

Norfolk Boreas Offshore Wind Farm

Applicant's Comments on Responses to the Examining Authority's Written Questions

**Late Submissions and Additional Comments
received at Deadline 3**

Applicant: Norfolk Boreas Limited
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Photo: Ormonde Offshore Wind Farm

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Glossary of Acronyms

AEol	Adverse Effect on Integrity
ALO	Agricultural Liaison Officer
CoCP	Code of Construction Practise
DCO	Development Consent Order
dDCO	Draft Development Consent Order
DML	Deemed Marine Licence
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
EPS	European Protected Species
ES	Environmental Statement
ExA	Examining Authority
HHW	Haisborough Hammond and Winterton
HRA	Habitats Regulations Assessment
HVDC	High Voltage Direct Current
IPMP	In Principle Monitoring Plan
km	Kilometres
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
NE	Natural England
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OCoCP	Outline Code of Construction Practise
OFH	Open Floor Hearing
OFTO	Offshore Transmission Owner
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Information Report
RR	Relevant Representation
SAC	Special Area of Conservation
SIP	Site Integrity Plan
SNCB	Statutory Nature Conservation Body
SoCG	Statement of Common Ground
TWT	The Wildlife Trusts
UXO	Unexploded Ordnance
WDC	Whale and Dolphin Conservation
WSI	Written Scheme of Investigation

Glossary of Terminology

Evidence Plan Process	A voluntary consultation process with specialist stakeholders to agree the approach to the EIA and information to support the HRA.
Landfall	Where the offshore cables come ashore at Happisburgh South.
Link boxes	Underground chambers or above ground cabinets next to the cable trench housing low voltage electrical earthing links.
National Grid overhead line modifications	The works to be undertaken to complete the necessary modification to the existing 400kV overhead lines.
National Grid overhead line temporary works	Area within which the work will be undertaken to complete the necessary modification to the existing 400kV overhead lines.
National Grid substation extension	The permanent footprint of the National Grid substation extension.
Necton National Grid substation	The grid connection location for Norfolk Boreas and Norfolk Vanguard.
Norfolk Boreas site	The Norfolk Boreas wind farm boundary. Located offshore, this will contain all the wind farm array.
Norfolk Vanguard	Norfolk Vanguard offshore wind farm, sister project of Norfolk Boreas.
Offshore cable corridor	The corridor of seabed from the Norfolk Boreas site to the landfall site within which the offshore export cables will be located.
Offshore export cables	The cables which transmit power from the offshore electrical platform to the landfall.
Onshore cable route	The up to 35m working width within a 45m wide corridor which will contain the buried export cables as well as the temporary running track, topsoil storage and excavated material during construction.
Onshore infrastructure	The combined name for all onshore infrastructure associated with the project from landfall to grid connection.
Onshore project area	The area of the onshore infrastructure (landfall, onshore cable route, accesses, trenchless crossing zones and mobilisation areas; onshore project substation and extension to the Necton National Grid substation and overhead line modifications).
Onshore project substation	A compound containing electrical equipment to enable connection to the National Grid. The substation will convert the exported power from HVDC to HVAC, to 400kV (grid voltage). This also contains equipment to help maintain stable grid voltage.
Overhead Line	An existing 400kV power line suspended by towers.
Project interconnector search area	The area within which the project interconnector cables would be installed.
The Applicant	Norfolk Boreas Limited
The project	Norfolk Boreas Wind Farm including the onshore and offshore infrastructure.
Trenchless crossing compound	Pairs of compounds at each trenchless crossing zone to allow boring to take place from either side of the crossing.
Trenchless crossing zone	Areas within the onshore cable route which will house trenchless crossing entry and exit points.

1.1 The Applicant's Responses to ExA's First Written Questions with regard to the Norfolk Boreas application

1. Following the issue of First Written Questions by the Examining Authority (ExA) outlined in the Rule 8 Letter of 20 November 2019 to Norfolk Boreas Limited (the Applicant) and other Interested Parties, the Applicant subsequently responded to each of their relevant questions.
2. The Applicant's responses were detailed in numerical order in sections 1 to 16 of Norfolk Boreas's Deadline 2 submission – Responses to the Examining Authority's Written questions (REP2-020).
3. At Deadline 3 the Applicant provided comments on the responses from interested parties to the first written questions (REP3-003) which were submitted for, and published at, Deadline 2.
4. This document provides the Applicant's comments on interested parties' responses to the ExA's written questions which were received after the deadline for responses and, accordingly, were published at Deadline 3. Additional comments provided by interested parties' on the previous responses to the ExA's written questions were also received at Deadline 3. All of these responses and comments have been reviewed by the Applicant, and where a response is required it has been included within this document.

1 Archaeology and Heritage Assets

1.0 Offshore and intertidal archaeology and cultural heritage

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response
Q1.0.1	Historic England	Draft DCO and DML Archaeological WSI in intertidal zone 1. Does the dDCO adequately cover archaeological requirements regarding the intertidal zone? (The onshore Archaeological WSI extending to Mean High Water is secured by dDCO Requirement 23.) 2. How is it proposed to secure mitigation measures for the intertidal zone included in the outline offshore Archaeological Written Scheme of Investigation? The DMLs [Schedules 10 and 12 Part 4 Condition 9(1)(h)] secure the offshore Archaeological WSI covering land seaward of Mean LOW Water which therefore excludes the intertidal zone. 3. IPs to confirm they are content with the intertidal zone being excluded from the responsibilities defined via outline Onshore and Offshore Archaeological WSIs; or make suggestions for amendments, additions or deletions as appropriate.	It is possible that presently unknown military aircraft crash exists within the proposed development areas (turbine array, electricity export cable corridor and interconnector search area). The Applicant must therefore ensure that all programmes (e.g. unexploded ordnance risk assessment) that gather survey data (inclusive of geophysical data acquisition and visual inspection) are sufficient to support identification of seabed and sub-seabed anomalies as could indicate the presence of crashed (and highly fragmentary) aircraft materials.	All programmes that gather survey data would be agreed with the MMO in consultation with Historic England through the final WSI (offshore). The agreement process will look to ensure that the data collected are appropriate for the identification of seabed and sub-seabed anomalies which will include consideration of anomalies which might indicate the presence of crashed (and highly fragmentary) aircraft materials.
Q1.0.2	Historic England	Offshore Archaeological Written Scheme of Investigation Historic England to confirm via SoCG with the Applicant whether it is content with the outline offshore Archaeological WSI [APP-697] specifically regarding: 1. Definition of commencement; 2. Protection for archaeology during invasive pre-commencement survey works; 3. Protection for archaeology during invasive enabling works prior to primary works. 4. Archaeological assessment of UXO survey data; 5. Archaeological data acquisition and management post-consent; 6. Procedures and timescale for notification of new discoveries 7. Monitoring plans	We note that the question directed to the Applicant directs particular attention to how a WSI produced for this proposed project would secure cumulative data gathered from multiple projects. We confirm that it is an important component of any agreed WSI that it contains a timeframe (as informed by any DCO) regarding the completion of all necessary programmes of archaeological investigation and the deposit of data and information with local and national archives. However, the detail of the WSI will only specify matters as relevant to this development and therefore will not specifically address multiple (i.e. other seabed development) projects. In our Written Representation (dated 10th December 2019) we highlighted in paragraph 5.16 the commitment made by the Applicant to make data available for a wider strategic study of palaeo-environmental evidence. The crucial matter to enable such a strategic study to occur is predicated on the Applicant ensuring that all matters associated with completion of archiving responsibilities for this project are completed.	Through the WSI the Applicant has provided their commitment to ensuring that archiving responsibilities for this project are completed. The Applicant is in discussions with Historic England and has proposed a number of updates to the outline WSI (offshore) [APP-697] including the provision of an anticipated timeline to illustrate where consultation and agreement with Historic England will occur and when data will be made available. It should be noted that the Applicant submitted the relevant Application documents to Historic England's OASIS data collection database on the 21 st of January 2020. This has been done ahead of and is an example of the Applicant's commitment to providing data in a timely manner.
Q1.0.8	Historic England	Archaeological Exclusion Zones (AEZs) in offshore works area Explain why [APP-697] proposes a 50m AEZ around all known wreck sites and A1s and A3s with no differentiation; and why a differential AEZ dimension is not considered appropriate for certain A1s or known wrecks, with specific reference to Feature 70809, Seagull wreck and Feature 70834 Xanthe wreck.	The use of Archaeological Exclusion Zones (AEZs) is in recognition of different seabed development activities and their associated risk to either known or unknown elements of the historic environment as might be present. The primary function in the use of AEZs is as a mitigation measure to provide in-situ protection and therefore the spatial scale of an AEZ will vary on a case-by-case basis. It is therefore important that the archaeological Written Scheme of Investigation (WSI) produced from the outline WSI included within the DCO application explains how AEZs are identified, mapped, monitored and included within other relevant project delivery documentation used by the Consent Holder, contractors and sub-contractors (e.g. Offshore In Principle Monitoring Plan, DCO Document: 8.12, version 1, dated June 2019). In reference to the two designated historic shipwreck sites that exist within the proposed development Order Limits: <ul style="list-style-type: none">• The Seagull (Feature ID: 708091); and• Xanthe (Feature ID: 70834) It is important to offer the correction to the Applicant's response that these are now scheduled monuments and afforded statutory protection through the provisions of the Ancient Monuments and Archaeological Areas Act 1979. We also confirm that the List Entry for these two designated sites is available, as per the web links provided in our letter, dated 10 th December 2019 (response to First Written Questions) submitted for Deadline 2. The List Entry also spatially defines the scheduled area, for both these designated heritage assets, as 100m in radius and therefore the minimum spatial extent of any AEZ must be amended to accordingly within any offshore archaeological WSI produced post-consent, should permission be obtained.	It is noted that the Seagull and Xanthe have now been confirmed as scheduled monuments under the Ancient Monuments and Archaeological Areas Act 1979 (and not designated under the Protection of Wrecks Act 1978 as previously stated by the Applicant). It is also noted that the scheduled area for both wrecks is spatially defined as 100m in radius and that any AEZ applied by the project will reflect this as a minimum area for avoidance. The Applicant has proposed amendments to the outline WSI (offshore) [APP-697] to reflect this, which are currently being discussed with Historic England. The final WSI, which would be agreed with the MMO in consultation with Historic England, would include the relevant spatial extent for all AEZs which are being applied by the project. The final WSI would reflect the latest status of any historic shipwreck sites at the time of submission to the MMO.

2 Biodiversity, Biological Environment and Ecology

2.1 Offshore benthic and marine mammals

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
Q2.1.1	Marine Management Organisation	<p>Worst Case Scenarios</p> <p>MMO [RR-069] recommends a table that highlights the worst-case scenarios within each development consent option. The Applicant [AS024] stated that it is in discussions with the MMO as to what further information it required. 1. What is the additional information required? 2. Would the parties give an update regarding agreement of worst cases?</p>	<p>The MMO have discussed the concerns raised in the MMO Deadline 2 response on the usability of the Environmental Statement (ES) at the end of examination, with the applicant.</p> <p>The MMO understand that ES is produced with the Rochdale Envelope Approach, this is then refined during examination and through the submission of post consent documents.</p> <p>The MMO have concerns in relation to usability of the Environmental Statement (ES) at the end of examination in the context of monitoring and enforcement. Due to volumes of clarification documents, additional modelling and addenda supplied by the applicant throughout the Examination, it can be extremely challenging to locate the relevant documents postconsent in order to achieve clarity as to what had been consented. In order to reduce this substantial administrative burden on the MMO, it is strongly recommended that the ES is updated at the end of examination to include or highlight these new documents.</p> <p>The MMO and the Applicant will continue discussions through the SoCG during examination.</p>	<p>The Applicant has discussed this further with the MMO at a meeting on the 9th of January and it has been agreed that updating the ES may not be the most appropriate way to address the MMOs concerns. The MMO have agreed to provide further suggestions on how documentation submitted during the application, throughout the examination, and post examination can be structured or referenced to best serve the purposes of the MMO in their role as regulator.</p> <p>However, the Applicant maintains the position that the ES is a record of what is assessed, not what is permitted and therefore does not require any updates. The relevant parameters consented are set out in the DCO/DML itself, and that is what should be relied upon post consent</p>

5 Development Consent Order and Deemed Marine licences

5.1 Articles

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
Q5.1.7	National Farmers' Union	<p>Article 16: Authority to survey and investigate the land onshore</p> <p>Is it likely that entry to land might be for purposes other than trial holes e.g. excavation and/ or bore-holes, and if this is so should be stated in the article?</p>	<p>Authority to survey and investigate land: The National Farmers' Union would like to see the following wording included in this Article:</p> <ul style="list-style-type: none"> • A new paragraph (3) 'The notice required under paragraph (2) must indicate the nature of the survey or investigation that the undertaker intends to carry out'. • Further to highlight any equipment to be used for the survey, an estimate of how long the surveys are expected to take. <p>If the Applicant does want to carry out boreholes under this Article then the National Farmers' Union would like to see this stated.</p> <p>The National Farmers' Union believes strongly that all DCOs going forward should fall in line with changes to compulsory purchase powers under the Neighbourhood Planning Act 2017. Taking land for temporary possession and only giving 14 days notice has become an issue on other infrastructure schemes especially HS2. HS2 already gives 28 days notice before temporary possession and 28 days notice has now been agreed on two DCO applications by Highways England for the A30 Chiverton to Carland Cross and A303 Stonehenge Scheme. Therefore, the National Farmers' Union would like to see the notice period at paragraph (2) of Article 26 changed to 28 days.</p>	<p>The Applicant considers that the extra wording proposed by the National Farmers' Union is onerous and would place an additional inefficiency on those undertaking the surveys, whereby should an extra investigation be required, the team would need to withdraw from the land and serve additional surveys, remobilise on site and enter the land a second time, increasing the duration of occupancy on the landowner's land and potentially increasing the risk of damage to the land and crops.</p> <p>The Applicant considers that boreholes are covered in the description of trial holes and no additional wording is required.</p> <p>In addition, the National Farmers' Union has raised a further point in relation to Article 26. The Applicant considers that as the relevant provisions of the Neighbourhood Planning Act 2017 are not yet in force, that the current proposed 14 day notice period is sufficient for these purposes.</p>

5.4 Other Requirements

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
Q5.4.2	National Grid	<p>Electricity into local transmission</p> <p>The Applicant's response to Norfolk County Council's RR [RR-037] request to work with the National Grid to feed electricity into local transmission [AS-024, Table 28, No 2] states that there are no planning or regulatory mechanisms through which the Applicant could identify direct 'infeeds' into the regional distribution network in Norfolk.</p> <p>Advise whether there is precedent; whether such an arrangement could be secured in the dDCO</p>	<p>National Grid is not aware of any precedent whereby an electricity distribution network operator like the UK Power Networks is directly connected to and takes supplies from Offshore Transmission Owner cables bringing power ashore from an offshore windfarm. In the UK separate Offshore Transmission Owners (OFTOs), which are neither windfarm developers nor the onshore transmission owners take responsibility for the OFTO assets under long term licences.</p> <p>The question of whether a distribution network operator could potentially connect to and take supplies from an OFTO, is a regulatory and licence questions for the OFTO, the electricity distribution network operator and Ofgem. It is not something that National Grid can answer.</p>	<p>The Applicant concurs with this response.</p>

6.0 Grid Connection

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
Q7.0.2	National Grid	Substation location IPs raise concerns in their RRs and at the Open Floor Hearing [EV4-001] in relation to the proposed expansion of Necton substation, questioning why Walpole substation is not considered to be the preferred location. The Applicant has set out its consideration of alternatives in the application documents [AS-024]. Provide further information in relation to these matters.	The identification of an efficient co-ordinated and economical onshore connection location is considered through the Connection Infrastructure Options Note (CION) process with input from National Grid Electricity System Operator (National Grid ESO) on system operational and power flow considerations, National Grid Electricity Transmission (NGET) on the national electricity transmission network works potentially required, and the offshore wind farm developer for the offshore and onshore OFTO cable routing considerations. The process looks at technical commercial, regulatory, environmental, planning and deliverability aspects to identify the most preferred connection to the consumer. The Electricity Act 1989 requires National Grid, when formulating proposals, to be efficient, coordinated and economic whilst also having regard to the environment. When the development being connected is offshore, both the offshore and onshore aspects need to be considered in that evaluation. Walpole was considered in the longlist of potential connection points considered at the initial stages of the CION process however was discounted in early shortlisting due to the very long connection route which was deemed economically and technically unviable due to the length of subsea and onshore cabling required including a potential route through the heavily environmentally designated wash being required.	Noted. The consideration of reasonable alternatives is set out in Chapter 4 of the ES (APP-217) and the Applicant has commented further in response to first written question 9.2.2 (REP2-021).
Q7.0.3	National Grid	Necton Substation and proposed extensions 1. Confirm the current site boundary and function of the existing Necton sub-station. 2. Outline all proposed extensions to the Necton sub-station, and all proposed additional project substations on the same site. Specify the purpose of each extension and additional project substations. 3. Confirm if the parameters (height, boundary) assessed in the ES Chapter 29 Landscape and Visual Impact Assessment [APP-242], for the substations extensions and additional project substations represent the worst-case Scenario.	The current site boundary of the Necton National Grid substation is as illustrated in the Applicant's Figure 5.5 [APP-269] and Figure 5.6 [APP- 270]. The function of the existing Necton National Grid substation is to facilitate connection of the Dudgeon offshore windfarm to the National Electricity Transmission System (NETS). An extension of the Necton National Grid substation to the west is proposed to facilitate the connection of Norfolk Vanguard or Norfolk Boreas (if Norfolk Vanguard does not proceed) to the NETS and would include overhead line modifications to provide further connectivity to the Necton National Grid substation to meet statutory security of supply requirements. An extension of the Necton National Grid substation to the east is proposed to facilitate the connection of Norfolk Boreas (if Norfolk Vanguard does proceed) to the NETS. No additional project substations are currently proposed at the Necton National Grid substation. The maximum height of 15m and boundary of 135m x 150m for an eastern extension (Norfolk Vanguard has proceeded) or 200m x 150m for a western extension (Norfolk Vanguard has not proceeded) represent the worst-case scenario Rochdale Envelope for the Necton National Grid substation extensions. There are no additional project substations currently proposed at the Necton National Grid substation.	Noted.
Q7.0.4	National Farmers' Union	Offshore Ring Main The Applicant has responded to matters raised in relation to an Offshore Ring Main (ORM) [AS-024, Table 28, No. 3]. Do IPs wish to comment further?	National Farmers' Union and LIG have been party to campaigning for the Government to produce a strategy such as an offshore ring main to prevent triplication and quadruplication of the onshore energy infrastructure required by the offshore wind farm industry. It has to be the responsibility of everybody involved to protect our environment and find a way that supports green energy that is sustainable to our countryside.	Noted.
Q7.0.4	National Grid	Offshore Ring Main The Applicant has responded to matters raised in relation to an Offshore Ring Main (ORM) [AS-024, Table 28, No. 3]. Do IPs wish to comment further?	With the Crown Estate's announcement of Round 4 seabed leasing and the Government's commitment to achieving Net Zero by 2050/ we are acutely aware that the future growth of offshore wind will require innovative and potential offshore solutions to ensure the impact of network connections is minimised.	Noted.

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
			<p>Whilst Round 3 wind farms including Norfolk Boreas/ are proceeding with radial connections in line with the findings of studies published in 2015, we are continuing to work with our customers, the Crown Estate, Ofgem and the Government to find the best solution for delivering this vital infrastructure that will be needed for Round 4 and future offshore wind. Connecting several future offshore wind farms via a ring main reducing the number of onshore connections is one possible solution that we are exploring. That though would require a policy framework which doesn't exist currently, to facilitate anticipatory investment in advance of confirmed development.</p>	

8.11 Marine Mammals

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
Q8.11.1	The Wildlife Trusts	<p>Request for Consultation TWT [RR-040] requests to be named for consultation on the Marine Mammal Management Plan and SIP. The Applicant [AS-024] agrees to consult with TWT during the process of developing the in-principle SIP [APP-708]. Can TWT confirm that it is content with this?</p>	<p>Although The Wildlife Trusts and the Applicant are in discussion regarding post-consent engagement, a final agreement has not yet been reached. We are working with the Applicant towards a Memorandum of Understanding to clarify and further the working relationship, particularly on the further work to be undertaken in the post-consent and pre-construction phase of the Project. We hope the this can be developed over the coming months to provide clarity and develop the post-consent relationship before the end of the examination process.</p> <p>Due to the uncertainty on impacts on marine mammals and effectiveness of mitigation at the time of consent, we wish to continue working with the Applicant post-consent on the development of the Site Integrity Plan (SIP), Marine Mammal Mitigation Protocol (MMMP), marine mammal monitoring and marine mammal European Protected Species (EPS) licences. The MMO is likely to consult TWT on the development of these documents. However, we recommend that Applicant follows best practice which other developers follow and works with TWT during the development of the various documents. As we have still not yet resolved the issue of post-consent engagement with the Applicant, we request to be named as a consultee with regards to the documents highlighted above.</p> <p>Regarding the applicant's commitment to engagement with TWT in the development of the SIP, the Applicant is only promising a copy of the document; information providing rather than engagement. This is not adequate and has the potential to cause problems for the applicant closer to construction. If our comments are only taken into account when the MMO consults just months before construction, this may be too late for our concerns to be resolved. We aim to work closely with developers to ensure that the issues we raise can be resolved at an early stage and this is catalogued through the evidence plan process. We are currently in discussion with the applicant on if this issue can be resolved via a Memorandum of Understanding (MoU).</p> <p>We are pleased that the monitoring requirements will be determined (post-consent) in consultation with TWT (and other consultees) as outlined in the Statement of Common Ground with the Applicant. We will work with the Applicant to capture this within the MoU.</p>	<p>The Applicant is continuing to work with TWT to agree the MoU.</p> <p>The MMMP for piling would be developed in consultation with the MMO and relevant SNCBs and the SIP contains the commitment to consult with TWT, stating that:</p> <p><i>There will be an ongoing requirement to review the need for project mitigation and management measures with the MMO and other relevant organisations, including Natural England, Whale and Dolphin Conservation (WDC) and The Wildlife Trust (TWT), as the project design and construction plans are progressed.</i></p>
Q8.11.4	Marine Management Organisation	<p>South North Sea SAC Can MMO advise whether there is likely to be any impediment to granting the licence for UXO clearance?</p>	<p>1.2.1 The MMO are unsure if this question relates to a marine wildlife licence or a marine licence for UXO clearance. Either way the MMO cannot guarantee the issue of a marine licence or wildlife licence as the outcome of an application cannot be predetermined.</p> <p>1.2.2 On submission of a wildlife or marine licence application the MMO will engage in a consultation process including our Statutory Nature Conservation Bodies (SNCBs) and any relevant interested party.</p> <p>1.2.3 For a wildlife licence the application may take about 8 weeks to process to determine whether any action carried out would impact the favourable conservation status of any UK or European Protected Species and consider alternatives or suitable mitigation to prevent harm or disturbance.</p>	<p>The MMO and the Applicant discussed this point during a meeting on the 9th January. The Applicant would like to clarify that licences to undertake UXO clearance, and therefore EPS licences associated with the UXO clearance, do not form part of the DCO application.</p>

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
			<p>1.2.4 For a marine licence application, the MMO aim to make a decision within 13 weeks of an application being validated. Applications are determined in line with Marine and Coastal Access Act 2009, including consideration of all relevant matters such as the need to:</p> <ul style="list-style-type: none"> - protect the environment - protect human health - prevent interference with legitimate uses of the sea 	
Q8.11.5	Marine Management Organisation	<p>Piling Hammer Energy A maximum hammer energy of 5,000kJ for driven or part-driven foundations is stipulated in Condition 14(3) (Schedule 9-10), and Condition 9(3) (Schedule 11-12) of the dDMLs [AS-019]. This does not reflect the maximum hammer energies stipulated for quadropod or tripod foundations, as described in ES Chapters 5 and 12. Applicant to comment.</p>	<p>The MMO have reviewed the comments along with what parameters should be included within the dDCO/DMLs and the MMO require the condition to be amended to the following:</p> <p>14(3) In the event that driven or part-driven pile foundations are proposed to be used, the hammer energy used to drive or partdrive the pile foundations must not exceed— (a) 5,000kJ in respect of monopile foundations; and (b) 2,700kJ in respect of pin piles.</p> <p>The MMO note that this is a similar condition to what has been included within the East Anglia One North and East Anglia 2 Offshore Wind Farm draft DCO/DML.</p>	<p>The Applicant considers that although the maximum hammer energy of 2,700kJ for pin-piles which could be used to install Jacket foundations is not listed within the dDCO, it is secured within document 8.13, the draft Marine Mammal Mitigation Protocol (APP-704). This document makes it clear that the worst case scenario for the hammer energy used to install pin-piles would be 2,700kJ and this is what has been assessed within the EIA and HRA. Therefore, the Applicant does not consider it necessary to include a maximum hammer energy for pin-piles within the DML condition. Notwithstanding this, The Applicant is content to update the condition to include specific reference to the hammer energy for pin-piles as follows:</p> <p><i>"14(3) In the event that driven or part-driven pile foundations are proposed to be used, the hammer energy used to drive or part-drive the pile foundations must not exceed— (a) 5,000kJ in respect of monopile foundations; and (b) 2,700kJ in respect of pin piles."</i></p> <p>The Applicant has discussed this with Natural England on the 8th January and the MMO on 9th January and during these dicussions agreed to make the suggested changes which have been included in the version of the draft DCO (Version 4) which has been submitted at Deadline 4.</p>

8.12 Benthic Ecology

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
Q8.12.3	Marine Management Organisation	<p>Annex 1 reef The Applicant [AS-024] in response to MMO's concern that the IPMP only proposes monitoring of Annex I reef and not wider benthic impacts [RR-069], states that the findings of benthic ecology assessment do not warrant a full-scale programme. What is MMO's response?</p>	<p>1.3.1 The MMO are of the opinion that benthic surveys (in addition to Annex I) should be undertaken for all OWFs. This is due to the still unknown long-term impacts of the existence of multiple turbine foundations on subtidal benthic habitats and species. Due to this uncertainty, precautionary approach should be adopted.</p> <p>1.3.2 Although the Environmental Statement concluded impact on the benthic habitats and species to be no greater than minor adverse, it is the responsibility of the developer to validate the predictions in the ES via site specific monitoring.</p> <p>1.3.3 The MMO 2014 review (MMO, 2014) highlighted the uncertainty in relation to localised effects of turbines, in particular, and the consequential effects on fauna in a wider area. Any areas of uncertainty should be subject to monitoring.</p> <p>1.3.4 The MMO still requires wider benthic surveying to be undertaken. The MMO will work with the applicant through the Statement of Common Ground (SoCG) to discuss this further.</p>	<p>As stated in the IPMP [REP1-029] one of the guiding principles for employing monitoring is that: <i>Monitoring should be targeted to address significant evidence gaps or uncertainty, where there is potential for a significant environmental impact.</i></p> <p>The Applicant asserts that the EIA for benthic ecology concluded that there will not be a significant impact. Furthermore, the Applicant also does not consider that a significant data gap exists. The ES also provides evidence from numerous studies completed at existing wind farms which have all shown that there have not been significant negative impacts to benthic communities within the wind farm sites.</p> <p>The comprehensive benthic surveys undertaken as part of the EIA process did not identify any sensitive features apart from <i>S.spinulosa</i> reef and therefore the Applicant has proposed an appropriate level of monitoring. The Applicant consider that the level of benthic monitoring proposed is analogous with</p>

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				<p>commitments made by other offshore wind farm projects (including East Anglia THREE, Norfolk Vanguard, and East Anglia ONE North and East Anglia TWO).</p> <p>The Applicant discussed this issue with the MMO on the 20th January 2020 and will be discussing it further with the MMO on the 15th of February.</p>
Q8.12.7	Marine Management Organisation	<p>Offshore cable</p> <p>Is the Applicant willing to commit to excluding certain parts of the HHW SAC from the cable route, in particular where known areas of Annex I reef are present and where fisheries byelaws are proposed?</p>	<p>The MMO defers to Natural England on advice regarding Habitats Regulations Assessment. However, the MMO understand that Natural England maintains that no Adverse Effect on Integrity (AEoI) cannot be concluded at this time.</p> <p>The MMO remain open to inclusion of restrictions which could mitigate risks of AEoI, if they are secured at the time of examination, to provide further comfort on the viability of the project.</p>	<p>The Applicant is proposing a <u>new</u> commitment to use no cable protection in the priority areas to be managed as <i>S.spinulosa</i> reef within the HHW SAC, unless otherwise agreed with the MMO in consultation with Natural England.</p>

9 Landscape and Visual Effects

9.3 Landscape effects

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
Q9.3.8	National Grid	<p>National Grid planting easements</p> <p>The 1:4,000 landscape mitigation plans [APP-494] and [APP-505] seem to indicate planting located in what might be tree exclusion zones required for the 400kV overhead line.</p> <p>2. Seek clarification from National Grid on its tree planting exclusion zones and vegetation height restrictions.</p>	<p>Where tree planting is proposed close to overhead lines it is necessary to ensure safe electrical clearances are maintained. The clearance requirements between trees and 400kV overhead line conductors are explained on pages 24 and 26 of National Grid's Development Near Overhead Lines document. Key considerations are:</p> <ul style="list-style-type: none"> • whether a tree can support a ladder or is capable of being climbed, in which case the closest part of the tree canopy must be no closer than 5.3 metres to the conductors; • how high a tree might grow (which depends on the species and growth rates) and the falling radius that a tree canopy creates if the tree were to fall toward the line - needing to maintain 3.1 metres minimum separation to the electrical conductors of the overhead line. 	Noted.

13 Socio-economic effects

13.3 Land Use and Agriculture

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
Q13.3.1	National Farmers' Union	<p>Link Boxes</p> <p>Given the Applicant's response to RRs [AS-024, Table 2, row 3] do you have further concerns and questions about the location and design of link boxes?</p>	<p>The National Farmers' Union and LIG would like to see the wording from the RRs (As-024, table 2, row 3) to be included in the outline CoCP so that this is binding on Norfolk Boreas. The National Farmers' Union would like Norfolk Boreas to agree to work out a design before construction starts which will enable most of the link boxes to be located near to hedge/fence boundaries. Otherwise we believe that the length of cable on a drum if at 800m will override all other factors as this will be the most cost efficient.</p>	<p>The Applicant has secured the wording detailed in the relevant representation (AS-024, Table 2, Row 3) within the final form of the Deed of Easement. The Applicant considers the OCoCP is not the most appropriate location to include this text as it relates to design aspects and therefore proposes to include the text as part of the existing link box section of an updated Design and Access Statement to be provided at Deadline 7.</p>
Q13.3.2	National Farmers' Union and other IPs	<p>Access Routes</p> <p>RRs [RR-044, RR-049 to RR-051, RR-055, RR-057 to RR-062, RR-064 to RR-068, RR-070 to RR-083, RR-086 to RR-089, RR-092 to RR-094, RR-097 to RR-098, RR-108] refer to a difference in ground levels which would mean some of the Applicant's proposed access routes are not physically possible.</p> <p>1. Identify which access routes you consider problematic and explain concerns. 2. Where relevant indicate alternative access points which could be preferable and why.</p>	<p>The Applicant as stated in their response to RRs (table 19, row 10) are still engaged with landowners and are agreeing acceptable access routes. It is understood that not all access routes have yet been agreed.</p>	<p>The Applicant notes the response submitted by the National Farmers' Union and is currently working with landowners and their professional representatives with regards to the remaining preferred alternative operations accesses. If agreed these will be secured through the private agreements.</p>
Q13.3.3	National Farmers' Union and other IPs	<p>Voluntary Option Agreement and CoCP</p> <p>RRs [RR-044, RR-049 to RR-051, RR-055, RR-057 to RR-062, RR-064 to RR-068, RR-070 to RR-083, RR-086 to RR-089, RR-092 to RR-094, RR-097 to RR-098, RR-108] refer to wording from the CoCP that you wish to see in the Voluntary Option Agreements.</p> <p>1. Does the OCoCP, as submitted, set out in sufficient detail the areas of wording you are looking for? 2. As the CoCP would be subject to post-consent approvals based on the OCoCP, are there any areas which you think need more detail at this stage? If so what and why?</p>	<p>The Outline CoCP as drafted at November 2019 covers in detail the wording that the National Farmers' Union would like to see for the:</p> <p>Agricultural Liaison Officer</p> <p>Wording agreed except would like to see the following wording added to paragraph 177.</p> <ul style="list-style-type: none"> Contact details for the ALO must be included in the final CoCP and the Applicant must notify any landowner of a change in personnel. Liaise with landowners prior to any proposed discharges to existing drains if any such discharge is necessary. <p>Requirement 20: Code of Construction practice:</p> <p>The National Farmers' Union would like to see the contact details of the ALO added to the list of details to be submitted prior to commencement.</p> <ul style="list-style-type: none"> Irrigation – wording fully agreed Agricultural Field Drainage – wording fully agreed. Scope of the Soil Management Plan – the wording that is highlighted at Appendix A of the Outline CoCP is agreed but further wording needs to be added to cover soil aftercare. Please see Annex A. Soil Management Ch 8 – At paragraph 106 it is stated that Appendix A contains further details of the scope of the SMP. We would like this to actually state that the wording at Appendix A will be included in the final SMP. Private Water Supplies – wording needs to be included in the Outline CoCP to cover Private Water Supplies. Please see Annex B <p>The above wording requested to Norfolk Boreas will need to be agreed and subject to the post consent approvals.</p> <p>Annex A</p>	<p>The Applicant notes that wording for irrigation and agricultural field drainage in the OCoCP is fully agreed.</p> <p>The Applicant is considering the additional wording requested by the National Farmers' Union with respect to the OCoCP and will continue to engage with the National Farmers' Union to agree any additional wording requirements to the OCoCP.</p>

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
			<p>Soil Aftercare – Cultivations: The restoration of soils will be assessed against the baseline schedule of soil condition taken preconstruction this will include soil testing and a schedule of aftercare maintenance, appropriate to the target specification should be drawn up for a period of up to five years (subject to paragraph 23.2) following completion of the relevant construction work. During the aftercare period, there will be annual monitoring of physical soil characteristics and soil nutrient levels to set aftercare management requirements for the following year. The land will be handed back to the owner at the earliest opportunity once the restored land is in a suitable condition to be returned to its former use. A final report will be drafted to determine the final handover condition of the agricultural soil. The reinstated soils will be cultivated to enable the initial aftercare crop to be established. The cultivations required will vary according to soil type, site and weather conditions at the time but could include the use of plough, power harrow and roll. In addition, stone picking may also be required where excessive stone volumes have become incorporated in reinstated topsoil areas. The specified cultivations will be subject to discussion with the landowner prior to implementation. The reasonable cost of meeting the aftercare by the relevant landowner shall be borne by the Norfolk Boreas save where such cost has been compensated under the compensation code.</p> <p>Annex B Water Supplies: The Applicant has been asked how any remedial action (such as an alternative supply) would be provided in the event that private supplies are adversely affected through supply levels and contamination. The National Farmers' Union as a minimum requirement has requested that the following wording is included in the OCoCP: Agricultural Private Water Supplies</p> <ul style="list-style-type: none"> • Where an existing private water supply to a farm is adversely and directly, affected by the construction of the Proposed Works, the Developer will, if requested by the farmer or landowner to do so, provide or procure or meet the reasonable cost of the provision of an alternative supply of water • Where the supply is so affected temporarily by the construction of the Proposed Works, then the alternative supply need only be supplied for the period during which it is so affected. • Where a request is made by the farmer or landowner for a permanent supply due to permanent severance of the existing supply caused by the construction of the Proposed Works the Developer will where provision of an alternative means of supply can be demonstrated by the land owner/farmer to be reasonably required for his business, provide or procure or meet the reasonable cost of a permanent means of alternative supply of water. 	
Q13.3.4	National Farmers' Union	ES Chapter 5 [APP-218, Tables 5.35 and 5.41] commit to burying the onshore cable to 1.05m in 'normal' agricultural land and 1.2m in areas of 'deep ploughing' to top of duct. Explain how this commitment is secured in the dDCO [AS-019] and what constitutes 'normal' agricultural land.	The National Farmers' Union and LIG will require Norfolk Boreas to bury all the cables at 1.2m with the depth to the top of the tile at 1.05m. As all agricultural land over a time will be an area which requires 'deep ploughing'.	Noted. Please see the response the Applicant has provided to Q2.2.2. The Applicant has already committed to a minimum depth of 1.2m across all land.

13.4 Public Health

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at received at Deadline 3	Applicant's Response:
Q13.4.2	National Farmers' Union	<p>Effects of electromagnetic fields (EMF)</p> <p>1. In light of the representations made at the OFH on 13 November 2018 [EV4-004], can the Applicant confirm that the EMF exposure of the Proposed Development, especially at the location where the cable route crosses with the underground cables of Hornsea Project Three, is within the limits prescribed by the NPS EN suite and all other relevant UK regulations?</p> <p>2. National Grid, to confirm the Applicant's assumptions and assessment regarding EMF in ES Chapter 27 Human Health [APP-240].</p> <p>3. Public Health England, to confirm the Applicant's assumptions and assessment regarding EMF effects on Human Health in ES Chapter 27 Human Health [APP-240].</p>	<p>There is considerable concern over the lack of detail in respect of EMF in regard to the interference on soil sense technology, RTK and other agricultural software.</p>	<p>The Applicant has provided details regarding EMF, including worst case EMF calculations in the Vattenfall EMF information sheet (AS-025).</p> <p>With reference to the information sheet, electromagnetic fields are produced wherever electricity is used. The Applicant has committed to an underground cable installation for the transmission of electricity. The underground cables have an earthed metallic shield as part of their design which prevents electric fields being emitted outside of the cable.</p> <p>Magnetic fields are not shielded in the same way as electric fields and magnetic fields will be emitted beyond the cable. The Applicant has committed to a HVDC transmission solution, such that any magnetic field from the cable is static, as per the earth's natural magnetic field. The earth's static magnetic field in the UK is approximately 50uT. The calculated peak magnetic field of the Norfolk Vanguard and Norfolk Boreas cables (Scenario 1 cumulative) is 33.7uT, this is less than the earth's static magnetic field of 50uT. It is therefore considered that there will not be any interactions with other electrical equipment, including agricultural software and technologies.</p>
Q13.4.2	National Grid	<p>Effects of electromagnetic fields (EMF)</p> <p>1. In light of the representations made at the OFH on 13 November 2018 [EV4-004], can the Applicant confirm that the EMF exposure of the Proposed Development, especially at the location where the cable route crosses with the underground cables of Hornsea Project Three, is within the limits prescribed by the NPS EN suite and all other relevant UK regulations?</p> <p>2. National Grid, to confirm the Applicant's assumptions and assessment regarding EMF in ES Chapter 27 Human Health [APP-240].</p> <p>3. Public Health England, to confirm the Applicant's assumptions and assessment regarding EMF effects on Human Health in ES Chapter 27 Human Health [APP-240].</p>	<p>National Grid agrees with the assumptions and assessment regarding EMF in the Applicant's submission and conducted analysis on behalf of the Applicant to support the assessment.</p>	<p>Noted.</p>