms

A1.56 The SoS recommends that a common terminology should be adopted. This will help to ensure consistency and ease of understanding for the **decision making process. For example, 'the site' should be defined** and used only in terms of this definition so as to avoid confusion with, for example, the wider site area or the surrounding site. A glossary of technical terms should be included in the ES.

Presentation

A1.57 The ES should have all of its paragraphs numbered, as this makes referencing easier as well as accurate. Appendices must be clearly referenced, again with all paragraphs numbered. All figures and drawings, photographs and photomontages should be clearly referenced. Figures should clearly show the proposed site application boundary.

Confidential Information

A1.58 In some circumstances it will be appropriate for information to be kept confidential. In particular, this may relate to information about 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. Where documents are intended to remain confidential the Applicant should provide these as separate paper and electronic 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 Planning Inspectorate would be required to disclose under the Environmental Information Regulations 2014.

Bibliography

A1.59 A bibliography should be included in the ES. The author, date and publication title should be included for all references. All publications referred to within the technical reports should be included.

Non-Technical Summary

A1.60 The EIA Regulations 2009 require a Non-Technical Summary (EIA Regulations 2009 Schedule 4 Part 1 paragraph 22). This should be a summary of the assessment in simple language. It should be supported by appropriate figures, photographs and photomontages.

APPENDIX 2 – LIST OF CONSULTATION BODIES FORMALLY CONSULTED

Note: the prescribed Consultees Bodies have been consulted in accordance with the **Planning Inspectorate’s Advice Note** three ‘EIA Consultation and Notification’ (version 6, June 2015)⁹.

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	North Norfolk Clinical Commissioning Group
	South Norfolk Clinical Commissioning Group
Natural England	Natural England
Natural England (Offshore Wind Farms)	Natural England (Offshore Wind Farms)
The Historic Buildings and Monuments Commission for England	Historic England - East of England
The Historic Buildings and Monuments Commission for England (OFFSHORE ONLY)	Historic England
The relevant fire and rescue authority	Norfolk Fire and Rescue Service
The relevant police and crime commissioner	Norfolk Police Crime Commissioner
The relevant parish council(s) or, where the application	Lessingham Parish Council
	East Roston Parish Council

⁹ Available from: <http://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/>

SCHEDULE 1 DESCRIPTION	ORGANISATION
relates to land [in] Wales or Scotland, the relevant community council	North Walsham Parish Council
	Erpingham Parish Council
	Colby Parish Council
	Witton Parish Council
	Bacton and Edingthorpe Parish Council
	Felmingham Parish Council
	Suffield Parish Council
	Antingham Parish Council
	Honing Parish Council
	Happisburgh Parish Council
	Swafeld and Bradfield Parish Council
	Knapton Parish Council
	Paston Parish Council
	Walcott Parish Council
	Ingworth Parish Council
	Necton Parish Council
	Bradenham Parish Council
	Swanton Morley Parish Council
	Scarning Parish Council
	Dereham Town Council
	Hoe Parish Council
Fransham Parish Council	
Wendling Parish Council	
Gressenhall Parish Council	
Elsing Parish Council	

SCHEDULE 1 DESCRIPTION	ORGANISATION
	Lyng Parish Council
	Bylaugh Parish Council
	Bawdeswell Parish Council
	Sparham Parish Council
	Reepham Parish Council
	Cawston Parish Council
	Aylsham Parish Council
	Salle Parish Council
	Oulton Parish Council
	Blickling Parish Council
The Environment Agency	The Environment Agency - East Anglia
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 - Norwich Marine Office
The Marine Management Organisation	Marine Management Organisation (MMO)
The Civil Aviation Authority	Civil Aviation Authority
The Relevant Highways Authority	Norfolk County Council
The relevant strategic highways company	Highways England - East
The Coal Authority	The Coal Authority
The relevant internal drainage board	Norfolk Rivers IDB
	Broads (2006) IDB
Trinity House	Trinity House

SCHEDULE 1 DESCRIPTION	ORGANISATION
Public Health England, an executive agency of the Department of Health	Public Health England
The Crown Estate Commissioners	The Crown Estate
The Forestry Commission	Forestry Commission - East and East Midlands Area
The Secretary of State for Defence	Ministry of Defence

RELEVANT STATUTORY UNDERTAKERS	
SCHEDULE 1 DESCRIPTION	ORGANISATION
The relevant Clinical Commissioning Group	North Norfolk Clinical Commissioning Group
	South Norfolk Clinical Commissioning Group
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
Homes and Communities Agency	Homes and Communities Agency
The relevant Environment	Environment Agency - East Anglia

RELEVANT STATUTORY UNDERTAKERS	
SCHEDULE 1 DESCRIPTION	ORGANISATION
Agency	
The relevant water and sewage undertaker	Anglian Water
The relevant public gas transporter	Energetics Gas Limited
	Energy Assets Pipelines Limited
	ES Pipelines Ltd
	ESP Connections Ltd
	ESP Networks Ltd
	ESP Pipelines Ltd
	Fulcrum Pipelines Limited
	GTC Pipelines Limited
	Independent Pipelines Limited
	Indigo Pipelines Limited
	Quadrant Pipelines Limited
	National Grid Gas Plc
	National Grid Gas Distribution Limited
	Scotland Gas Networks Plc
	Southern Gas Networks Plc
Wales and West Utilities Ltd	
Electricity Generators With CPO Powers	Dudgeon Offshore Wind Limited
	DONG Energy Hornsea Project Three (UK) Limited
	BBL Company
The relevant electricity distributor with CPO Powers	Energetics Electricity Limited
	ESP Electricity Limited

RELEVANT STATUTORY UNDERTAKERS	
SCHEDULE 1 DESCRIPTION	ORGANISATION
	G2 Energy IDNO Limited
	Harlaxton Energy Networks Limited
	Independent Power Networks Limited
	Peel Electricity Networks Limited
	The Electricity Network Company Limited
	UK Power Distribution Limited
	Utility Assets Limited
	Eastern Power Networks Plc
	UK Power Networks Limited
	Blue Transmission Sheringham Shoal Limited
	National Grid Electricity Transmission Plc
	National Grid Electricity Transmission Plc

SECTION 43 CONSULTEES (FOR THE PURPOSES OF SECTION 42(B))	
Local authorities	Breckland District Council
	Broadland District Council
	North Norfolk District Council
	Great Yarmouth District Council
	South Norfolk District Council
	King's Lynn and West Norfolk District Council
	Norwich District Council

SECTION 43 CONSULTEES (FOR THE PURPOSES OF SECTION 42(B))
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	St. Edmundsbury District Council
	Forest Heath District Council
	Mid Suffolk District Council
	Norfolk County Council
	Lincolnshire County Council
	Cambridgeshire County Council
	Suffolk County Council
	The Broads Authority

NON-STATUTORY CONSULTEES

Royal National Lifeboat Institution

APPENDIX 3 – RESPONDENTS TO CONSULTATION AND COPIES OF REPLIES

List of bodies who replied by the Statutory Deadline:

Anglian Water
BBL Company
Borough Council of King's Lynn and West Norfolk
Breckland District Council
Broads Authority
Coal Authority
Dudgeon Offshore Wind Limited
East Ruston Parish Council
Environment Agency
Forestry Commission
Health and Safety Executive
Highways England
Historic England
Joint Nature Conservation Committee
Lincolnshire County Council's Places Team (Historic environment services)
Marine Management Organisation
Maritime and Coastguard Agency
Ministry of Defence
National Grid
NATS
Natural England
Necton Parish Council
Norfolk County Council
Norfolk Police Crime Commissioner
Public Health England
Royal Mail
South Norfolk Council
Suffield Parish Council

Scoping Opinion for
Norfolk Boreas Offshore Wind Farm

Swafield and Bradfield Parish Council
Trinity House
Wales and West Utilities



Anglian Water Services Ltd

Thorpewood House,
Thorpewood,
Peterborough
PE3 6WT

Tel (0345) 0265 458
www.anglianwater.co.uk
Our ref 00021459

Your ref EN010087-000008

Helen Lancaster
Senior EIA and Land Rights Advisor
The Planning Inspectorate
3D Eagle Wing
Temple Quay House
2 The Square
Bristol
BS1 6PN
[Sent by e-mail]

5 June 2017

Dear Helen,

**Norfolk Boreas Offshore Wind Farm: Environmental Statement
Scoping Report**

Thank you for the opportunity to comment on the scoping report for the above project. Anglian Water is the water and sewerage undertaker for the proposed site. The following response is submitted on behalf of Anglian Water.

The Norfolk Boreas project is described in the Environmental Statement as a sister project to the Norfolk Vanguard project. This response should be read in conjunction with that previously provided by Anglian Water for the Norfolk Vanguard project (our reference 00017599).

Project description – landfall

Reference is made to an onshore cable corridor to be shared with Norfolk Vanguard project and the construction of a cable relay station (if required). At this stage it is unclear whether there is a requirement for potable water and wastewater services. The extent of proposed cable corridor is to be refined further by the applicant. Therefore the extent to which existing water and water recycling assets would be affected will need to be defined with the assistance of Anglian Water.

Registered Office
Anglian Water Services Ltd
Lancaster House, Lancaster Way,
Ermine Business Park, Huntingdon,
Cambridgeshire. PE29 6YJ
Registered in England
No. 2366656.

an AWG Company

Anglian Water would welcome further discussions with the applicant prior to the submission of the Draft DCO for examination.

In particular it would be helpful if we could discuss the following issues:

- Wording of the Draft DCO including protective provisions for the benefit of Anglian Water.
- Requirement for potable (clean) water and wastewater services.
- **Impact of development on Anglian Water's assets and the need for mitigation.**
- Relationship to other projects e.g. Norfolk Vanguard DCO.
- Pre-construction surveys.

Part 3: Onshore - 3.2 Ground conditions and contamination

It is essential to protect the public water supply sources from contamination from any activities that might cause pollution, both during construction and when operational. Reference is made to groundwater Source Protection Zones (SPZs) identified by the Environment Agency. Consideration should also be given to the location of existing boreholes in the ownership of Anglian Water.

Part 3: Onshore - 3.4 Water Resources and Flood Risk

Reference is made to the evidence provided by the Environment Agency in relation to the risk of fluvial and surface water flooding. Anglian Water is responsible for managing the risks of flooding from surface water, foul water or combined water systems. Consideration should be given to all potential sources of flooding including sewer flooding.

Asset encroachment

It appears that the proposed onshore cable route is the same as that to be utilised for the Norfolk Vanguard project which is at a more advanced stage. As previously stated are existing Anglian Water assets located within the **'onshore search area' as identified** in the Environmental Statement which potentially be affected.

It is suggested that the Environmental Statement should include reference to the foul sewerage network, sewage treatment and water services.

The Environmental Statement should **include reference to Anglian Water's** existing assets and any potential impacts from the above development. We would expect any requests for alteration or removal of foul sewers or water mains to be conducted in accordance with the Water Industry Act 1991.

Maps of Anglian Water's assets are available to view at the following address:

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

Should you have any queries relating to this response please let me know.

Yours sincerely



Stewart Patience

Strategic and Spatial Planning Manager

Your ref: EN010087-000008

Our ref:

Tel: +44 1224 620202

Ext no: +44 1224 264375

info@atkinsglobal.com

www.atkinsglobal.com

Hannah Pratt
Senior EIA and Land Rights Advisor
The Planning Inspectorate
3D Eagle Wing
Temple Quay House
2 The Square
Bristol, BS1 6P

6th June 2017

Dear Hannah

Norfolk Boreas Wind Farm Environmental Impact Assessment Scoping Report - Response

Further to your letter of 9th May 2017 and on behalf of the BBL Company, Atkins submits this response to the EIA Scoping Report for the Norfolk Boreas Wind Farm. Atkins is the Integrity Management contractor to the BBL Company, the owner of the BBL pipeline system. The BBL pipeline comprises the 235 km long, 36" gas pipeline between the Balgzand, Netherlands and Bacton, United Kingdom. The BBL pipeline system also includes the 600 m long 36" export pipeline between the Shell Bacton terminal and National Grid terminal.

Key Stakeholder Concerns

Our key stakeholder concerns are around issues that may potentially arise from within the designated offshore pipeline corridor, such as (i) cable crossing protection where the proposed cables will cross the BBL pipeline, (ii) induced scour from cable/pipeline protection that may lead to exposure and/or spanning of the BBL pipeline, thereby compromising integrity, (iii) potential operational impacts of high voltage AC cables that may interfere with the pipeline cathodic protection system and (iv) physical impacts on pipelines during operations, which are currently scoped out of the EIA.

In addition, a potential site of a Cable Relay Station is in close proximity to the onshore BBL export pipeline to the south of Paston Road, Bacton.

Our responses to the EIA scoping report are presented below.

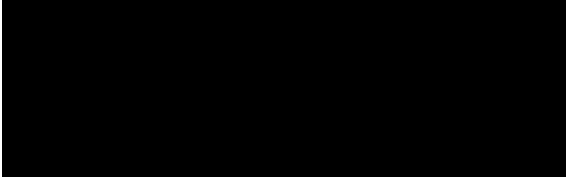
Section	Title	Para.	Response
1.2.3	The Norfolk Boreas Site	57	We noted that a crossing agreement will be required. As noted below, there are concerns regarding the possibility of crossing protection inducing scour, which may lead to exposure and/or spanning of the BBL pipeline, and subsequently compromise its integrity. Additionally, the placement of high voltage AC cables, near the BBL pipeline, causes some concern, as noted below.
1.2.4	Landfall and provisional offshore cable corridor	63	Table 1.1 does not provide the locations of crossing point, nor identify the subject pipelines.

Section	Title	Para.	Response
1.5.6.2	Offshore cable installation	201	Crossing protection may induce scour leading to exposure and/or spanning of the BBL offshore pipeline compromising its integrity.
1.5.6.2	Offshore cable installation	202	We look to forward to active involvement in discussions regarding design of crossings to ensure that the integrity of the BBL offshore pipeline will be maintained.
2.14.1.2	Oil and Gas pipelines and platforms	829	This paragraph should also state that the offshore cable corridor runs adjacent to the BBL offshore pipeline.
2.14.2.1	Potential impacts during construction	844	Future discussions between the developers of Norfolk Boreas and BBL Company will need to be undertaken as the development progresses.
2.14.2.1	Potential impacts during construction	844	It appears that the crossing of the BBL Pipeline would be by offshore export cables and not array cables. Clarification is sought on this point.
2.14.2.2	Potential impacts during operation	852	The crossing protection may induce scour leading to exposure and/or spanning of the BBL offshore pipeline, compromising its integrity. High voltage AC cables which cross or are laid in close vicinity to the BBL pipeline may interfere with the operation of its cathodic protection system, compromising its integrity. Hence, the operational impacts should be considered in the EIA.
2.14.2.6	Summary of potential impacts	Table 2.30	As per comment on para. 852, the physical impacts on subsea cables and pipelines during operation should be scoped in.
2.14.4	Approach to assessment and data gathering	860	Please confirm that “offshore protect area” should read “offshore project area”.
3.5.2.1	Potential impacts during construction	1060	This section addresses the impacts on existing utilities due to cable installation are considered but impacts due to installation of the cable relay station to the south of Paston Road should also be considered.
3.5.2.2	Potential impacts during operation	1066	Potential impacts on existing utilities (e.g. the BBL export pipeline) due to operation of the cable relay station to the south of Paston Road should be considered.
3.5.2.5	Summary of potential impacts	Table 3.10	Potential impacts on existing utilities (e.g. the BBL export pipeline) due to operation should be scoped in.
4.3.1.3	Offshore project area	1515	Significant infrastructure (i.e. the BBL pipeline) also exists to the south of the offshore project area and along the export cable corridor.
6	Summary of potential offshore environment impacts	1637 Table 6.1	Operation impacts on subsea cables and pipelines should be scoped in due to potential scour and AC effects on CP systems.
6	Summary of potential onshore environment impacts	1637 Table 6.2	Operation impacts on existing utilities should be scoped in due to potential close proximity to the BBL export pipeline and AC effects on CP systems.

We note that there are references within the Scoping Report to undertaking discussions with owners/operators as the development progresses; BBL Company and Atkins welcomes the opportunity to engage in these discussions.

Please do not hesitate to contact Hans Boersma (BBL Company) or myself if you have any queries on the above.

Yours sincerely



Technical Director, Subsea

cc. Hans Boersma, Offshore Asset Manager and General Affairs, BBL Company V.O.F.

PINS RECEIVED

19 MAY 2017

Our ref: Consultation
Please ask for: Stuart Ashworth
Direct dial: (01553) 616417
Direct fax: (01553) 616652
E-mail: stuart.ashworth@west-norfolk.gov.uk

Borough Council of
**King's Lynn &
West Norfolk**



Geoff Hall
Executive Director

Environment and Planning

Ms Hannah Pratt
Senior EIA and Land Rights Advisor
Major Applications and Plans
The Planning Inspectorate
3D Temple Quay House Temple Quay
Bristol BS1 6PN

16 June 2015

Dear Ms Pratt

Reference: Norfolk Boreas Offshore Wind Farm Scoping Consultation

I refer to your letter relating to the above consultation received on 9th May 2017.

I can confirm that we have No Comment to make regarding the above.

Yours faithfully



Stuart Ashworth
Planning Control Manager
For Executive Director of Development and Regeneration



INVESTOR IN PEOPLE

www.west-norfolk.gov.uk

King's Court, Chapel Street, King's Lynn, Norfolk PE30 1EX
Tel: (01553) 616200; fax: (01553) 691663
Minicom: (01553) 616705; DX 57825 KING'S LYNN

Chief Executive – Ray Harding Deputy Chief Executive – David Thomason

BY EMAIL

Your Ref: EN010087-000008
Our Ref:

Contact:
Tel: 01362 656266

Date: 6 June 2017

Dear Ms Pratt

**Planning Act 2008 (as amended) and The Infrastructure Planning
(Environmental Impact Assessment) Regulations 2009 (as amended) (the EIA
Regulations) – Regulations 8 and 9
Application by Vattenfall Wind Power Limited for an Order Granting
Development Consent for the Norfolk Boreas Offshore Wind Farm – SCOPING
CONSULTATION**

Thanks you for your consultation dated 9 May 2017 relating to the above Scoping Opinion.

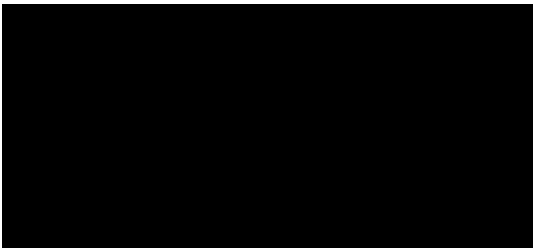
I can advise that the Scoping Documents have been considered and assessed and I can advise that the Council acknowledges that the overall proposed scoping appears to be comprehensive but would make the following comments that are of particular concern to the Council:

- The ES should fully assess the transport impacts of the development and should co-ordinate the delivery of the scheme to take full advantage of the proposed dualling of the A47 between North Tuddenham and Easton, particularly during the construction phase of the development. If this is not possible, the cumulative impacts of the dualling works and construction of the substation should be fully assessed..
- The cumulative Landscape and Visual impacts of the proposed substation with the existing 400kV substation and associated apparatus at Necton and any other proposals should be comprehensively explored in the ES to establish all potential effects with detailed mitigation measures.

- Further consideration should be given to the potential impacts of low frequency noise and vibration associated with the operation of the substation and associated apparatus. This should also be considered as part of the potential cumulative impacts associated with the existing substation at Necton and any other proposals. It is stated this has been scoped out of the ES during the operational phase of the development.

I trust this information is of assistance and if you have any queries regarding the contents of this letter, please contact Debi Sherman (Principal Planner) on the telephone number shown above.

Yours sincerely



Mr Robert Walker
Executive Director of Place

From: [Jo Eames](#) on behalf of [Cally Smith](#)
To: [Norfolk Boreas](#)
Subject: Norfolk Boreas Offshore Wind Farm: Environmental Impact Assessment Scoping Report
Date: 25 May 2017 15:31:55

Dear Sirs

Thank you for your consultation on the above.

The Broads Authority is pleased to see that the proposed landfall and cable route are outside the Broads area, and considers that this will mitigate the impacts on the area. This notwithstanding, the Environmental Statement should cover the ecological impact of the proposal, looking at both terrestrial and off-shore species.

Kind regards
Cally Smith
Head of Planning

Jo Eames
Administrative Officer (Planning)
01603 756067

Broads Authority, Yare House, 62-64 Thorpe Road. Norwich NR1 1RY
01603 610734
www.broads-authority.gov.uk



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The Coal
Authority

Resolving the **impacts** of mining

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E: planningconsultation@coal.gov.uk
www.gov.uk/coalauthority

Ms H. Pratt – Senior EIA and Land Rights Advisor
The Planning Inspectorate

[By Email: environmentalservices@pins.gsi.gov.uk]

Your Ref: EN010087

1 June 2017

Dear Ms Pratt

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) – Regulations 8 and 9

Norfolk Boreas Offshore Wind Farm Development Consent Order – EIA Scoping Consultation

Thank you for your letter of 9 May 2017 seeking the views of the Coal Authority on the EIA Scoping Opinion for the above proposal.

The Coal Authority is a non-departmental public body sponsored by the Department for Business, Energy and Industrial Strategy. As a statutory consultee, the Coal Authority has a duty to respond to planning applications and development plans in order to protect the public and the environment in mining areas.

The Coal Authority Response:

I have reviewed the proposals and confirm that the proposed development would be located outside of the defined coalfield. Accordingly, the Coal Authority has no issues that it would wish to see considered as part of the Environmental Statement for this proposal.

Yours sincerely

Mark Harrison

Mark E. N. Harrison *B.A.(Hons), DipTP, LL.M, MInstLM, MRTPI*

Principal Manager – Planning & Local Authority Liaison

From: [Bjørn Harald Berge](#)
To: [Norfolk Boreas](#)
Cc: [Rune Rønvik](#); [Martin Goff](#)
Subject: Ref: EN010087-000008
Date: 06 June 2017 10:15:09

Dear Ms. Pratt,

Referring to your letter of 9 May 2017 addressed to Dudgeon Offshore Wind Ltd regarding Application by Vattenfall Wind Power Limited for an Order Granting Development Consent for the Norfolk Boreas Offshore Wind Farm.

Dudgeon Offshore Wind Ltd hereby inform the SoS that we have nothing to input into the scoping at this stage, but request to be included in future considerations as an interested party.

Best regards,

Bjørn Harald Berge
Company Secretary
Dudgeon Offshore Wind Ltd.

Mobile: [REDACTED]
Email: bhb@statoil.com

Visitor address: One Kingdom Street, London, W2 6BD, United Kingdom

www.statoil.com

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From: [REDACTED]
To: [Norfolk Boreas](#)
Subject: Vattenfall scoping consultation - East Ruston Parish Council response
Date: 02 June 2017 15:12:54

Dear Hannah Pratt,

[Application by Vattenfall Wind Power Limited for an Order Granting Development Consent for the Norfolk Boreas Offshore Wind Farm - scoping consultation \(your ref EN010087-000008\)](#)

East Ruston Parish Council and the villagers of East Ruston have met together and discussed the proposal and the details of your letter of the 9th May 2017.

All the rural sites proposed would result in industrialisation of unspoilt countryside and would have an unacceptable impact on the community and on farming and tourism - both an important source of income for the area. East Ruston specifically is closely situated between the Norfolk Broads National Park and the designated "Undeveloped Coast" of North Norfolk. We have received concerns from a number of our parishioners about the proposed AC solution which requires associated cable relay stations and a larger number of cables.

We request that the following information be included in the (Environmental Statement) ES:

- full landscape and visual impact assessment of all the design options and the proposals for mitigation. Preferably we would like to see some photomontages of the proposals from key viewpoints to be selected in conjunction with the Parish Council. In particular the Parish would also like to understand through the assessment process what options have been considered relating to the mitigation of the any proposed for the relay stations e.g. Lowering of site levels, screen planting etc.
- lighting assessment
- noise assessment
- impact on Rights of Way
- method statement for land reinstatement
- that assessments are made for both the construction phase and in the period following commissioning of the scheme.

We ask that the Parish Council is given sufficient time before the planning application to consider the information and impact of this project, allowing decisions to be undertaken in conjunction with our community.

Yours sincerely,

for and on behalf of East Ruston Parish Council

Clare Male
Clerk, East Ruston Parish Council

Email: [REDACTED]

Tel: [REDACTED]

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Ms Hannah Pratt
The Infrastructure Planning Commission
Temple Quay House
Temple Quay
Bristol
BS1 6PN

Our ref: AE/2017/121621/01-L01
Your ref: EN010087-000008
Date: 05 June 2017

Dear Sir/Madam

**APPLICATION BY VATTENFALL WIND POWER LIMITED FOR AN ORDER
GRANTING DEVELOPMENT CONSENT FOR THE NORFOLK BOREAS OFFSHORE
WIND FARM SCOPING CONSULTATION**

Thank you for your EIA Scoping consultation letter dated 9 May 2017 and received in this office by email on the same date.

We have reviewed The Environmental Impact Assessment Scoping Report submitted and whilst it appears to be thorough in most respects our response highlights areas that we think should be given more focus and consideration. In particular we draw your attention to our comments relating to ecology, biosecurity, the use of Horizontal Directional Drilling (HDD), flood risk and reference to relevant legislation, which should be addressed in greater detail by the applicant. For ease of reference we have addressed our concerns under themed headings because they are relevant to several areas of the Report.

Ecology and Biosecurity

Baseline data sources appear to be thorough for the various ecological receptors although there didn't appear to be information included about possible riparian impacts of the proposed works to marginal habitat, for example impact to water voles and other protected species that may be present.

Further detail should be included in relation to invasive non-native species and the disease they may spread. Whilst the presence of signal crayfish is acknowledged, no detail is given to state how the disease they carry (crayfish plague) will be managed. This is vital given the proposal to cross 9 river waterbodies and other sensitive receptors. The cable route is shown to pass through the River Bure and Wensum catchments where American signal crayfish are present (and found recently to be infected by crayfish plague which is fatal to our native species). If contamination from plague spores is carried to where native white clawed crayfish are present this could lead to the extinction of natives. Chinese mitten crab are also present in our waterbodies and off the Norfolk coast, these also act as a vector for the spread of crayfish

plague so making sure appropriate biosecurity techniques are in place is vital for works both off and onshore are paramount. Therefore, a detailed assessment of biosecurity requirements in the Environmental Statement is necessary. Every part of the cable route should be assessed for species present, where is passing through next and how this can be managed to reduce spread. Measures detailing how equipment, plant, etc. will be treated between sites should be included.

Use of HDD

Whilst HDD is the preferred method for routing cable under sensitive features, risk of bentonite leaks as described would not be acceptable where risk of a leak can be appropriately managed to ensure this doesn't happen. As with any directional drilling operation there is the potential for the drilling fluid to leak up through the fissures and gravels into the river which could cause considerable turbidity. This can have severe consequences for fish, their eggs and also for plants and invertebrates as the effects of deposited drilling fluids being similar to the effects of sediment deposition, i.e. it can result in direct burial of eggs and larvae of fish or benthic invertebrates or can change bed material composition and cause increased compaction. Drill fluids can also carry a considerable distance downstream before it settles out.

Given the risk of drill fluid release into sensitive receptors the following measures be factored into the Environmental Statement and construction method statements: Where HDD is proposed, soils of the site must be fully assessed to understand the potential risk of fluid release into sensitive receptors. The drill path must be kept sufficiently deep to reduce the potential of drilling fluid releases reaching a receptor. Access pits are dug a suitable distance back from waterbodies, whilst taking into account the potential effects that this may have on the surrounding area. Operatives to monitor drilling fluid pressure and the volume of drilling fluid returns, to detect losses. A contingency plan is produced in case of drilling fluid pressure decreases. The ground surface above the drilling path must be inspected for evidence of inadvertent drilling fluid releases. The sensitive receptor must be monitored for evidence of inadvertent drilling fluid releases. This risk can be minimised using best practice and ensuring that the drilling occurs at sufficient depth below the river/ground surface. Clean-up materials and equipment, such as straw bales, sandbags, silt traps etc must be present on site during the drilling operations.

Flood Risk

Question 1 Table 3.6 of the document confirmed that data has been obtained from our Flood Map for planning in 2012. Further modelling has been completed of the Bure and Yare Rivers since 2012, and the baseline data may therefore need updating as the flood map for planning may have been updated. The most recent data should be obtained from us prior to the writing of the Flood Risk Assessment.

The Rivers Bure and Wensum, and several of their tributaries would be crossed by the onshore cable corridor. It is stated within section 3.4.2.1 that trenchless techniques for the installation of the cable beneath the larger watercourses (specifically the Rivers Wensum and Bure) have been proposed, but open trench techniques would also be used for crossing other water bodies. It should be noted that the preferred option for crossing main rivers is through directional drilling (trenchless) techniques as this has the least impact upon the river itself and flood risk. Service crossings completed by directional drilling are covered by a flood risk exemption (as long as listed criteria are met) and a formal application for an environmental permit for flood risk activities, may not be required. Please refer to the guidance below for further details on what activities are covered by an exemption:

<https://www.gov.uk/government/publications/environmentalpermitting-regulations-exempt-flood-risk-activities/exempt-flood-riskactivities-environmental-permits#service-crossing-below-the-bed-of-a-mainriver-not-involving-an-open-cut-technique-fra3>

Any crossings of designated Main Rivers (Rivers Wensum, Bure and Wissey) will be considered by ourselves. Crossings of minor (ordinary) watercourses will be dealt with by Norfolk County

Council. Flood Risk Assessment (FRA) The document confirm that an FRA will be undertaken to support the application. Ideally and substations would be located within flood zone, although we appreciate this may not always be possible. If it is proven that it is not possible to site substation, or other essential infrastructure, within flood zone 1, then flood zone 2 should be considered before flood zone 3. Where infrastructure is required to be located within flood zone 3, it must be demonstrated within the FRA, that this infrastructure will be designed and constructed to remain operational and safe in times of flood. Consideration should be given to the 0.5% /0.1% (1 in 200/1 in 100 annual probability) flood events, inclusive of climate change. If ground raising is required in order to raise ground levels of the substation above the flood level (to ensure it can remain operational) then consideration will need to be given to any possible increases in flood risk to neighbouring sites. Flood risks off site must not be increased as a result of any development and appropriate compensation may be required for loss of floodplain storage in this situation. It should be noted that whilst we are able to provide modelled flood data for catchments that we have had modelled, some of the climate change information may not be in line with the latest requirements. If this is the case for any of the data to be used within the FRA, then further modelling to update the climate change allowances may be required by the applicant, at their expense.

From the scoping document it seems that the landfall zones are within areas of coast protection that are managed by the local authorities. If they haven't been already, local authorities should be consulted on these plans. A flood risk activity permit may be required for the coastal activities depending on who will be undertaking the works and where exactly the landing zone will be.

Relevant Legislation

The following should also be included in Table 1.3 Summary of relevant environmental legislation: Flood & Water Management Act (2010), Planning Act (2008) Environmental permits for flood risk activities; Environmental Permitting (England and Wales) Regulations 2016.

Contaminated land and protection of groundwater

We agree with the approach set out to identify and manage land contamination as set out in Section 3.2. Water Resources and Flood Risk. In relation to water resources, we agree with the approach outlined in the report. We note the current cable route crosses four source protection zone (SPZ)1s. Whilst trenchless techniques such as HDD may reduce the risk to surface water in sensitive locations, the risk to groundwater may be enhanced, particularly where groundwater is shallow. At present, HDD is proposed in at least 3 of the SPZ 1s (Aylsham AN148, Aylsham Bore South AN037, Hoe AN190). As such, we agree with the mitigation proposed (3.4.3) that the cable route selection should avoid SPZ 1. We also agree with the other mitigation proposals detailed in section 3.4.3.

Yours sincerely



Mrs Barbara Moss-Taylor
Planning Specialist

Direct dial 0208 474 8010

Direct fax 01473 271320

Direct e-mail barbara.moss-taylor@environment-agency.gov.uk

End

From: [Meakins, Corinne](#)
To: [Norfolk Boreas](#)
Subject: Attn: Hannah Pratt - Forestry Commission response to consultation NorfolkBoreas ref: EN010087-000008
Scoping consultation
Date: 23 May 2017 15:07:00
Attachments: [image003.jpg](#)

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

Your Ref:EN010087-000008

Dear Ms Pratt,

Thank you for consulting the Forestry Commission on the information required for the environmental statement prior to the scoping opinion.

Having examined the environmental impact scoping report by Royal Haskoning DVH for Vattenfall in relation to the treatment of Ancient Woodland, it appears that the applicants have taken the need to avoid Ancient Woodland into account when planning the route for the cabling. They are also suggesting (para 1098) 'micrositing and trenchless means' if necessary in relation to woodland.

We would expect the environmental statement to consider how these techniques impact on any woodland to which they are applied: the likely impacts of disturbance, dust, water table effects and lighting. This should also encompass how the recommended '15 metre buffer' between any development and Ancient Woodland described in the Standing Advice for Ancient Woodland (from the canopy edge and not from the trunks of trees) will be applied as a protective measure.

Yours sincerely,



Corinne Meakins

Local Partnership Advisor
Forestry Commission East and East Midlands
Tel: 0300 067 4583
Mobile: [REDACTED]
Corinne.meakins@forestry.gsi.gov.uk

Have you signed up for the Tree Health Newsletter yet? Link here: [Tree Health Newsletter](#) also check out Twitter **@treehealthnews**

Please report signs of tree pests and diseases using our online Tree Alert form:
<http://www.forestry.gov.uk/trealert>

For up-to-date information follow Steve Scott on Twitter: [@SteveScottFC](#), check out www.facebook.com/MakingWoodlandsWork and [Subscribe](#) to our e-alert to stay up to date on forestry Grants & Regulations

CEMHD Policy - Land Use Planning
NSIP Consultations
Building 2.2, Redgrave Court
Merton Road, Bootle
Merseyside, L20 7HS

Your ref: EN010087
Our ref: 4.2.1.5941

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

FAO Hannah Pratt
The Planning Inspectorate
Temple Quay House
Temple Quay,
Bristol BS1 6PN

Dear Ms Pratt

02 June 2017

**PROPOSED NORFOLK BOREAS OFFSHORE WIND FARM (the project)
PROPOSAL BY VATTENFALL WIND POWER LTD (the applicant)
INFRASTRUCTURE PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2009 (as amended) – Regulations 8 and 9**

Thank you for your letter of 9th May 2017 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?

The Bacton Green landfall zone is within the HSE consultation distance for the Bacton Gas Terminal.

The onshore cable corridor may affect onshore pipelines. Some of the high pressure gas pipelines in the onshore scoping area have been identified through consultation with National Grid Gas and are shown on Fig 3.10 to the EIA scoping report. However, HSE are aware of additional pipelines not identified in Fig 3.10.

The table below illustrates the major hazard sites and pipelines which may be affected by the onshore elements of the Norfolk Boreas Offshore Wind Farm.

HSE Ref.	Site/Pipeline Operator	Operator Ref.	Site/Pipeline Name	Identified within EIA scoping report
Sites				
H4432	Bacton Storage Company		Bacton	
H0467	ENI Hewett Ltd		Bacton	
H3535	Interconnector (UK) Ltd		Bacton	
H0176	National Grid PLC		Bacton	
H0124	Perenco UK Ltd		Bacton	
H0501	Shell UK Exploration and Production		Bacton	
Pipelines				
9584	RWE nPower plc		Bacton to Great Yarmouth	No
7446	National Grid Gas	1705	5 Feeder Bacton to Yelverton	Yes
7450	National Grid Gas	1709	Bacton to Roudham Heath	Yes
8371	National Grid Gas	2648	Bacton to Kings Lynn Comp.	Yes

12238	National Grid Gas	2739	27 Feeder Bacton to Kings Lynn	Yes
7462	National Grid Gas	1720	4 Feeder Bacton to Great Ryburgh	Yes
7456	National Grid Gas	1714	Bacton to Hanworth	No
7455	National Grid Gas	1713	Trunch to Walsham	No
7454	National Grid Gas	1712	Bacton to Trunch	No
7409	National Grid Gas	1668	East Dereham to Wells	No
8377	National Grid Gas	2654	Brisley to Bushey Common	No
7413	National Grid Gas	1672	Bushey Common to Saham Grove	No
7378	National Grid Gas	1637	Silfield Tee to East Dereham	No
7414	National Grid Gas	1673	Saham Grove to Swaffham	No

There are other, non-Major Hazard pipelines in the area (possibly operated by BPA and GPSS) that may also be affected by the proposed NSIP.

Would Hazardous Substances Consent be needed?

The presence of hazardous substances on, over or under land at or above set threshold quantities (Controlled Quantities) may 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.

Hazardous Substances Consent would be required if the site is intending to store or use any of the Named Hazardous Substances or Categories of Substances and Preparations 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 for the proposed development.

Explosives sites

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

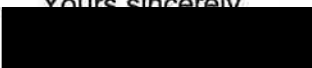
Electrical Safety

No comment from a planning perspective.

Please send any further electronic communication on this project directly to the HSE's designated e-mail account for NSIP applications. Alternatively any hard copy correspondence should be sent to:

Mr Dave Adams (MHPD)
 NSIP Consultations
 2.2 Redgrave Court
 Merton Road
 Bootle, Merseyside
 L20 7HS

Yours sincerely


 Dave Adams
 CEMHD4 Policy



Our ref:
Your ref: EN010087-000008

Ms Hannah Pratt
Senior EIA and Lan Rights Advisor
The Planning Inspectorate
3D Eagle Wing
2 The Square
Bristol
BS1 6PN

2nd Floor
Woodlands
Manton Lane
Bedford
MK41 7LW

Direct Line: 0300 470 4840

5 June 2017

Dear Ms Pratt

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended)(the EIA Regulations) – Regulations 8 and 9

Application by Vattenfall Wind Power Limited for an Order Granting Development Consent for the Norfolk Boreas Offshore Wind Farm

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

Thank you for inviting Highways England to comment on the Norfolk Boreas Wind Farm 'Environmental Impact Assessment Scoping Report'.

Highways England is responsible for the operation, maintenance and improvement of the Strategic Road Network in England on behalf of the Secretary of the State. In the area within and surrounding the proposed development, in particular we have responsibility for the A11, A47 and the former section of the A12 between Great Yarmouth and Lowestoft which was renumbered in March 2017 as the A47.

We have recently held discussions with Norfolk Boreas' development promoter, Vattenfall Wind Power Limited, and their consultants Royal Haskoning DHV about the potential Strategic Road Network assessment requirements relating to the Norfolk Vanguard development. As the Norfolk Boreas development intends to utilise much of the same onshore infrastructure as that outlined to be provided as part of any Norfolk Vanguard development, regardless of the planning status (ie any approval of the Norfolk Vanguard development), we recommend that an agreed assessment approach resulting from the ongoing Norfolk Vanguard discussions would also be appropriate for the Boreas development.

In summary, in the discussions so far we have acknowledged that the development has the potential to have a significant effect over a wide area, although we have noted a number of locations on the Strategic Road Network where a range of impacts from development will require more detailed investigation. The locations where these impacts are currently believed to be most significant are as follows:

- The impact on the A47 at Necton from the construction of a new substation and the extension of an existing National Grid station adjacent to the Strategic Road Network;
- The impact of heavy goods vehicle traffic carrying materials between the Base Port (the location of which is currently not identified) and the work sites; and
- The impact of the construction of a cable crossing of the A47 to the west of Dereham.

The Environmental Impact Scoping Report for the Norfolk Boreas proposed development refers to these potential impacts in general terms but it does not address the specific scope and detail of the assessments required. We would refer the Applicant to Department for Transport Circular 02/2013, which sets out in detail the type and level of assessment that Highways England would expect to receive in support of a proposal of this nature.

Our discussions with the Applicant in respect of Norfolk Vanguard give us confidence that the Applicant will engage with Highways England in an appropriate way in respect of Norfolk Boreas. However, in order to protect the interests of users of the Strategic Road Network, we consider that these points should be specifically referred to as part of the Secretary of State's response to the consultation for Norfolk Boreas.

We welcome the opportunity to respond to the Environmental Impact Scoping Report consultation and we look forward to continued participation in future consultations and discussions.

In the meantime, if you have any questions with regards to the comments made in my letter, please do not hesitate to contact me.

Yours sincerely



Davina Galloway
Asset Manager
Operations Division

davina.galloway@highwaysengland.co.uk



Historic England

EAST OF ENGLAND OFFICE

Ms Hannah Pratt
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Direct Dial: 01223 582710

Our ref: PL00105423

6 June 2017

Dear Ms Pratt

**INFRASTRUCTURE PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT)
REGULATIONS 2009 SI 2263 (as amended) (the EIA Regulations)**

**NORFOLK BOREAS OFFSHORE WIND FARM - EIA SCOPING REPORT
PREPARED FOR VATTENFALL WIND POWER LTD BY ROYAL HASKONING DHV
(REF: PB5640-102-101) Dated: May 2017**

Thank you for consulting Historic England on the Environmental Impact Assessment Scoping Report for the Norfolk Boreas Offshore Wind Farm Project.

The National Heritage Act (2002) made the Historic Buildings and Monuments Commission for England (Historic England) responsible for maritime archaeology in the English area of the UK Territorial Sea. We note however, that the proposed development zone for this project extends into the English offshore marine planning area (as defined by the Marine and Coastal Access Act 2009 and detailed within the UK Marine Policy Statement); therefore our advice for this proposed project within this offshore area is offered without prejudice to our responsibilities, as provided by the 2002 Act.

Historic England Advice

The project, as proposed by Vattenfall Wind Power Limited (VWPL) in the report, is for an Environmental Impact Assessment (EIA) Scoping Opinion from the Planning Inspectorate for the Norfolk Boreas offshore wind farm; a Nationally Significant Infrastructure Project (NSIP) requiring a Development Consent Order (DCO) under the Planning Act (as amended).

It is proposed that the Norfolk Boreas development will be located 72km offshore (from the closest land point) with a generating capacity of 1.8GW (1,800MW). The application will comprise all elements of the proposed development: an array of offshore wind turbines; offshore substations; electricity export cables. It is also



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proposed that the Norfolk Boreas project will utilise the same export cable corridor from the offshore array areas and onshore use the Necton National Grid Substation, which is the same substation as might be used by proposed Norfolk Vanguard offshore wind farm project.

We consider that this project has the potential to impact upon the historic environment in a number of ways. The impacts are likely to be both direct, which would result in permanent physical changes to the historic environment, and indirect impacts through changes to the setting of heritage assets. We are also aware that impacts would vary throughout the life of the project. Some of the impact during the construction phase will be temporary, but elements of the project represent permanent change. These impacts are not confined to the footprints of the wind farm, cable route, cable relay station and substation, and would also potentially comprise changes to the setting of designated heritage assets.

All aspects of the historic environment are valued, however the particular remit of Historic England in relation to this project would be the impact upon the intertidal and fully marine historic environments and the terrestrial historic environment in regard to the highly graded designated heritage assets (scheduled monuments, grade I and II* listed buildings and registered park and gardens and Conservation Areas). Above the Mean High Water mark, the undesignated terrestrial archaeology would more properly be the province of the Norfolk County Council Historic Environment Service (NHES), and we recommend the applicant consult with the NHES at the earliest opportunity. Similarly, the conservation officers in the various local planning authorities would need to be consulted regarding impacts upon the setting of listed buildings and parks and gardens, including those listed at grade II, as well as conservation areas and other undesignated heritage assets within their remit.

It is however worth noting that we are broadly supportive of the approach taken in the report, but we have made some further comments on the Off and On-shore Archaeology and Cultural Heritage chapters below.

OFFSHORE (see also Section 2.12 - Offshore Archaeology and Cultural Heritage)

We understand that the Norfolk Boreas proposed seabed development area includes sand ridges with associated peaks and troughs with water depths range from 22m to 41m relative to Chart Datum (CD) and that existing infrastructure on site comprises a meteorological mast which is owned and operated by EAOW in the north-east of the offshore turbine area.

Section 1.1.4.1 explains that three locations are subject to assessment for export cable landfall on the Norfolk coast at:

- Bacton Green



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- Walcott Gap
- Happisburgh South

Table 1.3 did not include the Protection of Military Remains Act 1986, which will have specific relevance to this project should the project encounter any military aircraft or vessels either within the electricity export cable corridor or offshore turbine array area. Table 1.3 would need to be updated to reflect this omission.

The Scoping Report explains that the EIA will include a range of turbine capacities from 7MW to 20MW although a maximum of 257 wind turbines is planned and that it is possible that more than one type of foundation will be used from the following list of design options: Monopiles; Jackets on pin piles (on 3 or 4 legs); Jackets on suction caissons (on 3 or 4 legs); Gravity base structures (GBS); and Floating. In reference to this matter the use of scour protection is considered e.g. if monopile foundations are used the area required for scour protection is likely to be five times the diameter (i.e. 10m monopile may require 100m diameter scour protection). For the electricity export cables, seabed burial should be between 1-3 m. At landfall cable installation will be achieved by Horizontal Directional Drilling (HDD) from the land above the sea cliffs into the intertidal zone (known as short HDD) or into the subtidal area (long HDD). In particular, paragraph 208 describes the requirement for a pit to be excavated in the seabed for the cables. We therefore note that to address impacts as might be associated with long HDD in the intertidal and shallow subtidal areas such matters as relevant to the historic environment would need to be considered within the offshore Archaeology and cultural heritage chapter.

Paragraph 2.2.1.6 (Bedload sediment and transport) describes the offshore project area as comprising 1m-20m of Holocene sand overlying a series of Quaternary sands and clays. At the proposed landfall locations the estimation of coastal erosion varies from 1.3 - 1.7 metres per year at Bacton; 1.0 - 1.2 metres per year at Walcott gap; and 10m per year at Happisburgh, and this issue would need to be further explored.

The scoping study for Norfolk Boreas has used information from the Zone Environmental Appraisal (ZEA) exercise conducted for the former East Anglia (offshore wind farm) Zone in 2012 and other desk-based sources such as OceanWise. Corroboration with geophysical data will be limited to the offshore cable corridor as could be used by the Vanguard project although these data are currently subjected to archaeological analysis. Although the extant wide area study confirms that there are no designated sites or known prehistoric sites within the offshore project area it is accepted that historic characterisation indicates the presence of prehistoric landscape features and the potential for the presence of prehistoric sites and finds. Furthermore, the potential also exists to encounter vessels and aircraft such as suggested in paragraphs 737 and 738 through the identification of specific spatial locations that merit further attention as part of the EIA exercise for this proposed development



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including corroboration with geophysical and geotechnical survey data as stated in paragraph 740.

We therefore broadly support the interpretation of potential impacts (section 2.12.2) and agree that avoidance is the most appropriate strategy, as alluded to in paragraph 745. We would also support the use of defined Archaeological Exclusion Zones. However, should the project inadvertently encounter any features of possible archaeological or historic interest the Offshore Renewables Protocol for Archaeological Discoveries (ORPAD), as published by The Crown Estate, in 2014 would need to be employed. We feel this would need to be reflected and referenced in the ES.

Issues as related to an understanding of “setting” as described in paragraphs 750 to 753 are noted and we will offer further comments at the Preliminary Environmental Information Report (PEIR) stage. Similarly matters to do with potential cumulative impacts (section 2.12.2.4) with specific reference to Norfolk Vanguard should also be considered further through the PEIR especially as and when geophysical and geotechnical survey interpretation can support desk-based sources of information. We also note that cumulative impact is addressed in section 4.5 in relation to the Landscape and Visual Impact Assessment (paragraphs 1610 - 1616). We note DONG energy scheme is mentioned as well as other schemes but we also consider that potential cumulative impacts would need to include reference to other offshore wind farms where relevant to this project, specifically other offshore arrays such as the East Anglia series.

The matters identified as mitigation (section 2.12.3) include the identification of AEZs and the preparation of an Archaeological Written Schemes of Investigation (WSI). This should be directly produced in reference to geophysical and geotechnical surveys as planned for summer/autumn 2017 as supplemented by suitable data as might have been acquired previously for the Norfolk Vanguard project. An outline WSI would need to be included within the PEIR. We add also that all new programmes for data acquisition must ensure that archaeological objectives are included as part of project planning. We also note the attention given to Historic Seascape Character (paragraph 773) and we look forward to seeing such matters addressed within the PEIR.

It has been noted in the Scoping report that the Happisburgh landfall area is well-known for its archaeological finds (paragraph 744), many of which are of international significance. The design of the proposed development needs to be sensitive to the potential and significance of the archaeology in this area and investigate it appropriately in order to mitigate any potential damage. The mitigation strategy for direct impacts presented in the Scoping report is weighted towards avoidance of archaeological assets as part of the design process (for example, paragraph 745). It is further stated in paragraph 746 that suitable mitigation measures will be developed in conjunction with stakeholders for any unknown assets. We would agree with this



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strategy, especially at the Happisburgh landfall site. Given the significance and age of the archaeological finds and associated Cromer Forest Bed (CF-bF) deposits further assessment and consultation with the appropriate specialists may be needed in order to determine the level of impact and whether this would be harmful to the significance of these deposits.

In addition to the direct impacts on the heritage assets, indirect impacts may occur through changes to the hydrodynamic and sedimentary processes (paragraphs 747 and 755), which will be modelled and assessed in terms of the likely impacts (paragraph 748). These impacts may be positive or negative and it is stated in paragraph 749 that the EIA will consider the impacts of the development. This may require a programme of on-going monitoring to be implemented in the area of the proposed development to ensure that any negative impacts are identified. If these impacts exceed an agreed threshold, a mitigation strategy would then need to be implemented to ensure that any vulnerable assets are investigated appropriately.

It is stated in paragraph 768-769 that geophysical and geotechnical surveys will be carried out during summer/autumn 2017. The geophysical survey will include Multibeam Echo-sounder, Side Scan Sonar, magnetometer and sub bottom profiler data. These techniques will allow the surface of the seabed as well as the buried sediments and features to be investigated. Details will need to be provided as to the percentage coverage of the development area that the surveys will investigate and the depth of penetration that the sub-bottom profiler technique will achieve.

Paragraph 770 discussed the geotechnical investigation of the cable corridor, with cores being collected in 2016. The cores have been reviewed by Wessex Archaeology in terms of which cores require additional analysis. The cores will need to be investigated using a combination of palaeoenvironmental and dating techniques; it would be useful for Historic England to review the WSI that would be prepared for this work in order to understand the strategies and techniques that will be employed, and to allow for specialist comment and peer review.

ONSHORE (see also Section 3.8: Onshore archaeology and cultural heritage)

Paragraph 1187 states that the non-designated heritage assets are to be fully considered as part of the Archaeological Desk Based Assessment, as stated above this assessment will need to include the internationally significant remains and deposits at Happisburgh, particularly if this location is selected as the landfall site. The plan to utilise a working group of relevant specialists for this period and part of the country is sensible and something that Historic England would encourage and would support.

It has been stated in paragraph 1213 that the development may alter the hydrology of an area that may result in the desiccation and degradation of wetland deposits and the archaeological and palaeoenvironmental evidence that they may hold. The potential



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impacts of the development on these vulnerable deposits needs to be investigated and an appropriate strategy implemented to mitigate any damage. We recommend that this is addressed in the WSI and further information provided in the ES. References to appropriate Historic England guidance would be appropriate (see 'Preservation of Archaeological Remains' <<https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/>>)

The potential mitigation requirements presented in paragraph 1227 seem sensible, but it is important to note that a programme of coring may also be required in areas that are unsuitable for excavation, such as areas adjacent to rivers. It is also stated that magnetometry will likely be the technique selected to survey the area of the proposed development (paragraph 1236). It would need to be noted that our guidance recommends a suit of techniques be used which are appropriate to the circumstances, and therefore it may be necessary to use additional techniques to resolve some anomalies, or on some sites. Details of the geophysical programme will need to be provided (normally in a WSI), and this would need to address technical details (techniques, coverage and line spacing), as well as whether the survey will be carried out using a cart-based or hand-held system, and would need to reference the relevant HE guidance.

In relation to the impact of the development on the setting of heritage assets we are concerned that the report does not adequately cover the assessment of the impacts on the significance of scheduled monuments and listed buildings through a development within their setting. This is considered in sections 3.2.2.1 and 3.8.2.2 of the report. We accept that a staged approach is appropriate in relation to the assessment of setting; however there is no mention about how heritage specific viewpoints would be decided and how they would be cross referenced with the landscape and visual chapter. Setting assessment would also need to include conservation areas where or if relevant as they are also considered to be designated heritage assets under the terms of the NPPF.

We note however that under chapter 4.2 (Landscape and Visual) Registered Parks and Gardens are considered landscape designations and are being considered under this chapter. Whilst there may be some crossover we would recommend that they are primarily a heritage designation and the setting issues would need to be considered in the Onshore archaeology and cultural heritage chapter. This would need to be rectified.

We also note that heritage specific viewpoints are not considered in Chapter 4.2 (see table 4.1). We recommend that heritage specific viewpoints are an important part of assessing the impact upon the setting of designated heritage assets. Heritage viewpoints would need to be considered and incorporated into the landscape chapter of the ES but cross referenced with the Onshore archaeology and cultural heritage chapters. It would be appropriate to consult Historic England on the list of appropriate



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heritage viewpoints, once this has been considered.

The Following questions are given on page 93

Q1. Please tell us about further data sources that could be reviewed as part of the site characterisation for each topic?

HE Advice

The scoping report would appear to identify key matters as relevant to this proposed development, further references to our guidance would be appropriate in follow-up documentation. Further consultation with the AHOB archive in relation to the Happisburgh area may be appropriate if this is the chosen location for the landfall.

Q2. Tell us about any other relevant potential impacts for each topic?

HE Advice

The Scoping Report would appear to have included the key matters, although there are issues to note with regards to the setting of heritage assets (see specific comments above).

Q3. Do you agree with the potential impacts that have been scoped out for each topic? If not, please provide details.

HE Advice

We broadly support the approach taken in the report in relation to the historic environment. Regarding the conclusion that for Indirect disturbance of setting (landfall) during either operation or decommissioning that “Offshore Archaeology and Cultural Heritage” is not considered a relevant matter we have no further comment to offer at this stage. We also note again that we felt there were issues to resolve with regards to the setting of heritage assets as noted in our specific comments above.

Q4. Have the relevant potential cumulative impacts been identified? If not, please provide details

HE Advice

The Scoping Report would seem to have considered this matter as relevant to the EIA exercise, but please note our earlier comment in relation to other offshore wind farm arrays.

Q5. Have the relevant potential transboundary impacts been identified? If not, please provide details



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HE Advice

We broadly support the approach and consider that no specific matters can be identified at this stage.

Q6. Do you agree with the proposed approach to assessing each impact is appropriate? If not, please provide details.

HE Advice

No comment at this stage, please see comments above.

Q7. Is there any further guidance relating to each topic that we should be aware of? If so, please provide details.

HE Advice

Please see individual comments above.



Monuments
will.fletcher@HistoricEngland.org.uk



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From: Sarah.Canning@jncc.gov.uk
To: [Norfolk Boreas](#)
Subject: RE: Norfolk Boreas Offshore Wind Farm - scoping consultation
Date: 16 May 2017 14:34:17
Attachments: [image001.jpg](#)
[image002.gif](#)
[image003.gif](#)
[image004.jpg](#)

Dear Hannah

Further to our phone conversation, JNCC will confer with Natural England with regard the below consultation and incorporate any comments with their advice

Regards

Dr Sarah Canning

Offshore Industries Advisor
PhD, BSc (Hons)
Joint Nature Conservation Committee
Inverdee House, Baxter Street, Aberdeen, AB11 9QA
Tel: 01224 266 550
Direct Tel: 01224 266589
Email: sarah.canning@jncc.gov.uk



<http://jncc.defra.gov.uk>



25 years delivering innovative solutions to realise the value of nature.

From: Norfolk Boreas [mailto:NorfolkBoreas@pins.gsi.gov.uk]
Sent: 09 May 2017 08:36
Subject: Norfolk Boreas Offshore Wind Farm - scoping consultation

Dear Sir or Madam

Please see attached correspondence on the proposed Norfolk Boreas Offshore Wind Farm.

Please note the deadline for consultation responses is 6 June 2017 and is a statutory requirement that cannot be extended.

Kind regards
Hannah

Hannah Pratt
Senior EIA and Land Rights Advisor
Major Applications and Plans
The Planning Inspectorate, 3D, Temple Quay House, Temple Quay, Bristol,
BS1 6PN

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Email: Hannah.pratt@pins.gsi.gov.uk

Web: <https://infrastructure.planninginspectorate.gov.uk/> (National Infrastructure Planning)
Web: www.gov.uk/government/organisations/planning-inspectorate (The Planning Inspectorate)

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From: [Sarah Grundy](#)
To: [Norfolk Boreas](#)
Cc: [Louise Jennings](#)
Subject: Norfolk Boreas Offshore Wind Farm - scoping consultation - FAO Hannah Pratt
Date: 23 May 2017 10:41:39

Good morning

I am responding to this consultation on behalf of Lincolnshire County Council's Places Team (historic environment services).

The information in the heritage assessment/EIA needs to provide sufficient evidence to understand the impact of the proposal on the significance of any heritage assets and their settings, sufficient to meet the requirements of the National Planning Policy Framework (NPPF).

Regarding setting issues, potential impacts on the settings and significance of designated and non-designated heritage assets which would experience visual change should be evidenced using accurate visual representations. Viewpoints, including views of, from, and across heritage asset receptors as well as general intervisibility, all have historic context and need to be assessed properly to determine the contribution of the setting of the heritage asset and the potential impact upon it by development or proposed mitigation measures.

The NPPF states that 'Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting' (para 132), and 'The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application' (para 135).

The Environmental Impact Assessment should contain sufficient information to enable an informed planning decision to be made.

Yours sincerely

Sarah

Sarah Grundy
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Your reference: EN010087-00008
Our reference: DCO/2017/00002

Hannah Pratt
Infrastructure Planning

(By email only)

6 June 2017

Dear Ms Pratt,

RE: Boreas – Environmental Impact Assessment (EIA) Scoping Consultation

Thank you for your letter dated 9 May 2017 consulting the Marine Management Organisation (MMO) on the EIA Scoping report submitted by Vattenfall Wind Power Ltd. in respect to an application for development consent under the Planning Act 2008 (the “2008 Act”) to Norfolk Boreas Offshore Wind Farm.

The MMO’s role in Nationally Significant Infrastructure Projects (NSIPs)

The MMO was established by 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 for Welsh and Northern Ireland offshore waters by way of a marine licence¹. Inshore waters include any area which is submerged at mean high water spring (MHWS) tide. They also include the waters of every estuary, river or channel where the tide flows at MHWS tide. Waters in areas which are closed permanently or intermittently by a lock or other artificial means against the regular action of the tide are included, where seawater flows into or out from the area.

In the case of 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 prescribed 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

¹ Under Part 4 of the 2009 Act

² Section 149A of the 2008 Act



those who use it. In addition to considering the impacts of any construction, deposit or removal within the marine area, this also includes assessing any risks to human health, other legitimate uses of the sea and any potential impacts on the marine environment from terrestrial works.

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

Further information on licensable activities can be found on the MMO's website³. Further information on the interaction between the Planning Inspectorate and the MMO can be found in our joint advice note⁴.

Norfolk Boreas Wind Farm

The MMO has reviewed the consultation documents received 9 May 2017 and presents its initial comments below. 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 come to our attention.

Comments on the Norfolk Boreas Offshore Wind Farm Statutory Consultation

1. General comments

- 1.1. Overall, the applicant has identified and scoped in all relevant impacts with the exception of those noted below. Also included in the comments are further guidance and items of note.
- 1.2. Operation and maintenance (O and M) activities should be assessed within the Environmental Statement (ES). This may include use of jack-up barges for repair, cable repair, part replacements, repainting of structures and removal of fauna/flora from monopiles. The MMO is content to liaise with the applicant on this matter through the Evidence Plan process.
- 1.3. Early engagement with the fishing industry and those involved in nearby aggregate dredging is recommended. In particular, the formation of a commercial fisheries working group would be advantageous. Meetings could be co-ordinated with other wind farm meetings to minimise duplication and promote co-operation.

2. Benthic

- 2.1. Site characterisation should be informed by newly published satellite Suspended Particulate Material (SPM) data covering 1998-2015, which is available on the Cefas Data Hub.

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>

- 2.2. Data for the Haisborough, Hammond and Winterton special area of conservation (SAC) and Cromer Shoals marine conservation zone (MCZ) is available from the statutory nature conservation bodies (SNCBs) and should be used to help characterise the cable route.
- 2.3. Potential cumulative and trans-boundary impacts have been adequately identified and the proposed assessment approaches are appropriate.
- 2.4. It should be noted that the referenced 'Lindeboom, 2014' study only considers short term effects of monopile colonisation on the surrounding benthos for a period of two months post construction. In Belgian waters, research by Dr Steven Degraer (Degraer, unknown date) identified impacts up to 50m beyond the turbine foundation several years after construction. This study should be considered within the ES.
- 2.5. The potential impacts to benthos during the maintenance of the built project have not been considered and should be fully assessed within the ES.

3. Fish

- 3.1. The document is generally well presented, comprehensive, with appropriate consideration of the resident marine community and associated fisheries in the area. The key species and impacts are appropriate for inclusion within the EIA.
- 3.2. Impacts to herring, sandeel, cod and seabass should have their own species specific assessment.
- 3.3. Any previous survey data presented in the desk based assessment and used in the EIA should include, or provide signposting to, all relevant information such as: dates and times of surveys; locations; gear used; mesh size; and duration of tow/soak times. The limitations of any data sources used in the EIA should be presented and acknowledged. Any inconsistencies in survey techniques from past surveys should be discussed in the ES. In addition, catch data should be standardised.
- 3.4. The impacts of dredging, piling, loss of habitat and increased suspended sediment on fish should be clearly assessed in the ES.
- 3.5. The MMO recommends that in the ES assessment of herring and sandeels, the aggregate industry habitat assessment (Marine Space, 2013) criteria be followed during the EIA which will utilise site specific Particle Size Analysis (PSA) data to assess habitat significance in the array area and along the export cable route. For herring, it is recommended that IHLS data is also used.

Herring

- 3.6. The proposed project site is located near to known herring spawning grounds. Herring and their eggs and larvae are considered to be sensitive to noise and vibration from anthropogenic activities such as piling and dredging. The ES should include an assessment of impacts from piling noise and cable installation on spawning grounds (including consideration of gravid adults, eggs and larvae).

Cod

- 3.7. The former East Anglia Zone is located in an area considered to be a cod spawning ground. Piling noise has the potential to damage eggs and larvae and disturb spawning aggregations of adults. An assessment of potential impacts of underwater noise from piling on cod should be undertaken in the ES. The assessment should consider the state of the cod stock and importance of the surrounding spawning and nursery grounds.
- 3.8. The current state of cod stocks is determined by the International Council on the Exploration of the Sea (ICES). The latest advice issued in November 2016 for North Sea cod shows that stocks are currently harvested sustainably, however recruitment has been poor since 1998 (ICES, 2016). Cod is widely distributed throughout the North Sea but there are indications of subpopulations inhabiting different regions of the North Sea. The Southern North Sea sub-region (where the Norfolk Boreas site is located) has suffered a general decline in biomass and there has been a lack of recovery (ICES, 2016).

The ICES Working Group 2 on North Sea Cod and Plaice Egg Surveys in the North Sea (WGECS2) carries out Midwater Ring Net (MIK net) surveys directed primarily at cod and plaice and data has been collected in the North Sea in 2004, 2009, and annually since 2012. The survey data is downloadable from ICES: <http://www.ices.dk/marine-data/data-portals/Pages/Eggs-and-larvae.aspx>. The MMO recommends that this data is considered in the ES assessment.

Bass

- 3.9. Seabass are a slow growing species that have suffered a long-term decline in population due to overfishing. As a result of declining stocks, fishing regulations have now been implemented to protect juvenile stocks of seabass. Seabass have also been placed under special protection measures as scientific advice has clearly identified the need to drastically reduce catches of this species, following an increase in the fishing pressure and a reduction in reproduction. The ES should consider seabass in the context of the current special measures in place and include consideration of whether cabling activities are likely to disturb nursery grounds or juvenile fish.

Electromagnetic Fields (EMF)

- 3.10. The report acknowledges that research on the effects of EMF on elasmobranchs is inconclusive. However, the National Policy Statement for Renewable Energy Infrastructure (EN-3) recommends minimising the potential effects of EMF by laying cables to a depth of greater than 1.5m. This should be reflected in the final ES.

4. Commercial Fisheries

- 4.1. Page 114, point 448 is contradictory to point 447 by stating that herring and whiting are of relatively low commercial importance. Furthermore, whilst these species may

not be of high commercial importance to the UK market, they may be considered of high importance in European markets.

- 4.2. Page 114 of the report states that from the Landings by Weight and International Bottom Trawl Survey (IBTS) data, that plaice, sprat, sole, cod, herring and mackerel are commercially important species.

However, the list of species in Table 2.12 from Landings by Weight also includes a number of other species of commercial importance, namely; lemon sole, whiting, bass, brill, turbot, spotted ray and thornback ray all of which should be assessed within the ES.

5. Shellfish

- 5.1. The area encompassing the proposed Norfolk Boreas Windfarm is of limited interest for commercial shellfisheries. The shellfish receptors and associated impacts are appropriate for inclusion in the ES.

6. Coastal Processes

- 6.1. The proposed project area abuts an international boundary, therefore trans-boundary impacts from waves should be considered within the ES.
- 6.2. It is acknowledged that hydrodynamic impacts on the current regime are localised within the windfarm licence boundary, however, those associated with waves have been shown by modelling studies to extend beyond the boundary. Furthermore, the cumulative impacts from adjacent proposed wind farm project, Norfolk Vanguard, lies on the prevailing wind direction to the nearest coastline (northeast) and therefore has the potential to impact on the integrity of the coastal defences. The MMO recommends that the “Regional Environmental Assessment” (REA) approach, developed by the aggregates industry, is used to explore the scale, shape and orientation of the cumulative impact footprints from all the windfarms in a single model run (with all wind directions). This can be then tested against the “5% rule of thumb” in terms of changes in wave height and direction at coastal features (beach and offshore sandbanks) which act as flood defences along the Norfolk coastline. Further information on REA can be found at:- www.marine-aggregate-rea.info/documents

7. Noise

- 7.1. It is noted that the report states that modelling will be undertaken utilising site-specific physical parameters (geology and bathymetry) and project specific detail. It is encouraged that the applicant engages early with the MMO to ensure that modelling is appropriate and fit for purpose.
- 7.2. It is proposed that potential effects of noise and vibration on benthic species during the operational phase have been scoped out of EIA on the basis that there is no evidence to suggest this low level of noise and vibration has a significant impact on benthic ecology. The MMO is aware of some existing research that indicates some negative effects from noise on benthic ecology. In light of this evidence, the MMO

recommends that there is further discussion regarding this issue during the evidence plan process.

8. Dredge/Disposal and Contamination

- 8.1. The impacts from contaminants may be scoped out depending on the results of 2017 surveys. Survey stations for contaminant analysis should be targeted in the muddier areas, as indicated from previous survey data and UK SeaMap/British Geological Society (BGS) map. (<http://jncc.defra.gov.uk/ukseamap>) Appropriate gear must be used to sample for contaminants, for example, Day grab or Shipek grab and not Hamon grab. If contaminant levels are similar to those found at reference stations then contaminants can be scoped out.
- 8.2. In accordance with the recommendations of the OSPAR Guidelines for the Management of Dredged Material, samples should be taken to provide a good representation of the volume of material to be dredged. The distribution and depth of sampling should reflect the size and depth of the area to be dredged, the amount to be dredged and the expected variability in the horizontal and vertical distribution of contaminants. Whilst some sampling is currently being undertaken, due to the lead in time for DCO projects, sampling may be required prior to the commencement of construction.
- 8.3. The applicant should provide a disposal site characterisation report to allow designation of a disposal site under the requirements of the OSPAR convention. This will require sampling and consideration any contaminants found.
- 8.4. It should be noted that page 90, point 352 of the scoping report makes reference to 'Defra Action Levels', this should be 'Cefas Action Levels'.

9. Cumulative Assessment


- 9.1. The report contains a list of developments that will be considered in the assessment of cumulative and trans-boundary impacts in the ES. However, non-renewable developments such as aggregate dredging and port and harbour developments should also be considered

Conclusion

Overall, the applicant has identified and scoped in relevant impacts with the exception of those noted above.

If you require any further information please do not hesitate to contact me using the details provided below.

Yours Sincerely,


Eleanor Noble
Marine Case Officer
E eleanor.noble@marinemanagement.org.uk

References

1. Degraer (2013) *Environmental impacts of offshore wind farms in the Belgian part of the North Sea: Learning from the past to optimize future monitoring programmes.*
2. Department of Energy & Climate Change. 2011. National Policy for Renewable Energy Infrastructure (EN-3). [Online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47856/1940-nps-renewable-energy-en3.pdf. (Accessed 11th April 2016)
3. Diederichs, A., Pehlke, H., Nehls, G., Bellmann, M., Gerke, P., Oldeland, J. Grunau, C., Witte, S. & Rose, A, (2014). *Entwicklung und Erprobung des Großen Blasenschleiers zur Minderung der Hydroschallemissionen bei Offshore-Rammarbeiten/ FKZ 0325309A/B/C.* Final report to the Federal Agency for the Environment, Nature Conservation and Nuclear Safety (BMU).
4. ICES, (2016). ICES Advice on fishing opportunities, catch, and effort Greater North Sea and Celtic Seas ecoregions. 6.3.3 (update) Cod (*Gadus morhua*) in Subarea 4, Division 7.d, and Subdivision 3.a.20 (North Sea, eastern English Channel, Skagerrak). Available from http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/cod-347d_reopen.pdf (Accessed 04th April 2017).
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6. Marine Management Organisation, (2017) Statutory Guidance Bass Fishing: Catch limits, closures and minimum size. [Online] Available at: <https://www.gov.uk/government/publications/bass-fishing-catch-limits-closures-and-minimum-size/bass-fishing-catch-limits-closures-and-minimum-size> (Accessed 13th February 2017)
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9. Solan, Martin, Chris Hauton, Jasmin A. Godbold, Christina L. Wood, Timothy G. Leighton, and Paul White, (2016). *Anthropogenic sources of underwater sound can modify how sediment-dwelling invertebrates mediate ecosystem properties.*



Maritime &
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Fax:
E-mail: nick.salter@mcga.gov.uk

Your ref: EN010087-000008
Our ref:

The Planning Inspectorate
3/18 Eagle Wing
Temple Quay House
2 The Square
Bristol
BS1 6PN

By email to:
norfolkboreas@pins.gsi.gov.uk

31 May 2017

Dear Sir/Madam,

Scoping Opinion for the Proposed Norfolk Boreas Offshore Wind Farm under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended)

The MCA has reviewed the scoping report provided by Royal HaskoningDHV for the Norfolk Boreas Offshore Wind Farm as detailed in your letter of 9th May 2017 and would comment as follows:

The Environmental Statement should supply detail on the possible the impact on navigational issues for both commercial and recreational craft, viz.

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.

A Navigational Risk Assessment will need to be submitted in accordance with MGN 543 (and MGN 372) and the MCA Methodology for Assessing the Marine Navigation Safety & Emergency Response Risks of Offshore Renewable Energy Installations (OREI). This NRA should be accompanied by a detailed MGN 543 Checklist which can be downloaded from the MCA website.

MGN 543 Annex 2 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 reports to the MCA



HM Coastguard



INVESTORS
IN PEOPLE | Silver

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.

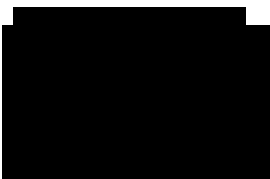
Particular attention should be paid to cabling routes and where appropriate burial depth for which a Burial Protection Index study should be completed and, subject to the traffic volumes, an anchor penetration study may be necessary. If cable protection are required e.g. rock bags, concrete mattresses, the MCA would be willing to accept a 5% reduction in surrounding depths referenced to Chart Datum.

The radar effects of a wind farm on ships' radars are an important issue and the effects, particularly with respect to adjacent wind farms on either side of a route, will need to be assessed on a site specific basis taking into consideration previous reports on the subject available on the MCA website.

The development area carries a significant amount of through traffic and liner routes, attention needs to be paid to routing, particularly in heavy weather ensuring shipping can continue to make safe passage without significant large scale deviations.

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.

Yours faithfully,

A large black rectangular redaction box covering the signature area.

Nick Salter
Offshore Renewables Advisor
Navigation Safety Branch

From: [DIO SEE-EPS SG2 \(Hodgetts, Lucy Mrs\)](#)
To: [Norfolk Boreas](#)
Subject: 20170516_Defence Infrastructure Organisation - confirmation of Consultation Body status_O
Date: 16 May 2017 14:20:51

Sirs,

Please accept this email as confirmation that the Defence Infrastructure Organisation (DIO), on behalf of the Ministry of Defence (MOD), wishes to be considered a Consultation Body and be duly notified of the project updates.

DIO is content that military aviation matters are adequately considered in the Scoping Report at Chapter 2.13 and will continue to work with the developer to ensure that the MODs concerns are addressed.

DIO contact details should be as follows; Desmond Egan, 0121 311 3790, DIO-safeguarding-wind@mod.uk

Kind regards

Lucy

Lucy Hodgetts

Senior Safeguarding Officer - Environment & Planning Support Safeguarding
DIO Safety Environment & Engineering

**Defence
Infrastructure
Organisation**

Kingston Road, Sutton Coldfield, West Midlands, B75 7RL

MOD telephone: 94421 2443 | **Telephone:** 0121 311 2443 | **Fax:** 0121 311 2218 | **Email:** DIO_SEE-EPSSG2@mod.uk |

Website: <https://www.gov.uk/government/publications/wind-farms-ministry-of-defence-safeguarding>

Please note that my working days are Monday, Tuesday and Wednesday

Sent electronically to:

NorfolkBoreas@pins.gsi.gov.uk

Nick Dexter
DCO Liaison Officer
Land & Business Support

Nicholas.dexter@nationalgrid.com

Tel: [REDACTED]

www.nationalgrid.com

5th June 2017

Dear Sir/Madam,

Ref: EN010087-000008 - Norfolk Boreas Offshore Wind Farm - scoping consultation

This is a joint response on behalf of National Grid Electricity Transmission Plc (NGET) and National Grid Gas Plc (NGG). I refer to your letter dated 9th June 2017 in relation to the above proposed application for a Development Consent Order for the proposed Norfolk Boreas Offshore Wind Farm. Having reviewed the Scoping Report, I would like to make the following comments:

National Grid infrastructure within / in close proximity to the onshore scoping area:

Electricity Transmission

National Grid Electricity Transmission has a high voltage electricity overhead transmission line and a high voltage substation within the onshore scoping area. The overhead line and substation form an essential part of the electricity transmission network in England and Wales.

- 4VV (400kV) overhead line route
 - Norwich Main to Walpole 1
 - Norwich Main to Walpole 2
- Necton (400kV) Substation

Gas Transmission

National Grid Gas has high pressure gas transmission pipelines, above ground installations (AGI's) and a gas terminal located within or in close proximity to the onshore scoping area. The transmission pipelines, AGI's and terminal form an essential part of the gas transmission network in England, Wales and Scotland:

Gas Terminal:

- Bacton Gas Terminal

Above Ground Installation:

- Swanton Abbot Above Ground Installation

Gas Transmission Pipelines:

- Feeder Main 02 - Bacton to Brisley
- Feeder Main 03 - Bacton to Roudham Heath
- Feeder Main 04 - Bacton to Gt Ryburgh
- Feeder Main 05 - Bacton to Yelverton
- Feeder Main 27 - Bacton to Kings Lynn

Electricity Infrastructure:

- National Grid's Overhead Line is protected by a Deed of Easement/Wayleave Agreement which provides full right of access to retain, maintain, repair and inspect our asset
- Statutory electrical safety clearances must be maintained at all times. Any proposed buildings must not be closer than 5.3m to the lowest conductor. National Grid recommends that no permanent structures are built directly beneath overhead lines. These distances are set out in EN 43 – 8 Technical Specification for “overhead line clearances Issue 3 (2004) available at: http://www.nationalgrid.com/uk/LandandDevelopment/DDC/devnearohl_final/appendixIII/a/ppIII-part2
- If any changes in ground levels are proposed either beneath or in close proximity to our existing overhead lines then this would serve to reduce the safety clearances for such overhead lines. Safe clearances for existing overhead lines must be maintained in all circumstances.
- Further guidance on development near electricity transmission overhead lines is available here: <http://www.nationalgrid.com/NR/ronlyres/1E990EE5-D068-4DD6-8C9A-4D0B06A1BA79/31436/Developmentnearoverheadlines1.pdf>
- The relevant guidance in relation to working safely near to existing overhead lines is contained within the Health and Safety Executive's (<http://www.hse.gov.uk/>) Guidance Note GS 6 “Avoidance of Danger from Overhead Electric Lines” and all relevant site staff should make sure that they are both aware of and understand this guidance.
- Plant, machinery, equipment, buildings or scaffolding should not encroach within 5.3 metres of any of our high voltage conductors when those conductors are under their worse conditions of maximum “sag” and “swing” and overhead line profile (maximum “sag” and “swing”) drawings should be obtained using the contact details above.
- If a landscaping scheme is proposed as part of the proposal, we request that only slow and low growing species of trees and shrubs are planted beneath and adjacent to the existing overhead line to reduce the risk of growth to a height which compromises statutory safety clearances.
- Drilling or excavation works should not be undertaken if they have the potential to disturb or adversely affect the foundations or “pillars of support” of any existing tower. These foundations always extend beyond the base area of the existing tower and foundation (“pillar of support”) drawings can be obtained using the contact details above

- National Grid Electricity Transmission high voltage underground cables are protected by a Deed of Grant; Easement; Wayleave Agreement or the provisions of the New Roads and Street Works Act. These provisions provide National Grid full right of access to retain, maintain, repair and inspect our assets. Hence we require that no permanent / temporary structures are to be built over our cables or within the easement strip. Any such proposals should be discussed and agreed with National Grid prior to any works taking place.
- Ground levels above our cables must not be altered in any way. Any alterations to the depth of our cables will subsequently alter the rating of the circuit and can compromise the reliability, efficiency and safety of our electricity network and requires consultation with National Grid prior to any such changes in both level and construction being implemented.

The following points should be taken into consideration:

- National Grid has a Deed of Grant of Easement for each pipeline, which prevents the erection of permanent / temporary buildings, or structures, change to existing ground levels, storage of materials etc.

Pipeline Crossings:

- Where existing roads cannot be used, construction traffic should ONLY cross the pipeline at previously agreed locations.
- The pipeline shall be protected, at the crossing points, by temporary rafts constructed at ground level. The third party shall review ground conditions, vehicle types and crossing frequencies to determine the type and construction of the raft required.
- The type of raft shall be agreed with National Grid prior to installation.
- No protective measures including the installation of concrete slab protection shall be installed over or near to the National Grid pipeline without the prior permission of National Grid.
- National Grid will need to agree the material, the dimensions and method of installation of the proposed protective measure.
- The method of installation shall be confirmed through the submission of a formal written method statement from the contractor to National Grid.
- Please be aware that written permission is required before any works commence within the National Grid easement strip.
- A National Grid representative shall monitor any works within close proximity to the pipeline to comply with National Grid specification T/SP/SSW22.
- A Deed of Consent is required for any crossing of the easement

Cables Crossing:

- Cables may cross the pipeline at perpendicular angle to the pipeline i.e. 90 degrees.
- A National Grid representative shall supervise any cable crossing of a pipeline.
- Clearance must be at least 600mm above or below the pipeline.
- Impact protection slab should be laid between the cable and pipeline if cable crossing is above the pipeline.
- A Deed of Consent is required for any cable crossing the easement.
- Where a new service is to cross over the pipeline a clearance distance of 0.6 metres between the crown of the pipeline and underside of the service should be maintained. If this cannot be achieved the service shall cross below the pipeline with a clearance distance of 0.6 metres.

General Notes on Pipeline Safety:

- You should be aware of the Health and Safety Executives guidance document HS(G) 47 "Avoiding Danger from Underground Services", and National Grid's specification for Safe Working in the Vicinity of National Grid High Pressure gas pipelines and associated installations - requirements for third parties T/SP/SSW22.
- National Grid will also need to ensure that our pipelines access is maintained during and after construction.
- Our pipelines are normally buried to a depth cover of 1.1 metres however; actual depth and position must be confirmed on site by trial hole investigation under the supervision of a National Grid representative. Ground cover above our pipelines should not be reduced or increased.
- Excavation works may take place unsupervised no closer than 3 metres from the pipeline once the actual depth and position has been confirmed on site under the supervision of a National Grid representative. Similarly, excavation with hand held power tools is not permitted within 1.5 metres from our apparatus and the work is undertaken with NG supervision and guidance.

To view the SSW22 Document, please use the link below:

<http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=33968>

To view the National Grid Policy's for our Sense of Place Document. Please use the link below:

<http://www2.nationalgrid.com/uk/services/land-and-development/publications/>

To download a copy of the HSE Guidance HS(G)47, please use the following link:

<http://www.hse.gov.uk/pubns/books/hsg47.htm>

Further information in relation to in proximity to National Grid's apparatus can be found at:

<http://www2.nationalgrid.com/UK/Safety/Library/>

Further Advice

We would request that the potential impact of the proposed scheme on National Grid's existing assets as set out above is considered in any subsequent reports, including the Environmental Statement, and as part of any subsequent application.

Where any diversion of apparatus may be required to facilitate a scheme, National Grid is unable to give any certainty with the regard to diversions until such time as adequate conceptual design studies have been undertaken by National Grid. Further information relating to this can be obtained by contacting the email address below.

Where the promoter intends to acquire land, extinguish rights, or interfere with any of National Grid apparatus, protective provisions will be required in a form acceptable to it to be included within the DCO.

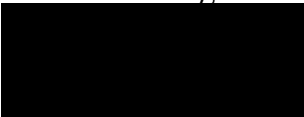
National Grid requests to be consulted at the earliest stages to ensure that the most appropriate protective provisions are included within the DCO application to safeguard the integrity of the apparatus and to remove the requirement for objection. All consultations should be sent to the following: box.landandacquisitions@nationalgrid.com

In order to respond at the earliest opportunity National Grid will require the following:

- Shape Files for the order limits

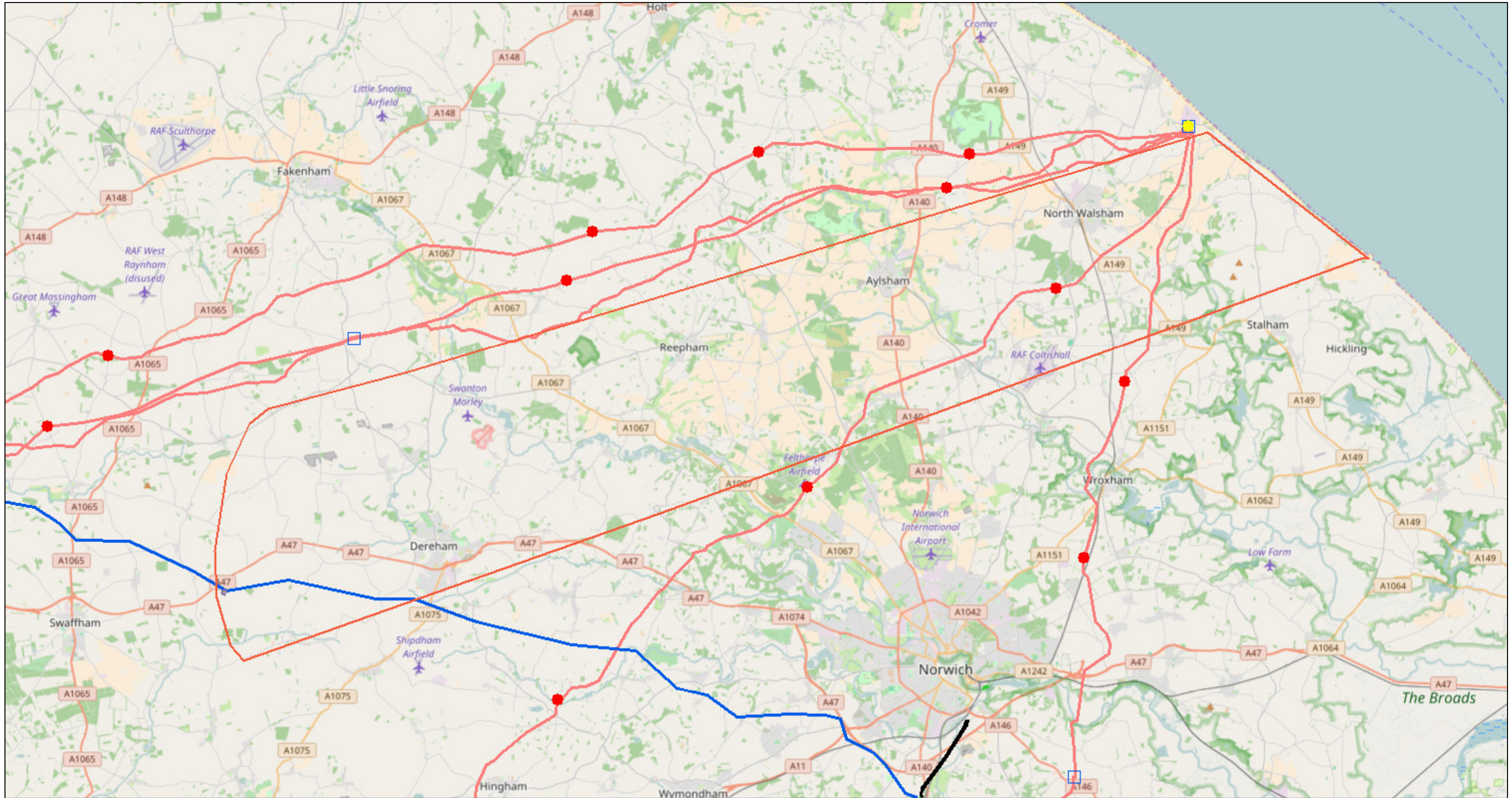
I hope the above information is useful. If you require any further information please do not hesitate to contact me.

Yours Faithfully,



Nick Dexter.

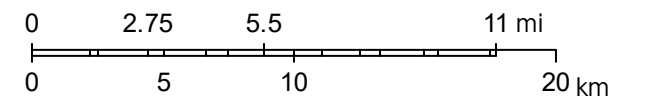
NG Transmission Apparatus



October 14, 2016

1:288,895

- AGIS**
- Block Valve (BV)
 - Transferred Offtake (XT)
 - Multi Junction (MJ)
- LINE**
- 400
- GAS_PIPE_FEEDER**
- N
- AGI Boundary**
- Operational (OPB)
- 132**
- 132
- Site (STB)**
- CABLE



Map data © OpenStreetMap contributors, CC-BY-SA

From: [ALLEN, Sarah J](#) on behalf of [NATS Safeguarding](#)
To: [Norfolk Boreas](#)
Subject: RE: Norfolk Boreas Offshore Wind Farm - scoping consultation (Our Ref: SG24621)
Date: 09 May 2017 13:57:47
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.gif](#)
[image005.png](#)
[image006.png](#)
[image007.png](#)

The proposed development has been examined from a technical safeguarding aspect and does not conflict with our safeguarding criteria. Accordingly, NATS (En Route) Public Limited Company ("NERL") has no safeguarding objection to the proposal.

However, please be aware that this response applies specifically to the above consultation and only reflects the position of NATS (that is responsible for the management of en route air traffic) based on the information supplied at the time of this application. This letter does not provide any indication of the position of any other party, whether they be an airport, airspace user or otherwise. It remains your responsibility to ensure that all the appropriate consultees are properly consulted.

If any changes are proposed to the information supplied to NATS in regard to this application which become the basis of a revised, amended or further application for approval, then as a statutory consultee NERL requires that it be further consulted on any such changes prior to any planning permission or any consent being granted.

Yours Faithfully



NATS Safeguarding

D: 01489 444687

E: natssafeguarding@nats.co.uk

4000 Parkway, Whiteley,
Fareham, Hants PO15 7FL
www.nats.co.uk



From: Norfolk Boreas [<mailto:NorfolkBoreas@pins.gsi.gov.uk>]
Sent: 09 May 2017 08:36
Subject: Norfolk Boreas Offshore Wind Farm - scoping consultation SG24621

Dear Sir or Madam

Please see attached correspondence on the proposed Norfolk Boreas Offshore Wind Farm.

Please note the deadline for consultation responses is 6 June 2017 and is a statutory requirement that cannot be extended.

Kind regards
Hannah

Hannah Pratt
Senior EIA and Land Rights Advisor
Major Applications and Plans

The Planning Inspectorate, 3D, Temple Quay House, Temple Quay, Bristol, BS1 6PN

Direct Line: 0303 444 5001

Helpline: 0303 444 5000

Email: Hannah.pratt@pins.gsi.gov.uk

Web: <https://infrastructure.planninginspectorate.gov.uk/> (National Infrastructure Planning)

Web: www.gov.uk/government/organisations/planning-inspectorate (The Planning Inspectorate)

Twitter: [@PINSgov](https://twitter.com/PINSgov)

This communication does not constitute legal advice.

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Secretary of State
c/o The Planning Inspectorate
3/18 Eagle Wing
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2 The Square
Bristol
BS1 6PN



Your ref: EN010087-000008

6th June 2017

Dear Secretary of State

**INFRASTRUCTURE PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT)
REGULATIONS 2009 SI 2263 (as amended) (the EIA Regulations)
PROPOSED NORFOLK BOREAS OFFSHORE WINDFARM (the project)
PROPOSAL BY VATENFALL WINDPOWER LIMITED (the Applicant)**

Thank you for requesting our advice on the Norfolk Boreas Environmental Impact Assessment Scoping Report.

Background

It is important to note that many of the issues pertinent to this application are likely to be similar to those raised in relation to Vattenfall Vanguard scoping response [Dated 2nd November 2016] and the East Anglia ONE and East Anglia THREE Environmental Impact Assessments (EIA) and Environmental Statements (ES). We therefore strongly advise that due consideration is given to Statutory Nature Conservation Body (SNCB) advice that has been and is currently being provided in relation to these developments and associated environmental impacts.

The comments contained in this response pertain only to those elements of the Scoping Report with which Natural England disagrees. Where we have not commented on a section of the Scoping Report, we consider there to be sufficient evidence and/or rationale provided for us to be in agreement with the conclusions of the Report.

General Approach to EIA

It is relevant at this point to clarify the aims of EIA, in order to frame our advice on how it should be undertaken appropriately. EIA is a statutory process which should highlight the potential positive and negative impacts of a project, and identify how effects can be prevented, offset or reduced through mitigation, enabling the regulator to make a decision on whether to consent.

In respect of offshore wind farm development, it is important to highlight the much larger scale and geographic spread of Round 3 compared to Rounds 1 and 2 of development. Therefore, while lessons are being learned from Rounds 1 and 2 sites, there is the potential for a different range and/or a greater level of impacts to arise from Round 3 development particularly in relation to cumulative impacts. Consequently, considering the levels of uncertainty that this introduces to the EIA process we advise that the EIA is undertaken in the context of risk management. We identify the need to consider what level of confidence in the data it will be realistically possible to achieve, and how this will be presented to enable conclusions to be reached. The applicant should, therefore, be able to communicate, in their ES, the confidence in their predictions on potential impacts.

Whilst we appreciate the Applicant's intention to identify appropriate mitigation for the impacts predicted to occur as a result of Norfolk Boreas we highlight that this development is still constrained by the fixed limits of the licence area and grid connection location and, therefore,

mitigation is also restricted within this area i.e. the relocation of development away from sensitive areas is limited. We highlight that whilst appropriate mitigation measures may be identified in relation to project design, for some receptors more radical mitigation measures may require consideration and/or compensation. We would welcome the opportunity to discuss these options as the application progresses.

Pre-Application Consultation

Natural England recognises the importance of the pre-application stage of the PINS consenting regime and as such seek to make this process as effective as possible. We are pleased to note that the Applicant has begun an Evidence Plan process and has engaged Natural England at both the Steering Group and Topic Group level.

In summary, we recognise the time constraints that the developer is under places pressure on the pre-application process, however, insufficient time to deal with key environmental concerns prior to submission of the application poses a risk to the development and we encourage the developer to engage with us to address them.

Scoping Opinion

We recognise that it is a statutory requirement for developers to undertake consultation on a Scoping Report. On review of the report submitted by the Applicant pertaining to Norfolk Boreas, 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 pertaining to the specific survey methodologies to be adopted for assessment of impacts on each receptor 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 projects.

Section 42: Preliminary Environmental Information (PEI)

It is the view of Natural England that the most appropriate form for a PEI to adopt is that of a draft Environmental Statement (ES). This would reassure Natural England and other key stakeholders, that the Applicant's approach to EIA is appropriate and to allow time for areas of concern to be raised and resolved prior to submission of the final ES to PINS. It is, therefore, sensible to maximise the opportunities in pre-application for open and constructive dialogue, to reduce the risk of an application being rejected by PINS. It is also our experience that if too many issues are left unresolved at application then this causes increased pressure for all involved during the Examination process. As such we would expect emphasis on effective pre-application engagement between the developer and Natural England and the PEI to present sufficient detail such that an assessment of the Applicant's approach to EIA can be identified.

Habitats Regulations Assessment (HRA)

In accordance with the 2010 Habitats Regulations (as amended) 61(2) anyone applying for development consent for an NSIP must provide the competent authority with such information as may reasonably be required "for the purposes of the assessment" or "to enable them to determine whether an appropriate assessment is required". The SNCBs advise that this information should therefore be provided and appraised as part of the EIA process.

Further Liaison and Advice

Norfolk Boreas lies in relative proximity to other Round 3 projects currently pursuing development consent for the phased development of large scale wind arrays within the North Sea. These include: the Hornsea Project 3 OWF, the East Anglia OWF projects and the Norfolk Vanguard project. We would strongly recommend that collaborative working is pursued with these other projects that are likely to be facing the same consenting risks. We recognise the value of collaborative working particularly in relation to cumulative impacts (including non-windfarm

projects). We strongly support any initiatives to pursue collaborative working and are happy to engage in any such projects that the Applicant may progress.

In addition to this, the further development of offshore wind farms presents an opportunity to learn from previous development and to further refine survey and monitoring methods to ensure that the practicality and effectiveness of methods employed means that key data gaps are addressed. There is, therefore, a role for consenting authorities, developers and consultees to increase the understanding of the effects of offshore wind farms as well as securing best practice in further developments.

Key Environmental Issues

We provide our advice in relation to the scoping report in the **Annexes 1-3**.

Our key concerns are as follows and we consider that these issues will need thorough consideration through the EIA and HRA and close discussion between the Applicant, Natural England and where possible the regulators and Marine Management Organisation (MMO):

- The potential effects of this development proposal on birds during all phases of development encompassing displacement, indirect effects (through impacts on prey species) and collision mortality – both at a project-level and cumulatively.
- Potential effects on marine mammals from noise during construction – both at a project-level and cumulatively.
- Potential effects on Annex I *Sabellaria spinulosa* reef from the installation and maintenance of the export cables - both at a project level and in-combination with Vanguard OWF
- Potential impacts on the interest features of Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ) – both at a project level and in-combination
- Potential in-combination impacts with other sea defence projects at the landfall location.
- Potential in-combination terrestrial impacts along the export cable route with that of Hornsea Project 3

If you have any questions regarding the above comments or want to discuss further any of the issues we have raised please contact Alex Thompson alex.thompson@naturalengland.org.uk at Natural England.

Yours sincerely



Alex Thompson

Marine Lead Advisor – Major Casework
Natural England

ANNEX 1: INTRODUCTION (Chapter 1)

EIA Methodology

Defining Magnitude of Impact and Sensitivity of Receptor

271-275: It is proposed to assess impacts associated with the construction, operation and decommissioning of Norfolk Boreas by identifying the sensitivity of each receptor and the magnitude of each effect and combining both metrics together through a matrix analysis to determine impact significance. Effect magnitude will be defined via the extent, duration, frequency and change relative to the baseline, and receptor sensitivity will be determined through the adaptability/tolerance, recoverability and value/importance of each receptor.

We advise that the ES should include a clear description of how each of the categories for extent, duration and frequency are defined and similarly for the sensitivity categories of vulnerability, recoverability and value. The ES should also include a description of how the various combinations of frequency, duration, extent and reversibility of effects have been combined to reach the final prediction of effect magnitude. Similarly, a discussion should be included as to how the various combinations of receptor sensitivity, probability of interaction and magnitude of effect have been combined to reach the final determination of impact significance.

The magnitude and sensitivity scores which contribute to the final impact assessment should be presented for each of the receptors included in the assessment. This should be supported by appropriate references to scientific literature. Where conclusions are based on expert judgements this should be clearly described and discussed in the text. This would add confidence in the validity of the determinations and any subjective decisions or professional judgements based on experience that are made by the applicant are transparent and clear.

Furthermore, we highlight the importance and difficulty of establishing the uncertainty associated with data. The level of uncertainty/confidence associated with each significance assessment should be discussed based on the nature of evidence used and how this evidence was used to determine impact significance.

There might be effects or receptors for which the proposed assessment approach may not be suitable. This should be assessed on an effect/receptor basis. Where a different approach is chosen this should be clearly justified and the approach fully explained within the application.

Evaluation of Significance

277 - 279: Within the ES, impacts should be quantified, where reasonable to do so, and discussed alongside qualitative information to present the most accurate conclusion of risk to that particular receptor. In some cases, impacts are likely to have more quantified estimates and it is advised that this detail is incorporated into the application with reference to any studies or expert judgements undertaken. Again, it is important that there is detailed presentation of the uncertainty associated with any quantitative estimates so as to establish confidence in conclusions drawn.

Cumulative Impacts

286: We welcome the Applicant's intention to agree the approach to cumulative impact assessment (CIA) with consultees. This will form an important component in assessing the true potential impacts of the development of these two projects.

ANNEX 2: OFFSHORE (Chapter 2)

Marine Geology, Oceanography and Physical Processes

Approach to assessment and data gathering

301: Natural England welcomes the commissioning of a number of detailed surveys to address gaps in the existing survey coverage, including the additional surveying of the cable corridor, to provide up-to-date data with which to inform the ES.

Marine Water and Sediment Quality

Water Quality

345: The data presented in support of this chapter is over 20 years old (circa 1992); where available more recent data should be used to inform the assessment.

361: We agree that the potential for the release of contaminated sediment can be discussed as part of the evidence plan process once the results of the grab sample analysis are available.

Benthic and Intertidal Ecology

Benthic Ecology

401: In addition to presenting the location of Annex I *Sabellaria spinulosa* reef we advise that the ES also considers alternative cable routing and mitigation options in order to minimise impacts to reefs. Where it may not be possible to avoid Annex I habitat or adopt appropriate mitigation measures to reduce the impacts down to an acceptable level, evidence on the recoverability of disturbed *Sabellaria spinulosa* reef should be provided. Consideration should also be given to the implications on recovery of any phased build and/or in-combination impacts. However, it should be noted that Natural England's position is for the avoidance of disturbance/damage to Annex I biogenic reef features wherever possible.

409 – 412: Due to the features of the MCZ and the scale of the proposed works, there is a possibility that Natural England will consider the impacts on the MCZ are such that the conservation targets for the site cannot be met. This is particularly relevant when in-combination impacts are considered with other projects. Therefore, should the Applicant choose to go through the MCZ, all alternative options should be considered and decision-making thoroughly validated; and a Stage 1 (and possible stage 2) assessment will be required. We advise that both mitigation and Measure of Equivalent Environmental Benefit (MEEB) would need to be considered as part of the pre application process.

As the Vanguard and Boreas cable routes have the potential to pass through mixed-sediment in the MCZ (as opposed to chalk reef), monitoring (undertaken by Vattenfall) and/or evidence gathering of existing developments may be helpful to show the long term impacts and recovery of trenching through this feature. This case study could focus on the Bacton Gas pipelines which were installed through the mixed sediment of the MCZ (pre-designation). Survey data of these pipelines will inform discussions in relation to the scale (both temporal and spatial) of the potential impacts and the requirement for any mitigation measures.

421 - 422: An assessment of the amount of potential maintenance work likely to be required across the lifetime of the development should be presented within the Environmental Statement. This should also include the likely maintenance requirements associated with all project cabling, including inter-array cabling. Such an assessment could be informed by the experiences at other constructed wind farm developments which, whilst unlikely to represent directly comparable

results, should enable a more informed assessment of maintenance requirements. These requirements, as assessed, should then be tied to the associated potential environmental impacts.

424: We acknowledge that potential for colonisation by non-native species is mentioned under this impact. It is our understanding that “colonisation of hard structures” impact only covers the changes in biological communities, albeit acknowledging that hard structures may facilitate the spread of invasive species. However, it is our view that non-native species are, on their own right, a distinct impact on the marine ecological environment. Therefore, it should be identified under a separate heading, providing a range of pathways how the spread of non-native species may result from the proposed development (ballast water, biofouling of boat hulls, as well as the hard structures acting as “stepping stones” for geographic spreading of these species). The following published literature should provide a good starting point for the assessment of these impacts:

- Kerckhof, F., Degraer, S., Norro, A. and Rumes, B., 2011. Offshore intertidal hard substrata: a new habitat promoting non-indigenous species in the Southern North Sea: an exploratory study. Offshore wind farms in the Belgian Part of the North Sea: Selected findings from the baseline and targeted monitoring. Royal Belgian Institute of Natural Sciences, Marine ecosystem management unit, Brussels, pp.27-37.
- Adams, T.P., Miller, R.G., Aleynik, D. and Burrows, M.T., 2014. Offshore marine renewable energy devices as stepping stones across biogeographical boundaries. *Journal of Applied Ecology*, 51(2), pp.330-338.
- De Mesel, I., Kerckhof, F., Norro, A., Rumes, B. and Degraer, S., 2015. Succession and seasonal dynamics of the epifauna community on offshore wind farm foundations and their role as stepping stones for non-indigenous species. *Hydrobiologia*, 756(1), pp.37-50.
- The government policy for invasive non-native species is set out in the document by Defra called “The Great Britain invasive non-native species strategy”. Available online: <https://www.gov.uk/government/publications/the-great-britain-invasive-non-native-species-strategy>

Particularly in the marine environment, one of the 10 descriptors for good ecological status under MSFD is reduction in introduction and spread of invasive non-native species through improved management of pathways and vectors. Therefore the government is required to deliver action to achieve this and report both through OSPAR and to Europe. The full document on the MSFD programme of measures can be accessed online:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/486623/marine-strategy-part3-programme-of-measures.pdf

UK Government’s Marine Policy Statement includes on p. 20 “There may also be an increased risk of spills and leaks of pollutants into the water environment and the likelihood of transmission of invasive non-native species, for example through construction equipment, and their impacts on ecological water quality need to be considered”. The full statement document can be accessed online:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf

Marine Mammals

Natural England’s response to this chapter has been developed in consultation with JNCC. The comments below are reflective of both Natural England’s and JNCC’s views in respect to impacts to designated sites.

Southern North Sea (SNS) cSAC

This site has been selected primarily on the basis of its long-term, preferential use by harbour porpoise in contrast to other areas of the North Sea. The draft conservation objectives (CO) for this site can be viewed at

<http://jncc.defra.gov.uk/pdf/SouthernNorthSeaConservationObjectivesAndAdviceOnActivities.pdf>.

Noise assessment

514: Piling has been identified as a key concern in relation to the effects on marine mammals and the applicant states "impacts associated with underwater noise will be considered fully during the EIA, taking into account the most recent and robust research available".

Previous best practice has been to use injury thresholds proposed by Southall et al. 2007 when considering potential impacts to marine mammals. However, in 2016, the NOAA published revised injury thresholds. The SNCBs are currently evaluating the implications of the NOAA thresholds and how these may be incorporated into noise risk assessments. We recommend the developer engage with the SNCBs with regard their noise assessment and how this will inform the EIA and HRA

In-combination impacts

In-combination impacts are a key issue for the SNS cSAC given the scale and number of activities planned to occur within the site in the forthcoming years and how these could potentially result in an adverse effect on site integrity. We would welcome further discussions with the developer over which projects and industries may need to be considered in relation to in-combination and cumulative effects on the SNS site and marine mammal interests in general.

European Protected Species and disturbance

The risk of a disturbance offence under The Offshore Marine Conservation Regulations 2007 (as amended), as a result of pile-driving during the installation of the wind farm should be assessed and if it cannot be mitigated and there are no satisfactory alternatives, we recommend the Applicant applies to the MMO for a disturbance licence.

Marine mammal mitigation

510: This paragraph states "With the application of soft-start piling protocol employed (whereby the energy of the hammer is slowly ramped up allowing marine mammals to flee the immediate area of piling) it is not anticipated that any marine mammals would be at risk of any physical injuries." This implies that only a soft-start is required to reduce the risk of injury. We highlight that current mitigation guidelines include additional measures which will need to be considered by the applicant and a marine mammal mitigation plan should be agreed prior to construction. Again, we welcome future discussions with the applicant regarding this.

Further marine mammal comments

482: There appears to be a typo in the last-but-one bullet point. Presumably this is meant to include Harbour seal. Also, if the timeline allows, SCANS III survey data should be incorporated.

486: This paragraph states that 12.5% of cetaceans sited were either identified as a porpoise or a dolphin, however, in the Norfolk Vanguard scoping report this figure in the same paragraph was 2.5%. Please could it be clarified which one is correct?

502: Figures 2.8 and 2.9 appear to show grey and harbour seal mean at-sea usage estimates to be 0 – 1.0 individuals per km² at the array and 0 – 5 individuals per km² in the provisional offshore cable corridor for both species, not 0 – 0.2 individuals per km² as stated here.

518: Natural England is satisfied that given the distance to the nearest seal haul out at landfall is at least 10km, disturbance at seal haul outs may be scoped out of the assessment.

Offshore Ornithology

The format of our response in this section is to respond to the Applicant's questions posed in paragraph 300.

Please tell us about further data sources that could be reviewed as part of the site characterisation for each topic?

554 – 558: Natural England advises that the aerial survey data sets that have been collected so far, and are proposed in the Scoping Report to be continued to be collected for the Norfolk Boreas site and 4km buffer, will provide a sufficient baseline for site characterisation; provided the surveys cover the required 24 months.

558: We suggest that the following additional literature and data sources that are not listed in paragraph 558 or referenced in the Scoping Report are considered (noting that this is not an exhaustive list):

- Bradbury G., Trinder M., Furness B, Banks A.N., Caldow R.W.G., et al. (2014) Mapping Seabird Sensitivity to Offshore Wind Farms. PLoS ONE 9(9): e106366. doi:10.1371/journal.pone.0106366
- Langston, R. (2010) Offshore wind farms and birds - Round 3 Zones, extensions to Round 1 and 2 sites, and Scottish territorial waters. RSPB Research Report 39. RSPB.
- At sea densities of seabirds (ESAS data): <https://data.gov.uk/dataset/at-sea-densities-of-all-modelled-seabird-species-combined-for-the-breeding-season> <https://data.gov.uk/dataset/at-sea-densities-of-all-modelled-seabird-species-combined-for-the-non-breeding-season>
- Seabird Monitoring Programme reports and data: <http://jncc.defra.gov.uk/smp/counts.aspx> and <http://jncc.defra.gov.uk/page-1530>
- Stroud, D.A., Bainbridge, I.P., Maddock, A., Anthony, S., Baker, H., Buxton, N., Chambers, D., Enlander, I., Hearn, R.D., Jennings, K.R, Mavor, R., Whitehead, S. and Wilson, J.D. - on behalf of the UK SPA & Ramsar Scientific Working Group (eds.) 2016. The status of UK SPAs in the 2000s: the Third Network Review. 108 pp. JNCC, Peterborough. Available online: http://jncc.defra.gov.uk/pdf/UKSPA3_StatusofUKSPAinthe2000s.pdf

The Applicant should also review any relevant papers and guidance documents that are published between this response and the submission of the Environmental Statement.

Tell us about any other relevant potential impacts for each topic?

Construction

The 'Potential Impacts from Construction' section currently covers disturbance and displacement resulting from the construction of the offshore wind farm and the laying of the offshore cables. It also covers indirect impacts through effects on habitats and prey species via underwater noise and generation of suspended sediments through activities such as piling and seabed preparation for installation of foundations. However, it is unclear whether the indirect impacts on habitats and prey also covers such impacts resulting from cable laying activities. The potential for impact from this aspect of construction should also be considered.

Operation

The potential operational impacts are listed as disturbance and displacement; indirect impacts include effects on habitats and prey species, collision risk and barrier effect. Consideration could also be given to direct habitat loss from the turbine locations (not in terms of the whole OWF footprint); although it is acknowledged that this is likely to be small.

Decommissioning

We agree that decommissioning impacts will be similar to construction.

General comment on potential impacts

Additionally, we note that the EIA should consider the environment as a whole, and not as a discrete set of individually sensitive receptors. Any indirect impacts on habitat and prey for all assessment stages (construction, operation, decommissioning) should be linked to the relevant habitat and prey assessment chapters - fish and shellfish ecology, benthic ecology and water and sediment quality assessments. We note that within the Scoping Report there is a section (2.16) on offshore inter-related effects where the Applicant has outlined suggestions regarding the assessment of linkages between receptors, and how impacts on one receptor may influence others. We advise that Table 2.31 should highlight inter-relationships in terms of how offshore ornithology could be affected by benthic and intertidal ecology and marine water and sediment quality as well as fish ecology. We consider that such inter-relationships are likely to be key in interpreting the environmental impacts of the development and welcome the applicant's intention to integrate these aspects as part of the EIA process.

Do you agree with the potential impacts that have been scoped out for each topic? If not, please provide details.

Table 2.21: This table summarises the impacts relating to offshore ornithology and indicates those impacts scoped in and out for the different phases of the development. We do not agree that indirect impacts through effects on habitats and prey species should be scoped out for the operation phase with regard to the Norfolk Boreas offshore wind farm site itself. This is due to the potential for underwater noise and generation of suspended sediments that may alter behaviour or availability of bird prey species (as highlighted in paragraph 577 of the Scoping Report). However, we would agree that this potential impact for the operational phase could be scoped out with regard to potential impacts along the export cable (for the reasons highlighted in paragraph 578).

579: We agree with the scoping in of the collision risk during operation for the Norfolk Boreas wind farm site and that the operation of the export cable is scoped out. We note that whilst there is the possibility of bird collision with vessels during construction and decommissioning, this is likely to be minor, with the main impact from collision being with the operational turbines.

580: We agree that the main barrier effect of the project will be whilst it is operational and should therefore be scoped in.

Have the relevant potential cumulative impacts been identified? If not, please provide details.

583: We agree with the potential cumulative impacts that have been identified by the Applicant, namely: collision risk, barrier effects which impact upon migration routes and indirect impacts on prey species. However, consideration should also be given to cumulative displacement impacts.

We also note that other offshore windfarms within the former East Anglia Zone could be of relevance in terms of potential for overlap in construction periods (particularly Norfolk Vanguard) and hence advise that cumulative construction impacts are considered.

Have the relevant potential transboundary impacts been identified? If not, please provide details

586: We agree with the Applicant's approach to assessing potential transboundary impacts and welcome building upon the work undertaken by East Anglia ONE and East Anglia THREE to identify potential receptors and stakeholders.

Do you agree with that the proposed approach to assessing each impact is appropriate? If not, please provide details.

The information provided on the proposed approach to assessing each impact is very high level/brief and in many cases further detail could be provided regarding the actual approach to the assessments.

579: This paragraph states; 'Collision risk modelling (CRM) will be undertaken using industry-standard approaches (Band 2012, Masden 2015) to predict potential mortality levels from this impact.' We note that Masden (2015) is still undergoing testing and we would currently advise that the Band (2012) model is used and that the Applicant presents outputs from the Band model that account for variability in the input parameters – especially densities of birds in flight, flight heights and avoidance rates. We advise the same approach as used in the Hornsea Project 2 assessment using upper and lower confidence intervals for each parameter.

We welcome the commitment in paragraph 579 that the exact option and version of the collision risk model to be used, avoidance rates, flight height data and parameters for modelling will be based upon the best available evidence and will be agreed through the evidence plan process and clearly defined within the ES and HRA.

We agree that the predicted potential effects of displacement on sensitive species will be assessed using matrices to compare varying levels of displacement with varying levels of additional mortality and advise that the approach outlined in the recent (2017) SNCB interim guidance on displacement is followed (available from: http://jncc.defra.gov.uk/pdf/Joint_SNCB_Interim_Displacement_AdviceNote_2017.pdf). Further information could be provided in the section of the Scoping Report on operational disturbance and displacement regarding which sensitive species might be assessed and we also recommend the inclusion of an example matrix.

576: This paragraph states that; 'For species at risk of displacement during the non-breeding season, consideration will be given to a proposed approach for standardising assessments (i.e. to account for different numbers of nonbreeding seasons between species for which data is available).' We note that in discussions at the first Offshore Ornithology Expert Topic Group meeting (15th Feb 2017) as part of the Evidence Plan Process for Norfolk Boreas this proposed approach was discussed and Natural England advised that summed impacts across all Biologically Defined Minimum Population Scale (BDMPS) seasons for the non-breeding season (and breeding season) should be presented..

Is there any further guidance relating to each topic that we should be aware of? If so, please provide details.

Please see the suggested additional literature and data sources listed in our response to question 1.

Additional comments on offshore ornithology

The scoping report does not provide any detail about how the baseline data will be analysed, e.g. how population estimates/densities will be calculated.

Table 2.20: Where appropriate the various conservation listings (e.g. BoCC listing, whether a migratory species and/or Annex 1 species, IUCN red listing) should be presented for all species, as for some species some of these listings have not been included.

535: Regarding the Greater Wash pSPA, the Applicant states that the pSPA encompasses the foraging areas of common, Sandwich and little terns from a number of colonies, including The Wash SPA (for little and Sandwich tern) . We note that the species in brackets should be the little tern and not Sandwich for the Wash SPA. We advise the Applicant to consider the draft conservation advice package for the Greater Wash pSPA, available at: <https://www.gov.uk/government/publications/marine-conservation-advice-for-special-protection-area-the-wash-uk9008022/the-wash-spa-site-information>.

ANNEX 3: ONSHORE (Chapter 3)

Onshore Ornithology

Table 3.19: Passage and over wintering birds are listed as red on BoCC 4 (Eaton et al. 2015), along with their relative abundance (high, medium, low), which has been based on the data from the BTO UK Bird Atlas 2007-2011. We advise the inclusion of the same information for breeding birds for the scoping area.

Table 3.20: When listing the UK bird species of principal importance (excluding BoCC red list species), which may be present within the onshore scoping area, we recommend the Applicant clarifies whether this list considers species that may be present during just the passage and wintering period, or whether it also includes species that may be present during the breeding season as well.

Onshore Ecology

The proposed cable route for Norfolk Boreas is within the onshore cable corridor search area provided in the Norfolk Vanguard scoping report. As the two cable routes are concurrent the advice below (as provided in the Norfolk Vanguard scoping response) is relevant to this scoping report.

The onshore cable route and infrastructure has the potential to affect five European sites and several nationally designated sites. We advise that the cable route and infrastructure should avoid all designated sites, including local designated sites, in the first instance. If it is entirely unavoidable that the cable route will cross a designated site, for example as in the case of the river Wensum SAC, we would expect potential installation options to be discussed during the Evidence Plan process and appropriate survey data and mitigation provided. Please be advised that many of the habitats and designated sites along the route are ecologically linked (this is particularly the case when considering nationally and locally designated sites and habitats near to the River Wensum and within the Norfolk Valley Fens SAC network of sites) and therefore effects on any designated sites should not be considered alone but in the context of the wider environment.

Internationally designated sites

The River Wensum SAC:

The cable route has potential to directly affect both the hydrological processes and habitats present within the River Wensum SAC. There are many springs and seepages along the length of the river which would not be detectable during a desk study, and if missed has the potential to damage the river system, resulting in changes to the direction and speed of flow of the river. Furthermore there are floodplain meadows that form an integral part of the SAC that may be directly damaged by setting up the start of the underground cable within the wrong location. We therefore recommend that prior to any decisions on location a hydro-ecologist is employed to survey the area, to check for seepages/springs and to review where to place the cable to avoid damaging the habitats associated with the SAC. We would welcome placement of the cable as far away from the river as feasible, to protect the habitats and wildlife present in close proximity to the river.

A further concern relates to invasive species. It appears that the cable route will also need to cross several rivers and hydrological systems, such as the river Glavin. There is potential for the works to spread invasive species between the rivers and other features. For example it would be possible to contaminate the sites selected for crayfish relocations around North Norfolk, by re-introducing crayfish plague to these sites. Other species in this area that could be transmitted to other locations include the Chinese Mitten Crab and Killer Shrimp. As well as the potential to spread species and disease across waterways, whilst working on the river bank there is potential to spread invasive plant species such as Himalayan Balsam. Therefore it is very important that an invasive species protocol is included in the Environmental Statement. There is also potential to pollute the river during construction or maintenance and therefore we expect the Environmental

Statement explain how it is intended to avoid these issues and to include an Environmental Construction Management Plan (CEMP) to protect the river from pollution during works.

A qualifying species of the Wensum SAC is Desmoulin's land snail. This species is likely to be present throughout the area surrounding the Wensum, being particularly prevalent in locally designated greenspace nearby such as Lenwade and Witchingham Common. A survey should therefore be carried out along the route, which should take place mid to late summer.

Norfolk Valley Fens SAC and component SSSIs:

The area along the cable route includes several sites that form part of the Norfolk Valley Fens SAC. These sites, along with many of the locally designated sites in the area, form a complex network of hydrologically linked sites which are very sensitive to changes in water levels or flow. Some of the sites that form part of this network and may be affected by the cable route are Alderford Common, Swanningate Ugate Common, Booton Common and Potter and Scarning Fens East Dereham SSSIs (though this list is not exhaustive); we recommend that a desk study is carried out to ensure that all SSSIs associated with this SAC that may be affected by the cable route are scoped into the assessment. We advise that the Environmental Statement considers in detail how the placement of the route will affect surface water flow across any of the sites that are components of the Norfolk Valley Fens SAC, along with any County Wildlife sites with a hydrological focus.

Broadland SPA, Ramsar and North Norfolk Coast SPA:

Broadland SPA is at some distance from the cable route and proposed infrastructure sites and therefore we would not expect direct effects to this site, or to any of its component SSSIs. However the proposal could result in loss of habitat that is functionally linked to these European sites and in disturbance to birds using this habitat during construction. Therefore we advise that a survey to ascertain whether there is any functionally linked habitat in the vicinity of the route is carried out to inform the need for more detailed survey (if necessary). It is likely that the main species of concern within the European and International sites would be Brent and Pink footed geese (although all interest features of the sites should be considered). We advise that wintering wigeon and bean goose are qualifying species of the Yare Broads and Marshes SSSI.

Paston Great Barn SAC/SSSI also lies close to the beginning of the cable route (near Bacton). This site is designated as the only known example of a maternity roost of barbastelle bat in a building. We advise that bat surveys will need to be carried out all along the route and draw your attention to this particular site, which will need to be considered in the context of the Habitats Regulations Assessment if there is potential to affect foraging features of its qualifying species.

Nationally designated sites

As well as all the hydrological issues outlined in the context of the European sites, the nationally designated sites along the route have separate interest features that will need to be taken into account. The river Wensum SSSI, Alderford Common SSSI and many of the other nationally and locally designated sites along the route support breeding birds including barn owl, kingfisher, warblers and turtle doves, for example. Therefore we advise that full breeding bird surveys are undertaken along the full length of the route and mitigation provided accordingly. Also, we advise that best practice is to reinstate as much habitat along the route that supports breeding birds as possible, such as field margins, hedgerows, trees and scrub.

Further sites that will need consideration along the route are Cawston and Marsham Heaths, Foxley Wood, Honeypot Wood and Beetley and Hoe Meadows SSSIs, all of which are designated as representative of rare habitats. Cawston and Marsham Heaths is the largest area of Heather-dominated heathland now remaining in east Norfolk whilst Foxley Wood (SSSI and NNR) is the largest example of ancient woodland in Norfolk. Sites designated as examples of particular

habitats evidently need to be avoided and consideration should be given on how to avoid pollution of any of these sites.

We have not covered all the SSSIs that may be affected along the route here as we wish to highlight the main issues. However, we advise that all nationally designated sites within the cable route area are given consideration. Further information on SSSIs and their interest features can be found at www.magic.gov. We recommend that the Environmental Statement should include a full assessment of the direct and indirect effects of the development on the features of special interest within all designated sites that have potential to be affected by the cable route and should identify such mitigation measures as may be required in order to avoid, minimise or reduce any significant impacts.

Locally designated sites

Natural England advises that the Environmental Statement should consider any impacts upon local wildlife or geological sites and avoid these sites where possible, or mitigate for any impacts. Note that many of these sites link directly to SSSIs along the routes, such as Beetley and Hoe Meadows CWS, which is adjacent to the SSSI of the same name. More information on all the county wildlife sites in Norfolk can be found here: <http://www.nbis.org.uk/CWS>.

Cumulative Impacts

Natural England has particular concerns regarding the cumulative effects of the onshore Vattenfall and Boreas landfall site when considered in-combination with the proposed Hornsea 3 onshore cable route. The proximity of the two routes has potential to heighten effects at both cable locations, for example in terms of disturbance to species and disruption of hydrological processes. We expect a full assessment of all potential effects due to the combination of these two cable routes in the Environmental Statement.

The landfall presents a complicated scenario for the cable route when considered alone, but this is of further concern due to the proximity of the two proposed cables at the beginning of the onshore sections. The routes pass close to Bacton Gas Terminal, which is located in close proximity to the cliffs along the North Norfolk coastline, including Mundesley Cliffs SSSI. The cliffs are made of soft material and, despite the presence of a number of coast protection structures, are highly vulnerable to erosion. During the December 2013 storm, the cliff line receded by up to ten metres at the toe of the cliff, with up to three metres lost at the top of the cliff imposing an increased risk to the security of the gas supply process assets within the site. In addition, there are 15 pipelines beneath the beach that may be at risk of exposure and damage. The pipelines come onshore buried beneath the beach and then reach the terminal through shafts located behind the cliffs.

Natural England is also currently working on an application involving short term protection works around Bacton and this is coupled with long term coastal defence works involving sand scraping planned over the next 5-20 years which has potential to alter coastal processes. Furthermore new rights have now commenced on the stretch of coastal path within the vicinity of Bacton. Norfolk County Council, who is the access authority, will lead on resolving a day to day management issues such as the need for a temporary closure and alternative route to enable a sea defence scheme. Taking all that into account, we would expect a comprehensive assessment of in-combination and cumulative effects involving all the above.

Protected Species

We recommend that the Environmental Statement should assess the impact of all phases of the proposal on protected species. The proposed cable route crosses areas known to support high numbers of great crested newt, bats and breeding birds. Badger, reptile, water voles, invertebrates and botanical surveys will also be necessary. We advise that records of protected species are

sought from appropriate local biological record centres, nature conservation organisations, groups and individuals. Consideration should be given to the wider context of the site, for example in terms of habitat linkages and protected species populations in the wider area, to assist in the impact assessment. Natural England has adopted standing advice for protected species which includes links to guidance on survey and mitigation which we hope you will find helpful and can be found on our website

We note that as well as the species listed above, we recommend a thorough assessment of the impact of the proposals on habitats and/or species listed as 'Habitats and Species of Principal Importance' within the England Biodiversity List, published under the requirements of S41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act 2006 places a general duty on all public authorities, including local planning authorities, to conserve and enhance biodiversity. Further information on this duty is available in the Defra publication 'Guidance for Local Authorities on Implementing the Biodiversity Duty'.

Landscape and visual impacts

As the proposed wind farm is evidently near the Norfolk Coast Area of Outstanding Natural Beauty (AONB), consideration should be given to the direct and indirect effects upon this designated landscape. In particular consideration should be given the effect upon its purpose for designation, as well as the content of its management plan.

The EIA should include a full assessment of the potential impacts of the development on local landscape character using landscape assessment methodologies. We encourage the use of Landscape Character Assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.

Natural England supports the publication Guidelines for Landscape and Visual Impact Assessment, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for landscape and visual impact assessment.

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 112 of the National Policy Planning Framework (NPPF). We also recommend that soils should be considered under a more general heading of sustainable use of land and the ecosystem services they provide as a natural resource in line with paragraph 109 of the NPPF.

Necton Parish Council

Parish Office, Necton Community Centre
13 Tun's Road, Necton. Norfolk. PE37 8EH



Hannah Pratt
Senior EIA & Land Rights Advisor
On behalf of the Secretary of State
By email – environmentalservices@pins.gsi.gov.uk

Parish Clerk & RFO:
Gabrielle Joyce

Tel: 01760 721665

22 May 2017

Dear Hannah,

Application by Vattenfall Wind Power Ltd for an Order Granting Development Consent for the Norfolk Boreas Offshore Wind Farm

Further to your letter by email 09 May 2017, we wish to inform the Secretary of State of the following information we consider should be provided in the environmental statement.

- A comprehensive traffic management plan, considering the impact on the A47 particularly between Fransham and Necton junctions, currently a single carriageway with multiple speed limits. The wider impact on the A47 should be assessed, as this is the primary east-west route for Norfolk.
- The traffic management plan should also recognise that this section of the A47 lies within an expanding residential area, with approximately 300 new dwellings anticipated in Necton alone over the next 10 years. A sector standard measurement of 6-8 car movements a day per dwelling should be used when calculating impact.
- An assessment of the long-term visual impact on the area, taking into consideration the existing sub-stations at Necton and the wind turbines at South Pickenham and Swaffham. The review must consider the rate of industrialisation of this rural landscape.
- Consideration should be given to providing infrastructure that is more in-keeping with the surrounding agricultural environment, such as using green and brown colours, housing where possible within structures that are sympatric with the agricultural environment.
- Construction noise calculations, provided in an easy to understand format, i.e. comparison with other similar noise types. This should also cover the length of time noise will be experienced and the mechanisms in place for monitoring, evaluation and a community communication plan that includes advance warning as well as a detailed complaint management schedule with proper accountability and consequence.
- A clear plan regarding light management during construction and operation. We would want to see that energy conservation is actively practiced and not just incorporated into proposal documentation. Ideally, a robust system of penalties applied on breach of procedure actively policed by an identified independent organisation. We would want to see the same procedures in place across the National Grid compound.

Website: www.nectonparishcouncil.norfolkparishes.gov.uk

Necton Parish Council is the sole Trustee of Necton Rural Community Centre.
Registered Charity No: 304016.



- Assurances that conditions applied through the planning process on Vattenfall will be transferred to any subsequent owner of any and all parts of the project.
- A detailed landscaping plan, ensuring best use of the existing land features, such as undulations and woodland copses; to include a timetable, begin at pre-construction stage and be applied alongside construction so that when the works are complete, the selected plant-life has matured.
- A plan detailing how contractors will be selected for the groundworks associated with both the cable route and the sub-station. This plan would include expected standards relating to skills, experiences, licences, etc. of contractors and their sub-contractors.
- A detailed report on the consideration of alternative sites for the sub-station, including sites outside the selected area.

We recognise that this project is of national significance and we agree with the need for such projects, however, the explosion of substation infrastructure within the vicinity of Necton is a genuine concern for our residents and we expect that their voices be heard and concerns sensitively addressed.

We look forward to having these wishes respected in an Environmental Statement.

Yours sincerely,

Gabrielle Joyce
Clerk to Necton Parish Council

Norfolk County Council comments on the Norfolk Boreas Offshore Wind Farm Environmental Impact Assessment Scoping Report

June 2017

1. Introduction
 - 1.1. The County Council welcomes the opportunity to comment on the Scoping Report. The officer-level comments below are made on a without prejudice basis and the County Council reserves the right to make further comments on the above proposal throughout the Development Consent Order (DCO) / application process.
2. Strategic Comments
 - 2.1. **General** - the Scoping Report is considered very comprehensive and addresses most of the issues the County Council would expect to see in an EIA. Attached to this schedule (Appendix 1) is the County Council's standard Scoping Opinion statement in respect to both onshore and offshore wind farms and their ancillary development. The County Council would ask that this Standard Scoping Opinion be taken into consideration along with the comments below:
 - 2.2. **Transport / Highways** – it is felt that Para 1335 needs to be expanded to say that open cut trenching will be restricted on A and B routes at all times unless there is a technical reason why this is not possible otherwise the County Council is satisfied with the level of detail expressed in the Scoping Report regarding transport and highway matters.
 - 2.3. **Environment** – The County Council is satisfied with the level of detail expressed in the Scoping Report regarding environment matters.
 - 2.4. **Historic Environment** - The County Council is satisfied with the level of detail expressed in the Scoping Report regarding historic environment matters.
 - 2.5. **Onshore cable route & onshore relay station** – it is felt that as part of the EIA there needs to be an investigation into the opportunities for using the imported electricity to provide power to the local network (132 kv) particularly, but not exclusively, in the North Walsham area where it is understood there are energy deficits. The Scoping Report refers to a potential cable relay station being sited in one of the seven cable relay station zones. It is understood that there may be the possibility of extending this distance, which could include bringing the market town of North Walsham within the scope of the search area and thus allow for some local benefits in terms of electricity supply. The EIA ought to address whether there is any opportunity for such an option.

The EIA should also consider whether there are any opportunities for using the offshore electricity supply elsewhere in Norfolk (i.e. to feed into the local networks – 132kv) prior to grid connection into the 400kv network. In addition to the electricity

supply deficits that exist around North Walsham there are also electricity supply issues around the Snetterton area. The EIA should consider the potential opportunities arising from the offshore wind farm as a means of addressing local supply issues in the County.

- 2.6. **National Grid (400 kv network)** – The EIA needs to consider the wider implications and impact on the 400 kv network resulting from the Norfolk Vanguard proposal. The EIA should also consider the cumulative impacts on the network associated with other consented; and planned offshore proposals, which will connect into the Grid in Norfolk. In particular the EIA should consider whether there will be a need for the existing 400 kv network to be either:
 - (a) Reinforced; and/or
 - (b) Upgraded involving new overhead lines.
- 2.7. While the 400 kv network lies outside the scope of the above proposal there will clearly be a demonstrable impact on the National Grid infrastructure in terms of grid connection and its overhead lines.
- 2.8. **Commercial Fishing** - the Scoping Report specifically refers to the need to take into account the potential cumulative impacts of other wind farm developments within the former East Anglia Zone (page 161 para 622). While supporting this principle, it is felt that the EIA should take into account the wider cumulative impacts arising from other operational, consented and proposed wind farms off the Norfolk Coast (i.e. taking into account wind farms consented under earlier consenting rounds / licencing regimes). Commercial fishing contributes to the coastal economy in Norfolk and as such the impacts of this proposal alongside those already operation, consented or planned needs to be carefully considered.
- 2.9. **Shipping and Navigation** – The Scoping Report (page 183 paragraph 716) refers to the potential cumulative impacts on shipping and navigation arising from other sites in the former East Anglia Zone. This needs to be extended to the wider cumulative impacts arising from other operational, consented and proposed wind farms off the Norfolk Coast (i.e. taking into account wind farms consented under earlier consenting rounds / licencing regimes). The impacts need to be considered in terms of (a) commercial shipping; (b) fishing vessels and (c) recreational vessels. The County Council acknowledges that it will be a matter for the appropriate regulatory bodies to comment on the detailed matters relating to shipping and navigation, however, the County Council is keen to ensure that there will not be any demonstrable negative impact on Norfolk's ports as a consequence of the proposed offshore wind farms and any potential change in shipping and navigational routes.
- 2.10. **Onshore Cumulative Impacts** – The County Council welcomes reference on page 369 paragraph 1393 to the need to take into account the onshore cumulative impacts arising from this and other proposals. The EIA should consider the opportunities for any potential synergy with other planned/proposed wind farms, particularly in relation to the possibility of sharing onshore infrastructure such as cable routes; relay stations and substation connection points.
- 2.11. **Security** – The EIA should address what security measures will be put in place both during construction and when the project is operational. Given the significant amounts of electricity potentially to be generated from the above proposal (18 GW), the County Council would want reassurance that security for any onshore facilities

has been properly and effectively addressed and will not have any adverse impacts on local communities or services.

- 2.12. Should you have any queries with the above comments please contact Laura Waters on 01603 638038 or email laura.waters@norfolk.gov.uk

3. **Minerals and Waste**

- 3.1. Minerals and waste comments are as follows:

- 3.2. 3.5.1.6 – Local planning policies and designations

This section refers to the adopted Norfolk Minerals and Waste Core Strategy and Development Management Policies DPD or the Minerals and Waste Site Specific Allocations DPDs, and this welcomed by the Mineral and Waste Planning Authority.

- 3.3. 3.2 Ground Conditions and contamination

3.2.1.1. The Mineral Planning Authority welcomes the inclusion of Mineral Safeguarding Areas into the baseline information.

- 3.4. 3.2.1.3 Mineral Safeguarding Areas

This section refers to the Mineral Safeguarding Areas (sand and gravel) that underlie the onshore scoping area. This is welcomed by the Mineral Planning Authority.

- 3.5. 3.2.2.1 Potential impacts during construction

Paragraph 906. The reference to the potential reuse of aggregate arisings from the cable trench, during the construction phase is welcomed.

- 3.6. 3.2.4.2 Mineral resources

Paragraphs 922 - 924 The Mineral Planning Authority supports the approach to be taken to identify potential volumes of excavated mineral and reuse opportunities during the construction phase, and that this will be set out in a Materials Management plan.

It is also welcomed that safeguarded existing mineral and waste sites and allocations will be assessed as part of the report, and that mitigation will be suggested to address any potential impacts.

- 3.7. Should you have any queries with the above minerals and waste comments please contact Richard Drake (Senior Planner) on 01603 222349 or email richard.drake@norfolk.gov.uk

4. **Lead local Flood Authority**

- 4.1. The County Council have reviewed the Scoping report and wish to make the following comments.

- 4.2. It is strongly recommend that any EIA includes Flood Risk Assessments (FRA's) and surface water drainage strategies that address

- Local sources of flood risk, including those from ordinary watercourses, surface runoff and groundwater
- How surface water drainage will be managed on the substation sites and show compliance with the written Ministerial Statement HCWS 161 by ensuring that Sustainable Drainage Systems for the management of run-off are put in place.
- Post construction ground levels not disrupting current overland flow routes along and across the alignment of the proposed underground cables for land at risk of flooding.
- Temporary arrangements to maintain overland flow paths that cross the alignment of the proposed underground cables for land at risk of flooding.
- The requirement to seek consent from Norfolk County Council (NCC) for works that affect the flow in ordinary watercourses outside of the control of an IDB.

4.3. This supporting information would assess the potential for the development to increase the risk of flooding from the proposal or how surface water runoff through the addition of hard surfaces. It will show how this will be managed to ensure that the development does not increase flood risk on the site or elsewhere, in line with National Planning Policy Framework (paragraph 103).

4.4. In this particular case this would include appropriate information on;

- Sustainable Drainage Systems (SuDS) proposals in accordance with appropriate guidance including “Non-statutory technical standards for sustainable drainage systems” March 2015 by Department for Environment, Food and Rural Affairs.

4.5. The County Council welcome that the Scoping Report indicates that Flood Risk Assessments (FRA’s) will be undertaken and it is recommended these will be based on the requirements of the National Planning Policy Framework (NPPF) and in line with Planning Practice Guidance (PPG)

4.6. The County Council also welcome that the applicant indicates that the EIA will include drainage strategies. As such it is recommended that appropriate SuDS features are included in the design assessment of the proposed development in accordance with policy guidelines. Where any SuDS are proposed it is important to demonstrate that the “SuDS hierarchy” has been followed both in terms of:

- surface water disposal location, prioritised in the following order: disposal of water to shallow infiltration, to a watercourse, to a surface water sewer, combined sewer / deep infiltration (generally greater than 2m below ground level),
- the SuDS components used within the management train (source, site and regional control).

4.7. The County Council note the following criteria from the Scoping report and welcome these considerations that are applicable to Flood and Water Management issues.

Proximity to residential properties;

Proximity to Source Protection Zones (SPZ);

Flood risk;

Minimise requirement for complex crossing arrangements, e.g. road, river and rail crossings; and

Avoiding ponds and agricultural ditches;

- 4.8. Further to the criteria mentioned above it is noted the following settlements have historical flooding issues and are likely to be sensitive to disruptions to the wider drainage networks:

North Walsham - Drains to the North east (North Walsham and Dilham Canal) and South West (Skeyton Beck);

Dereham - Drains to the East (via Dereham Stream to Wending Beck);

Necton - Drains to the South (River Wissey).

- 4.9. Generally any proposed cable route will likely cross watercourses within the catchments of the River Ant, the River Bure and the River Wensum and will end up crossing the headwaters of the River Wissey. There are significant lengths of potentially affected Watercourses in the search area that are controlled by the Norfolk Rivers IDB for which they will need to be consulted on separately.
- 4.10. Please note, if there are any works proposed as part of this application that are likely to affect flows in an ordinary watercourse outside of the IDB areas, then the applicant is likely to need the approval of the County Council. In line with good practice, the Council seeks to avoid culverting, and its consent for such works will not normally be granted except as a means of access. It should be noted that this approval is separate from planning.
- 4.11. The County Council would appreciate the applicant advising Council's Water Management team, as soon as practicable, the approximate number of crossings of Ordinary Watercourses and the required timeframes for approval. This will enable the team to have adequate staffing resources in place to ensure approvals are not unduly delayed. A previous approval process for a similar project resulted in 90 separate consents which represents a significant draw on the team's resources to process. The flood and Water management team are happy to engage in this process prior to application.
- 4.12. Once the potential sites for the Substations and route location for the cables have been finalised the County Council would expect a drainage strategy to assess and justify compliance with the SuDS hierarchy for surface water disposal location. This would include:

(a) Demonstration of infiltration testing completed to BRE365 requirements or equivalent (including 3 infiltration tests in quick succession at each location tested, each location would be representative across the site and be at depths anticipated to be used on site). A description of where any infiltration is anticipated to be used in full or partially drained SuDS components within a strategy.

(b) If site wide infiltration is not appropriate due to unfavourable rates, demonstration with evidence as to why there cannot be a connection made to the nearest watercourse.

(c) As a final option, demonstration with evidence that Anglian Water would accept a connection to a surface water sewer.

- 4.13. The drainage strategy should also contain a maintenance and management plan detailing the activities required and details of who will adopt and maintain the all the surface water drainage features for the lifetime of the development.
- 4.14. The County Council would advise the applicant that the CIRIA SuDS Manual C697 (2007) has recently been updated, report C753 (2015) is now available free on the CIRIA website. It is expected that any information submitted after 12 March 2016 to use the 2015 SuDS Manual.
- 4.15. On the 19th February 2016, the Environment Agency updated the guidance on climate change allowances for peak river flow and rainfall intensity. The information for the Anglian Region and transitional arrangements for use within the planning process can be found at <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>. The County Council highlight that peak river flow climate change allowances should be considered for ordinary watercourses as well as main rivers.
- 4.16. Further guidance for developers can be found on our website at <https://www.norfolk.gov.uk/rubbish-recycling-and-planning/flood-and-water-management/information-for-developers>
- 4.17. Should you have any queries with any of the above comments please contact Matt Aitchison (Flood Risk Officer) on 01603 223618 or email llfa@norfolk.gov.uk

Norfolk County Council

Standard Scoping Response to:

Wind Farm Proposals - Potential Information Requirements for inclusion in an / Environmental Impact Assessment / Preliminary Environmental Impact Report (EIA/PEIR)

(May 2017)

The following areas ought to be addressed/covered in the Environmental Impact Assessment (EIA) / Preliminary Environmental Impact Report:

(a) Landscape

1. Landscape and Visual Assessment Including Impact on Heritage Landscape

For both offshore and any associated onshore development / infrastructure (e.g. work compound, sub-station; relay stations etc) the EIA/PEIR will need to provide:

- An assessment of the impact of the development on the landscape and seascape character (where visible from onshore), including landscape in neighbouring counties where they fall within the zone of visual influence;
- An assessment of the visual intrusion caused by the development which should include the preparation of a Zone of Visual Intrusion plan/map;
- Photomontages illustrating the impact of the development (See also Grid Connection Issues below);
- An assessment of the cumulative impact of this development taken together with the other (a) operational wind farms, (b) permitted wind farms in the area and (c) development proposals likely to come forward; and
- An assessment of the impact of the development on the heritage landscape.

2. Transport and Landscape Issues

The EIA/PEIR will need to evaluate the impact on the landscape of upgrading existing roads and creating new access routes in the construction and operational phase of the project (including enhanced signage) as all of this can sub-urbanise a rural landscape. It will also need to consider how these should be mitigated, perhaps through removal and reinstatement at the end of the project. Please also refer to *Highway - Traffic and Access* section.

3. Tourism and Landscape Issues

The EIA/PEIR will need to address the impact of the wind farm on tourism, including tourism occurring in neighbouring counties, which may be affected if the natural landscape is altered sufficiently.

Grid Connection and Landscape Issues

The EIA/PEIR will need to address whether the existing overhead lines and substation are sufficient to be able to cope with the Wind Farm, or whether there will need to be any upgrading of any existing overhead power lines. The EIA/PEIR should also address the cumulative impact on the Grid Network arising from any existing or proposed Wind Farm in the area.

In the event that new power lines are needed (or existing power lines up-graded) or any other infrastructure needs up-grading (e.g. sub-station) there would need to be a description of the route(s) including plans at an appropriate scale incorporating, for example:

- an assessment of their impact (e.g. photomontages etc).
- details of temporary construction compounds
- identification of any sensitive features along route

The EIA/PEIR should consider the possibility of putting over-head power lines underground in order to minimise their impact.

For further information please contact Zoe Tebbutt (Green Infrastructure Officer) on 01603 222768.

(b) Ecology

The ES/EIA will need to address the potential impact on Ecology, including in particular, impact on the following interests:

- designated sites e.g. Sites of Special Scientific Interest (SSSI), National Nature Reserves, Special Protection Areas (SPA), Special Area for Conservation (SAC), County Wildlife Sites (CWS) etc;
- Coastal and sedimentary processes;
- Marine benthos (wildlife of the seabed);
- Fish resources;
- Marine mammals; and
- Birds.

The need to consider cumulative impact is a requirement of the EIA process. This is of particular importance when considering ecological impacts. Projects to be incorporated in such an assessment must include those in the past, present and foreseeable future. Projects to be incorporated in such an assessment must include not only other potential wind farms but also other types of project taking place in the marine environment or onshore so that all elements of the infrastructure are assessed.

For further information I would suggest you contact Dr David White (Green Infrastructure Officer) on 01603 222768.

(c) Cultural Heritage and Archaeology

These issues should be discussed with Norfolk Historic Environment Service Planning Team on 01362 869278 or hep@norfolk.gov.uk

(d) Socio-Economic

Commercial Fishing – The EIA/PEIR should consider the potential impact of the offshore scheme, including any underwater cable routes and other ancillary development, on Norfolk's commercial fishing interests. The EIA will need to consider the wider cumulative impacts taking into account existing operational wind farm; those under constructions; those consented and those in planning. The EIA should set out appropriate mitigation, and where necessary indicate what compensation, will be given to those commercial fishing interests in Norfolk adversely impacted by the operation of the wind farm and/or ancillary development. In addition the EIA should provide an indication of the likely impact on the local fishing industry particularly when other proposals are taken into account;

Shipping/Navigation and Ports – The EIA should indicate that suitable navigation and shipping mitigation measures can be agreed with the appropriate regulatory bodies to ensure that Norfolk's Ports (King's Lynn and Wells) are not adversely affected by this proposal. The EIA will need to consider the wider cumulative impacts taking into account existing operational wind farm; those under constructions; those consented and those in planning

Tourism – The EIA should consider the likely impacts on Norfolk's tourism sector;

Economic development - It would be helpful if the EIA/PEIR could provide accurate figures of those likely to be employed both during construction and once the Wind Farm is fully operational. There should also be a statement as to whether the labour would be sourced from local firms or if expertise would need to be imported to the region.

(e) Highway – Traffic and Access

The comments below relate to the onshore works associated with any offshore schemes including: construction of ancillary facilities such as sub-stations; cabling routes; and transporting and servicing of equipment.

1. **Vehicles** – define the nature of the traffic likely to be generated. In addition for the largest vehicles proposed to use each access route(s) this must include: -
 - minimum width (including unhindered horizontal space)
 - vertical clearance
 - axle weight restriction
2. **Access & Access Route** – description of the route (including plans at an appropriate scale incorporating swept-path surveys). Assessment to include site inspection and details of contact with the appropriate Highway Authority (including the Highways Agency for Trunk Roads where applicable). In addition: -
 - details of any staff/traffic movements/access routes;
 - detailed plans of site access/es incorporating sightline provision

- confirmation of any weight restrictions applicable on the route together with details of contact with the relevant Bridge Engineer
 - overhead/ underground equipment – details of liaison with statutory undertakers - listing statutory undertakers consulted together with a copy of their responses
 - details of any road signs or other street furniture along each route that may need to be temporarily removed/relocated
3. **Impacts during construction** – are any special requirements needed and if so provide details e.g.:-
- timing of construction works
 - removal of parked vehicles along the route(s) – full details will need to be provided – including whether or not alternative parking arrangements are being offered or bus services provided in lieu of potential loss of ability to use private cars
 - removal and reinstatement of hedgerows – since these are usually in private ownership has contact been made with the owners. Has formal legal agreement been reached or are negotiations pending/ in progress
 - identification of the highway boundary along the construction traffic route together with verification from the Highway Authority
 - confirmation of whether the identified route involves the acquisition of third party land and if so has consent been given, (verbal or has a formal legal agreement been entered into)
 - confirmation of any required third party easements – e.g. will construction vehicles need to overhang ditches (these are usually in private ownership), private hedges or open land adjacent to the highway. If so, details of consent (verbal or a formal written agreement)
 - any modifications required to the alignment of the carriageway or verges/over-runs
 - identification of sensitive features along route
 - trimming of overhead trees – has a survey been undertaken to identify trees that will need to be trimmed and if so what steps have been undertaken to identify the owners of those trees
 - confirmation of whether any affected trees are covered by a tree preservation order
 - confirmation of whether any of the verges along the route(s) are classified as SSSI or roadside Nature Reserve status. If so, detail any impact
 - confirmation of any extraordinary maintenance agreement/s required by the Highway Authority
4. **Cabling route/grid connection** – description of the route/s including plans at an appropriate scale, incorporating, for example:
- assessment to include site inspection and details of contact with the appropriate Highway Authority (including the Highways Agency for Trunk Roads where applicable)
 - traffic details of grid connection enabling works
5. **Impacts during operation**
- details of type and frequency of vehicle to be used to service the facility/structure(s) when in operation
 - details of any long-term highway impact e.g. will trees and hedgerows need additional trimming to allow access for service vehicles
 - position of structures relative to public highways and/or public rights of way – the minimum distance of which should be no less than 50m

- assessment of any impact on adjacent/affected public rights of way e.g. horses and pedestrians – e.g. with a wind farm are the blades positioned in close proximity to bridleways such that flicker may startle horses
6. **Impacts during decommissioning** – define the expected life span of the facility/structure(s).
- provide details of decommissioning works including an assessment of whether or not the structure is to be scrapped - i.e. can it be broken up on site and removed or will it require the same logistical process as initial construction.

For further Information on highway related matters I would suggest you contact John Shaw (Senior Engineer) on 01603 223231.

Dear Sir/Madam,

YR Ref: EN010087-000008 (Norfolk Boreas Offshore Wind Farm - scoping consultation)

Thank you for the recent correspondence inviting Consultees to propose information they wish included within the Environmental Statement of the Norfolk Boreas Offshore Wind Farm.

As the Architectural Liaising Officer for North Norfolk, my role within the planning process is to give advice on behalf of Norfolk Constabulary in relation to the layout & environmental design of the proposal and the physical security of buildings, based upon the established principles of 'Designing out Crime'. This will involve the plans for onshore infrastructure rather than the offshore farm itself and input will be implemented at the appropriate stage.

At this phase I would request that awareness and commitment to the 'Designing out Crime' principle is acknowledged and to use this opportunity to draw the applicant's (Vattenfall Wind Power Ltd) attention to Secured By Design (SBD), a national crime prevention initiative based upon the principles of "*designing out crime*" which incorporates the latest security standards to address emerging criminal methods of attack. Secured by Design has been proven to reduce the opportunity for crime and the fear of crime, creating safer, more secure and sustainable environments.

Within the **Norfolk Boreas Offshore Wind Farm: Environmental Impact Assessment Scoping Report, Royal Haskoning DHV (May 2017)** it is stated under Project Description 1.5.4 Onshore

249. Security at the cable relay station and onshore project substation would be provided using perimeter fencing and gates, plus intruder detection and closed-circuit television (CCTV) systems.

The Industry Guides found on the Secure by Design website endeavour to provide as much information as possible to assist in making an initial assessment to improve quality and standards in respect of the proposed development <http://www.securedbydesign.com/industry-advice-and-guides/> the relevant guide being SBD Commercial 2015 V2 [dealing with the development layout and design (Section 1) and all external features and providing detailed technical standards for various elements of the building (Section 2)].

Please note/ This Consultee scoping invitation has been forwarded to the Counter Terrorism Security Advisers at Norfolk Constabulary for their independent input.

With Regards, Penny Turner

Penny Turner

**Architectural Liaison & Crime Reduction Officer
Broadland and North Norfolk**

Sprowston Police Station
105-109 Wroxham Road
Norwich
NR7 8TU

Mobile: [REDACTED]
Email: turnerp@norfolk.pnn.police.uk

[Click here for further Crime Reduction Advice](#)

This e-mail carries a disclaimer

Go here to view [Norfolk Constabulary Disclaimer](#)



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Ms Hannah Pratt
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The Planning Inspectorate
3D Eagle Wing
Temple Quay House
2 The Square
Bristol BS1 6PN

Your Ref: EN010087-00008

Our Ref: 31382

6th June 2017

Dear Hannah

**Re: Scoping Consultation
Application for an Order Granting Development Consent for the proposed
Norfolk Boreas Offshore Wind Farm**

Thank you for including Public Health England (PHE) in the scoping consultation phase of the above application. Our response focuses on health protection issues relating to chemicals and radiation. Advice offered by PHE is impartial and independent.

At this point in time, there is no body of evidence conclusively linking wind farms with adverse health effects arising from emissions of chemicals. When operational, wind farms should not produce emissions, pollutants, or waste products. Offshore wind farms are located out to sea, away from members of the public, hence the potential for the public to be affected by any emissions from them is very small. However, there is potential for impacts to arise during the construction and decommissioning phases from the transport of material and equipment (e.g. accidental leaks, spills, and releases). The movement of material off-site has the potential to lead to impacts, if not properly managed (e.g. associated with contaminated land or dredged sediment). PHE would expect the applicant to adhere to best practice guidance during these phases and for them to ensure that potential impacts are assessed and minimised.

We welcome the promoter's proposal to include a Health Impact Review (HIR) within the Environmental Statement (ES), which will review the health impact of onshore aspects of the project that will be presented in other chapters (i.e. air quality, waste, contaminated land etc.). In terms of the level of detail to be included in an ES, we

recognise that the differing nature of projects is such that their impacts will vary. 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 promoters should fully explain and justify their rationale in the submitted documentation.

PHE provides advice on standards of protection for exposure to non-ionising radiation, including the static magnetic fields, and power frequency electric and magnetic fields associated with windfarm power lines and associated equipment. A summary of this advice is provided as a separate annex to this document.

The attached appendix outlines generic areas that should be addressed by all promoters when preparing ES for inclusion with an NSIP submission. We are happy to assist and discuss proposals further in the light of this advice.

Yours sincerely,

Robie Kamanyire

nsipconsultations@phe.gov.uk

Please mark any correspondence for the attention of National Infrastructure Planning Administration.

Appendix: PHE recommendations regarding the scoping document

General approach

The Environmental Impact Assessment (EIA) should give consideration to best practice guidance such as the Government's Good Practice Guide for EIA¹. It is important that the EIA identifies and assesses the potential public health impacts of the activities at, and emissions from, the installation. Assessment should consider the development, operational, and decommissioning phases.

It is not PHE's role to undertake these assessments on behalf of promoters as this would conflict with PHE's role as an impartial and independent body.

Consideration of alternatives (including alternative sites, choice of process, and the phasing of construction) is widely regarded as good practice. Ideally, EIA should start at the stage of site and process 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 ES².

The following text covers a range of issues that PHE would expect to be addressed by the promoter. However this list is not exhaustive and the onus is on the promoter to ensure that the relevant public health issues are identified and addressed. PHE's advice and recommendations carry no statutory weight and constitute non-binding guidance.

Receptors

The ES should clearly identify the development's location and the location and distance from the development of off-site human receptors that may be affected by emissions from, or activities at, the development. Off-site human 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. 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 due to construction and decommissioning should consider potential impacts on all receptors and describe monitoring and mitigation during these phases. Construction and decommissioning

¹ Environmental Impact Assessment: A guide to good practice and procedures - A consultation paper; 2006; Department for Communities and Local Government. Available from: <http://webarchive.nationalarchives.gov.uk/20100410180038/http://communities.gov.uk/planningandbuilding/planning/sustainability/environmental/environmentalimpactassessment/>

² DCLG guidance, 1999 <http://www.communities.gov.uk/documents/planningandbuilding/pdf/155958.pdf>

will be associated with vehicle movements and cumulative impacts should be accounted for.

We would expect the promoter to follow best practice guidance during all phases from construction to decommissioning to ensure appropriate measures are in place to mitigate any potential impact on health from emissions (point source, fugitive and traffic-related). An effective Construction Environmental Management Plan (CEMP) (and Decommissioning Environmental Management Plan (DEMP)) will help provide reassurance that activities are well managed. The promoter should ensure that there are robust mechanisms in place to respond to any complaints of traffic-related pollution, during construction, operation, and decommissioning of the facility.

Emissions to air and water

Significant impacts are unlikely to arise from installations which employ Best Available Techniques (BAT) and which meet regulatory requirements concerning emission limits and design parameters. However, PHE has a number of comments regarding emissions in order that the EIA 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 appropriate screening assessments and detailed dispersion modelling where this is screened as necessary
- should encompass all pollutants which may be emitted by the installation in combination with all pollutants arising from associated development and transport, ideally these should be considered in a single holistic assessment
- should consider the construction, operational, and decommissioning phases
- should 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
- should fully account for fugitive emissions
- should include appropriate estimates of background levels
- should 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)
- should include consideration of local authority, Environment Agency, Defra national network, and any other local site-specific sources of monitoring data

- should compare predicted environmental concentrations to the applicable standard or guideline value for the affected medium (such as UK Air Quality Standards and Objectives and Environmental Assessment Levels)
 - If no standard or guideline value exists, the predicted exposure to humans should be estimated and compared to an appropriate health-based value (a Tolerable Daily Intake or equivalent). Further guidance is provided in Annex 1
 - 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
- should 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

Whilst screening of impacts using qualitative methodologies is common practice (e.g. 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 EIA 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.

Additional points specific to emissions to air

When considering a baseline (of existing air quality) and in 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)
- should include modelling using appropriate meteorological data (i.e. come from the nearest suitable meteorological station and include a range of years and worst case conditions)
- should include modelling taking into account local topography

Additional points specific to emissions to water

When considering a baseline (of existing water quality) and in the assessment and future monitoring of impacts these:

- should include assessment of potential impacts on human health and not focus solely on ecological impacts
- should identify and consider all routes by which emissions may lead to population exposure (e.g. surface watercourses; recreational waters; sewers; geological routes etc.)
- should assess the potential off-site effects of emissions to groundwater (e.g. on aquifers used for drinking water) and surface water (used for drinking water abstraction) in terms of the potential for population exposure
- should include consideration of potential impacts on recreational users (e.g. from fishing, canoeing etc) alongside assessment of potential exposure via drinking water

Land quality

We would expect the promoter to provide details of any hazardous contamination present on site (including ground gas) as part of the site condition report.

Emissions to and from the ground should be considered in terms of the previous history of the site and the potential of the site, once operational, to give rise to issues. Public health impacts associated with ground contamination and/or the migration of material off-site should be assessed³ and the potential impact on nearby receptors and control and mitigation measures should be outlined.

Relevant areas outlined in the Government's Good Practice Guide for EIA include:

- effects associated with ground contamination that may already exist
- effects associated with the potential for polluting substances that are used (during construction / operation) to cause new ground contamination issues on a site, for example introducing / changing the source of contamination
- impacts associated with re-use of soils and waste soils, for example, re-use of site-sourced materials on-site or offsite, disposal of site-sourced materials offsite, importation of materials to the site, etc.

³ Following the approach outlined in the section above dealing with emissions to air and water i.e. comparing predicted environmental concentrations to the applicable standard or guideline value for the affected medium (such as Soil Guideline Values)

Waste

The EIA should demonstrate compliance with the waste hierarchy (e.g. with respect to re-use, recycling or recovery and disposal).

For wastes arising from the installation the EIA should consider:

- 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

Other aspects

Within the EIA PHE would expect to see information about how the promoter 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.

The EIA should include consideration of 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 2009: both in terms of their applicability to the installation itself, and the installation's potential to impact on, or be impacted by, any nearby installations themselves subject to the 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 report⁴, jointly published by Liverpool John Moores University and the 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 EIAs as good practice.

Electromagnetic fields (EMF)

There is a potential health impact associated with exposure to the electric and magnetic fields produced around substations, power lines and cables. The following

⁴ Available from: <http://www.cph.org.uk/wp-content/uploads/2012/08/health-risk-perception-and-environmental-problems--summary-report.pdf>

information provides a framework for considering the health impact, including the direct and indirect effects of exposure.

Policy Measures for the Electricity Industry

In 2004, the Government adopted the exposure guidelines published in 1998 by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) within the framework of the 1999 EU Council Recommendation on limiting exposure of the general public (1999/519/EC). In 2009, one additional precautionary policy was introduced relating to the optimum phasing of high-voltage power lines. The National Policy Statement for Electricity Network Infrastructure EN-5 confirms these policies, and the Department of Energy and Climate Change (DECC) has published two accompanying Codes of Practice, agreed between the Energy Network Association and the Government, which specify how the guideline compliance and the optimum phasing requirements are implemented:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/37447/1256-code-practice-emf-public-exp-guidelines.pdf

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48309/1255-code-practice-optimum-phasing-power-lines.pdf

A companion code of practice dealing with indirect effects of exposure to power frequency electric fields is also available:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/224766/powerlines_vcop_microshocks.pdf

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 was published by one of PHE's predecessor organisations (NRPB) in 2004 based on an accompanying comprehensive review of the scientific evidence:-

<http://webarchive.nationalarchives.gov.uk/20140629102627/http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1502/>

Updates to the ICNIRP guidelines for static fields have been issued in 2009 and for low frequency fields in 2010. However, the Government policy is that the ICNIRP guidelines are implemented in line with the terms of the 1999 EU Council Recommendation on limiting exposure of the general public (1999/519/EC):

http://webarchive.nationalarchives.gov.uk/+www.dh.gov.uk/en/PublicHealth/HealthProtection/DH_4089500

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 the field. The ICNIRP guidelines published in 1998 give reference levels for public exposure to 50 Hz electric and magnetic fields, and these are 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 the basic restrictions and reducing the risk of indirect effects.

Long term effects

There is concern about the possible effects of long-term exposure to electromagnetic fields, including possible carcinogenic effects at levels much lower than those given in the ICNIRP guidelines. In the NRPB advice issued in 2004, it was concluded that the studies that suggest health effects, including those concerning childhood leukaemia, 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 implementing precautionary measures for extremely low frequency electric and magnetic fields (ELF EMFs), and to make practical recommendations to Government:

<http://www.emfs.info/policy/sage/>

SAGE published its First Interim Assessment in 2007, recommending various low cost measures aimed at reducing exposure. One of the recommendations was the introduction of optimal phasing of dual circuit high voltage power lines, which the Government supported in its response published in 2009. Government was also asked to consider the option to create corridors adjacent to high voltage power lines on health grounds; however, this was not supported as it was regarded to be disproportionate given the evidence base on the potential health risks arising from exposure. The full Government response to SAGE's First Interim Assessment is available here:

http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_107124

SAGE also called for more information to be made available to the public on the possible health consequences of power frequency electric and magnetic fields, and the Health Protection Agency developed new web material, which is available here:

<http://webarchive.nationalarchives.gov.uk/20140629102627/http://www.hpa.org.uk/Topics/Radiation/UnderstandingRadiation/UnderstandingRadiationTopics/ElectromagneticFields/ElectricAndMagneticFields/>

Liaison with other stakeholders, comments should be sought from:

- the local authority for matters relating to noise, odour, vermin and dust nuisance
- the local authority regarding any site investigation and subsequent construction (and remediation) proposals to ensure that the site could not be determined as 'contaminated land' under Part 2A of the Environmental Protection Act
- the local authority regarding any impacts on existing or proposed Air Quality Management Areas
- the Food Standards Agency for matters relating to the impact on human health of pollutants deposited on land used for growing food/ crops
- the Environment Agency for matters relating to flood risk and releases with the potential to impact on surface and groundwaters
- the Environment Agency for matters relating to waste characterisation and acceptance
- the Clinical Commissioning Groups, NHS commissioning Boards and Local Planning Authority for matters relating to wider public health

Annex 1

Human health risk assessment (chemical pollutants)

The points below are cross-cutting and should be considered when undertaking a human health risk assessment:

- The promoter should consider including Chemical Abstract Service (CAS) numbers alongside chemical names, where referenced in the ES
- Where available, the most recent United Kingdom standards for the appropriate media (e.g. 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, those recommended by the European Union or World Health Organisation can be used
- When assessing the human health risk of a chemical emitted from a facility or operation, the background exposure to the chemical from other sources should be taken into account
- 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 'Margin of Exposure' (MOE) approach⁵ is used

⁵ Benford D et al. 2010. Application of the margin of exposure approach to substances in food that are genotoxic and carcinogenic. Food Chem Toxicol 48 Suppl 1: S2-24



Norfolk Boreas Offshore Wind Farm

Royal Mail Group Limited comments on information to be provided in applicant's Environmental Statement

Introduction

Reference the letter from PINS to Royal Mail dated 6 May 2017 requesting Royal Mail's comments on the information that should be provided in Vattenfall Wind Power Limited's Environmental Statement.

Royal Mail's consultants BNP Paribas Real Estate have reviewed the applicant's Scoping Report as submitted to PINS on 8 May 2017.

Royal Mail– relevant information

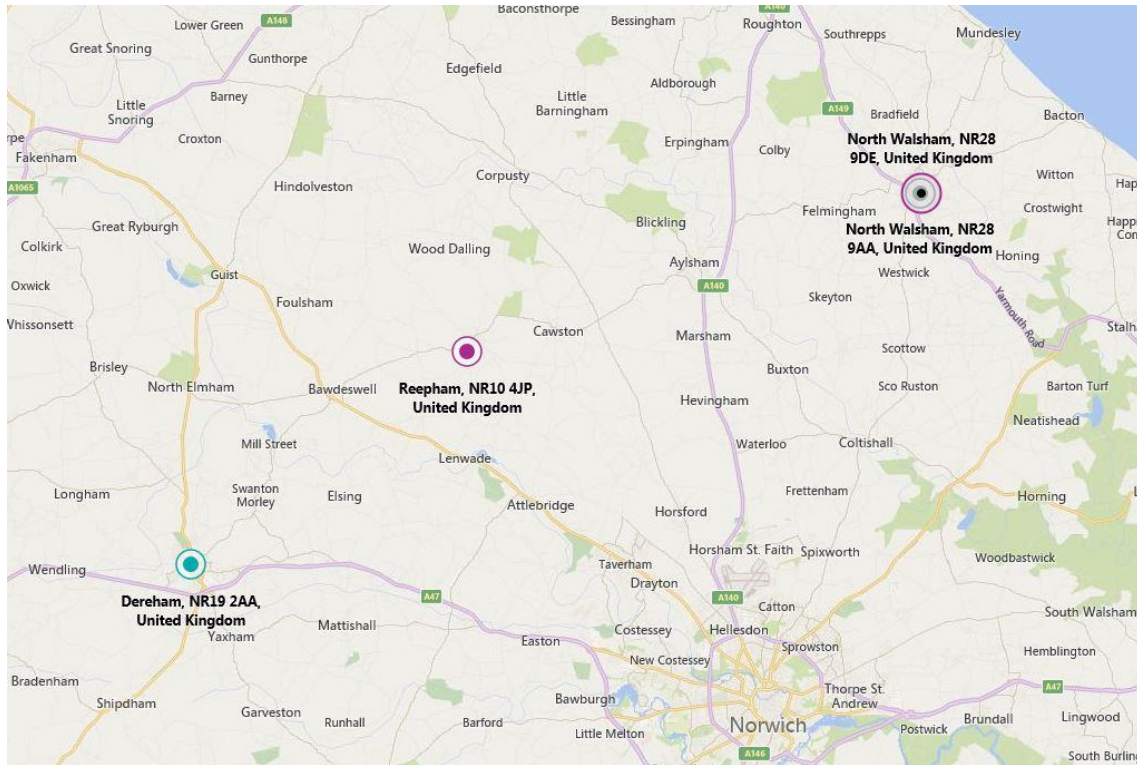
Royal Mail is responsible for providing efficient mail sorting and delivery nationally. As the Universal Service Provider under the Postal Services Act 2011, Royal Mail has a statutory duty to deliver mail to every residential and business address in the country as well as collecting mail from all Post Offices and post boxes six days a week.

Royal Mail's postal sorting and delivery operations rely heavily on road communications. Royal Mail's ability to provide efficient mail collection, sorting and delivery to the public is sensitive to changes in the capacity of the highway network.

Royal Mail is a major road user nationally. Disruption to the highway network and traffic delays can have direct consequences on Royal Mail's operations, its ability to meet the Universal Service Obligation and comply with the regulatory regime for postal services thereby presenting a significant risk to Royal Mail's business.

As listed and located on the plan below, Royal Mail has four operational properties that are situated close to the onshore infrastructure scoping area as set out in the Scoping Report.

North Walsham Delivery Office	New Road, North Walsham NR28 9AA
North Walsham Vehicle Parking	New Road, North Walsham NR28 9DE
Reepham Vehicle Parking	School Road, Reepham NR10 4JP
Dereham Delivery Office	Quebec Street, Dereham NR19 2AA



In exercising its statutory duties Royal Mail vehicles use on a daily basis all of the main roads that may potentially be affected by additional traffic arising from the construction of the onshore infrastructure associated with Norfolk Boreas Offshore Wind Farm.

Royal Mail therefore wishes to ensure the protection of its future ability to provide an efficient mail sorting and delivery service to the public in accordance with its statutory obligations which may potentially be adversely affected by the construction and operation of this proposed scheme.

Comments / observations on the applicant's Scoping Report

Vattenfall's scoping report indicates that the construction phase will result in a requirement for the import/export of materials and plant to the landfall zone, onshore cable route, onshore project substation, cable relay station, Necton National Grid extension and overhead line modification. At this initial stage, first draft material and workforce schedules have been used as an approximation of traffic generation for Norfolk Boreas.

Potential for construction traffic impact and need for mitigation requirements are presently being investigated by Royal Haskoning on behalf of Vattenfall. Results are not available at this point in time.

Based on the scoping report it appears that there is potential for operational disruption to Royal Mail road based operations during the proposed construction of the onshore infrastructure. However, without detailed information on infrastructure locations within the onshore infrastructure search area, it is not possible to accurately assess impacts on Royal Mail properties and operations.



Royal Mail's comments on information that should be provided in Vattenfall Wind Power Limited's Environmental Statement

Royal Mail has the following comments / requests:

1. More information should be provided in the ES by Vattenfall Wind Power Limited on the locations of all the onshore infrastructure elements, details of how and when these infrastructure elements will be constructed, the resultant traffic impact during the construction phase and the mitigation measures that are required. This information should be supported by a TA with an appropriate traffic model.
2. Royal Mail requests that the ES includes information on the needs of major road users (such as Royal Mail) and acknowledges the requirement to ensure that major road users are not disrupted through full advance consultation by the applicant at the appropriate time in the DCO and development process.
3. The ES should include detailed information on the construction traffic mitigation measures that are proposed to be implemented, including a draft Construction Traffic Management Plan (CTMP).
4. Royal Mail considers that full attention is given to the potential for cumulative traffic impact during the construction and operation phases. The ES should address the potential cumulative traffic effects arising from the construction of Norfolk Boreas alongside Norfolk Vanguard and all other proposed major developments in the area.
5. Royal Mail requests that it is fully pre-consulted by Vattenfall Wind Power Limited on any proposed road closures / diversions/ alternative access arrangements, hours of working and the content of the CTMP. The ES should acknowledge the need for this consultation with Royal Mail and other relevant local businesses / occupiers.

Royal Mail is able to supply the applicant with information on its road usage / trips if required.

Should PINS or Vattenfall Wind Power Limited have any queries in relation to the above then in the first instance please contact Jennifer Douglas (jennifer.douglas@royalmail.com) of Royal Mail's Legal Services Team or Daniel Parry-Jones (daniel.parry-jones@bnpparibas.com) of BNP Paribas Real Estate.

From: [Christopher Raine](#)
To: [Norfolk Boreas](#)
Cc: [Jo Hobbs](#)
Subject: Norfolk Boreas Offshore Wind Farm (ref EN010087-000008).
Date: 24 May 2017 12:58:21
Attachments: [image001.gif](#)
[image002.gif](#)
[image003.gif](#)
[image004.gif](#)

Dear Sir/Madam

I can confirm that South Norfolk Council do not have any comments to make in respect of scoping consultation for Norfolk Boreas Offshore Wind Farm (ref EN010087-000008).

Should you require any further information, please do not hesitate to contact me.

Kind Regards

Chris

Christopher Raine
Senior Planning Officer
t 533841 e craine@s-norfolk.gov.uk www.south-norfolk.gov.uk



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From: [REDACTED]
To: [Norfolk Boreas](#)
Subject: Proposed Norfolk Boreas Offshore Wind Farm
Date: 11 May 2017 23:26:37

Suffield Parish Council

Mrs Sheila Vince
Clerk - Suffield Parish Council

Larksfield, Rectory Road
Suffield, Norwich
Norfolk
NR11 7EW

Dear Hannah Pratt

In response to the Norfolk Vattenfall Offshore Wind Farm proposed cable corridor across North Norfolk and the siting of a heavy machinery mobilisation area (compound) in Suffield, we, Suffield Parish Council have serious concerns. Our most pressing concern is over access, especially as the Suffield compound would be set up prior to the construction of the corridor and may be in use for up to two years. Access to the proposed site would be by means of narrow, rural, single lane roads that could not accommodate heavy vehicles and machines. (photographs enclosed).

Other serious issues are:

1. The proposed site is in the curtilage of Keepers Cottage, a privately owned, listed building. Proximity of the cottage to the narrow road would further restrict access.
2. The proposed site is predominantly a wet area that is unsuitable for heavy vehicles and machines especially in winter.
3. The Suffield site is in a highly sensitive rural location and installation of a compound would have significant negative impacts including noise, air, light, water and wetland pollution; damage to trees, hedgerows, verges, ditches, ponds and wildlife.

The siting of the Suffield compound seems totally at odds with Vattenfall's stated intention of minimising damage and disruption to otherwise unspoilt natural areas.

We understand that the heavy machinery mobilisation areas are to be sited every 5kms along the corridor; however, as the distance between the A149 and A140 compounds, at 6.6 km, is only slightly in excess of 5 km, we believe that having an intermediate compound in Suffield could readily be avoided.

In summary, we believe that there should not be a compound in Suffield because of access limitations, impact on Keeper's Cottage, unsuitability of the terrain, environmental impact and the readily available alternative of feeding the development from the main compounds on the major roads.

Yours sincerely
Mary Edmunds - Chairman of Suffield Parish Council

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From: [REDACTED]
To: [Norfolk Boreas](#)
Subject: Your Ref: EN010087-000008
Date: 30 May 2017 10:31:54

Dear Sir/ Madam

Planning Act 2008 (as amended) and the Infrastructure Planning (EIA) Regulations 2009 (as amended) (the EIA Regulations) - Regulations 8 and 9

Application by Vattenfall Wind Power Ltd for an Order Granting Development Consent for the Norfolk Boreas Offshore Wind Farm

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

<https://infrastructure.planninginspectorate.gov.uk/document/EN010087-000015>

Swafeld and Bradfeld Parish Council does not wish to comment on this application.

Yours faithfully

Ros Calvert

Clerk to the Council

<http://swafieldandbradfieldparishcouncil.co.uk/>

01263 732078

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From: [Stephen Vanstone](#)
To: [Norfolk Boreas](#)
Cc: [Thomas Arculus](#); [Trevor Harris](#); [Nicholas Saunders](#)
Subject: RE: Norfolk Boreas Offshore Wind Farm - scoping consultation
Date: 05 June 2017 10:30:19
Attachments: [Letter to stat cons Scoping and Reg 9 Notification.pdf](#)

Good morning Hannah,

Trinity House would expect the following to form part of the Environmental Statement:

Navigation Risk Assessment

- Comprehensive vessel traffic analysis in accordance with MGN 543.
- The possible cumulative and in-combination effects on shipping routes and patterns should be fully assessed.
- Any proposed layouts should conform with MGN 543, however, should some structures such as OSP's lie outwith the actual wind farm turbine layout, then additional risk assessment should be undertaken.

Risk Mitigation Measures

- We consider that the wind farm will need to be marked with marine aids to navigation by the developer/operator in accordance with the general principles outlined in IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) Recommendation O-139 on the Marking of Man-Made Offshore Structures as a risk mitigation measure. In addition to the marking of the structures themselves, it should be borne in mind that additional aids to navigation such as buoys may be necessary to mitigate the risk posed to the mariner, particularly during the construction phase. All marine navigational marking, which will be required to be provided and thereafter maintained by the developer, will need to be addressed and agreed with Trinity House. This will include the necessity for the aids to navigation to meet the internationally recognised standards of availability and the reporting thereof.
- Appropriate buffer zone relating to the IMO Deep Water Route to the west of this project should be fully considered.
- National trans-boundary issues should be assessed, through consultation with the Dutch authorities.
- A decommissioning plan, which includes a scenario where on decommissioning and on completion of removal operations an obstruction is left on site (attributable to the wind farm) which is considered to be a danger to navigation and which it has not proved possible to remove, should be considered. Such an obstruction may require to be marked until such time as it is either removed or no longer considered a danger to navigation, the continuing cost of which would need to be met by the developer/operator.
- The possible requirement for navigational marking of the export cables and the vessels laying them. If it is necessary for the cables to be protected by rock armour, concrete mattresses or similar protection which lies clear of the surrounding seabed, the impact on navigation and the requirement for appropriate risk mitigation measures needs to be assessed.

Kind regards,

Steve Vanstone
Navigation Services Officer
Trinity House

From: Norfolk Boreas [mailto:NorfolkBoreas@pins.gsi.gov.uk]

Sent: 09 May 2017 08:58
To: Navigation
Cc: Thomas Arculus
Subject: Norfolk Boreas Offshore Wind Farm - scoping consultation

Dear Sir or Madam

Please see attached correspondence on the proposed Norfolk Boreas Offshore Wind Farm.

Please note the deadline for consultation responses is 6 June 2017 and is a statutory requirement that cannot be extended.

Kind regards
Hannah

Hannah Pratt
Senior EIA and Land Rights Advisor
Major Applications and Plans
The Planning Inspectorate, 3D, Temple Quay House, Temple Quay, Bristol, BS1 6PN

Direct Line: 0303 444 5001
Helpline: 0303 444 5000
Email: Hannah.pratt@pins.gsi.gov.uk

Web: <https://infrastructure.planninginspectorate.gov.uk/> (National Infrastructure Planning)
Web: www.gov.uk/government/organisations/planning-inspectorate (The Planning Inspectorate)

Twitter: [@PINSgov](https://twitter.com/PINSgov)

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From: [Dig](#)
To: [Norfolk Boreas](#)
Subject: RE: Norfolk Boreas Offshore Wind Farm - scoping consultation
Date: 09 May 2017 09:35:30
Attachments: [image001.png](#)

Good morning,

With regards to your below request, this is not Wales & West Utilities area. This falls within National Grid's area, contact details for them below:

Email: plantprotection@nationalgrid.com
Telephone: 0800 688588

If you have any further questions please don't hesitate to contact me. Many thanks

Kind Regards,

Ellie Sims
Plant Protection Team
Administrator Assistant

Telephone: **02920 278 912**
Email: Ellie.Sims@wwutilities.co.uk

Wales & West Utilities Ltd | Wales & West House | Spooner Close | Celtic Springs | Newport | NP10 8FZ



Georgie

From: Norfolk Boreas [<mailto:NorfolkBoreas@pins.gsi.gov.uk>]
Sent: 09 May 2017 08:36
Subject: Norfolk Boreas Offshore Wind Farm - scoping consultation

Dear Sir or Madam

Please see attached correspondence on the proposed Norfolk Boreas Offshore Wind Farm.

Please note the deadline for consultation responses is 6 June 2017 and is a statutory requirement that cannot be extended.

Kind regards
Hannah

Hannah Pratt
Senior EIA and Land Rights Advisor
Major Applications and Plans
The Planning Inspectorate, 3D, Temple Quay House, Temple Quay, Bristol,
BS1 6PN

Direct Line: 0303 444 5001
Helpline: 0303 444 5000
Email: Hannah.pratt@pins.gov.uk

Web: <https://infrastructure.planninginspectorate.gov.uk/> (National Infrastructure Planning)
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