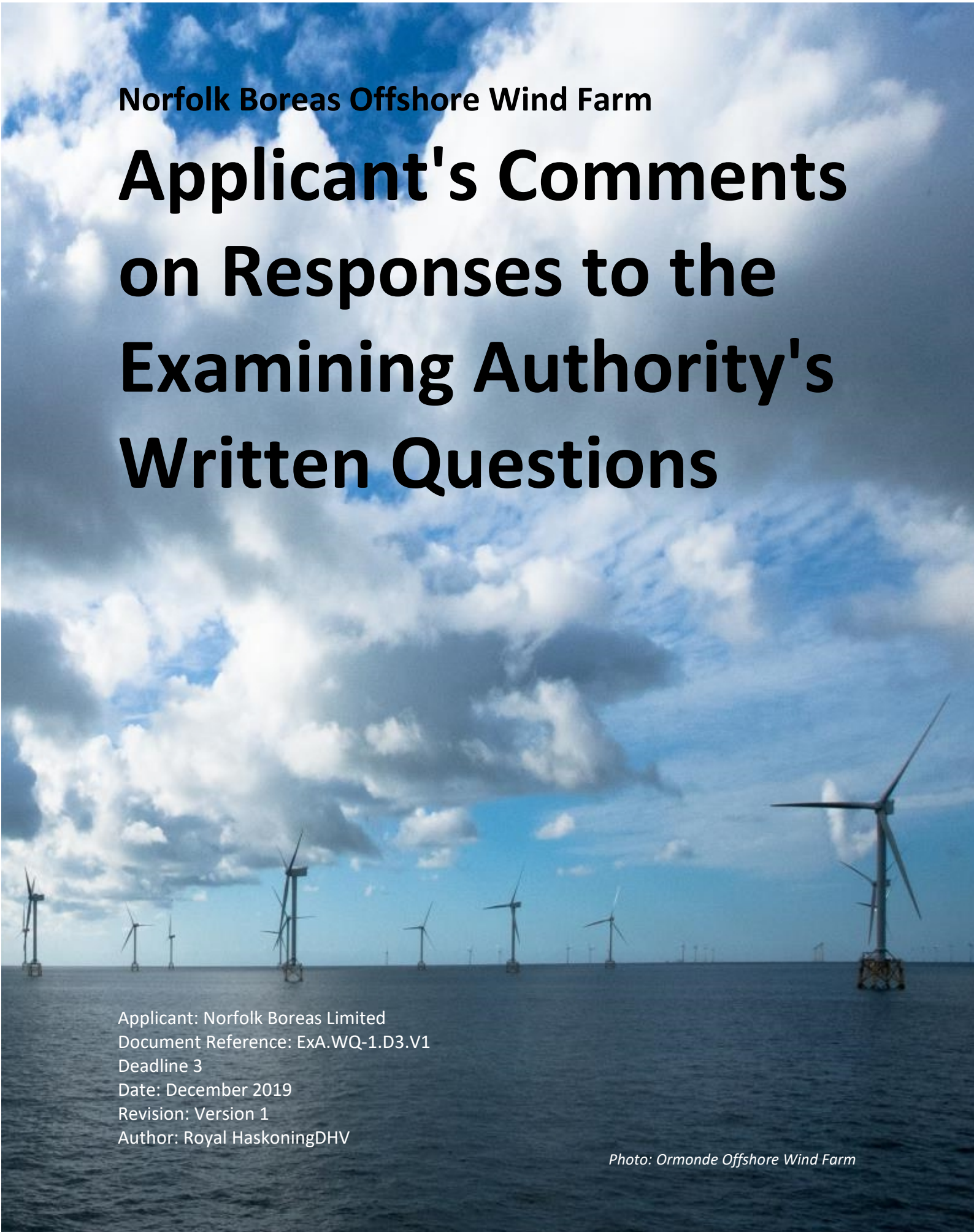
Norfolk Boreas Offshore Wind Farm

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



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Glossary of Acronyms

AC	Alternating Current
ADD	Acoustic Deterrent Device
ADR	Air Defence Radar
AEoI	Adverse Effect on Integrity
AEZ	Archaeological Exclusion Zone
ALO	Agricultural Liaison Officer
ATC	Automatic Traffic Counters
AOD	Above Ordnance Datum
BAP	Biodiversity Action Plan
BAT	Best Available Technique
BDMPS	Biologically Defined Minimum Population Scales
BPM	Best Practicable Means
BoR	Book of Reference
BRES	Business Register and Employment Survey
Cefas	Centre for the Environment, Fisheries and Aquaculture Science
CIA	Cumulative Impact Assessment
CNMP	Construction Noise Management Plan
CoCP	Code of Construction Practise
CRM	Collision Risk Modelling
CLA	Cable Logistic Area
cSAC	Candidate Special Area of Conservation
DBEIS	Department for Business, Energy and Industrial Strategy
DC	Direct Current
DCO	Development Consent Order
dDCO	Draft Development Consent Order
dDML	Draft Deemed Marine Licence
DEFRA	Department for Environment, Food and Rural Affairs
DML	Deemed Marine Licence
DTM	Digital Terrain Model
DTS	Distributed Temperature Sensing
EA	Environment Agency
ECoW	Ecological Clerk of Works
EEEGr	East of England Energy Group
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
EMP	Ecological Management Plan
ES	Environmental Statement
ETG	Expert Topic Group
EU	European Union
ExA	Examining Authority
FAQ	Facts and Questions
FFC	Flamborough and Filey Coast
FRA	Flood Risk Assessment
Ft	Foot

GLVIA	Guidelines for Landscape and Visual Assessment
GPR	Ground-Penetrating Radar
HDD	Horizontal Directional Drilling
HE	Highways England
HES	Historic Environment Service
HGV	Heavy Goods Vehicle
HHW	Haisborough Hammond and Winterton
HMR	Helicopter Main Routes
HoTs	Heads of Terms
HRA	Habitats Regulations Assessment
HP3	Hornsea Porject 3
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IFCA	Inshore Fisheries Coastal Association
IROPI	Imperative Reasons of Overriding Public Interest
ISH	Issue Specific Hearing
IP	Interested Party
IPC	Infrastructure Planning Commission
IPMP	In Principle Monitoring Plan
JNCC	Joint Nature Conservation Committee
kJ	Kilojoule
km	Kilometres
LBAP	Local Biodiversity Action Plan
LIG	Land Interest Group
LMS	Landscape Management Scheme
LSE	Likley Significant Effecct
LPA	Local Planning Authorities
LOD	Limits of Deviation
LVIA	Landscape and Visual Impact Assessment
m	Metre
MCA	Maritime and Coastguard Agency
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MSC	Mitigation and Services Contract
MSS	Marine Scotland Science
MoD	Ministry of Defence
NALEP	New Anglia Local Enterprise Partnership
NBIS	Norfolk Biodiversity Information service
NCC	Norfolk County Council
NE	Natural England
NHER	Norfolk Historic Environment Record
NG	National Grid
NFFO	National Federation of Fishermen's Organisations
NFU	National Farmers Union

NOMIS	Office for National Statistics service providing Official Labour Market Statistics
NNDC	North Norfolk District Council
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NRA	Navigation Risk Assessment
NSAG	Necton Substation Action Group
NSIP	Nationally Significant Infrastructure Project
NV	Norfolk Vanguard
NSR	Noise Sensitive Receptors
OAMP	Outline Access Management Plan
OASIS	Online Access to the Index of Archaeological Investigations
OCoCP	Outline Code of Construction Practise
OFH	Open Floor Hearing
OLEMS	Outline Landscape and Ecological Management Strategy
OTMP	Outline Traffic Management Plan
OPC	Oulton Parish Council
OWF	Offshore Wind Farm
OSWI	Outline Written Scheme of Investigation
OSES	Outline Skills and Employment Strategy
PEIR	Preliminary Environmental Information Report
PEMP	Project Environmental Management Plan
PHE	Public Health England
PRMS	Primary Radar Mitigation System
PRoW	Public Rights of Way
PSR	Primary Surveillance Radar
PTS	Permanent Threshold Shift
PRA	Preliminary Risk Assessment
PVA	Population Viability Analysis
RLB	Red Line Boundary
RTD	Red-throated Diver
RR	Relevant Representation
RSPB	Royal Society for The Protection of Birds
SAC	Special Area of Conservation
SACO	Supplementary Advice on Conservation Objectives
SCI	Site of Community Importance
sCRM	Stochastic Collision Risk Model
SIP	Site Integrity Plan
SMP	Soil Management Plans
SNCB	Statutory Nature Conservation Body
SNS	Site of National SIgnificance
SoCG	Statement of Common Ground
SPA	Special Protection Area
SPZ	Source Protection Zone
SoS	Secretary of State
SSSI	Site of Special Scientific Interest
TC	Trenchless Crossing

TCPA	Town and Country Planning Act 1990
THLS	Trinity House
TMP	Traffic Management Plan
TWT	The Wildlife Trusts
UKHO	UK Hydrographic Office
UXO	Unexploded Ordnance
WDC	Whale and Dolphin Conservation
WHO	World Health Organisation
WTG	Wind Turbine Generator
WSI	Written Scheme of Investigation

Glossary of Terminology

Array cables	Cables which link wind turbine to wind turbine, and wind turbine to offshore electrical platforms.
Cable logistics area	Existing hardstanding area to allow the storage of cable drums and associated materials and to accommodate a site office, welfare facilities and associated temporary infrastructure to support the cable pulling works.
Cable pulling	Installation of cables within pre-installed ducts from jointing pits located along the onshore cable route.
Ducts	A duct is a length of underground piping, which is used to house electrical and communications cables.
Evidence Plan Process	A voluntary consultation process with specialist stakeholders to agree the approach to the EIA and information to support the HRA.
Interconnector cables	Offshore cables which link offshore electrical platforms within the Norfolk Boreas site.
Jointing pit	Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	Where the offshore cables come ashore at Happisburgh South.
Landfall compound	Compound at landfall within which HDD drilling would take place.
Landfall compound zone	Area within which the landfall compounds would be located.
Link boxes	Underground chambers or above ground cabinets next to the cable trench housing low voltage electrical earthing links.
Mobilisation area	Areas approx. 100 x 100m used as access points to the running track for duct installation. Required to store equipment and provide welfare facilities. Located adjacent to the onshore cable route, accessible from local highways network suitable for the delivery of heavy and oversized materials and equipment.
Mobilisation zone	Area within which a mobilisation area would be located.
National Grid new / replacement overhead line tower	New overhead line towers to be installed at the National Grid substation.
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.
National Grid temporary works area	Land adjacent to the Necton National Grid substation which would be temporarily required during construction 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 electrical platform	A fixed structure located within the Norfolk Boreas site, containing electrical equipment to aggregate the power from the wind turbines and convert it into a suitable form for export to shore.
Offshore export cables	The cables which transmit power from the offshore electrical platform to the

	landfall.
Offshore project area	The area including the Norfolk Boreas site, project interconnector search area and offshore cable corridor.
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 400kV cable route	Buried high-voltage cables linking the onshore project substation to the Necton National Grid substation.
Onshore cables	The cables which take power and communications from landfall to the onshore project substation.
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.
Onshore project substation temporary construction compound	Land adjacent to the onshore project substation which would be temporarily required during construction of the onshore project substation.
Overhead Line	An existing 400kV power line suspended by towers.
Pre sweeping	The practice of dredging the seabed to prepare it for foundation or cable installation. It is either used to provide a level surface on which to place foundations or to allow cables to be installed at a sufficient depth to minimise the chance of them becoming exposed.
Project interconnector cable	Offshore cables which would link either turbines or an offshore electrical platform in the Norfolk Boreas site with an offshore electrical platform in one of the Norfolk Vanguard sites.
Project interconnector search area	The area within which the project interconnector cables would be installed.
Running track	The track along the onshore cable route which the construction traffic would use to access workfronts.
Safety zones	An area around a vessel which should be avoided during offshore construction.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations as a result of the flow of water.
The Applicant	Norfolk Boreas Limited
The Norfolk Vanguard OWF sites	Term used exclusively to refer to the two distinct offshore wind farm areas, Norfolk Vanguard East and Norfolk Vanguard West (also termed NV East and NV West) which will contain the Norfolk Vanguard arrays.
The project	Norfolk Boreas Wind Farm including the onshore and offshore infrastructure.
Transition pit	Underground structures that house the joints between the offshore export cables and the onshore cables
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.
Workfront	A length of onshore cable route within which duct installation works will occur, approximately 150m.

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 has subsequently responded to each of their relevant questions.
2. The Applicant's responses are detailed in numerical order in sections 1 to 16 of this document.
3. The Applicant has provided comments on responses from interested parties to the first written questions that were submitted for, and published at, Deadline 2.
4. The Applicant has not included the questions where a response has not been submitted by an Interested Party at Deadline 2.

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1 Archaeology and Heritage Assets

1.0 Offshore and intertidal archaeology and cultural heritage

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q1.0.1	The Applicant	**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.	The requirement for an archaeological written scheme of investigation in relation to the offshore Order limits seaward of mean low water is secured by dDML (REP1-008) condition 14(h). The Outline Written Scheme of Investigation (Offshore) (outline WSI) submitted as DCO Document 8.6, however, has been produced to set out the proposed approach to archaeological mitigation and investigations to be undertaken in association with the offshore and intertidal project areas below Mean High Water Springs. It is proposed that the dDML condition 14(h) be amended to refer to the offshore Order limits seaward of mean HIGH water. Further information is provided in the Applicant's answer to WQ 5.3.8.	
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.	1. By convention the intertidal zone falls within the realm of a deemed Marine Licence rather than an onshore Archaeological Written Scheme of Investigation. However, in this situation it is made clear by the Applicant that intrusive intertidal works to deliver the proposed project are not proposed. 2. We acknowledge the detail of the proposed project, as submitted as part of the DCO application, that Horizontal Directional Drilling (HDD) will be used to take the electricity export cables from a position below Mean High Water Springs to a point above Mean High Water Springs. It is therefore apparent that intrusive works within the intertidal zone are not proposed and consequently no specific methodological approaches are specified to guide archaeological assessment exercises within the outline archaeological Written Scheme of Investigation (Offshore). 3. An amendment is offered so that the full spatial area subject to any deemed Marine Licence is included – please see our advice in paragraph 11.2 of our Written Representation.	As stated in the Applicant's Responses to the Examining Authority's Written Questions (REP2-021), it is proposed that the draft Deemed Marine Licence (dDML) condition 14(1)(h) be amended to refer to the offshore Order limits seaward of mean HIGH water. Historic England have agreed this amendment with the Applicant and the amendment is approved within Historic England's Written Representation (REP2-072) at paragraph 11.2.
Q1.0.1	Norfolk County Council	**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	1. No. At present the archaeological requirements of the intertidal zone (the area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS)) are not specifically addressed in the dDCO. Although the use of long HDD means that there should not be any ground disturbance affecting archaeological deposits in the intertidal zone it would nevertheless be prudent to ensure that that it is included within the requirements of the dDCO and DML to cover any unforeseen works. 2. The outline Offshore Archaeological Written Scheme of Investigation (Document 8.6) makes reference to the archaeology of the intertidal zone (but also states that due to long HDD no archaeological works will be	As stated in the Applicant's Responses to the Examining Authority's Written Questions (REP2-021), it is proposed that the dDML condition 14(1)(h) be amended to refer to the offshore Order limits seaward of mean HIGH water as requested by Norfolk County Council.

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		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.	required at that location). Although the archaeology of the intertidal zone has been adequately considered, the DML [Schedule 10 Part 4 Condition 14 (1) (h) and Schedule 12 Part 4 Condition 9 (1) (h)] refers to the required offshore archaeological works as being specifically located seaward of MLWS. The current draft DML condition wording excludes the intertidal zone. We believe that the requirements for offshore archaeological work should extend seaward from MHWS not MLWS to cover the eventuality of any work being carried out in the intertidal zone. 3. No, the intertidal zone needs to be specifically included to cover the eventuality of works being required there. We recommend the following amendment in the DML; the start of the wording of the following conditions [Schedule 10 Part 4 Condition 14 (1) (h) and Schedule 12 Part 4 Condition 9 (1) (h)] should be changed from "An archaeological written scheme of investigation in relation to the offshore Order limits seaward of mean low water, …" to "An archaeological written scheme of investigation in relation to the offshore Order limits seaward of mean high water springs (MHWS), …"	
Q1.0.1	Marine Management Organisation	**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.	The MMO defer to Historic England in relation to the mitigation within the Outline Offshore Archaeological Written Scheme of Investigation. The MMO are content with the comments provided by the Applicant during the Issue Specific Hearing and in document REP1-041 and agree that the Outline WSI adequately covers all the necessary works areas.	The Applicant welcomes this, and no further response is required.
Q1.0.1	North Norfolk District Council	**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.	In respect of archaeology, NNDC would defer to the advice of Norfolk County Council Historic Environment Service who provide advice to North Norfolk District Council in relation to all matters of archaeological heritage.	The Applicant notes this.

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		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.		
Q1.0.2	The Applicant	**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.	Points 1 to 7 of this question have now been agreed and are included within the Statement of Common Ground between Historic England and the Applicant submitted at Deadline 2 of the examination (ExA.SoCG-9.D2.V1).	
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 hereby direct you to the Statement of Common Ground which addresses all the above identified matters and which is agreed with the Applicant, as signed by me, as representative of the Historic Buildings and Monuments Commission for England (PINS Document Reference: ExA.SoCG-9.D2.V1; dated December 2019)	The Applicant concurs with this and no further response required.
Q1.0.3	Historic England	Acceptability of geophysical data to inform ES in offshore order limits Given the limitations of the geophysical data that are acknowledged by the Applicant in ES Chapter 17, paragraphs 57-58, would Historic England comment on the acceptability of the geophysical data to inform the characterisation of the archaeological potential of the offshore area and hence the assessment of effects in the ES?	We hereby acknowledge that those data produced for the submitted Environmental Statement are sufficient for the purpose of the examination of this application (as confirmed by our agreement to this matter in the finalised Statement of Common Ground, as referenced above). We also direct you to our Written Representation (paragraph 5.3) for our explanation of the data acquired to date for this proposed development and its utilisation for archaeological assessment purposes. We are therefore satisfied by the assessment of effects included within the ES.	The Applicant notes that Historic England are satisfied by the assessment of effects included within the ES and the Applicant has responded to the points that Historic England raise in paragraph 5.3 of their Written Representation in the Applicant's response to written representations (ExA.WQR.D3.V1).
Q1.0.4	Historic England	**Changes to setting of offshore heritage assets and historic seascape character** Is Historic England content with the Applicant stating in APP-574: 'The assessment of changes to the setting of heritage assets and historic seascape character section 17.7.6.4 in chapter 17) describes that a change will occur but does not provide a judgement on the significance of that impact.'	We are aware that the consideration of Historic Seascape Characterisation within this section and sections 17.7.7.4 (operation impacts) and 17.7.8.4 (decommissioning) discuss matters to do with the concept of the capacity of identifiable (i.e. spatial and temporal) historic character to accommodate change. We acknowledge how they have determined significance of any impact including what might offset potential adverse impacts. It is important to highlight that a key principle in the methodological approach to producing characterisation is the concept of perception (e.g. see Chapter 17, paragraph 220); such that attention is directed towards known associations of place to give meaning to its present characteristics. We appreciate the attention given to the use of a narrative approach used in the ES and the acknowledgement where change in perception (i.e. as relevant to a particular	The Applicant also refers to the Statement of Common Ground submitted at Deadline 2 [REP2-038] to demonstrate agreement on this subject.

PINS Question Number	Question Respondent	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			attribute e.g. fishing) is likely to occur. We acknowledge the attention given to this matter within the Statement of Common Ground agreed with the developer. The Applicant, as a user of Historic Seascape Characterisation may then consider and establish "significance" as demonstrated, for example, within paragraph 218.	
Q1.0.5	The Applicant	**Potential effects of development on submarine wreck (ES reference 71480):** [APP-577] para 5.2.20 refers to: 'Wreck 71480 lies outside NV East but is included in this assessment as the recommended Archaeological Exclusion Zone (AEZ) extends into the NV East area by up to 30m (Figure 11). This feature is the wreck of a submarine and the UKHO (ID 79542) records that it was last observed in September 2014…' Clarify and confirm: 1. Location on a chart of this wreck in relation to the Order limits for the Norfolk Boreas application; and 2. if there are any other anomalies in the vicinity of this wreck that have the potential to be associated with it; and 3. what vessel this is considered to be and what assessment has been made of the potential for impact of the Proposed Development (separately or together with other nearby proposed developments) on the wreck of this submarine and what effects may need to be mitigated; and 4. if there are potential effects, is any mitigation proposed in addition to an AEZ; and 5. what dimension of AEZ is proposed for this wreck and why that dimension is considered appropriate; and 6. When the outline WSI would be updated to secure the mitigation proposed	Submarine wreck 71480 is located at the south eastern boundary of Norfolk Vanguard East, some 15km south of the Norfolk Boreas boundary and, therefore, excluded from assessment due to its distance from any element of the Norfolk Boreas scheme.	
Q1.0.6	Historic England	**Xanthe wreck potential designation decision** Advise on the likely timescale for a decision on whether the historic wreck site identified within the proposed project development boundary 'Xanthe', has national importance, as flagged in RR-022.	We hereby confirm that the wreck of the Xanthe (sank 1869) is now a scheduled monument under the Ancient Monuments and Archaeological Areas Act 1979 together with the Seagull (sank 1868), as explained within paragraph 5.6 of our Written Representation. Please see: • The Seagull – https://historicengland.org.uk/listing/the-list/list-entry/1464587 • Xanthe – https://historicengland.org.uk/listing/the-list/list-entry/1464597	As stated in the Applicant's Responses to the Examining Authority's Written Questions (REP2-021) with specific reference to 70834 Xanthe, the Applicant is aware that this had now been designated under the Protection of Wrecks Act 1978 although this has not yet been publicly announced due to parliamentary purdah. The final agreed AEZs for Norfolk Boreas will need to be updated for the final WSI, which is to be agreed with Historic England and the MMO post consent to reflect the final designated areas defined by the Statutory Instrument for the designations.
Q1.0.7	The Applicant	**Responsibilities for military remains finds** Signpost where in the application documents consultations were undertaken with the relevant executive agency of the Ministry of Defence (MoD) with regard to potential obligations under the Protection of Military Remains Act, and if no consultation has taken place, justify why such consultation was not considered necessary in preparing the application.	Consultation with the MoD on archaeological matters was not considered necessary as, within the area of study, there are no known controlled sites designated under the Protection of Military Remains Act 1986. Furthermore, there no records of aircraft crash sites which are automatically protected under the Act. In the event that aircraft crash sites were to be encountered during future archaeological works, the MoD would be informed.	
Q1.0.8	The Applicant	**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	The extent of the AEZs as established in the outline WSI (APP-697, Section 9.3) are as recommended by Wessex Archaeology, a suitably qualified archaeological contractor with extensive experience of offshore renewables projects. It is important to note that there is no industry guidance on the size of an AEZ and Wessex Archaeology's recommendations at this time are based upon their interpretation of the geophysical data. The Model Clauses for WSI state that: AEZs are formed by establishing a buffer around the known	

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		Feature 70809, Seagull wreck and Feature 70834 Xanthe wreck	extents of sites, or around geophysical anomalies for which the available evidence suggests that there could be archaeological material present on the seabed. The size of this buffer is not defined but is considered on a case by case basis. It is also important to note that, as specified in the outline WSI, AEZs can be reduced, enlarged or removed in agreement with the MMO in consultation with Historic England if further relevant information becomes available. For example, following the acquisition of higher resolution geophysical data post-consent, the nature and extent of AEZs will be updated, if required, to reflect the most up to date information on the nature and extent of sites within the Norfolk Boreas site and export cable route. With specific reference to 70809 *Seagull* and 70834 *Xanthe*, the Applicant is aware that these have now been designated under the Protection of Wrecks Act 1978 although this has not yet been publicly announced due to purdah. The final agreed AEZs for Norfolk Boreas will need to be updated for the final, updated WSI to be agreed post-consent to reflect the final, designated areas defined by the Statutory Instrument for the designations.	
Q1.0.9	The Applicant	**Accumulated Archaeological data as proposed mitigation** Clarify how the outline WSI (and dDCO 9(5)(h)) [AS-019] would secure within defined time periods the proposed mitigation with regard to cumulative data gathered from multiple projects, as discussed in the Applicant's response to Historic England [RR-022] regarding commitment to satisfactory completion of: '…archaeological analysis programmes, within defined time periods, to accepted professional standards with publication and access through public archives.'	The outline WSI (APP-697, para 55) specifies that all archaeological reports produced will be publicly disseminated via uploading to OASIS (Online Access to the Index of archaeological investigations') to include an overarching report (para 52) on the archaeology of the scheme which will be prepared and submitted to the MMO and Historic England to a timetable to be agreed with Norfolk Boreas Limited, the regulator and the archaeological curators. If appropriate, this public dissemination may include publication of important results in a recognised peer-reviewed journal or as a monograph (para 51). This will ensure that all data produced by the project will thereafter be publicly available allowing for full dissemination as part of the increasing body of cumulative data gathered from multiple projects.	

1.1 Onshore archaeology

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q1.1.1	Historic England	**Outline Written Scheme of Investigation (WSI)** Are you content with the Outline Written Scheme of Investigation (OWSI) [APP-696], as secured in dDCO [AS-019] Requirement 23 in dealing with onshore archaeological matters? If not make suggestions for amendments, additions or deletions.	Section 12 of Written Representation provides our detailed comments on the Outline Written Scheme of Investigation (Onshore) and we have no specific comments or other edits to offer regarding Requirement 23 within the draft Development Consent Order.	The Applicant has provided a response to Historic England's Written Representation, including comments on the Outline Written Scheme of Investigation (Onshore), at Deadline 3 (document reference ExA.WRR.D3.V1).
Q1.1.1	Norfolk County Council	**Outline Written Scheme of Investigation (WSI)** Are you content with the Outline Written Scheme of Investigation (OWSI) [APP-696], as secured in dDCO [AS-019] Requirement 23 in dealing with onshore archaeological matters? If not make suggestions for amendments, additions or deletions.	Yes, we are content that the outline written scheme of investigation for onshore archaeology adequately covers the requirements for onshore archaeological mitigation.	Noted.
Q1.1.1	The National Trust	**Outline Written Scheme of Investigation (WSI)** Are you content with the Outline Written Scheme of Investigation (OWSI) [APP-696], as secured in dDCO [AS-019] Requirement 23 in dealing with onshore archaeological matters? If not make suggestions for amendments, additions or deletions.	The National Trust have withdrawn their objection to the DCO application relating to the Norfolk Boreas Offshore Wind Farm. The National Trust considers that the matters set out in the Examining Authority's written questions (Q1.1.1 and Q1.2.4) issued on 19th November 2019 have been adequately dealt with in the Outline Written Scheme of Investigation as secured in the draft DCO (Requirement 23).	The Applicant welcomes The National Trust withdrawing their objection (REP2-078).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q1.1.2	The Applicant	**WSI Construction Stage Plan(s), Contractor Environmental Action Plan(s)** Provide a list of specific measures that could be included in the "construction stage plans" and "contractor environmental action plans" for areas where sensitive and precautionary approaches to construction work would be required; such as the Old Quaker Burial Ground [APP-696, paras 112 to 114] supported by evidence/ consultation or proposed consultation before finalising.	Specific measures for Sensitive and Precautionary Approaches to Construction Works' [APP-696, Section 6.5, paras 111 to 114] may include the following, which are applicable to the project under both scenarios: - Hi-visibility temporary fencing or similar, and/or temporary barriers, demarcating e.g. the extent of and an appropriate buffer zone around the walled Old Quaker Burial Ground. - Warning-type on-site signage. - Defined access and egress points and plant and machinery tracking routes in the vicinity of the Old Quaker Burial Ground. - Identification and inclusion of the 'sensitive and precautionary' approach locations and explanations within and as part of site inductions and other relevant 'tool-box style talks' in advance of and during construction. All of which represent additional, sensitive and precautionary approaches to construction works with the aim of ensuring no accidental damage or accidental physical interactions occur with certain existing sensitive structures and features (of a historic nature) in identified areas. Where reference is made to 'Other constrained areas may be identified in the post-consent detailed design stages, and similar measures will need to be adopted, and would be detailed in a Construction Stage Plan(s), Contractor Environmental Action Plan(s), or similar' [APP-696, para 114], within the Outline WSI [APP-696, Section 6.5] this was previously raised, requested and discussed in consultation with Norfolk County Council (NCC) Historic Environment Service (HES) and Historic England (HE) during the Norfolk Boreas specific Expert Topic Group Meetings for Archaeology and Cultural Heritage during the pre-application stage of the Project. Sensitive and Precautionary Approaches to Construction Works are included within the Outline WSI as one of a number of subsequent additional mitigation measures [APP-696, Section 6), which are anticipated to be required. These sensitive and precautionary approaches would be further discussed and formally agreed with the relevant LPAs, NCC HES and HE in the post-consent stages, and written into both the Construction Related WSI and the most relevant contractor led/facing construction related management plan(s).	

1.2 Onshore heritage assets

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q1.2.1	The Applicant	**Construction stage effects on listed buildings** Notwithstanding your responses on the traffic and cumulative traffic effects in Cawston in your response to RRs [AS-024, Table 19, Nos. 3 and 4] respond to the specific points made regarding construction stage effects on listed buildings in Cawston by certain Interested Parties [RR-018], [RR-019], [RR-105]. Where are the construction stage effects on listed buildings and Conservation Areas assessed in the Heritage assessment and the visual and setting effects	Within the Norfolk Boreas Environmental Statement, construction stage effects on designated heritage assets (including listed buildings and conservation areas), both direct physical impacts and those associated with a change in setting affecting heritage significance are assessed within [APP-241] Environmental Statement - Chapter 28 Onshore Archaeology and Cultural Heritage, specifically Sections 28.6.2, 28.7.1, 28.7.2 and 28.7.5.3 (APP-241). However, the assessment is focused on impacts and effects with respect to the proposed Onshore Project Infrastructure within the Order Limits.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		assessed in the Landscape and Visual Impact assessment?	This specific matter, 'construction stage traffic effects on listed buildings and the conservation area in Cawston', was raised and addressed during the course of the Norfolk Vanguard Examination. A Joint Position Statement with Broadland District Council on the Cawston Conservation Area was submitted at Deadline 8. As the construction stage impacts for Norfolk Boreas would be consistent with those identified for Norfolk Vanguard, the information and assessment contained in this position statement is also relevant to Norfolk Boreas and is included as Appendix 2 of the Broadland District Council SoCG document reference ExA.SoCG-3.D2.V1. The Position Statement includes a Heritage Statement for Cawston Conservation Area in respect to Traffic Management Measures proposed along the B1145 in Cawston. The heritage statement ultimately concluded that '*The increase in traffic is considered to represent temporary harm to the character and appearance of the Conservation Area … and represents a temporary adverse impact on the ability of people to experience and appreciate the area and the significance of its associated heritage assets. However, this harm will be temporary and reversible and the road resurfacing and pathway widening is considered to offer a longer-term legacy benefit to improve the ability for people to experience the Conservation Area along the B1145*.' The Position Statement (Appendix 2 of the SoCG document reference ExA.SoCG-3.D2.V1) states *'Broadland District Council is generally in agreement with the contents of the Applicant's Heritage Assessment as this recognises that there will be temporary damage to the character and appearance of the Conservation Area caused by the increase in Heavy Goods Vehicle (HGV) traffic in the area.'* Concerns were raised with respect to footpath widening near Grade II Whitehouse Farm resulting in a narrowing of the carriageway and increasing the risk of potential collision. These concerns regarding the footpath widening are being reviewed as part of the development of the highway mitigation scheme.	
Q1.2.2	Norfolk County Council	**Listed buildings in Cawston** Further to RRs [RR-018], [RR-019], [RR-105], Additional Submission [AS-038] and the Applicant's response to RRs [AS-024, Table 19, No.3] are you: 1. Satisfied that construction stage effects on listed buildings in Cawston have been adequately assessed; 2. Content with the findings in terms of the significance of any identified impacts upon those assets and their settings and the level of any harm and loss of heritage significance?	1 & 2. The potential impacts on listed buildings and conservation areas fall outside of the remit of Norfolk County Council and should be commented on by Broadland District Council and Historic England.	Noted.
Q1.2.2	Broadland District Council	**Listed buildings in Cawston** Further to RRs [RR-018], [RR-019], [RR-105], Additional Submission [AS-038] and the Applicant's response to RRs [AS-024, Table 19, No.3] are you: 1. Satisfied that construction stage effects on listed buildings in Cawston have been adequately assessed; 2. Content with the findings in terms of the significance of any identified impacts upon those assets and their settings and the level of any harm and loss of heritage significance?	1. No, the details of the proposed highway mitigation scheme through the village of Cawston remain to be finalised and have not been agreed with Norfolk County Council's highways department, Cawston Parish Council or Broadland District Council. Therefore the construction stage effects on listed buildings in Cawston have not been assessed. 1. 2. As above, this matter remains to be resolved.	This matter remains under discussion, as per the Statement of Common Ground between Norfolk Boreas and Broadland District Council (REP2-047).
Q1.2.2	Cawston Parish Council	**Listed buildings in Cawston** Further to RRs [RR-018], [RR-019], [RR-105], Additional Submission [AS-038] and the Applicant's response to RRs [AS-024, Table 19, No.3] are you:	Cawston Parish Council does not consider that the cumulative impact on listed buildings of the various proposals currently in progress has been adequately assessed, particularly as there is as yet no agreed traffic management plan in place.	The Applicant has provided a response on this point in response to Q1.2.1 in Responses to the ExA's First Written Questions (REP2-021) and a Heritage Statement for Cawston Conservation Area is included as Appendix 2 of the Norfolk Boreas Broadland District Council Statement of Common Ground (REP2-047) submitted at Deadline 1.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		1. Satisfied that construction stage effects on listed buildings in Cawston have been adequately assessed; 2. Content with the findings in terms of the significance of any identified impacts upon those assets and their settings and the level of any harm and loss of heritage significance?		
Q1.2.3	Norfolk County Council- Highways Authority	**Listed buildings in Cawston** The Applicant has quoted part of your SoCG for Norfolk Vanguard in its response to some RRs which raise matters to do with construction traffic and listed buildings in Cawston. 1. Do the "changes" referred to in the SoCG extract include traffic impacts on historic buildings in Cawston? 2. If so, have the "work in progress" amendments arrived at a satisfactory solution? 3. If not, what are the outstanding issues for the listed buildings and conservation area in Cawston?	1. The proposed "highway intervention scheme" seeks to widen the footway on the northern side of Cawston High Street outside numbers 14 to 18. This is not something the County Council asked for as it makes the resultant road width too narrow. See our closing comments to the Hornsea 3 hearing dated 1 April 2019, copy attached. As indicated within our response – "it may be necessary to omit some of the footway improvements. Whilst the footway at certain points would then remain narrow, nevertheless pedestrians would be protected to some extent by parked cars. This point needs further investigation". Any vibration tests submitted as part the Boreas application need to be based on a narrow footway and not the applicants proposed wider footway - as traffic will be closer to buildings. However, this falls outside of our remit. HGV Traffic entering Cawston from the east will be held to ensure the route is clear before progressing. The space between the holding point and the narrow section of road appears too great and the distance may need to be reduced. Any air quality tests submitted as part the Boreas application need to be carried out at all holding points. However, this falls outside of our remit. NCC pointed out during the Vanguard hearings that we believe there are other environmental impacts to be mitigated by the scheme (e.g. amenity) which are not the jurisdiction of the highway authority. 2. The applicants have not submitted any further details to us since the closure of the Norfolk Vanguard hearings. At ISH6 to the Vanguard hearing the County Council indicated the following documents were due to be received from Orstead by 3 May 2019: - • Topographical Survey • New ATC speed survey • Update of the design through Cawston based on the safety audit and NCC comments • Vehicle traffic through Cawston based on the topographical survey • Update of the safety audit • Update of the Caswton report. None of the above were ever received. Apart from indicating within the Boreas OTMP that street lighting will be included within the 2highway intervention scheme", no information has been submitted since April 2019. Norfolk County Council wish to emphasise we were not consulted upon the inclusion of street lighting. Its provision is against Norfolk County Council Policy and Broadland District Council may also wish to consider the impact installing street lighting would have upon the street scene within the conservation area. 3. This is a matter for Broadland District Council to advise you upon.	A meeting was held with Norfolk County Council on the 04 November 2019, to inform officers that Orsted and Vattenfall have agreed that the Applicant would be taking forward the scheme design and to seek views on the potential amendments required to addresses the concerns raised by NCC. It was confirmed that the Applicant is now in receipt of the AutoCAD scheme design drawings and the topographical data. In addition, it was confirmed that the Applicant had collaborated with Cawston Parish Council to undertake kerbside parking surveys within the village envelope to further inform the scheme design. Key areas of design focus going forward were noted as the feasibility of the footway widening and the configuration of on-street parking cognisant of the surveyed demand. Following this meeting, a meeting was held with Cawston Parish Council on the 22nd November 2019 to update members of scheme progress and seeks views on potential design revisions. Following this engagement, the Applicant is working up a revised scheme to be presented for independent Road Safety Audit and submitted to the Examination in due course. The Applicant will continue to engage with Norfolk County Council, Broadland District Council and Cawston Parish Council as the scheme design progresses. Any material changes to the scheme will be reviewed in the context of the Air Quality, Noise and Vibration and Pedestrian Amenity assessments presented in the Norfolk Boreas Environmental Statement and the Heritage Position Statement (Appendix 2 of the Statement of Common Ground with Broadland Distrcict Council, document reference ExA.SoCG-3.D2.V1, REP2-0947). The Outline Traffic Management Plan (OTMP) (REP1-022) refers to street lighting enhancements as part of the highways scheme for Link 34 at Cawston. These enhancements are to upgrade the three existing street lights to LED following a request from Cawston Parish Council. Cawston Parish Council indicated that they had confirmed that the three lights belong to Cawston Parish Council and they had done similar upgrades to the other streets lights they owned in the village. The OTMP (REP1-022) refers to street lighting enhancements as part of the highways scheme for Link 34 at Cawston. These enhancements are to upgrade the three existing street lights to LED following a request from Cawston Parish Council. Cawston Parish Council indicated that they had confirmed that the three lights belong to Cawston Parish Council and they had done similar upgrades to the other streets lights they owned in the village.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q1.2.3	Norfolk County Council	**Listed buildings in Cawston** The Applicant has quoted part of your SoCG for Norfolk Vanguard in its response to some RRs which raise matters to do with construction traffic and listed buildings in Cawston. 1. Do the "changes" referred to in the SoCG extract include traffic impacts on historic buildings in Cawston? 2. If so, have the "work in progress" amendments arrived at a satisfactory solution? 3. If not, what are the outstanding issues for the listed buildings and conservation area in Cawston?	1, 2 & 3. As with Q1.2.2 above, issues relating to listed buildings and conservation areas need to be considered by Broadland District Council and Historic England. We acknowledge, and are in agreement with, the response to this question issued by Norfolk County Council in our capacity as Local Highway Authority.	Noted. The Applicant has provided a response to Norfolk County Council in their capacity as the Local Highway Authority in the row above.
Q1.2.3	Broadland District Council	**Listed buildings in Cawston** The Applicant has quoted part of your SoCG for Norfolk Vanguard in its response to some RRs which raise matters to do with construction traffic and listed buildings in Cawston. 1. Do the "changes" referred to in the SoCG extract include traffic impacts on historic buildings in Cawston? 2. If so, have the "work in progress" amendments arrived at a satisfactory solution? 3. If not, what are the outstanding issues for the listed buildings and conservation area in Cawston?	1. As above, this matter remains to be resolved. 2. No, the applicants have not submitted any further details since the close of the Norfolk Vanguard hearing. The following details are awaited: • Topographical survey, • New ATC speed survey, • Update of the design through Cawston based on safety audit and Norfolk County Council comments, • Vehicle traffic through Cawston based on topographical survey, • Update of the safety audit, • Update of the Cawston report, and • Street lighting proposals 3. The outstanding details are anticipated to have an effect on the appearance and character of the Conservation Area and the setting of the Listed Buildings and potentially the effects of noise, vibration and disturbance as a result of increased traffic movements during the construction phase of this project and potentially in combination with the Homsea 3 and Norfolk Vanauard proiects.	This matter remains under discussion, as per the Statement of Common Ground between Norfolk Boreas and Broadland District Council (REP2-047).
Q1.2.3	Cawston Parish Council	**Listed buildings in Cawston** The Applicant has quoted part of your SoCG for Norfolk Vanguard in its response to some RRs which raise matters to do with construction traffic and listed buildings in Cawston. 1. Do the "changes" referred to in the SoCG extract include traffic impacts on historic buildings in Cawston? 2. If so, have the "work in progress" amendments arrived at a satisfactory solution? 3. If not, what are the outstanding issues for the listed buildings and conservation area in Cawston?	Cawston Parish Council does not consider that the cumulative impact on listedbuildings of the various proposals currently in progress has been adequately assessed, particularly as there is as yet no agreed traffic management plan in place.	The Applicant has provided a response on this point in response to Q1.2.1 in Responses to the ExA's First Written Questions (REP2-021) and a Heritage Statement for Cawston Conservation Area is included as Appendix 2 of the Norfolk Boreas Broadland District Council Statement of Common Ground (REP2-047) submitted at Deadline 1.
Q1.2.4	The National Trust	**Blickland Estate** Further to the Applicant's response to your comments in your RR [RR-084], [AS-024, Table 123, No.1] are you satisfied that the wording set out in the WSI secures an appropriate method to ensure that information from thorough preservation by record, if excavation is necessary, is made available to visitors and the community in a way that enriches experience and understanding of the Blickling Estate? If not is there anything further that you consider needs to be secured in the WSI or elsewhere?	The National Trust have withdrawn their objection to the DCO application relating to the Norfolk Boreas Offshore Wind Farm. The National Trust considers that the matters set out in the Examining Authority's written questions (Q1.1.1 and Q1.2.4) issued on 19th November 2019 have been adequately dealt with in the Outline Written Scheme of Investigation as secured in the draft DCO (Requirement 23).	The Applicant welcomes this confirmation from The National Trust.
Q1.2.5	Historic England	**Reference to Norfolk Vanguard** Regarding point 6. of [RR-022], ensure that any evidence that you may refer to from the Norfolk	This request is acknowledged and the necessary detailed provided, as necessary within our Written Representation for the Norfolk Boreas project, as presently under examination.	Noted. The Applicant has provided a response to Historic England's Written Representation at Deadline 3 (document reference ExA.WRR.D3.V1).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		Vanguard, or any other Examination, is submitted to this Examination.		
Q1.2.6	The Applicant	**Clarification of non-designated heritage asset** 1. Is it possible that part of the Bylaugh Park wall [APP-674, RHDHV ID: 1274/ NHER Pref ref: 30496] does in fact enter the red line boundary? The ExA observed on an Unaccompanied Site Inspection, what seems like an estate wall at a point north of the River Wensum on Elsing Lane, the minor road north of Mill Street, where the cable corridor would appear to cross the location of this wall. 2. If not Bylaugh Park, does this wall have heritage value? 3. If Bylaugh Park wall, or another heritage asset carry out an assessment.	The Norfolk Historic Environment Record (NHER) records the location of Bylaugh Park (NHER Pref ref: 30496 / RHDHV ID: 1274) as approx. 300m to the north of the 45m wide Norfolk Boreas onshore cable route at its nearest point. The HER description for NHER Pref ref: 30496 contains the following summary description '*This landscape park is associated with Bylaugh Hall (NHER 3006), [a Grade II* Listed Building]. It was laid out during the mid-19th century and included a 14.4km long boundary wall, gardens, lodges and a Georgian style house….*' The mapped extent of the polygon within the NHER for Pref ref: 30496 equates to an area of approx. 300 Ha and a total perimeter length of approx. 7.2 km. Given this length discrepancy it is possible that the 'boundary walls' extend beyond the NHER mapped polygon area. The extent of the walls of and within Bylaugh Park were not specifically identified and assessed as being within the Order Limits as part of the Archaeological Desk-Based Assessment [APP-666] or in the Onshore Archaeology and Cultural Heritage Chapter [APP-241 / APP-478 / APP-674], as the mapped extent of Bylaugh Park as recorded within the NHER shows no direct physical interaction with the Order Limits. However, it does appear that the onshore cable route will need to cross a surviving stretch of historic 'assumed former parkland' estate wall (which retains heritage value, including historic, architectural and aesthetic interest) at this location. This can also be seen by referencing Google Earth Street View Imagery. Section 5.6 of the Outline Written Scheme of Investigation (OWSI) (Onshore) [APP-696] does, however, make provision for such occurrences through the inclusion of Investigation and Recording of Standing Buildings or Structures, as one of the 'Initial Informative Stages of Mitigation'. Therefore, this non-designated heritage asset will be added to OSWI Onshore at Section 13 Appendix 4 Outline Schedule of Archaeological Requirements for Above Ground Heritage Assets [APP-696], and will be identified for and subject to Built Heritage Survey / Historic Building Recording in the post-consent stages of the project. At construction, a stretch of this historic estate wall (with heritage interest) would need to be temporarily removed to facilitate the proposed open-cut trench crossing of Elsing Lane. The working width of the onshore cable route at this location could, however, be reduced from 45m to at least 20m (if not more) in order to limit the length of wall impacted and requiring temporary removal and subsequent reinstatement. This work, including any preceding specialist recording and succeeding specialist monitoring of the removal and later reinstatement would be undertaken under survey-specific and subsequent additional mitigation related Written Schemes of Investigation (WSIs), see Section 5.6 of the OWSI (Onshore) [APP-696]. These documents as referenced in the OWSI (Onshore) [APP-696], and secured in dDCO Requirement 23, would be agreed in consultation with Breckland Council, NCC HES and HE, as required. Impacts will be reduced wherever possible, and measures applied for the sensitive and appropriate like for like reinstatement (including re-use of the original bricks and use of suitable bonding materials) of the length of historic wall affected, following the completion of construction at this location. See also the response to Q12.0.4 on cable route works where boundary barriers exist.	

2 Biodiversity, Biological Environment and Ecology

2.0 General

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q2.0.1	The Applicant	The Applicant [AS-024] explained that it has updated numerous assessments and/or plans relevant to ecological matters. The ExA has noted the following are proposed: • Updated red throated diver displacement assessment • Updated gannet displacement assessment • Updated kittiwake collision risk assessment • Assessment of combined collision and displacement (alone and incombination/cumulatively) • Assessment of impacts to seabird assemblage of Flamborough and Filey Coast SPA • Updated ornithological in-combination/cumulative assessment • Revised population viability analysis (PVA) for gannet, kittiwake and greater blackbacked gull (at the EIA scale) • Revised PVA for Flamborough and Filey Coast SPA • Updated Haisborough, Hammond and Winterton SAC Site Integrity Plan • Interim Cable Burial Study • Updated Scour and cable protection plan • Updated offshore operations and maintenance plan • Updated Outline Landscape and Ecological Management Strategy • Drilling fluid breakout clarification note. The Applicant is requested to submit these at Deadline 2 of the Examination	The Applicant confirms that the updated ornithology assessment has been submitted at Deadline 2 (ExA;AS-1,D2.V1). With respect to the list of topics the following aspects have been included which address the requests for further information and assessment made by Natural England in their relevant representation (REP-099). For all topics this has included additional consideration of impact estimates using the 95% confidence intervals of abundance for project alone assessments. Topic specific additions are noted below. • Updated red-throated diver assessment: this includes a project alone assessment for the Environmental Impact Assessment (EIA) and a 'like-for-like' assessment for the cumulative assessment (EIA). • Updated gannet displacement assessment: this includes a project alone and cumulative assessment for the EIA and project alone and in-combination assessment for the Habitats Regulations Assessment (HRA). • Assessment of gannet combined displacement and collision assessment: this includes project alone and cumulatively for EIA and project alone for the HRA (the HRA in-combination was provided in APP-201 and was not requested by Natural England in REP-099). • Assessment of impacts to the seabird assemblage of Flamborough and Filey Coast SPA: this has been included in the update and was also included in the updated Screening and Integrity matrices submitted at Deadline 1 (REP1-012, 5.3.5.3 - Norfolk Boreas Updated Appendix 5.3 Habitats Regulations Assessment Screening Matrices (Version 3) and REP1-014, 5.3.6.1 Habitats Regulations Assessment - Appendix 6.1 - Integrity Matrices) . • The in-combination and cumulative assessments for all relevant species and impacts have been updated throughout. • Revised Population Viability Analyses (PVA) for EIA populations of gannet, kittiwake and lesser black-backed gull have been provided. • Revised PVA for Flamborough and Filey Coast SPA: Natural England did not request updates to the PVA for the SPA populations assessed and therefore this has only been undertaken for one species (guillemot) for which an increased range of impact magnitudes was required. • The Interim cable burial report has been submitted to the examination as Appendix 2 of the updated outline Haisborough Hammond and Winterton SAC site integrity plan at deadline 1 (REP1-033). • Updates to the Outline Scour and Cable Protection plan (REP1-031), Outline Operations and Maintenance Plan (REP1-027) and Outline Landscape and Ecological Management Strategy (REP1-020) were all submitted at Deadline 1. • A drilling fluid breakout clarification note (titled Clarification Note Trenchless Crossings and Potential Effects of Breakout on the River Wensum) was also submitted at Deadline 1 (REP1-039).	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q2.0.1	Natural England	The Applicant [AS-024] explained that it has updated numerous assessments and/or plans relevant to ecological matters. The ExA has noted the following are proposed: • Updated red throated diver displacement assessment • Updated gannet displacement assessment • Updated kittiwake collision risk assessment • Assessment of combined collision and displacement (alone and incombination/cumulatively) • Assessment of impacts to seabird assemblage of Flamborough and Filey Coast SPA • Updated ornithological in-combination/cumulative assessment • Revised population viability analysis (PVA) for gannet, kittiwake and greater blackbacked gull (at the EIA scale) • Revised PVA for Flamborough and Filey Coast SPA • Updated Haisborough, Hammond and Winterton SAC Site Integrity Plan • Interim Cable Burial Study • Updated Scour and cable protection plan • Updated offshore operations and maintenance plan • Updated Outline Landscape and Ecological Management Strategy • Drilling fluid breakout clarification note. The Applicant is requested to submit these at Deadline 2 of the Examination	Natural England notes the provision of a significant amount of additional documentation at Deadlines 1 and 2. Natural England refers to our response to the Rule 8 letter regarding the timings of provision of our statutory advice.	With respect to the ornithological items listed in this question the Applicant can confirm that these were submitted at Deadline 2 (REP2-035).
Q2.0.1	RSPB	The Applicant [AS-024] explained that it has updated numerous assessments and/or plans relevant to ecological matters. The ExA has noted the following are proposed: • Updated red throated diver displacement assessment • Updated gannet displacement assessment • Updated kittiwake collision risk assessment • Assessment of combined collision and displacement (alone and incombination/cumulatively) • Assessment of impacts to seabird assemblage of Flamborough and Filey Coast SPA • Updated ornithological in-combination/cumulative assessment • Revised population viability analysis (PVA) for gannet, kittiwake and greater blackbacked gull (at the EIA scale) • Revised PVA for Flamborough and Filey Coast SPA • Updated Haisborough, Hammond and Winterton SAC Site Integrity Plan • Interim Cable Burial Study • Updated Scour and cable protection plan • Updated offshore operations and maintenance	The RSPB notes the additional assessments that will be submitted at Deadline 2. Whilst we will endeavor to review key documents by Deadline 3 the nature of the assessments and the need for these technical documents to be reviewed by specialist staff will make a full review challenging in the space of only seven days. This is particularly in light of other key deadlines for Hornsea Three Offshore Wind Farm which also has a deadline for 19th December. The RSPB notes that Natural England have indicated that they will provide comments in detail by 17th January 2020. This will be in advance of the hearing on 22nd January. The RSPB will attempt to submit some comments by 19th December but will ensure our detailed comments are submitted to coincide with NE's detailed submission. Due to staff availability the RSPB will not be able to attend the hearing session on 22nd January, but we will continue to work with the applicant and Natural England to address outstanding concerns and continue to provide written representations.	With respect to the ornithological items listed in this question the Applicant can confirm that these were submitted at Deadline 2 (REP2-035).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		plan • Updated Outline Landscape and Ecological Management Strategy • Drilling fluid breakout clarification note. The Applicant is requested to submit these at Deadline 2 of the Examination		
Q2.0.2	The Applicant	**Project Description** NE [RR-099] states "Many of the volumes assessed in the Environmental Statement project description (disposal, cable protection and scour protection) do not appear to match those used in the DCO/DMLs. Clarification should be requested from the Applicant on these issues." The Applicant to identify with NE where these discrepancies are and provide corrections.	The Applicant discussed this written question with Natural England on the 28th November 2019. The Applicant advised Natural England that the apparent discrepancies may be explained by the EIA and DCO Reconciliation document (6.7, REP1-016). Natural England agreed to review this document and provide further detail to the Applicant on any discrepancies identified. Following receipt of the outcome of this review the Applicant will provide a response to any points which Natural England have raised.	
Q2.0.2	Natural England	**Project Description** NE [RR-099] states "Many of the volumes assessed in the Environmental Statement project description (disposal, cable protection and scour protection) do not appear to match those used in the DCO/DMLs. Clarification should be requested from the Applicant on these issues." The Applicant to identify with NE where these discrepancies are and provide corrections.	Natural England has discussed with the Applicant and is reviewing the revised updated reconciliation document submitted at Deadline 1. We will provide further comment at Deadline 3 on if this document resolves the discrepancies.	The Applicant will continue to engage with Natural England this issue and has offered assistance to Natural England to resolve any concerns that Natural England may have.
Q2.0.3	The Applicant	**Enhancing biodiversity** Explain the consideration that has been given to identifying opportunities to enhance biodiversity through the design of the Proposed Development and how any such opportunities are secured.	The Applicant has identified opportunities to enhance biodiversity where relevant with the design of Norfolk Boreas. In instances where there is scope to improve habitat for selected species or for its own intrinsic value, this has been undertaken. For example, the following habitat enhancements are proposed: • **Hedgerows –** Replanting of all hedgerows removed for construction with the aim of providing improved habitat from that removed; • **Great crested newts** – An option to undertake great crested newt mitigation has been retained. Should this be used, then offsite ponds will be enhanced as an alternative to mitigating localised impacts using traditional methods; • **Watercourses** – Localised improvements to the geomorphology and in-channel habitats will be considered where watercourses are crossed using open cut techniques; and • **Landscaping** – Planting proposals at the onshore project substation and National Grid substation extension are designed to increase the area of land given over to wildlife. Other habitats directly affected are proposed to be reinstated in-line with Norfolk Biodiversity Action Plan, which will mean enhancement from their current habitat quality (e.g. ponds). These biodiversity enhancements are set out within the Outline Landscape and Ecological Management Strategy (APP-698), and are to be detailed within the Written Landscape Management Scheme and Ecological Management Plan to be produced post consent, which are secured through Requirements 18, 19 and 24 of the draft DCO (AS-019). A separate note has been provided (Exa.AS-6.D2.V1) which signposts details of biodiversity enhancements described within the Environmental Statement, Information to Support Habitats Regulations Assessment (APP-201) and Outline Landscape and Ecological Management Strategy (REP1-020).	

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Q2.0.4	The Applicant	**Net gain** While it is accepted that net gain is not a mandatory requirement for NSIPs, do NE and EA accept that the Applicant's response to the RRs [AS-024] reflect no loss to biodiversity and some elements of net gain? The Applicant may wish to comment.	In addition to the response provided to the RRs (AS-024), it should be noted that habitat enhancements which would count as the creation of habitat units using the Defra biodiversity metric have been included within the Outline Landscape and Ecological Management Strategy – see response to Q2.0.3.	
Q2.0.4	Natural England	**Net gain** While it is accepted that net gain is not a mandatory requirement for NSIPs, do NE and EA accept that the Applicant's response to the RRs [AS-024] reflect no loss to biodiversity and some elements of net gain? The Applicant may wish to comment.	There may be some short term loss to biodiversity during the construction phase onshore due to construction areas, tree and hedgerow removal etc. The Applicant has agreed to include some environmental enhancements where possible for example at water crossings. However this cannot be considered Net Gain in its true sense unless it is measurable. The Applicant confirmed in recent discussion (21.10.2019) that they will not be attempting Net Gain across the site.	Noted. The Applicant submitted a Clarification Note on Ecological Enhancements at Deadline 2 (REP2-028).
Q2.0.4	Environment Agency	**Net gain** While it is accepted that net gain is not a mandatory requirement for NSIPs, do NE and EA accept that the Applicant's response to the RRs [AS-024] reflect no loss to biodiversity and some elements of net gain? The Applicant may wish to comment.	The Environment Agency has not identified loss of biodiversity as a concern for aspects under its remit. It is accepted that there may be some elements of net gain to biodiversity but, no mechanism has been presented to quantify this. We accept that there is no mandatory requirement to quantify net gains but we would welcome post consent discussions linked to water crossing to ensure that all opportunities to maximise environmental benefit are realised wherever feasible.	Noted. The Applicant submitted a Clarification Note on Ecological Enhancements at Deadline 2 (REP2-028) including potential enhancements at watercourse crossings. The Applicant will continue to engage with the Environment Agency post-consent in relation to potential enhancements at watercourse crossings.
Q2.0.5	Natural England	**Ecological data** Comment on the acceptability of the onshore ecological survey data [APP-235], in particular the assumptions made by the Applicant in areas which were not accessible for the 2017 and 2018 field survey.	Natural England understand that the Applicant only had access to approx. 65% of the field survey area and that post consent surveys of the entire area will be undertaken. Natural England are satisfied that any mitigation will be secured through the Outline Landscape and Ecological Management Strategy (OLEMS).	Noted.
Q2.0.5	Norfolk County Council	**Ecological data** Comment on the acceptability of the onshore ecological survey data [APP-235], in particular the assumptions made by the Applicant in areas which were not accessible for the 2017 and 2018 field survey.	**Acceptability of the Onshore Ecological Data** 1. Paragraph 85, states that approximately 65% of the field study area has been surveyed and section *22.4.1.4 Approach to predicting impacts for un-surveyed areas* states that post-consent ecological surveys will be required (details are provided in 22.7). We note that Section 9, paragraph 134 of the Outline Landscape and Ecological Management Strategy, states that surveys of unsurveyed areas to complete the ecological baseline, are only required under Scenario 2, as under Scenario 11, the surveys would have been completed by Norfolk Vanguard. <u>The results of additional surveys may lead to further mitigation at specific locations.</u> • <u>We accept the applicant has done what they can, given access constraints.</u> 2. The survey scope is acceptable, and surveys are broadly acceptable. **Queries Chapter 22 Environmental Statement Volume 1** **Bat Data** 3. Table 22.3 page 26. The applicant states that the final bat survey report is presented in Vanguard ES Appendix 22.5, and that further survey data was collected during summer 2018. <u>Please could the applicant confirm where the results of the additional bat surveys undertaken in Summer 2018 are</u>? (*Appendix 22.5[2] contains a report from November 2017; Appendix 22.04[3] contains a report from February 2018 and Environmental Statement Figure 22.8 - Bat activity results[4] contains maps from May 2018 showing bat activity survey locations, and Environmental Statement Figure 22.9 - Bat emergence results[5] contains maps from dated April 2018*). 4. Table 22.9 (page 30) indicates that radiotracking data and other species roost data was obtained from Norfolk Barbastelle Study Group for the onshore project area and a 5km buffer. This is a misrepresentation as the	**Acceptability of the Onshore Ecological Data** 1. Noted 2. Noted **Queries Chapter 22 Environmental Statement (ES) Volume 1 (APP-235)** 3. The results from the additional bat surveys undertaken in summer 2018 are presented in Appendix 22.4 Bat Activity Survey Reports (APP-602) (pages 3-133) and Appendix 22.4 Bat Emergence Re-entry Survey Reports (APP-603) (pages 3-19). The results of these surveys are also included on Figures 22.9 (APP-443) and 22.10 (APP-442). 4. The Applicant requested all radio-tracking data for roosts within 5km of the study area plus also roost data within 50m of the onshore project area from Norfolk Barbastelle Study Group (NBSG) in June 2017 and January 2018. It should also be reiterated that this desk-based data alone is not relied upon for the assessment presented in Chapter 22 Onshore Ecology (APP-235) and Information to Support Habitat Regulations Assessment Report (APP-201), and the results of the bespoke bat activity surveys undertaken to inform Norfolk Boreas provide the key data source for use in the assessment. 5. The text in Tables 22.21 and 22.23 is correct. Under Scenario 2, the maximum hedgerow gap created to facilitate the duct installation is 13m, which can be up to 16.5m if the onshore cable route crosses a hedgerow at an oblique angle. Following this, where a hedgerow gap is required to be retained to facilitate access during the two year cable installation phase, this will be a maximum of 6m in width. **Comments on assumptions**

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			data, notably radio tracking data, relates to Paston Barn SAC only rather than, as indicated, all barbastelle roosts within a 5km radius of buffer of the entire cable route. 5. Table 22.21 (page 78) – hedgerow loss will be restricted to that required for access beyond the two-year duct installation phase, and will be no wider than 6 m. In Table 22.23 page 84 it says hedgerow gaps will be 13m long, possibly extending to 16.5 if crossed at an angle. Please can this be confirmed. (see Chapter 5 Project description – not reviewed at this stage). **Comments on Assumptions** 1. Paragraph 83/84. Biological records data provided by NBIS includes records made almost exclusively by volunteers, the great majority of these data are collected by amateur experts in their field. All records provided by NBIS have a high level of quality control, both through verification by county experts and validation by NBIS. As with all data there may be a small number of errors, these most commonly will be due to errors in spatial referencing by the original recorder or historic data that did not have the same quality control checks as present NBIS standards. NBIS follows standards set out as part of accreditation through the Association of Local Environmental Records Centres. 2. Paragraph 85- We agree that the Norfolk Living Map has been used to characterise habitats for the 35% of land not accessed. We also agree that a precautionary approach and agree that full surveys will be undertaken post- consent (Paragraph 86) should be adopted although it is worth assuming that both protected and notable species are present, rather than one or the other. 3. Paragraph 87 – Noted. Clearance of these areas will need to be included within the CoCP, and under the supervision of an Ecological Clerk of Works (ECoW). 4. Paragraph 88 - We do not approve of survey that are timed for the benefit of the application- surveys should be undertaken during the optimal period wherever possible (the Phase 1 was undertaken during the sub-optimal period for flora) but acknowledged that detailed botanical surveys were undertaken where appropriate. 5. Paragraph 89, 90 & 91 noted 6. Paragraph 496 (page 126) states that habitats within the landfall area are not suitable for foraging or commuting for barbastelle bats from Paston Great Barn. We would like to note that this is an assumption – it is just that the female bats radio tracked did not forage here – it is possible that males or juvenile bats do (previous studies e.g. Glover, 2013 found sexual segregation of foraging and roosting sites by Daubenton's' bats that is - female bats utilize the best habitats while males use poorer quality habitat) **Comments on Potential Impacts and Impact Assessment Hedgerow Loss Paston Barn SAC Impact Assessment** 7. (a) We concur with Natural England's concerns regarding onshore ecology and impacts on the barbastelle maternity colony at Paston Barns. • (b) Replanting will eventually replace hedgerows lost, but the hedgerows will take several years to mature. Our main concern is fragmentation. • (c)Paragraph 333 states that, with landowner permission, 16 hedgerows will be allowed to become overgrown either side of that which will be	1. Noted – these caveats on NBIS data are acknowledged in Section 22.5.3 of Chapter 22 Onshore Ecology (APP-235). 2. Noted – the precautionary approach detailed in Chapter 22 Onshore Ecology (APP-235) para. 86 does assume that both protected or notable species are present, not only one or the other. 3. No habitat which provides protected species potential is proposed to be removed without prior survey or ecological supervision, this is secured through the OLEMS (REP2-020). 4. Noted. 5. Noted. 6. The Applicant notes this caveat regarding the NBSG data. The conclusions reached in paragraph 496 of Chapter 22 Onshore Ecology (APP-235) are based on the advice regarding breeding females from NBSG but also that the area in question is located >5km from the Paston Great Barn SAC. This comment by Norfolk County Council does not change the conclusions reached in para 496. **Comments on Potential Impacts and Impact Assessment Hedgerow Loss Paston Barn SAC Impact Assessment** 7. (a) Noted. • (b) Noted. Fragmentation effects predicted during construction and operation of Norfolk Boreas are summarised within para. 280 of Chapter 22 Onshore Ecology (APP-235) and detailed in full in the Information to Support Habitats Regulations Assessment Report (APP-201). • (c) / (d) Allowing the hedgerows to become overgrown is one element of the mitigation proposed with respect to potential barbastelle commuting / foraging habitat within the 5km study area around Paston Great Barn SAC within Chapter 22 Onshore Ecology (APP-235), the Information to Support Habitats Regulation Assessment (APP-201) and captured in the OLEMS (APP-698). Other mitigation, including micrositing hedgerow gaps around mature trees, removal of hedgerows in winter and not after nights of poor weather, and replanting hedgerows to an improved standard all contribute to reduce that magnitude of effect predicted to arise on this receptor during construction. • In response to Q2.2.6 (REP2-021) The Applicant provided an update on progress with landowner agreements with respect to hedgerow mitigation in Responses to the ExA's First Written Questions (REP2-021) and indicate that the Applicant will seek to obtain approval for this in accordance with the Option Agreement. • (e) Detailed information regarding the Sheringham Shoal and Dudgeon extension projects was not available at the time of Application submission (the Scoping Report for these projects was published in October 2019). As such they have not been considered within the cumulative assessment. The Applicant has provided a detailed response on this point in response to Q4.0.1 in Response to the ExA's First Written Questions (REP2-021). • (f) An Important Hedgerows Plan was provided within the application (document reference 2.11, APP-018).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			removed. This is included within the impact assessment giving an overall impact of minor adverse. Because this is subject to landowner consent and has not been formerly agreed, it cannot be relied upon as mitigation and included within he assessment. Also, it will have limited benefit in the short term (i.e. between consent and loss) - hedgerows should be left to grow for a least three years (up to 10 years) to increase value to bats (Boughey et al 2019). We suggest that this should therefore be excluded as mitigation, and instead considered as enhancement. It is also unclear if hedgerows would be left to grow following completion (if at all), or how this will be secured in practice e.g. under a legal agreement. • (d) The Dutch Case is indirectly related as it affects the impact assessment. (The Dutch Case (C 502/15) (4 May 2017) which places an emphasis on the certainty of the proposed mitigation measures. Kimblin said: "Recent case law has really raised the bar on what certainty means. You have to have mitigation in place, which has scientific evidence to show that there will be no likely significant effect on the conservation status of the European site."). • (e) The impacts (especially of hedgerow loss) should be considered in combination with the Sheringham Shoal and Dudgeon extension cable route, which will potentially cross the cable route for Vanguard/Boreas. (f) The ES does not identify how much of the hedgerows to be lost are important hedgerows under the Hedgerow Regulations 1997. Notes: CIEEM EcIA guidelines were updated in September 2019. Note: Please note that Table 22.2 refers to Norfolk County Council's Environment Policy[6]. This has been now been updated (25/11/2019). The updated policy includes measures for the sustainable management and use of land; the protection and enhancement of landscapes; and to secure clean, healthy, productive and biologically diverse seas and oceans	
Q2.0.5	North Norfolk District Council	**Ecological data** Comment on the acceptability of the onshore ecological survey data [APP-235], in particular the assumptions made by the Applicant in areas which were not accessible for the 2017 and 2018 field survey.	As set out in the Statement of Common Ground between NNDC and Vattenfall, in respect of the existing environment, the Applicant has set out that: 'Where access for surveys was not possible a precautionary approach was adopted, i.e. assuming that relevant receptors were present, and this was captured within the assessment and a commitment to pre-construction surveys of the 'unsurveyed' areas has been made. This is set out for each ecological receptor within the ES Chapter 22 (APP235) and committed to within the Outline Landscape and Environmental Management Strategy (OLEMS) (document reference 8.7 of the Application, APP-698) and secured through Requirement 24 Ecological Management Plan of the draft DCO'. NNDC position is as follows: NNDC recognises that Vattenfall have undertaken desktop studies and Extended Phase 1 Habitat Surveys together with site specific surveys in accordance with best practice recommendations in order to inform the baseline data which underpin Environmental Statement Volume 1 Chapter 22 – Onshore Ecology and Volume 1 Chapter 23 Onshore Ornithology. Statutory and Non-Statutory designated sites are recognised within Figures 22.2 and 22.3. However, the ES recognises that not all areas have been surveyed in setting out potential impacts and cumulative impacts and therefore Vattenfall need to recognise this in making any assumptions about the proposal. Post-consent surveying needs to be secured within the DCO. NNDC will work with Vattenfall to ensure key ecological objectives are met.	The requirement to undertake the post-consent ecological surveys is secured through the Outline Landscape and Ecological ManagementStrategy, which is secured through dDCO Requirement 24 and is a certified document under Article 37 of the dDCO.
Q2.0.6	Natural England	**Norfolk Vanguard SoCG**	The SoCG is an Applicant led document led statement which they submitted as part of Vanguard examination Deadline 9 REP9-046 (Link). and therefore it is not our document to update.	Throughout the Norfolk Boreas Evidence Plan Process, Natural England advised that the Applicant should consider and include where relevant any submissions made to the Norfolk Vanguard examination. As the Norfolk Boreas

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		NE is requested to submit the final SoCG for Norfolk Vanguard and include any changes in NE's position since submission of the SoCG	Changes in Natural England's position since the final submission for Vanguard SoCG are: **Benthic:** Please be advised that Natural England's advice on benthic matters hasn't changed since the end of the Norfolk Vanguard Examinations i.e. an adverse Effect on Integrity (AEoI) can't be ruled out on the interest features of Haisborough Hammond and Winterton (HHW) SAC. However, we have sought further legal input on the use of a Site Integrity Plan, which has strengthened our position that it is not appropriate under the Habitat Directives to defer consideration of AEoI to post consent. And therefore both the MMO and NE strongly advise against the use of a SIP for benthic SACs to enabling consenting. Please see our Relevant Representation [RR-099] for further details. In addition we have also had a real time situation where a developer hasn't been able to micro route around Annex I reef within a designated site. This has highlighted that micro siting may not be appropriate mitigation especially in the case of Boreas when there is a high probability of this situation occurring, which is significantly greater than with the other project. Please see our Relevant Representation [RR-099], for further details. **Marine Mammal:** No Change **Onshore ecology and Ornithology:** Due to a number of HDD bentonite breakouts associated with OWF development NE have asked for additional HDD under the Wensum since the end of the Vanguard examination.	EIA has been undertaken using the same methodology, baseline data, and a very similar, albeit slightly refined, design envelope as Norfolk Vanguard, the Applicant considered that the final Norfolk Vanguard SoCG was suitable to inform the Norfolk Boreas SoCG. It was therefore a surprise to the Applicant that many issues that had been agreed with Natural England for Norfolk Vanguard could therefore not be agreed for Norfolk Boreas, notwithstanding Natural England's change in position regarding a Site Integrity Plan and Bentonite breakout. **Benthic** It was not the purpose of the Site Integrity Plan to defer the Appropriate Assessment to post-consent. The purpose was to provide the MMO and its statutory nature conservation advisors the control to manage any effects on the HHW SAC. The Applicant considers that both Natural England and the MMO are in support of the document in general, however they do not support the "Grampian condition" which allows the deferral of assessment on AEoI until post-consent. The Applicant understands that Natural England are referring to the example at Triton Knoll offshore wind farm. The Applicant has consulted with Triton Knoll offshore wind farm and has been informed that for that project it was agreed that the area which Natural England refer to contained: low-relief, patchy S*abellaria spinulosa. Sabellaria* was found in places to be buried, with tubes protruding from the sediment surface, mostly at a low elevation (< 2 cm). When found in higher elevation (2 – 5 cm), Sabellaria was recorded in small clumps (i.e. areas < 10 cm diameter). There were no continuous or extensive features recorded. This habitat does not constitute Annex 1 reef. These conclusions have been presented within the Pre-Construction Benthic and Geophysical Baseline Report for Triton Knoll, which has been formally discharged by the Marine Management Organisation (MMO) but is yet to be published. **Onshore ecology and Ornithology:** Additional information requested by Natural England on bentonite breakout has been provided at Deadline 1 [REP1-039]. Following Natural England's review of this document the Applicant anticipates that further agreement can be reached and reported within the SoCG.

2.1 Offshore benthic and marine mammals

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q2.1.1	The Applicant	**Worst Case Scenarios** MMO [RR-069] recommends a table that highlights the worst-case scenarios within each development consent option. The Applicant [AS-024] 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?	The Applicant and the MMO discussed this matter on the 27th November 2019 and have agreed that this information is not required. The Applicant has highlighted to the MMO where the required information on combined worst case scenarios can be found within the application; for example, within the Site Characterisation report (APP-706) and the Cumulative Impact Assessment (CIA) sections of the ES chapters. On the 27th November 2019 it was agreed that a table such as the one suggested by the MMO was no longer required.	

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Q2.1.1	Marine Management Organisation	**Worst Case Scenarios** MMO [RR-069] recommends a table that highlights the worst-case scenarios within each development consent option. The Applicant [AS-024] 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?	The MMO has discussed this further with the applicant and is satisfied that this table is no longer needed. However, the MMO are still in discussion with the Applicant as the MMO has concerns about the usability of the Environmental Statement (ES) at the end of examination. The MMO note that during examination additional information is supplied by the applicant. Such as clarification documents, additional modelling and addendums etc. These are not easily located alongside the ES and when it comes to reviewing the ES at a later stage this can be confusing for anyone who was not in the examination process. The MMO recommend that the ES is updated at the end of examination to include or highlight these documents. In addition to this the MMO would highlight that the EIA and DCO reconciliation document is a vital part of the application. If this document is needed as a referral document to be able to read or understand the complex scenarios or figures against the conclusions in the EIA, the MMO recommend this becomes a certified document at the end of the examination.	The Applicant and the MMO discussed these concerns with the MMO on the 12th December 2019. The Applicant understands that the concerns are not specific to the Norfolk Boreas ES, but in relation to ES and DCO applications in general. The Applicant has agreed to continue discussions with the MMO on this matter during the examination and the MMO will be providing the Applicant with further information on exactly what these concerns are and how they may be resolved. In principle the Applicant does not have an objection to including the EIA and DCO reconciliation document as a certified document, however this will be reviewed further following the outcome of further discussions with MMO as mentioned above.

2.2 Onshore ecology

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q2.2.1	The Applicant	**Workfront** Has the 150m work front defined in the ES [APP-235, APP-236] been relied upon in the assessment and how can the Applicant guarantee that this is implemented?	The 150m workfront described within Chapter 22 and 23 of the ES (APP-235 and APP-236) has been used within the impact assessment presented within these chapters. The worst case parameter used within the assessment is the maximum two week duration during which works will occur in any one area. As noted in Table 22.21 in Chapter 22 (APP-235), workfronts will be approximately 150m, and will be reinstated where possible. The worst case used for the impact assessment within these Chapters has assumed that the workfronts could be longer than 150m in some instances, and may not be reinstated immediately, but that works would not extend beyond two weeks at each location. The 150m workfront is secured by being detailed in section 4 Embedded Mitigation within the Outline Landscape and Ecological Management Strategy (REP1-020), and will therefore be detailed in the Ecological Management Plan which is produced post consent, secured under Requirement 24 of the draft DCO.	
Q2.2.2	The Applicant	**Cable depth** How would the depth of onshore cable burial be secured?	The minimum depth of onshore cable burial has been included in the private land agreements being sought for all affected land interests. The minimum depth would be included in Construction Method Statements as required by the OCoCP (document 8.1, APP-692) and secured in Requirement 20 of the dDCO. Through consultation with the Land Interest Group and National Farmers Union, the Applicant has committed to a minimum depth of 1.2m to the top of duct across all land, which supersedes the minimum depth of 1.05m to the top of duct in 'normal' agricultural land as detailed in Chapter 5 Project Description (document 6.1.5, APP-218). This commitment has been made to appreciate that land may be subject to 'deep ploughing' in the future and to simplify the installation process and specification. The additional minimum depth does not impact on the assessments as no additional materials are required and the time required to excavate a further 0.15m of trench depth is negligible to the works programme.	

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Q2.2.3	Natural England	**Post Construction Monitoring** NE in its RR [RR-099] notes that there is no onshore post construction survey or monitoring proposed to ensure protected habitats and species have been successfully reinstated post construction. The Applicant outlines its post construction monitoring proposals in [AS-024]. Is NE content with these proposals?	We note and welcome point 13 Post Construction Monitoring of UK Habitat of Principal Importance and Norfolk Local Biodiversity Action Plan (LBAP) grasslands will be included within an updated OLEMS to include 1 year of post-construction monitoring. Natural England question if 1 years monitoring would be sufficient to establish if the grassland had been successfully reinstated and if not if this allows time for reseeding/reinstatement? As stated in our [RR-099] We advised that monitoring is included with trigger points established for habitat management if grassland has not restored naturally. We are content that there is no post construction monitoring regarding sugar beet areas left as mitigation for Broadland SPA species. We are happy that post construction monitoring of hedgerows, important for commuting and foraging bats for 7 years is included within the OLEMS.	Noted. In relation to grassland monitoring, the Applicant has included the following commitment within Section 9.3.3.3 of the updated OLEMS at Deadline 1 (REP1-020): "*Post-construction monitoring will be undertaken of any UKHPI and Norfolk LBAP grasslands one year after the completion of construction to identify any failure of the grassland to naturally regenerate. This will involve a ground flora survey of the locations covered by the 2017 and 2018 botanical surveys. Monitoring will seek to determine whether natural regeneration has successfully restored the same NVC communities as present prior to construction. If the communities have not re-established, then next steps will be determined based on the status of the restored grassland. This will involve do nothing, grazing management or reseeding, depending on the success of re-establishment after 1 year.*" The Applicant is of the view that one year of monitoring is sufficient time for the communities recorded in pre-construction surveys to re-establish and has included a mechanism for the further steps to be undertaken should establishment not be successful after 1 year.
Q2.2.4	The Applicant	**Norfolk hawker dragonfly** The Applicant to confirm: 1. How it would be determined whether there is any risk to the Norfolk hawker dragonfly (a Norfolk LBAP priority species) from any changes to the project, 2. How further surveys in these instances would be secured, and 3. What would be the consequences should surveys identify breeding is taking place? 4. Should these be referenced in the outline CoCP or OLEMS?	As background on the Norfolk Hawker dragonfly, the species is associated with drainage ditches for watercourses within Norfolk and Suffolk. Prior to the pre-construction ecological surveys undertaken for the Norfolk Vanguard and Norfolk Boreas project, the species had only been recorded in one location within 2km of the onshore project area. During the baseline ecological surveys, one individual was observed along a drainage ditch adjacent to the River Bure (TG 20027 28654) adjacent to the onshore project area, however the use of trenchless crossing techniques now means the suitable habitat for this species is avoided during construction. In response to the questions raised: 1. There would be a risk to the Norfolk Hawker dragonfly should the project be interacting with suitable habitats for this species within the onshore project area. This includes drainage ditches associated with the River Bure. In the project design, all suitable habitats are crossed using trenchless crossing techniques, and are therefore avoided. The use of a trenchless crossing at the River Bure is secured through dDCO Requirement 16 (13) (d). 2. In the event that the project design changes post-consent from that presented within the ES, and involves interaction with the habitats identified under point 1., a further dragonfly survey would be required within the suitable habitats within the onshore project area. This would follow the British Dragonfly Society criteria for establishing breeding presence (see ES Chapter 22, section 22.5.3 (APP-235)). These further surveys would be detailed within the Ecological Management Plan, secured under Requirement 24 of the dDCO. 3. Should breeding Norfolk Hawker be recorded during these surveys, then in the first instance an alternative design would be considered, which would not interfere with the ditch(es) where breeding was recorded. If this is not possible, then a programme of translocation accompanied by localised habitat creation (i.e. the creation of ditches and grazing marsh) would be undertaken. In the project design and secured through dDCO Requirement 16 (13) (d), interaction with suitable habitat for the Norfolk Hawker dragonfly is not proposed, therefore mitigation is not proposed within the Outline Landscape and Ecological Management Strategy (APP-698).	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q2.2.5	Natural England	**Barbastelle bats** The Applicant responded [AS-024] to NE's concerns expressed in Appendix 4 of its RR [RR-099] about how the zone of influence has been applied for Barbastelle bats. Is NE content with this explanation?	Natural England are content that a 5km Zone of Influence has been used to assess indirect effects on mobile foraging and commuting Barbastelle species as laid out in [APP-201] Figure 9.3 and suggest the same 5km Zone of Influence is included in the OLEMS and Hedgerow Mitigation Plan.	Noted. As detailed in Section 7.2.3 of the OLEMS (REP1-020), the mitigation detailed in the Hedgerow Mitigation Plan will be agreed with Natural England post-consent and will include those hedgerows within the 5km zone of influence surrounding the Paston Great Barn SAC.
Q2.2.6	The Applicant	**Paston Great Barn SAC and SSSI** What progress has been made regarding the landowner agreements to leave hedgerows important for commuting bats to become overgrown as set out in the Schedule of mitigation [APP-688, item 170] for the Paston Great Barn SAC and SSSI?	The Applicant can confirm that all of the landowners with landowning interests where there are hedgerows for which it is important for commuting bats to become overgrown, have signed HoTs for an Option agreement with the Applicant. This applies to both Scenario 1 and Scenario 2. The draft Option Agreement requires *"The Landowner will enter into all necessary planning/consent agreements (including but not limited to any easement, habitat management agreements, wayleaves etc.) in connection with the Project subject to the Landowner's prior approval (not to be unreasonably withheld or delayed) of the form of such agreements. Vattenfall will indemnify the Landowner against any costs, expenses, actions or proceedings arising from such agreements."* The Applicant will seek to obtain prior approval for this mitigation in accordance with the Option Agreement.	
Q2.2.7	Natural England	**Paston Great Barn SAC and SSSI** Is NE content with the mitigation provided by the Applicant in Table 17 [AS-024] for commuting and foraging areas for bats in relation to the removal and reinstatement of hedgerows, particularly for Paston Great Barn SAC and SSSI?	Natural England understands from discussions with the Applicant that it will not be possible to incorporate temporary planting or screening across gaps which will be open for several years. Natural England is generally content that the mitigation provided in APP-698 OLEMS is sufficient for Barbastelle bats.	Noted.

2.3 Onshore ornithology

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q2.3.1	The Applicant	**Razorbill and guillemot** The Applicant (Table 8 row 33 of [AS-024]) stated it did not agree with NE in relation to cumulative operational displacement to razorbill or guillemot at the EIA scale. The Applicant refers to SPAs, as opposed to EIA scale populations. The Applicant to further justify its position in relation to these species at the EIA scale.	The Applicant acknowledges that the response referred to erroneously made reference to SPA populations and the assessment thereof. However the Applicant can confirm that the same response also applies to the EIA populations in relation to predicted cumulative operational displacement of razorbill and guillemot. Specifically the Applicant did not agree with Natural England's position at the end of the Norfolk Vanguard Examination (that a significant cumulative effect could not be ruled out) and the Applicant was able to conclude that there would not be a significant effect due to cumulative operational displacement on these species. The Applicant reached this conclusion through the application of evidence based methods while Natural England applies what the Applicant considers to be highly precautionary approaches. Details on these precautions are provided in the updated ornithology assessment submitted at Deadline 2 (ExA; AS-1.D2.V1).	
Q2.3.1	RSPB	**Razorbill and guillemot** The Applicant (Table 8 row 33 of [AS-024]) stated it did not agree with NE in relation to cumulative operational displacement to razorbill or guillemot at the EIA scale. The Applicant refers to SPAs, as opposed to EIA scale populations. The Applicant to further justify its position in relation to these species at the EIA scale.	The RSPB supports Natural England's position regarding the need to ensure that assessments are based on all projects that could impact on the SPA populations have been included in the cumulative and in-combination assessments. As highlighted by Natural England, a number of sites are missing from the assessment of cumulative/in-combination mortality for guillemot and razorbill. These are Beatrice Demonstrator, Gunfleet Sands, Kentish Flats, Kentish Flats Extension, Methil, Rampion and Scroby Sands. Although the RSPB acknowledges that these are likely to result in only a few additional mortalities, without them the assessment is incomplete and likely to underestimate the number of resultant mortalities.	As noted in the Applicant's response to this question, the statement to which this refers was made in error, but this did not affect the content of the assessment which considered impacts at both the EIA scale and HRA scale. The Applicant can also confirm that the additional wind farms identified by Natural England (and repeated by the RSPB here) have been included in the updated assessment submitted at Deadline 2 (REP2-035).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q2.3.2	Natural England	**Post-construction monitoring** Is NE content with the Applicant's explanation [AS-024] of why there is no postconstruction monitoring of bird habitat temporarily disturbed during construction?	Issue 20 Birds Habitat Reinstatement RR-099 Natural England is content that there will be no post construction monitoring in relation to the mitigation area for Broadland SPA species which will be set aside for sugar beet during the construction phase.	As noted in the Applicant's response to this question, the statement to which this refers was made in error, but this did not affect the content of the assessment which considered impacts at both the EIA scale and HRA scale. The Applicant can also confirm that the additional wind farms identified by Natural England (and repeated by the RSPB here) have been included in the updated assessment submitted at Deadline 2 (REP2-035).
Q2.3.2	RSPB	**Post-construction monitoring** Is NE content with the Applicant's explanation [AS-024] of why there is no postconstruction monitoring of bird habitat temporarily disturbed during construction?	Whilst this question is directed to Natural England, the RSPB supports the need to ensure post-construction monitoring is appropriate to enable the success of mitigation measures to be measured. Should the mitigation measures implemented prove unsuccessful, monitoring provides the opportunity to review and revise the scheme to ensure damaging impacts from the scheme are addressed.	Noted. No further response required

3 Compulsory Acquisition

3.0 Compulsory Acquisition

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q3.0.1	The Applicant	**Compulsory Acquisition schedule** The Applicant is requested to complete columns 7 to 11 of the Compulsory Acquisition Objections Schedule found at Appendix A to these questions, and make any additions, or delete any entries that it believes would be appropriate, giving reasons for any such additions or deletions.	The completed Compulsory Acquisition schedule has been submitted at Deadline 2 (ExA.CA.D2.V1).	
Q3.0.2	The Applicant	**Protective Provisions** The Book of Reference (BoR) [APP-026] includes a number of Statutory Undertakers with interests in land. 1. Provide a progress report on negotiations with each of the Statutory Undertakers listed in the BoR, with an estimate of the timescale for securing agreement from them. 2. State whether there are any envisaged impediments to the securing of such agreements. 3. State whether any additional Statutory Undertakers have been identified since the submission of the BoR as an application document.	1. The Applicant has engaged with relevant statutory undertakers and will continue to do so with a view to agreeing the protective measures or, where appropriate, to agreeing terms for such provisions outside of the DCO. The Applicant has produced a table to track the progress with each statutory undertaker and this is included with the Deadline 2 submissions as document reference ExA; AS-10.D2.V1. • 2. The Applicant is confident that agreement will be reached with all relevant statutory undertakers by the end of the examination. 3. The Applicant can confirm that no additional statutory undertakers have been identified since the application submission version of the Book of Reference in June 2019.	

4 Cumulative effects of other proposals

4.0 General cumulative effects, including phasing

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Note this section of questions does NOT include those on in-combination effects that are relevant to Habitats Regulations Assessment. Those are dealt with below in the relevant section.				
Q4.0.1	The Applicant	**Relevant projects for cumulative assessment** 1. A number of the ES aspect chapters explain that the projects identified for potential cumulative impacts were agreed as part of the PEIR consultation (November 2018). Taking into account the time that has elapsed since the PEIR consultation and the potential for developments that might have cumulative effects to have come forward since this date, IPs are asked to confirm that they are content that all the relevant projects have been included in the cumulative effects assessment. If not, list those projects which you think should be included. 2. Specifically, the ExA notes that extensions to the existing Dudgeon and Sheringham Shoal have been received by the Planning Inspectorate for a scoping opinion. Comments in respect of these projects are specifically requested. 3. The Applicant is invited to comment and to set out how the cumulative effects relating to the proposed extensions to the existing Dudgeon and Sheringham Shoal have been considered, 4. With either proposed option, the Dudgeon and Sheringham Shoal onshore cable would cross the Norfolk Boreas onshore cable. How have these cumulative effects been considered?	Due to the long lead in times required to produce a DCO application it is necessary to set a cut-off date for incorporating new information in the application. As stated in the Environmental Statement (ES) Chapter 6 EIA methodology (APP-219): "*Only projects which [were] reasonably well described and sufficiently advanced at [the] time [of] writing (the 20th March 2019) to provide information on which to base a meaningful and robust assessment [were] included in the CIA*". At the time of submission (June 2019) The Planning Inspectorate Advice Note Nine and its complementary guidance in Advice Note 17 (which has subsequently been updated, August 2019) provided guidance on plans and projects that should be considered in the Cumulative Impact Assessment (CIA) including: • Projects that are under construction; • Permitted applications, not yet implemented; • Submitted applications not yet determined; • Projects on the Planning Inspectorate's Programme of Projects; • Development identified in relevant Development Plans, with weight being given as they move closer to adoption and recognising that much information on any relevant proposals will be limited; and • Sites identified in other policy documents as development reasonably likely to come forward. Consultation regarding the projects identified for CIA with Norfolk Boreas has been ongoing throughout the application process. This has been undertaken, for example, through the Norfolk Boreas Evidence Plan Process with key stakeholders; through the Scoping Report; and through the Norfolk Boreas Preliminary Environmental Information Report (PEIR) (October 2018). During consultation under Section 42, the Applicant sought feedback from stakeholders on projects and plans that should be included within the cumulative impact assessments and specifically whether any additional projects and plans (from those included within the PEIR) should be included. The ES summarises the consultation responses received with respect to CIA and how these have been addressed (see Appendix 32.1 (APP-683) for Offshore, and Table 33.2 of ES Chapter 33 (APP-246) for onshore). Following the PEIR consultation and prior to the completion of the ES a review of the projects to be considered as part of the CIA was undertaken in March 2019. A review was undertaken to update the status and information of any projects already identified and to identify any new developments which should be considered. The result was the projects and information identified in ES Appendix 32.2 (APP-684) for offshore, and ES Appendix 33.1 (APP-685) for onshore. With respect to the cumulative offshore ornithology assessment (which was updated for Deadline 2, see document reference ExA; AS-1.D2.V1), the list of wind farms included in the assessment has been updated to address comments	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			from Natural England (REP-099) and the list is considered to be complete. The list includes the final submission estimates for East Anglia ONE North and East Anglia TWO and the Preliminary Environmental Impact Report (PEIR) estimates for Hornsea Project Four. The Dudgeon and Sheringham Shoal extensions, both being developed by Equinor, submitted a scoping report to the Planning Inspectorate in October 2019, after the Norfolk Boreas application had been accepted for examination. The scoping report illustrates two landfall areas being considered in the Weybourne and Bacton areas with subsequent potential onshore cable routes to a single grid connection location at Norwich Main which could accommodate both projects. The exact locations for the cable routes have not been finalised and preliminary environmental assessment for the projects has not been undertaken or reported. Site selection activities are ongoing and it can be anticipated that responses to the Scoping Request and an ongoing program of consultation will inform the refinement of the projects as the Environmental Impact Assessment (EIA) for the projects is progressed. In this respect, the Executive Summary of the scoping report for the Dudgeon and Sheringham Shoal extensions states: *"The exact locations of the offshore and onshore infrastructure are not yet finalised. Site selection activities are ongoing and responses to the Scoping Request and an ongoing program of consultation will help to inform the refinement of the projects as the EIA is progressed."* And: *"This scoping report is the first stage of the assessment process, outlining all of the receptors that will be considered and the planned approaches to characterising the existing environment and assessing potential impacts associated with the projects."* With respect to cumulative impact, the Dudgeon and Sheringham Shoal extensions will be required to undertake a cumulative assessment as part of their EIA, taking into consideration all potential activities and timescales from other projects in development, including Norfolk Boreas. As outlined in ES Chapter 33 Onshore Cumulative Impacts (APP-246) only projects that are reasonably well described and sufficiently advanced to provide information, on which to base a meaningful and robust assessment should be included in the Norfolk Boreas CIA. The scoping report for the Dudgeon and Sheringham Shoal extension projects was not submitted until after the Norfolk Boreas application was accepted, and in any event the information provided in the scoping report is not sufficiently developed to enable inclusion of the extension projects within the Norfolk Boreas CIA at this stage. For example, with respect to the cumulative impact assessment for offshore ornithology, there are no data available to include in a cumulative assessment, for either impacts at the wind farm site itself (e.g. collisions or displacement) or due to construction of the wind farm or installation of the export cables. Therefore any potential cumulative impacts of the projects with Norfolk Boreas will need to be considered as part of the Dudgeon and Sheringham Shoal extensions EIA and subsequent application.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q4.0.1	Norfolk County Council	**Relevant projects for cumulative assessment** 1. A number of the ES aspect chapters explain that the projects identified for potential cumulative impacts were agreed as part of the PEIR consultation (November 2018). Taking into account the time that has elapsed since the PEIR consultation and the potential for developments that might have cumulative effects to have come forward since this date, IPs are asked to confirm that they are content that all the relevant projects have been included in the cumulative effects assessment. If not, list those projects which you think should be included. 2. Specifically, the ExA notes that extensions to the existing Dudgeon and Sheringham Shoal have been received by the Planning Inspectorate for a scoping opinion. Comments in respect of these projects are specifically requested. 3. The Applicant is invited to comment and to set out how the cumulative effects relating to the proposed extensions to the existing Dudgeon and Sheringham Shoal have been considered, 4. With either proposed option, the Dudgeon and Sheringham Shoal onshore cable would cross the Norfolk Boreas onshore cable. How have these cumulative effects been considered?	1. Norfolk County Council are content that all relevant projects have been included in the cumulative effect assessment. 2. Attached to this response is the County Councils response to the Dudgeon and Sheringham Shoal scoping opinion to the Planning Inspector.	The Applicant notes and is in agreement with the Natural England advice with respect to the inclusion of projects at early stages of development, such as the proposed extensions for Dudgeon, Sheringham Shoal, Galloper and Greater Gabbard. These are not considered to be foreseeable plans or projects to be included in the cumulative or in-combination assessment as there are no data currently in the public domain (and this is expected to remain the case throughout the Norfolk Boreas Examination).
Q4.0.1	Natural England	**Relevant projects for cumulative assessment** 1. A number of the ES aspect chapters explain that the projects identified for potential cumulative impacts were agreed as part of the PEIR consultation (November 2018). Taking into account the time that has elapsed since the PEIR consultation and the potential for developments that might have cumulative effects to have come forward since this date, IPs are asked to confirm that they are content that all the relevant projects have been included in the cumulative effects assessment. If not, list those projects which you think should be included. 2. Specifically, the ExA notes that extensions to the existing Dudgeon and Sheringham Shoal have been received by the Planning Inspectorate for a scoping opinion. Comments in respect of these projects are specifically requested. 3. The Applicant is invited to comment and to set out how the cumulative effects relating to the proposed extensions to the existing Dudgeon and Sheringham Shoal have been considered, 4. With either proposed option, the Dudgeon and Sheringham Shoal onshore cable would cross the Norfolk Boreas onshore cable. How have these cumulative effects been considered?	2. 3 and 4 Dudgeon and Sheringham extension are in the scoping phase, but are not considered to be foreseeable plans or projects to be included in in-combination/cumulative assessment as there is no data currently in the public domain to allow an assessment to occur. This is for all marine and terrestrial elements of the project.	The Applicant notes and is in agreement with the Natural England advice with respect to the inclusion of projects at early stages of development, such as the proposed extensions for Dudgeon, Sheringham Shoal, Galloper and Greater Gabbard. These are not considered to be foreseeable plans or projects to be included in the cumulative or in-combination assessment as there are no data currently in the public domain (and this is expected to remain the case throughout the Norfolk Boreas Examination). With respect to the operational wind farms listed (Beatrice Demonstrator, Gunfleet Sands, Kentish Flats, Kentish Flats Extension, Methil, Rampion and Scroby Sands), where data are available these projects have been included in the updated cumulative and in-combination ornithology assessment submitted at Deadline 2 (REP2-035).
Q4.0.1	RSPB	**Relevant projects for cumulative assessment** 1. A number of the ES aspect chapters explain that	The RSPB supports the need for the Dudgeon and Sheringham Shoal offshore wind farm extensions to be included in updated cumulative and in-	The Applicant notes the RSPBs response however the Applicant is in agreement with the Natural England advice with respect to the inclusion of projects at early

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		the projects identified for potential cumulative impacts were agreed as part of the PEIR consultation (November 2018). Taking into account the time that has elapsed since the PEIR consultation and the potential for developments that might have cumulative effects to have come forward since this date, IPs are asked to confirm that they are content that all the relevant projects have been included in the cumulative effects assessment. If not, list those projects which you think should be included. 2. Specifically, the ExA notes that extensions to the existing Dudgeon and Sheringham Shoal have been received by the Planning Inspectorate for a scoping opinion. Comments in respect of these projects are specifically requested. 3. The Applicant is invited to comment and to set out how the cumulative effects relating to the proposed extensions to the existing Dudgeon and Sheringham Shoal have been considered, 4. With either proposed option, the Dudgeon and Sheringham Shoal onshore cable would cross the Norfolk Boreas onshore cable. How have these cumulative effects been considered?	combination impact assessments. The additional contribution of these schemes to the potential seabird mortality must be considered to ensure appropriate decisions are made with respect to the Flamborough to Filey SPA and Alde-Ore Estuary SPA. In addition, the RSPB notes that extensions have also been submitted for the Galloper and Greater Gabbard offshore wind farms. The location of these schemes will have further impacts on species such as gannet and kittiwake from the Flamborough to Filey SPA, and lesser black backed gull from the Alde-Ore Estuary SPA. It is essential that these schemes are assessed in an updated cumulative and in-combination impact assessment A number of sites are missing from the assessment of cumulative/in-combination mortality for guillemot and razorbill. These are Beatrice Demonstrator, Gunfleet Sands, Kentish Flats, Kentish Flats Extension, Methil, Rampion and Scroby Sands.	stages of development, such as the proposed extensions for Dudgeon, Sheringham Shoal, Galloper and Greater Gabbard. These are not considered to be foreseeable plans or projects to be included in the cumulative or in-combination assessment as there are no data currently in the public domain (and this is expected to remain the case throughout the Norfolk Boreas Examination). With respect to the operational wind farms listed (Beatrice Demonstrator, Gunfleet Sands, Kentish Flats, Kentish Flats Extension, Methil, Rampion and Scroby Sands), where data is available these projects have been included in the updated cumulative and in-combination ornithology assessment submitted at Deadline 2 (REP2-035).
Q4.0.1	Marine Management Organisation	**Relevant projects for cumulative assessment** 1. A number of the ES aspect chapters explain that the projects identified for potential cumulative impacts were agreed as part of the PEIR consultation (November 2018). Taking into account the time that has elapsed since the PEIR consultation and the potential for developments that might have cumulative effects to have come forward since this date, IPs are asked to confirm that they are content that all the relevant projects have been included in the cumulative effects assessment. If not, list those projects which you think should be included. 2. Specifically, the ExA notes that extensions to the existing Dudgeon and Sheringham Shoal have been received by the Planning Inspectorate for a scoping opinion. Comments in respect of these projects are specifically requested. 3. The Applicant is invited to comment and to set out how the cumulative effects relating to the proposed extensions to the existing Dudgeon and Sheringham Shoal have been considered, 4. With either proposed option, the Dudgeon and Sheringham Shoal onshore cable would cross the Norfolk Boreas onshore cable. How have these cumulative effects been considered?	2. The MMO agree that Dudgeon and Sheringham Shoal should be included within the cumulative assessments.	The Applicant disagrees with this statement. The Applicant agrees with the position taken by Natural England above. The Applicant discussed this with the MMO on the 12th December 2019 and the Applicant understands that the MMO will be providing the Applicant with a revised or updated response to this question.
Q4.0.2	Natural England	**Cumulative assessments and other infrastructure users** Provide any comments on the Applicant's cumulative assessments offshore [APP-245] and	Natural England has provided comment within our Relevant Representations [099] and has no further comment to make at this time.	The Applicant responded to Natural England's comments on CIA in the Comments on relevant representations [AS-024].

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		onshore [APP-246] and/or comments on the assessment of infrastructure and other users [APP-231].		
Q4.0.2	Marine Management Organisation	**Cumulative assessments and other infrastructure users** Provide any comments on the Applicant's cumulative assessments offshore [APP-245] and onshore [APP-246] and/or comments on the assessment of infrastructure and other users [APP-231].	Document: The MMO has reviewed APP-245 and APP-231 have no comments to make on the conclusions.	The Applicant has no further comments.
Q4.0.2	RSPB	**Cumulative assessments and other infrastructure users** Provide any comments on the Applicant's cumulative assessments offshore [APP-245] and onshore [APP-246] and/or comments on the assessment of infrastructure and other users [APP-231].	Please refer to the RSPB's responses to Q4.0.1 and Q8.4.2	Please see the Applicant's responses to Q4.0.1 and Q8.4.2 submitted at Deadline 2 (REP2-021). Also see the Applicant's comments on the RSPB's response to Q4.0.1 and Q8.4.2 within this document.
Q4.0.4	The Applicant	**Offshore and onshore phases** Provide flow diagrams for Scenarios 1 and 2 which illustrate which offshore solutions can lead to which onshore phases as described in the Project Description [APP-218] and the Design and Access Statement [APP-694].	The requested flow diagrams are contained within Appendix 4.1. The diagram illustrates the following key points: 1. Under Scenario 1 all three electrical solutions (a to c) could be implemented. 2. Under Scenario 2 only electrical solution a) could be implemented. 3. As electrical solution a) is the only solution that would require Norfolk Boreas to install two pairs of HVDC cables this is the only solution which could result in two phases of cable installation (this applies to both offshore and onshore).	
Q4.0.5	The Applicant	**Phasing** More clarity is required on the proposed phasing of the offshore and onshore works for Norfolk Boreas Scenarios 1 and 2 in relation to how other proposed development might progress. Set out what activities from other proposed developments (if approved) would be critical to phasing decisions for this proposed development. In terms of onshore, refer to the points in the Savills', NFU's and the LIG's RRs on behalf of landowners regarding cable laying.	Onshore and offshore phasing is not dependant or affected by other proposed developments. The phasing considerations for Norfolk Boreas are the same, irrespective of Scenario 1 or Scenario 2. Offshore phasing relates to the potential for developing the Norfolk Boreas site in up to two discreet phases, acknowledging the large size of the site and the potential electrical infrastructure approaches which may better suit one or two phases (see Section 5.4.12 of ES Chapter 5 Project Description, document 6.1.5, APP-218). Indicative offshore programmes for one and two phase development are presented in Table 5.26 and Table 5.27 respectively of ES Chapter 5 Project Description (document 6.1.5, APP-218). Onshore phasing relates to the number of cable pull phases along the onshore cable route and electrical plant installation at the onshore project substation. There are a maximum of two separate phases for Norfolk Boreas, irrespective of Scenario 1 and Scenario 2, as illustrated in the indicative construction programmes of Table 5.39 and Table 5.43 respectively of ES Chapter 5 Project Description (document 6.1.5, APP-218). Phasing of the onshore cable pull and electrical plant installation will be guided by the electrical infrastructure approach and offshore phasing, with consideration also for any applicable supply chain constraints such as cable supply availability and cable jointer capacity. For completeness, an outline programme illustrating all onshore activities for Norfolk Vanguard and Norfolk Boreas, under Scenario 1 is provided in Appendix 4.2 of this document.	

4.1 Onshore cumulative effects of other proposals (construction)

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q4.1.1	The Applicant	**Inter-relationship with Hornsea Project Three Offshore Windfarm** 1. Provide plans (for Scenario 1 and Scenario 2) on an OS base map, which show where the cumulative construction activities would occur associated with the proposed Hornsea Three Offshore wind farm cable corridor and that of the Proposed Development. The plans to show clearly which are associated with Hornsea Project Three and which with the Proposed Development. Plans to include (but not limited to) mobilisation zones and compounds, cable logistics area(s), cable running tracks, public roads used for HGVs, Public Rights of Way closures and trenchless crossing compounds. (Terminology may differ for the Hornsea Three project). 2. What assumptions have been made in the assessment with regards to the timings of Hornsea Project Three?	1. As requested additional figures showing the potential cumulative construction activities between Norfolk Boreas and Hornsea Project Three for each of the scenarios have been produced and are presented in Appendix 4.3. The figures are focused on the two main areas of cumulative impacts: • Cable Crossing Point of the two project cable routes near Reepham; • Area of the Norfolk Boreas Cable Logistics Area, mobilisation area 7 (Scenario 2 only) and Hornsea Project Three Main Compound near Oulton. In addition, ES Figure 24.15 (APP-466) shows the full extent of both projects onshore cable routes (APP-466) and ES Figure 24.16 (APP-466) shows all highways links jointly used by Norfolk Boreas and Hornsea Project Three. The figures contained in Appendix 4.3 show the construction infrastructure associated with both projects in these two areas for each scenario including highways links and Public Rights of Way. The figures have been drafted using the available information on Hornsea Project Three i.e. their onshore order limits, main compound location and access routes. Plans are not available showing more detailed information on the location of their secondary compounds or trenchless crossing compounds. The figures also identify the highways links which would be shared by both projects under each scenario. **Figure 1a shows the cable crossings location under Scenario 1** Under Scenario 1 the Norfolk Boreas ducts would have already been installed by Norfolk Vanguard, therefore the cumulative impacts would only occur if Hornsea Project Three are undertaking onshore cable works (either duct installation or cable pulling) at the same time as Norfolk Boreas cable pulling works (indicative dates 2026 and 2027). **Figure 1b shows the cable crossing location under Scenario 2** Under Scenario 2 Norfolk Boreas will install ducts and subsequent cable puling therefore cumulative impacts could occur if Hornsea Project Three are undertaking onshore cable works at the same time as either Norfolk Boreas ducts installation (indicative dates 2023 to 2024) or Norfolk Boreas Cable Pulling (indicative dates 2025 and 2026). **Figure 2a shows the Norfolk Boreas cable logistics area and Hornsea Project Three Main Compound near Oulton under Scenario 1** The cable logistics area will be used during the cable pulling works under Scenario 1 (indicative dates 2026 and 2027), therefore potential cumulative impacts could occur along shared highways links if Hornsea Project Three undertake any onshore cable works during this time. Further details regarding the purpose, use and potential cumulative traffic overlap including mitigation measures in this area are provided in the Norfolk Boreas Clarification Note on the Cable Logistics Area submitted at Deadline 2 (ExA.AS-4.D2.D1). **Figure 2b shows the Norfolk Boreas cable logistics area. Mobilisation area 7 and Hornsea Project Three Main Compound near Oulton under Scenario 1** Under Scenario 2 cumulative impacts could occur along the shared highways links if Hornsea Project Three are undertaking any onshore cable works at the same time as either during the duct installation to access mobilisation area MA7	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			(indicative dates 2023 to 2024) or whilst using the cable logistics area during the cable pulling (indicative dates 2025 and 2026). 2. The assumptions with respect to the timings for Hornsea Project Three have been based on the high level programme provided in the Hornsea Project Three DCO application, which indicates a planned start date of 2021. The programme identifies the project may be installed in either a single phase or two phases. For a single phase installation the Hornsea Project Three onshore export cables will be installed in 2022 to 2024. Under Scenario 1 there would therefore be no overlap of construction activities on the onshore cable route. Under Scenario 2 there could be an overlap with the cable duct installation for Norfolk Boreas (2023 to 2024). The potential overlap of Scenario 2 duct installation activities with Hornsea Project Three onshore export cable works is assumed as the worst-case cumulative impact in the Norfolk Boreas Environmental Impact Assessment. If Hornsea Project Three was installed in two phases for the onshore export cable, then the first phase will be as outlined above and a second phase of onshore export cables would be undertaken in 2027 to 2028. Under Scenario 1 Norfolk Boreas should have competed all construction works prior to these works commencing. Under Scenario 2 there is the potential for overlap with the Norfolk Boreas cable pulling works in 2027, however potential effects will be less than those identified for the potential overlap with duct installation.	
Q4.1.2	The Applicant	**Inter-relationship with Hornsea Three Offshore windfarm: construction traffic** Orsted [RR-102] refers to consistent approaches to construction traffic management to minimise cumulative adverse effects with Hornsea Three for both Scenarios. The Applicant states it would continue to work together with Orsted on areas of overlap and cable route interaction [AS-024, Table 19, No. 7]. 1. What steps have been taken to ensure consistent approaches to construction traffic management and where are these secured in the dDCO? 2. How would ongoing cooperation during the construction phases of the two Proposed Developments be secured should the SoS consider granting development consent for both? 3. Set out how the mitigation would address the moderate adverse significant effects of the Proposed Development on the B1149 – Norwich road (Link 32), B1145 - west of Cawston (Link 34) and B1149 – Holt Road (Link 36) when considered in combination with Hornsea Project Three. 4. What is the Applicant's role in the development and implementation of the proposed package of measures? 5. Is the local highway authority content with the detail of the proposed mitigation package?	1 and 4. During the application and examination of Hornsea Project Three and Norfolk Vanguard, Vattenfall and Orsted worked closely to ensure that a consistent approach for the management of construction traffic was agreed. Key matters included: • Agreed HGV traffic restriction and caps as mitigation for 'shared links' that are forecast to be subject to concurrent traffic demand from both projects. • Joint adoption of the highway intervention scheme designs for The Street, Oulton and B1145 Cawston. • Agreement that the first project to proceed to construction would deliver the full scheme of highway intervention (Oulton and Cawston) and the second project would be responsible for removing the measures once both projects' construction phases are complete. This has also been adopted for the Norfolk Boreas Project and are secured as commitments in the revised OTMP [REP1-022 to 026], para. 3.2.1 (Cumulative HGV restrictions), para. 3.5 (Delivery Periods), section 4.3 (Highway Mitigation Schemes) and summarised in Table 4.3. 2.The revised OTMP [REP1-022 to 026], para. 23, contains a commitment to a Communication Plan to set out the process of continued engagement between the Applicant, Orsted and Norfolk County Council. This will ensure that as construction programmes are refined this information is regularly shared (with particular regard to shared links) and that commitments to manage cumulative construction traffic are fully delivered. In addition, a co-operation agreement is being advanced between Orsted and Vattenfall. The Statement of Common Ground with Orsted submitted at Deadline 2 (ExA.SoCG-27.D2.V1) identifies the matters this covers, which	

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			includes working together to share information and agree mitigation, such as traffic management measures and plans. 3. B1149 Norwich Road (Link 32) The revised OTMP [REP1-022], Table 3.3, details a cumulative HGV cap of 289 daily HGV movements of which it has been agreed with Orsted, Hornsea Project Three would contribute a maximum of 153 movements (as included in the Hornsea Project Three Outline Construction Traffic Management Plan, submitted as Deadline 9 reference REP9-048). This road is classified in the Norfolk County Council Road Hierarchy as a 'Main Distributor' and therefore has been deemed suitable to accept a level of HGV traffic. The highway environment is in keeping with this classification in that Link 32 routes through the villages of Holt and Edgefield where at least one footway is provided adjacent to the road. A speed limit of 30mph is in force throughout the village extents. The cap has been agreed with Norfolk County Council as an acceptable daily HGV demand, in addition, the Applicant has agreed to a cessation to HGV deliveries during the morning network peak hours of 07:30 and 09:00. Accordingly, the residual magnitude of effect has been assessed as low on a medium sensitive receptor, with a resultant impact of minor adverse. B1145 - west of Cawston (Link 34). The Applicant's response to ExA Q14.0.6 contains a comprehensive review of the mitigation package for Link 34 and the assessed residual impacts. B1149 Holt Road (Link 36) The revised Outline Traffic Management Plan [REP1-022], Table 3.1 contains a commitment to divert Norfolk Boreas cumulative HGV traffic away from Link 36. The diversion route would utilise Link 39 (A140) and Link 37 (B1145) ensuring that traffic remains on a road of similar or greater standard, in terms of the road hierarchy (compared to Link 36) and does not significantly impact on sensitive collision clusters. With this mitigation implemented the residual impact on Link 36 would be minor adverse. 5. Norfolk County Council's position on the package of mitigation proposed for Norfolk Boreas and Hornsea Project Three is captured in the SoCG [ExA.SoCG-19.D2.V1] submitted at Deadline 2. In summary: • The Street, Oulton (Link 68) highway mitigation scheme is supported. • B1149, Edgefield (Link 32) proposed mitigation is acceptable. • B1145 at Cawston (Link 34) further refinement required to the mitigation designs to address issues raised by an independent Road Safety Audit (also see response to ExA Q14.0.6.). • B1149, Holt Road (Link 36) no objection to the alternative route but it needs to be for all HGV traffic not just cumulative traffic.	
Q4.1.3	The Applicant	**Cumulative effects with Norfolk Vanguard: Cable pulling**	Consideration was given to cable pulling for both Norfolk Vanguard and Norfolk Boreas at the same time, however this would not be feasible due to technical requirements and supply chain constraints.	

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		Was consideration given in Scenario 1 to pulling cable for both Norfolk Vanguard and Norfolk Boreas at the same time? If not, why not?	The onshore cables must be installed in line with the installation and commissioning of the entire offshore wind farm connection including the relevant National Grid extension, onshore project substation, offshore cable installation, offshore substation and offshore wind turbines. This ensures that the cables are energised soon after installation. If the cables were to be installed a notable period prior to energisation (in the order of years if installed with Norfolk Vanguard) then there would be a high likelihood of degradation of the cables which can occur at low temperatures, shortening the life of the cables and being more susceptible to failures. This would include during the pre-operation commissioning period which would result in additional impacts to rectify faults and replace cable sections. Furthermore, the availability and capacity of both cable production and cable jointing teams to supply, install and joint all onshore cables for both Norfolk Vanguard and Norfolk Boreas (over 480km of cabling and over 600 joints) in a maximum 2 year period as allowed for in the Norfolk Vanguard assessment, is considered to be unfeasible.	
Q4.1.4	The Applicant	**Mitigation for construction traffic** Moderate significant, adverse effect is predicted on B1149 – Norwich road (link 32), B1145 - west of Cawston (link 34) and B1149 – Holt Road (link 36) in combination with Hornsea Project Three. The OTMP outlines proposed mitigation in the form of coordination, and extension of the Norfolk Boreas Scenario 2 programme relating to the two week primary and secondary peak traffic periods to ensure combined HGV numbers do not meet significant threshold criteria. This reduces the impact to not significant. Explain how such mitigation measures would be agreed and would be implemented taking into account the independence between the Proposed Development and Hornsea Project Three.	Please refer to the Applicant's response to ExA Q4.1.2 (1,2 and 4).	
Q4.1.4	Cawston Parish Council	**Mitigation for construction traffic** Moderate significant, adverse effect is predicted on B1149 – Norwich road (link 32), B1145 - west of Cawston (link 34) and B1149 – Holt Road (link 36) in combination with Hornsea Project Three. The OTMP outlines proposed mitigation in the form of coordination, and extension of the Norfolk Boreas Scenario 2 programme relating to the two week primary and secondary peak traffic periods to ensure combined HGV numbers do not meet significant threshold criteria. This reduces the impact to not significant. Explain how such mitigation measures would be agreed and would be implemented taking into account the independence between the Proposed Development and Hornsea Project Three.	Cawston Parish Council continues to reject the proposed outline traffic management plan on the grounds that it fails to reduce or remove the unsustainable levels of construction traffic being forced along the inadequate B1145 in the village. The Traffic Management Plan, in its successive versions, seems to rely on vehicles arriving evenly spaced with drivers who are able to see oncoming traffic around corners, pass other HGVs in narrow sections of road by sheer willpower and the ability to think thin, all while keeping to delivery schedules.	Please refer to the Applicant's response to Q4.1.2 in the Applicant's Response to the ExA's First Written Questions (REP2-021) and the Applicant's comments on the response to ExA Q14.0.6.
Q4.1.5	Norfolk County Council	**Norfolk County Council's Relevant Representation [RR-037] states that it has assessed the traffic implications arising from scenarios 1 and 2.** 1. Have the cumulative traffic implications should the Hornsea Three Offshore Windfarm be granted development consent by the SoS been assessed? If	1. Cumulative traffic implications are assessed at Chapter 24 of the applicant's submission entitled "Traffic and Transport" see section 24.4 therein. 2. Norfolk County Council has raised two outstanding concerns: -	1. Link 68 Oulton The Applicant submitted the Clarification Note regarding the Cable Logistics Area at Deadline 2 (ExA.AS-4.D2.V1, REP2-027) which provides clarification of the Applicant's proposed use of the cable logistics area and sets out cumulative considerations with proposed adjacent projects.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		not, why not? 2. If so, what are the conclusions from this assessment? What steps have been taken to ensure consistent approaches to construction traffic management and where are these secured in the dDCO?	Firstly - we specifically requested the applicants confirmed cumulative impacts associated with all three wind farm projects utilising the same access route to the compound at Oulton airfield. As indicated at ISH1 to the Boreas hearing - under scenario 1, during the cable pulling stage it is Boreas preferred strategy to deliver cable drums and associated materials directly to the joint locations from the supplier. However, a cable logistics area is now to be provided along Link 68. This did not form part of any discussions between the County Council and the applicant. The applicants refer to a "buffer storage area" but that term has no definition. Our concern is that Hornsea3 are committed to delivering a significant number of cable drums along this route and we do not wish to see a negative cumulative impact. Clarification is required. Secondly (and linked to the above) on 7 February 2019 Norfolk County Council expressed concern at ISH3 to the Vanguard hearing that an open cut trench to the B1149 close Oulton airfield (as mentioned above) would not be suitable as the applicants had not considered cumulative impact from Hornsea 3. This is a concern we maintained throughout the entire hearing process The applicants finally submitted a trenchless crossing report to the County Council on 15 May, which included details of the applicants proposed traffic management measures. The drawings attached to the report lacked detail and accordingly we subsequently asked the applicants to submit swept path drawings to demonstrate that Hornsea 3's vehicles would be able to negotiate the roadworks in safety. Swept path drawings were submitted to us on 3 June and we responded on the 5th June to say the safety zone for the works was shown incorrectly and accordingly our concerns had not been addressed. The swept path drawings did not in any way demonstrate that the traffic management could be designed so that abnormal loads could physically negotiate the roadworks. The applicants position statement for Norfolk Vanguard subsequently indicated the following statements: - • The safe working distance of 1.2m could be accommodated in the final design. In response, this is clearly not acceptable. There must be a realistic expectation that a safe method of working is achievable. That expectation was not met. • The proposed road widening (the pink land) could be widened further to the west within the order limits. In response – we fully accepted that but widening to the west is not the problem we identified. The problem lies to the north and south of the pink land and not to the west. • The coned off area could be narrowed from 20m down to 15m. In response – we have not seen any details to show how that would work. Speed restrictions could be imposed In response – We advised the applicants (5th June) that whilst this can be reduced with the use of a temporary 30mph speed restriction, it is not so in the case of an excavation exceeding 1.2 metre in depth. • The deep of excavation could be designed to provide additional lateral support and thus ensuring a 0.5m distance of separation would be safe. In response – Construction work and road works carried out on public roads has to comply with Chapter 8 of the Traffic Signs Manual, which is aimed at reducing risk of harm to workers and the public. To comply with Chapter 8, deep excavations need a safe working area of 1.2m and not 0.5m as proposed.	The ES Chapter 24 (APP-237) Section 24.8 contains the traffic cumulative assessment for Norfolk Boreas and notes the following: "The indicative programmes for both Norfolk Vanguard and Norfolk Boreas indicate that Norfolk Vanguard would be completing its cable pulling phase at the same time that Norfolk Boreas commences construction at the onshore project substation and landfall." Therefore, the cumulative considerations are limited to Norfolk Boreas cumulative traffic with Hornsea Project Three as there could not be a scenario whereby Norfolk Vanguard would cumulatively impact with Norfolk Boreas in Oulton. (i.e. if consented, Norfolk Vanguard would place ducting and undertake cable pulling works prior to the commencement of Norfolk Boreas Scenario 1 cable pulling works). 2. B1149 Open Cut Trench. A revised open cut trench roadworks design was tabled with NCC at a meeting with NCC on the 4 November 2019. The design can accommodate Hornsea Project Three cumulative traffic (including Abnormal Loads), is contained entirely within the DCO order limits and is fully compliant with Chapter 8 of the Traffic Signs Manual. In response to the design, NCC stated a preference that the wide carriageway 'over-run' areas (designed to accommodate Abnormal Load vehicle 'swept' paths and safe working distance) are denoted with hatching to indicate single lane running for standard vehicles. The design is being revised in accordance with this request and the Applicant will submit to NCC for review prior to inclusion in the OTMP.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			• The applicants claimed Norfolk County Council indicated within their position statement to the Norfolk Vanguard hearing that land within the highway boundary, outside the Order limits, would be available to extend the tapers of the road widening if required, depending on the final design. In response – this was simply not true. The position statement said – "if additional land is required outside the pink land, then the applicant needs to demonstrate that they either have control of that land or that it forms part of the public highway." To date they have not done either of these. In the circumstances, at the end of the Vanguard hearing, the County Council maintained its view that trenchless crossing needs to be employed for the B1149 and that the requirement in the DCO needed to be amended accordingly. At ISH1 for the Boreas hearing held on 13 November 2019, the County Council again expressed its concern about the lack of trenchless crossing to the B1149. The applicants indicated they would work with us to update the OTMP and we note the OTMP was indeed updated at deadline 1. However, no discussion took place prior to the applicant's deadline 1 submission. In reality, all the applicants have done for deadline 1 is (i) extend the pink land to the west which we indicated in June would not resolve the problem and (ii) the swept path analysis has been omitted altogether (the very thing we said proves the applicant's proposal does not work). Clearly this approach is unacceptable. Once agreed, the steps to ensure consistent approach will be contained within the Outline Traffic Management Plan which in turn is secured via Requirement 21 of the dDCO. As matters currently stand cumulative impact is not agreed	
Interested Parties to note that many of these questions formed the basis of the detailed agenda for the Issue Specific Hearing (ISH) on the DCO held on 13th November 2019 [EV???]. Not all were explored at that ISH. Although questions are mostly directed to the Applicant other Interested Parties are invited to comment if relevant to their case.				

5 Development Consent Order and Deemed Marine Licences

5.0 General

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.0.1	The Applicant	**Confirm that the submitted DCO:** 1. Has been drafted using the Statutory Instrument (SI) template; 2. Follows guidance and best practice for SI drafting (for example avoiding "shall/should") in accordance with the latest version of guidance from the Office of the Parliamentary Counsel.	1. The Applicant can confirm that the dDCO has been drafted using the Statutory Instrument template. 2. Reference to the word "shall" is predominately used in the Protective Provisions schedule at Schedule 17 of the dDCO. These Protective Provisions are either agreed with statutory undertakers or are still under discussion. Where the protective provisions are in draft form then the Applicant will seek to agree revised wording (replacing use of the word "shall"), which will be reflected in the agreed form of protective provisions and inserted into the dDCO in due course. Otherwise, outside of Schedule 17, the Applicant will review reference to the word "shall" and will make any amendments considered necessary in the circumstance that "shall" is used to place an obligation on the Applicant or another party. The Applicant has reviewed the use of the word "will" throughout the dDCO and considers that this is used appropriately in the dDCO. Reference to the word "will" is generally used in the context of expressing a future intention rather than imposing a strict obligation or requirement on the Applicant. In the Applicant's view it is appropriate to use the word "will" in this context. For example, the aids to navigation management plan (condition 14(1)(k) of Schedules 9 and 10) is to include details of how the undertaker will (in the future) comply with the provisions of condition 10 (Aids to Navigation) for the lifetime of the scheme. It is not appropriate to substitute "will" with "must" in this circumstance as the aids to navigation management plan shows the Applicant's intention of how the Applicant proposes to comply with the Aids to Navigation conditions. It is then for the MMO to determine whether this 'intention' is acceptable, and the MMO will decide when it comes to approval of the aids to navigation plan under condition 14(1)(k). The imperative element of the condition is provided for by the introductory text within Condition 14(1) which stipulates that licensed activities must not commence until the [following] plans and documents have been submitted to and approved by the MMO. The Applicant's interpretation of paragraph 3.3 of the Advice Note is that "shall" or "will" should not be used when attempting to place an obligation on the Applicant. The Applicant considers that the use of the word "must" has been applied correctly within the dDCO in these circumstances, as has the use of the word 'will'. Accordingly, the Applicant does not propose to amend the dDCO further in this respect. The Applicant considers that its approach to drafting in this respect complies with the guidance contained in Advice Note 15. The Applicant has also had regard to the best practice guidance and the Applicant is further reviewing the latest guidance from the Office of the Parliamentary Counsel.	
Q5.0.2	The Applicant	**References and footnotes** Ensure that when amended versions of the dDCO are submitted as the Examination progresses, all internal references and legislative footnotes are checked and updated as necessary.	The Applicant notes this request and will ensure that the footnotes and references are checked accordingly.	
Q5.0.3	The Applicant	**Explanatory Memorandum**	The Applicant will update the Explanatory Memorandum accordingly for submission alongside the next version of the dDCO.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		Update the Explanatory Memorandum so that it follows best practice drafting guidance from the Planning Inspectorate set out in Advice Note 15 – Drafting development consent orders providing in tabular format, an explanation of how the Explanatory Memorandum addresses each aspect of Advice Note 15.		
Q5.0.4	The Environment Agency	**Discharging Requirements and Conditions** All discharging authorities are requested to check Schedules in the dDCO for accuracy and provide the ExA with any suggested corrections and amendments.	We have the following observations in respect of the draft DCO. Article 7(3) refers to the Environmental Permitting (England and Wales) Regulations 2010 and makes reference via a footnote to SI 2016/475. These regulations are the amendment regulations and were superseded by the Environment Permitting (England and Wales) Regulations 2016; SI 2016/1154. In respect of Article 15(6) we note the intent of this provision but would prefer the following wording "Nothing in this article overrides the requirement for an environment permit under Regulation 12 of the Environmental Permitting (England and Wales) Regulations 2016 insofar as the discharge activity comes within the definition contained within the said Regulations".	The Applicant notes this and is reviewing the Environment Agencies comments.
Q5.0.4	Natural England	**Discharging Requirements and Conditions** All discharging authorities are requested to check Schedules in the dDCO for accuracy and provide the ExA with any suggested corrections and amendments.	Natural England provided full comment on the DCO in our Relevant Representation [RR-099]. We will provide updated comments at Deadline 3 on the updated Draft DCO submitted by the Applicant at Deadline 1.	The Applicant notes this.
Q5.0.4	Marine Management Organisation	**Discharging Requirements and Conditions** All discharging authorities are requested to check Schedules in the dDCO for accuracy and provide the ExA with any suggested corrections and amendments.	The MMO reviewed the dDCO in detail at relevant representative stage. The MMO welcomed the changes provided by the applicant to date. Due to resource issues the MMO will review the latest dDCO for deadline 3.	The Applicant notes this.
Q5.0.4	Broadland District Council	**Discharging Requirements and Conditions** All discharging authorities are requested to check Schedules in the dDCO for accuracy and provide the ExA with any suggested corrections and amendments.	Content as drafted.	The Applicant notes this.
Q5.0.4	Norfolk County Council	**Discharging Requirements and Conditions** All discharging authorities are requested to check Schedules in the dDCO for accuracy and provide the ExA with any suggested corrections and amendments.	The County Council are satisfied with the accuracy of the schedules in the draft DCO and have no further comments.	The Applicant notes this.

5.1 Articles

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.1.1	The Applicant	**Definition of commence** 1. The ExA understands that this definition follows the East Anglia 3 DCO. What are the implications of the included exclusions? 2. Should 'tree protection measures' be added to the operations which can be carried out before commencement and whether the erection of temporary amphibian or reptile fencing should be added – or if this is covered? 3. What is the definition of 'remedial work'? 4. Justify the flexibility afforded by the 'carve outs' for	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 /REP1-041.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		exempted works such as site clearance, demolition etc. Clarify any impacts for these works so that the ExA can consider whether they are justified and/or need to be controlled by requirements.		
Q5.1.2	The Applicant	i. Definition of maintain: ii. Explain how this accords with 'maintenance of landscape' used in Requirements 18 and 19. Whether 'landscape maintenance' needs a separate definition.	The Applicant has responded to this question in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	
Q5.1.3	The Applicant	**Are definitions required for:** ***Part*** Should the interpretations include a meaning of 'part'? Does 'part' refer to a geographical part or could 'part' be replaced with alternative phrasing? ***Phase*** Should the interpretations include a meaning of 'phase'? Does phase refer to temporal, geographical or both? (This refers to Requirement 15). ***Stage*** Should the interpretations include a meaning of stage? Does 'stage' refer to temporal or geographical distinctions; or both? (Relevant for Requirements 15, 18, 20, 21, 23, 24, 25, 28, and the Outline Code of Construction Practice (OCoCP) and elsewhere). ***Plans*** Do the various plans secured by different requirements be defined here? Or is the definition of the outline plans sufficient?	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	
Q5.1.4	The Applicant	**Article 6: Benefit of the Order** Respond to the Transfer of Benefit concerns from MMO regarding mechanisms for two potential OWF developers working in close proximity; especially with regard to incombination effects.	The Applicant has responded to this question in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041. Following Issue Specific Hearing 1 and Deadline 1, the Applicant has since discussed these matters further with the MMO and the Applicant understands that the MMO are content with the clarifications provided by the Applicant.	
Q5.1.5	The Applicant	**Article 11: Stopping up of streets** 1. Explain the need for the widely drawn powers in 11(1) in terms of 'any street' and in terms of 'any other street' in 11(5)(b). 2. What is the meaning of 'temporary' and 'reasonable' in this context? 3. Is there a need for an article to include the power to alter the layout of streets?	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	
Q5.1.6	Broadland District Council	**Article 12: Access to works** 12(2) confers deemed consent for means of access to works if the relevant planning authority does not notify the undertaker of its decision within 28 days. Are the local planning authorities and other Interested Parties who may be subject to this deemed consent time limit content with this arrangement? If not set out why?	No Objection to 28 days.	The Applicant notes and welcomes this confirmation.
Q5.1.6	Norfolk County Council	**Article 12: Access to works** 12(2) confers deemed consent for means of access to works if the relevant planning authority does not notify the undertaker of its decision within 28 days.	Norfolk County council confirm 28 days is an acceptable time scale to us.	The Applicant notes and welcomes this confirmation.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		Are the local planning authorities and other Interested Parties who may be subject to this deemed consent time limit content with this arrangement? If not set out why?		
Q5.1.6	North Norfolk District Council	**Article 12: Access to works** 12(2) confers deemed consent for means of access to works if the relevant planning authority does not notify the undertaker of its decision within 28 days. Are the local planning authorities and other Interested Parties who may be subject to this deemed consent time limit content with this arrangement? If not set out why?	Whilst the proposed wording of Article 12 is not substantially different to DCO wording proposed for Norfolk Vanguard and Ørsted Hornsea Project Three, NNDC recognise that the proposed wording (DCO Version 3) places emphasis on the "relevant planning authority" which, in accordance with Article 2 (Interpretation) means the district planning authority for the area in which the land to which the relevant provision of this Order applies is situated. In most cases the relevant planning authority will defer to the highway advice of Norfolk County Council as Highway Authority. There will be very few circumstances where highway advice would be overridden by the relevant planning authority, save inter alia, where proposals would result in substantial loss of hedgerow or trees and/or would be damaging to the character of an area. Subject to Norfolk County Highway Authority agreement, NNDC would not have substantive objection to Article 12 being amended to reverse text in 12 (1) (b) as follows: *(b) with the approval of the highway authority ~~relevant planning authority~~ after consultation with the relevant planning authority ~~highway authority~~ in accordance with requirement 22 (highway accesses), form and lay out such other means of access or improve existing means of access, at such locations within the Order limits as the undertaker reasonably requires for the purposes of the authorised project.* This amendment would likely enable faster turnaround of requests under Article 12 within the 28 days. However, this could be made even more precise by amending Article 12 (2) to include reference to working days rather than 'days' which would better accord with the procedure for discharge of Requirements as set out in Schedule 16. NNDC would welcome further discussion between NCC Highways, other relevant planning authorities and the Applicant to agree a way forward if the ExA consider Article 12 should be amended.	The Applicant notes this response. The Applicant, however, considers that the drafting should remain as it is currently worded in the dDCO in order to ensure consistency in the discharge process across the similar Requirements. With respect to the discharge period, in order to maintain consistency with precedent and the draft Norfolk Vanguard Order, the Applicant considers that it should remain as a period of consecutive days, rather than working days.
Q5.1.7	The Applicant	**Article 16: Authority to survey and investigate the land onshore** 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 so should be stated in the article?	The Applicant has responded to this question in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	
Q5.1.8	The Applicant	**Article 35: Felling or lopping trees and removal of hedgerows** 1. Is reference to Part 3 of the 1990 Act for the purposes of regulation 14 of the Town and Country Planning (Tree Preservation) (England) Regulations 2012(b) required? 2. It is necessary to confirm that the powers for lopping or felling trees or shrubs are limited to trees or shrubs within the Order Limits (as is stated for the hedgerows in 35(4)). 3. Should there be a mechanism for notifying landowners of the intention to lop or fell trees or shrubs? 4. Does power over-ride the mitigation set out in the OLEMS [APP-698] and elsewhere to reduce the	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		working width of the cable corridor where hedgerows are crossed to 13m or 16.5m (for crossings at an angle)?		
Q5.1.9	The Applicant	**Article 39: Procedure in relation to certain approvals etc** 1. Should this article also refer to Requirements 12, 19, 31 and 32? 2. Should the list of organisations in 39(1) also include government departments and other organisations specified in the Requirements?	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041. The Applicant can also confirm that version 3 of the dDCO submitted at Deadline 1 (document reference 3.1 / REP1-008) incorporates changes to Article 39(2) to include Requirement 32 and 35 within the list of requirements subject to Schedule 16, together with the addition of "*any other relevant discharging authority*" at Article 39(1) in order to address question 2.	

5.2 SCHEDULE 1 PART 1: Authorised Development

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.2.1	The Applicant	**Schedule 1 – Part 1 – Authorised Development** 1. How could the dDCO drafting be improved to provide clarity in relation to the works that apply to the different scenarios, for example in relation to Associated Development? Make appropriate amendments in the next dDCO. 2. Should transition pits be included within the 'Authorised development' as described in Schedule 1 of the dDCO?	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	
Q5.2.2	The Applicant	**Work No. 12B:** 1. In connection with Work Nos. 4C to 12B (c) should the maximum heights for temporary office and welfare facilities be given in the description of 'further associated development'? 2. Should associated development which is only required under scenario 2 be cited as such?	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	

5.3 SCHEDULE 1 PART 3: Requirements

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.3.1	The Applicant	**Requirement 5** The Project Description sets out parameters for cable protection which must not be exceeded [APP-218, Table 5.7]. It states that the worst-case footprint of export cable protection would be 25,500m2, but Requirement 5(4) [AS-019] states 76,436m3 or 132,086m2. Requirement 5(4) also sets out project interconnector cable protection of 74,000m2, but this figure does not appear in the ES Project Description Table 5.7. 1. Clarify these apparent discrepancies and	1. Document 6.7 (EIA and DCO reconciliation document) of the Norfolk Boreas Application (updated at Deadline 1, REP1-016) explains that the offshore EIA chapters generally adopt a geographical approach for the assessment with most of the offshore chapters establishing a baseline and assessing impacts using the following geographical areas (which are shown on many of the figures that accompany the assessment, such as Figure 5.1 of the ES, APP-265): • The Norfolk Boreas site; • The offshore cable corridor; and • The project interconnector search area. The DCO, and DMLs (Schedules 9 to 13) in particular, secure the infrastructure associated with function of the wind farm as follows:	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		confirm the value that has been assessed within the ES. 2. If as stated in Requirement 5(5), that under Scenario 1 Work 3A and Work 3B must not both be commenced, would it be clearer to have two tables in Requirement 5(4) clearly setting out the parameters for the different scenarios?	• Schedules 9 and 10 secure the ability to construct and operate all infrastructure associated with generating power; • Schedules 11 and 12 secure the ability to construct and operate infrastructure associated with transmitting that power to landfall; and • Schedule 13 secures the ability to construct and operate project interconnector cables that would connect Norfolk Boreas to the Norfolk Vanguard wind farm. • Some of the infrastructure secured within the DMLs will cross between different geographical areas as defined in the EIA and therefore the maximum parameters secured within the DCO do not directly transfer to the EIA and vice versa. Table 5.7 in Chapter 5 presents dimensions for the "long term infrastructure footprints in the **Norfolk Boreas site**". The fourth line of that table shows the maximum amount of cable protection that would be required to protect the **section of export cable that would be located within the Norfolk Boreas site**. This is made up of two component parts; cable protection required due to the fact that cable burial is not possible and cable protection required on the approach to an electrical platform. Based on the Applicant's assessment of the ground conditions within the offshore project area it is likely that the vast majority of the export cable will be buried, however for the purposes of the assessment it has been assumed that it will not possible to bury up to 10% of export cable within the wind farm site and that this cable would require cable protection. Up to 50km of the export cables would be located within the Norfolk Boreas site and the width of this cable protection would be up to 5m. Therefore, this would occupy up to 25,000m^2 of seabed. It is considered by the Applicant that the 10% would be ample contingency and it is likely that the final figure would be less than this. On the approach to the electrical platforms up to 100m length of cable would require protection. Again, the width of the cable protection would be 5m and therefore the area occupied would be 500m^2. The total amount of cable protection required to protect the section of the export cable located within the Norfolk Boreas site would therefore cover an area of **25,500m^2** and because the protection would be up to 0.5m high the volume of the material required to protect the cables would be 12,750m^3. Requirement 5(4) secures an area of cable protection of 132,086m^2. This is the maximum total area of cable protection that would be required to protect **all of the export cable** from the electrical platform to landfall. This includes the 25,500m^2 located within the Norfolk Boreas site and the remainder of the export cables which would be installed within the offshore cable corridor. As stated, above cable protection would be required where it is not possible to bury cables. Cable protection would also be required where the Norfolk Boreas export cables cross other existing cables or where they cross pipelines. The Norfolk Boreas export cables would also cross the Haisborough Hammond and Winterton SAC. Figures calculated for the ES and the 1st draft of the DCO submitted with the application (APP-020) assumed that it would not be possible to bury up to 10% of cable to the optimum depth and therefore 10% of the cable length would require cable protection. Therefore Requirement 5(4) [APP-020] stated an area of 152,086m^2. Natural England have requested that the amount of cable protection placed within the SAC is reduced as far as possible and therefore an interim cable	

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			burial study was completed (the Report of the study is provided in Appendix 2 of the updated Haisborough Hammond and Winterton SAC Site integrity Plan (REP1-033)). This study demonstrated that it should be possible to bury the vast majority of the export cable within the SAC. However, to provide ample contingency, a figure of 5% for non-burial was suggested in the report. The Applicant therefore revised the commitment to the 5% figure suggested. The dDCO submitted in response to the ExA Rule 6 letter [AS-019] contains values which have taken account of this reduction in cable protection. The new figure secured in Requirement 5(4) [AS-019] therefore consists of the 25,500m^2 to protect the export cable within the Norfolk Boreas site as well as the area required for cable protection within the offshore cable corridor. Within the offshore cable corridor cable protection would be required due to: inability to bury cables (5% within the SAC and 10% outside of the SAC), cable crossings (of existing cables and pipelines), and protection where the cables would enter the duct at landfall. The EIA assesses for an area of cable protection within the offshore cable corridor of up to 126,086m^2 (see operation impact 1B in Chapter 10 benthic ecology (APP-223)) which is greater than that which is now secured within the DCO as the assessment in the chapter was based on 10% of cable length within the HHW SAC requiring protection and the DCO has been updated to secure only 5%. Table 3.6 of the EIA and DCO reconciliation (REP1-016) document demonstrates that parameters assessed in the EIA are equal to or greater than those secured within the DCO. Row (ID) 7 of that table demonstrates this for the total area occupied by cable protection and row 6 does the equivalent for the volume of cable protection. Requirement 5(4) also secures the total area of cable protection required for the project interconnector cable protection of 74,000m^2. As with the export cable the project interconnector cable would be located in more than one of the geographical areas used in the EIA. The project interconnector cables, if used, would be located partly within the Norfolk Boreas site and partly within the project interconnector search area. The EIA assesses up to 60km of cable to be located within the Norfolk Boreas site which could be either interconnector cable (linking two platforms within the Norfolk Boreas site under electrical solution a) or project interconnector cables (linking a platform in the Norfolk Boreas site with a platform in one of the Norfolk Vanguard sites (East or West)). As there would never be a requirement for both interconnector cables and project interconnector cables, the 60km of cabling is sufficient to cover both. There are three different electrical solutions being considered for the Norfolk Boreas project. These are presented in section 2 of the EIA and DCO reconciliation document (REP1-016). One of these (electrical solution b) would require Norfolk Boreas array cables as well as project interconnector cables to be placed within the project interconnector search area. The EIA assesses for up to 66,000m^2 of cable protection to be placed within the project interconnector search area and 30,000m^2 of protection for project interconnector to be placed within the Norfolk Boreas site. Thus, a total of 96,000m^2 for cable protection for project interconnector cables has been assessed. The 66,000m^2 accounts for array cables and project interconnector cables placed within the project interconnector search area under electrical solution b).	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			Schedule 13 of the dDCO secures only the realistic maximum amount of cable protection that could be required to protect the project interconnector cable, and the figure of 74,000m^2 does not include any cable protection associated with the array cables located within the project interconnector search area. This is why the area secured within Requirement 5(4) (74,000m^2) is less than what has been assessed within the ES (96,000m^2 (66,000m^2 in the Project interconnector search area and 30,000m^2 in the Norfolk Boreas site). The cable protection required to protect the array cables is secured under the generation DMLs (Schedules 9 and 10). In summary the apparent discrepancies are due to the fact that the EIA takes an area-based approach to assessing impacts whereas the DMLs relate to different pieces of infrastructure. Some of the pieces of infrastructure would be located in more than one area and that is why the numbers are not easily reconcilable. The EIA and DCO reconciliation document has been written to explain how the apparent discrepancies can be reconciled and to demonstrate that the values that have been assessed within the EIA, either directly relate to that secured within the DCO and DMLs, or a larger value has been assessed than that which is secured within the DCO and DMLs. The DCO has been drafted on the principle that no more than the maximum parameters realistically required to build the project are secured. 2. Under Scenario 1 the undertaker/Applicant will not necessarily require the project interconnector (i.e. if electrical solution a were taken forward). If, as suggested, the table were split out into Scenario 1 and Scenario 2 there would be an element of duplication and double counting as, both Work No. 3A and Work No. 3B would need to be included in the Scenario 1 table, and this may lead to confusion. Requirement 5(4) should be read in the context of Requirement 5 as a whole – in which Requirement 5(2) and 5(3) secure the overall parameter for cable protection across the entire project; Requirement 5(4) then splits this out into work packages, and Requirement 5(5) inserts a restriction on Work No 3A and Work No 3B. The exact apportionment of cable protection is also split out and secured for each respective DML and Schedule 13 the project interconnector DML has been drafted specifically for the purpose of being an important control mechanisms for that asset and the control of the volume of cable protection which could be installed.	
Q5.3.1	Natural England	**Requirement 5** The Project Description sets out parameters for cable protection which must not be exceeded [APP-218, Table 5.7]. It states that the worst-case footprint of export cable protection would be 25,500m2, but Requirement 5(4) [AS-019] states 76,436m3 or 132,086m2. Requirement 5(4) also sets out project interconnector cable protection of 74,000m2, but this figure does not appear in the ES Project Description Table 5.7. 1. Clarify these apparent discrepancies and confirm the value that has been assessed within the ES. 2. If as stated in Requirement 5(5), that under Scenario 1 Work 3A and Work 3B	This relates to question Q2.0.2 Natural England notes the Applicant has submitted updated draft DCO and supporting documentation to explain the figures used in the DCO at Deadline 1. In a meeting with the Applicant 28 November 2019, Natural England agreed to review these documents and see if they sufficiently clarify the discrepancies. Our response on the discrepancies will be provided at Deadline 3 following our review of these documents.	The Applicant will continue to engage with Natural England this issue and has offered assistance to Natural England to resolve any concerns that Natural England may have. This will be discussed further at a meeting planned for early January 2020 between Natural England and the Applicant.

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		must not both be commenced, would it be clearer to have two tables in Requirement 5(4) clearly setting out the parameters for the different scenarios?		
Q5.3.2	The Applicant	**Requirement 15: Scenarios and stages of authorised development onshore** 3. Should the title include the word 'phase'? 4. How could parties can be certain of the meaning of 'commence' in the Norfolk Vanguard DCO, when currently only the final draft dDCO is in the public domain? 5. Does para (2) need rewording to avoid use of the word commence (as defined in article 2 of this dDCO) when referring to Scenarios 1 and 2? As proposed, could those other operations specified in article 2's definition of commence could be started for Scenario 2? 6. Should para (4) refer to planning authorities in the plural and whether it should require the written scheme's approval by the relevant planning authorities? If so, should there be inclusion of a definition for 'relevant planning authorities?	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	
Q5.3.3	The Applicant	**Requirement 16: Detailed design parameters** The ExA recognises the need for some flexibility in design parameters. The ExA is exploring the potential need for securing more detail because: there are residual, significant adverse visual effects; comments have been made in RRs and at the Open Floor Hearing [EV4-001] on the appearance and design of the substations; the SoS's scoping opinion stated that dimensions of buildings and site layout should be provided and approvals about the substations are contained in different requirements. Views are sought on: 1. whether this requirement contains enough detail on which the future approvals can be based; 2. whether more detail on the design approach for the buildings and surroundings than that contained in the Design and Access Statement [APP-694, section 5.3.3] should be secured in the dDCO; 3. whether the details of the substation required by the Outline Landscape and Ecological Management Strategy (OLEMS) [APP-698, paras 65 to 67], secured in Requirement 18 should be consolidated in one place with those set out in Requirement 16. 4. Applicant to explain the different 'existing ground levels' in para (8) and the reference to paragraph (8) in para (10); or whether the	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041. The Applicant responded to comments made at the Open Floor Hearing through the document titled Applicant's Response to the Open Floor Hearing (document reference ExA.OFH1.D1.V1 / REP1-036). The Applicant has also produced a note with Breckland Council in response to Action Point 12 of Issue Specific Hearing 1 on the Development Consent Order, in which the Examining Authority requested that the Applicant and Breckland work together to provide a response to what more detail on design and function could be secured for the substation and environment in the dDCO. This note has been provided at Deadline 2 (document reference ExA.WQ-1.D2.V1).	

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		reference is to para (9)? 5. Views are sought on whether limits should be contained in this requirement to restrict all but the converter halls to a maximum height of 13m, based on the description of the substation in the ES [APP-218, para 346]. It was explained by the Applicant at the DCO ISH on 13 November 2019 that in its opinion it is not necessary to limit all but the converter halls to 13m because the visual assessment has taken into account all the substation buildings development up to a height of 19m (parameter of the Rochdale envelope). The opinions of other IPs are requested. 6. Should any design parameters for link boxes be set in this Requirement? 7. Should the maximum sizes of temporary compounds (mobilisation areas and their compounds and the cable logistics area) which are set out in the ES be secured in this Requirement?		
Q5.3.3	Norfolk County Council	**Requirement 16: Detailed design parameters** The ExA recognises the need for some flexibility in design parameters. The ExA is exploring the potential need for securing more detail because: there are residual, significant adverse visual effects; comments have been made in RRs and at the Open Floor Hearing [EV4-001] on the appearance and design of the substations; the SoS's scoping opinion stated that dimensions of buildings and site layout should be provided and approvals about the substations are contained in different requirements. Views are sought on: 1. whether this requirement contains enough detail on which the future approvals can be based; 2. whether more detail on the design approach for the buildings and surroundings than that contained in the Design and Access Statement [APP-694, section 5.3.3] should be secured in the dDCO; 3. whether the details of the substation required by the Outline Landscape and Ecological Management Strategy (OLEMS) [APP-698, paras 65 to 67], secured in Requirement 18 should be consolidated in one place with those set out in Requirement 16. 4. Applicant to explain the different 'existing ground levels' in para (8) and the reference to paragraph (8) in para (10); or whether the reference is to para (9)? 5. Views are sought on whether limits should be contained in this requirement to restrict all but	Norfolk County Council are happy that Landscape elements are being covered by the District Councils. We will be happy to be part of any ongoing discussions, but do not feel the need to add additional comments to this question.	The Applicant notes this response.

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		the converter halls to a maximum height of 13m, based on the description of the substation in the ES [APP-218, para 346]. It was explained by the Applicant at the DCO ISH on 13 November 2019 that in its opinion it is not necessary to limit all but the converter halls to 13m because the visual assessment has taken into account all the substation buildings development up to a height of 19m (parameter of the Rochdale envelope). The opinions of other IPs are requested. 6. Should any design parameters for link boxes be set in this Requirement? 7. Should the maximum sizes of temporary compounds (mobilisation areas and their compounds and the cable logistics area) which are set out in the ES be secured in this Requirement?		
Q5.3.3	Necton Parish Council	**Requirement 16: Detailed design parameters** The ExA recognises the need for some flexibility in design parameters. The ExA is exploring the potential need for securing more detail because: there are residual, significant adverse visual effects; comments have been made in RRs and at the Open Floor Hearing [EV4-001] on the appearance and design of the substations; the SoS's scoping opinion stated that dimensions of buildings and site layout should be provided and approvals about the substations are contained in different requirements. Views are sought on: 1. whether this requirement contains enough detail on which the future approvals can be based; 2. whether more detail on the design approach for the buildings and surroundings than that contained in the Design and Access Statement [APP-694, section 5.3.3] should be secured in the dDCO; 3. whether the details of the substation required by the Outline Landscape and Ecological Management Strategy (OLEMS) [APP-698, paras 65 to 67], secured in Requirement 18 should be consolidated in one place with those set out in Requirement 16. 4. Applicant to explain the different 'existing ground levels' in para (8) and the reference to paragraph (8) in para (10); or whether the reference is to para (9)? 5. Views are sought on whether limits should be contained in this requirement to restrict all but the converter halls to a maximum height of 13m, based on the description of the substation in the ES [APP-218, para 346]. It was explained by the	The design and access statement (DCO Document 8.3) contains very little information on the converter halls other than a limited description of the equiptment inside. There is an indicative layout, coloured green, that has nothing to give any idea of scale. There should be a person / vehicle / London bus inserted into the montage to allow anyone viewing the document to get a realistic idea of what the building(s) will look like with reference to something whose size is already known. Also the 6m aerials appear to be missing. The apparent height of the buildings will also be dependent on where they are sited with respect to trees and the lay of the land. As the proposed development is on the highest point in Necton, information should be provided as to what geographical contour line will be the base height of the building. The DCO should specifically state the height above sea level of the base of every individual building on the substation site. We definitely agree that the information should all be put in one place. The outline Landscape and Ecological Management Strategy should be specified in the same document as the Design and Access Statement covering the height and shape of the buildings. We believe that all buildings should be restricted to a maximum height of 13m, including the converter halls. The land height should be lowered so the converter halls also meet the 13m height restriction. This will limit the visual impact on the village and surrounding rural areas.	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 (document reference ExA.ISH1.D1.V1 / REP1-041). The Applicant responded to similar comments made at the Open Floor Hearing through the document titled Applicant's Response to the Open Floor Hearing (document reference ExA.OFH1.D1.V1 / REP1-036). In summary: • The environmental impact assessments have been conducted on the basis of a 'Rochdale Envelope' series of maximum extents for the project within which the significant effects are established. These maximum extents which define the significant effects are secured in the dDCO under Requirement 16, namely the total number of buildings housing the principal electrical equipment, height, width and length of such buildings, maximum height of external electrical equipment and maximum fenced compound areas. This is in accordance with the approach set out in paragraph 4.2.8 of NPS EN1. • The design approach for the buildings housing the principal electrical equipment will be limited by the function the buildings must perform such as the selection of HVDC transmission technology which requires buildings of up to the assessed height and footprint to house the high voltage HVDC to HVAC converter equipment. As stated in the Design and Access Statement (document reference 8.3, REP2-007) these buildings will be of an 'agricultural style'. • Additional information on the use, scale and layout are secured through the Design and Access Statement (document 3.1, REP2-007), including a commitment that other electrical equipment, other than the lightning protection masts, must not exceed 13m. • Requirement 16(2) provides that the relevant planning authority must approve layout, scale and external appearance, so these matters will be discussed and agreed with the relevant planning authority once contractors have been appointed and more detail as to the proposed design is available. Further design detail is not available at this time as the Applicant considers the most

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		Applicant at the DCO ISH on 13 November 2019 that in its opinion it is not necessary to limit all but the converter halls to 13m because the visual assessment has taken into account all the substation buildings development up to a height of 19m (parameter of the Rochdale envelope). The opinions of other IPs are requested. 6. Should any design parameters for link boxes be set in this Requirement? 7. Should the maximum sizes of temporary compounds (mobilisation areas and their compounds and the cable logistics area) which are set out in the ES be secured in this Requirement?		appropriate and efficient HVDC specification - within the Rochdale Envelope - with multiple suppliers. • The Applicant considers that the respective measures should remain as they are; the parameters secured in Requirement 16 are in relation to design measurements (i.e. height parameters), whereas the OLEMS provides more detail linked to the landscaping measures such as, in this context, colour and materials. Given that the landscaping matters set out in the OLEMS are secured by Requirement 18, it is not considered necessary to repeat them within Requirement 16. The Applicant has also engaged with Breckland Council and an agreed position has been reached with regards to securing the substation design parameters and this has been included in the Breckland Council Statement of Common Ground (ExA.SoCG-2.D2.V1 / REP2-039) submitted at Deadline 2. A note on the Onshore Project Substation Design was provided to Breckland Council (provided in Appendix 1 of SoCG) on how the design parameters are secured through the dDCO and document 8.3 Design and Assessment Statement (DAS) - explaining why further definition is not possible at this stage and outlining how additional information will be provided through the design process when detailed information is available. This design process has been secured through an update to the DAS, submitted at Deadline 2. Breckland Council are in agreement with the approach set out within the Onshore Project Substation Design Note and welcome the commitment to include the design process in the DAS.
Q5.3.3	Necton Substation Action Group	**Requirement 16: Detailed design parameters** The ExA recognises the need for some flexibility in design parameters. The ExA is exploring the potential need for securing more detail because: there are residual, significant adverse visual effects; comments have been made in RRs and at the Open Floor Hearing [EV4-001] on the appearance and design of the substations; the SoS's scoping opinion stated that dimensions of buildings and site layout should be provided and approvals about the substations are contained in different requirements. Views are sought on: 1. whether this requirement contains enough detail on which the future approvals can be based; 2. whether more detail on the design approach for the buildings and surroundings than that contained in the Design and Access Statement [APP-694, section 5.3.3] should be secured in the dDCO; 3. whether the details of the substation required by the Outline Landscape and Ecological Management Strategy (OLEMS) [APP-698, paras 65 to 67], secured in Requirement 18 should be consolidated in one place with those set out in Requirement 16. 4. Applicant to explain the different 'existing	It was explained by the Applicant at the DCO ISH on 13 November 2019 that in its opinion it is not necessary to limit all but the converter halls to 13m because the visual assessment has taken into account all the substation buildings development up to a height of 19m (parameter of the Rochdale envelope). The opinions of other IPs are requested. We disagree with the Applicant. It is ridiculous to assume that any buildings or structures exceeding 13m will not make a significant extra impact on the visuals of the substation. Mitigation is already impossible and will become only more so the more tall structures there are. For example, the lightning conductors (which are more considerable in their bulk than one might imagine) will (we are told) be required for each and every building. We were told by the developer that these will be 25m high (so higher than even 19m) and will be completely impossible to mitigate. Their materials will create sun-sparkle, ensuring that they will be seen by far distant receptors as well as those closer, and will be intensely irritating. They may apparently be connected by some kind of mesh (no-one from the applicant was able to give a definite answer on this at the presentations either for Vanguard or Boreas. This mesh (if it is used) will be a hazard to wildlife as well as a visual irritant. The reason for such heavy use of conductors is presumably because the whole area of Ivy Todd (possibly residents were told, because of elements in the soil and sub strata) attracts a higher than average amount of lightning strikes. This further highlights the unsuitability of huge industrial units in the area. Top Farm being lower and standing on different geology would have been much more suitable.	The Applicant notes this response and refers Necton Substation Action Group to the Applicant's response to Necton Parish Council above.

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		ground levels' in para (8) and the reference to paragraph (8) in para (10); or whether the reference is to para (9)? 5. Views are sought on whether limits should be contained in this requirement to restrict all but the converter halls to a maximum height of 13m, based on the description of the substation in the ES [APP-218, para 346]. It was explained by the Applicant at the DCO ISH on 13 November 2019 that in its opinion it is not necessary to limit all but the converter halls to 13m because the visual assessment has taken into account all the substation buildings development up to a height of 19m (parameter of the Rochdale envelope). The opinions of other IPs are requested. 6. Should any design parameters for link boxes be set in this Requirement? 7. Should the maximum sizes of temporary compounds (mobilisation areas and their compounds and the cable logistics area) which are set out in the ES be secured in this Requirement?		
Q5.3.4	The Applicant	**Requirement 17: Landfall method statement** Should there be a requirement in the dDCO for sea defences around the cabling at landfall in response to various Relevant Representations, in particular Norfolk County Council's [RR-037], and concerns regarding cliff erosion in Happisburgh?	The Applicant has responded to this question in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	
Q5.3.4	Natural England	**Requirement 17: Landfall method statement** Should there be a requirement in the dDCO for sea defences around the cabling at landfall in response to various Relevant Representations, in particular Norfolk County Council's [RR-037], and concerns regarding cliff erosion in Happisburgh?	Natural England is content with the coastal erosion modelling that has been undertaken and therefore does not believe that coastal defences are required. If coastal defences should be proposed we would have concern in relation to the potential negative impacts of placing coastal defences at this location and would wish to comment on a full assessment of any such proposal and reserves the right to comment on any proposed additional requirements.	The Applicant welcomes this confirmation from Natural England that Natural England is content with the coastal erosion modelling and that no coastal defences are required.
Q5.3.4	North Norfolk District Council	**Requirement 17: Landfall method statement** Should there be a requirement in the dDCO for sea defences around the cabling at landfall in response to various Relevant Representations, in particular Norfolk County Council's [RR-037], and concerns regarding cliff erosion in Happisburgh?	Whilst a response from NNDC has not been requested, as the relevant local authority for the landfall location it is appropriate for NNDC to provide a response. NNDC have made extensive submissions within its Local Impact Report submitted at Deadline 2 (see Chapter 5 – Marine Processes) as well as setting out its position within the Statement of Common Ground between NNDC and Vattenfall (see 2.2 Marine Geology, Oceanography and Physical Processes). The key issue for NNDC is ensuring that that the landfall location remains resilient from the effects of coastal erosion for its anticipated lifetime. As a direct result of the discussions between the Applicant and NNDC during the examination of Norfolk Vanguard, both parties agreed that it would be appropriate to include a requirement to monitor the landfall site within the DCO. As a result, the scope of Requirement 17 of the DCO relating to a Landfall Method Statement was extended to include a monitoring requirement and remedial works if the rate and extent of landfall erosion was to extend beyond that predicted by the applicant. NNDC note that this requirement is included with the Norfolk Boreas DCO (also Requirement 17) and this approach is supported by NNDC.	The Applicant acknowledges this response and concurs that the wording in the dDCO at Requirement 17 follows the agreed principles between North Norfolk District Council (NNDC), Natural England, and the Norfolk Vanguard applicant. The Applicant has responded to the topic of coastal erosion further within its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 (document reference ExA.ISH1.D1.V1 / REP1-041) together with the Applicant's Comments on North Norfolk District Council's Local Impact Report submitted at Deadline 3 (document reference: ExA.LIR-NNDC.D3.V4).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			NNDC consider that a request for Vattenfall to provide sea defences as part of the Norfolk Boreas DCO could only be made where there is compelling evidence that either the proposal presents a risk to exacerbating coastal erosion (and where mitigation of some sort would be considered necessary) or where it is clear that infrastructure will become exposed as a result of coastal change during the operational life of the wind farm. It is understood by NNDC that the only assets to be placed within the 100 year coastal erosion zone would be the cables/ducts that are to be routed below the predicted level of beaches. The provisions within Requirement 17 (3) are considered an appropriate way to deal with unexpected coastal change exposing Works No. 4C. However, NNDC would welcome discussion with the Applicant and other interested parties to understand if/how the Requirements could be refined further to address the concerns raised by the County Council and Relevant Representations.	
Q5.3.5	The Applicant	**Requirement 18: Provision of landscaping** 1. Resolve the timing of approvals and implementation with the article 2 definition of 'commence', in connection with sub para (2)(d) details of trees to be removed, details of trees and hedgerows to be retained and their protection measures – which might be required prior to 'commencement'. 2. Is the intention to submit the Landscaping Management Strategy (LMS) as one complete document for approval or in parts? 3. Should para (1) refer to approval by the relevant planning authorities (in the plural) as the OLEMS refers to agreeing standards with Breckland District Council and Norfolk County Council. 4. Should sub para (2)(a) set out more planting types than trees, such that it is clear that grass and ground flora areas are also covered? 5. Should sub para (2)(d) also secure an auditable system for compliance with approved protection measures? 6. Is it correct that under scenario 1, the existing trees to be removed surveys would have been undertaken by Norfolk Vanguard [APP-698 para 141]? Or does this refer only to areas of woodland? 7. How are hedgerow trees considered? Under R18 or under R24? How does this relate to article 35 (Felling or lopping of trees and removal of hedgerows) and Schedule 14? 8. Should sub para (2)(f) also refer to opportunities for advance planting. If so, should a definition of 'advance planting' be provided in article 2? 9. Does sub para (2)(h) give enough detail about the maintenance operations and duration to be included for approval by the relevant local	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		planning authority? And should it refer to an aftercare period as set out in the OLEMS? 10. Is it necessary to resolve discrepancies between the description of what the landscape management scheme (LMS) would include as set out in R18 and that in the OLEMS, which includes sustainable drainage design and guidance on materials and colour of the substations [APP-698, para 65]. (Also refer to comments under R16 11. Should the agreed procedure for joint annual inspection of all planting areas set out in the OLEMS be included as a sub para of R18 (2)? 12. Should reference be made to the adoption of all Norfolk Vanguard mitigation planting as set out in the OLEMS [APP-698, para 141] for scenario 1?		
Q5.3.5	Norfolk County Council	**Requirement 18: Provision of landscaping** 1. Resolve the timing of approvals and implementation with the article 2 definition of 'commence', in connection with sub para (2)(d) details of trees to be removed, details of trees and hedgerows to be retained and their protection measures – which might be required prior to 'commencement'. 2. Is the intention to submit the Landscaping Management Strategy (LMS) as one complete document for approval or in parts? 3. Should para (1) refer to approval by the relevant planning authorities (in the plural) as the OLEMS refers to agreeing standards with Breckland District Council and Norfolk County Council. 4. Should sub para (2)(a) set out more planting types than trees, such that it is clear that grass and ground flora areas are also covered? 5. Should sub para (2)(d) also secure an auditable system for compliance with approved protection measures? 6. Is it correct that under scenario 1, the existing trees to be removed surveys would have been undertaken by Norfolk Vanguard [APP-698 para 141]? Or does this refer only to areas of woodland? 7. How are hedgerow trees considered? Under R18 or under R24? How does this relate to article 35 (Felling or lopping of trees and removal of hedgerows) and Schedule 14? 8. Should sub para (2)(f) also refer to opportunities for advance planting. If so, should a definition of 'advance planting' be provided in article 2? 9. Does sub para (2)(h) give enough detail about the maintenance operations and duration to be	Norfolk County Council are happy that Landscape elements are being covered by the District Councils. We will be happy to be part of any ongoing discussions, but do not feel the need to add additional comments to this question.	The Applicant notes this response.

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		included for approval by the relevant local planning authority? And should it refer to an aftercare period as set out in the OLEMS? 10. Is it necessary to resolve discrepancies between the description of what the landscape management scheme (LMS) would include as set out in R18 and that in the OLEMS, which includes sustainable drainage design and guidance on materials and colour of the substations [APP-698, para 65]. (Also refer to comments under R16 11. Should the agreed procedure for joint annual inspection of all planting areas set out in the OLEMS be included as a sub para of R18 (2)? 12. Should reference be made to the adoption of all Norfolk Vanguard mitigation planting as set out in the OLEMS [APP-698, para 141] for scenario 1?		
Q5.3.5	Broadland Council	**Requirement 18: Provision of landscaping** 1. Resolve the timing of approvals and implementation with the article 2 definition of 'commence', in connection with sub para (2)(d) details of trees to be removed, details of trees and hedgerows to be retained and their protection measures – which might be required prior to 'commencement'. 2. Is the intention to submit the Landscaping Management Strategy (LMS) as one complete document for approval or in parts? 3. Should para (1) refer to approval by the relevant planning authorities (in the plural) as the OLEMS refers to agreeing standards with Breckland District Council and Norfolk County Council. 4. Should sub para (2)(a) set out more planting types than trees, such that it is clear that grass and ground flora areas are also covered? 5. Should sub para (2)(d) also secure an auditable system for compliance with approved protection measures? 6. Is it correct that under scenario 1, the existing trees to be removed surveys would have been undertaken by Norfolk Vanguard [APP-698 para 141]? Or does this refer only to areas of woodland? 7. How are hedgerow trees considered? Under R18 or under R24? How does this relate to article 35 (Felling or lopping of trees and removal of hedgerows) and Schedule 14? 8. Should sub para (2)(f) also refer to opportunities for advance planting. If so, should a definition of 'advance planting' be provided in article 2? 9. Does sub para (2)(h) give enough detail about	1. Applicant to advise. 2. Applicant to advise. 3. Applicant to advise. 4. Content as drafted. 5. Content as drafted 6. Yes 7. Applicant to advise. 8. Content as drafted 9. Should set a timescale for the maintenance period for the landscaping 10. Content as drafted 11. Content as drafted Yes, it is considered that there should be reference in the OLEMS to the adoption of all Norfolk Vanguard mitigation planting for scenario 1.	The Applicant notes this response. The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers Broadland Council to document reference ExA.ISH1.D1.V1 / REP1-041. In relation to Broadland Council's response to question 9, the Applicant has responded to the topic of maintenance and aftercare at WQ 9.5.2 (document reference REP2-021). In relation to Broadland Council's response to question 12, as the Applicant explains in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1, the reference in Paragraph 141 of the OLEMS relates to the adoption of the mitigation identified in the arboriculture survey, such as tree protection measures rather than the adoption of mitigation planting. In the event of Scenario 1 the Applicant would benefit from the mitigation planting that Norfolk Vanguard has implemented. The final Landscape Management Strategy will reflect the mitigation relevant to the scenario implemented. The Applicant does not consider it necessary to include this level of detail in the Requirement given that it is included within the OLEMS which itself is a certified document under Article 37 and secured through the Requirements.

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		the maintenance operations and duration to be included for approval by the relevant local planning authority? And should it refer to an aftercare period as set out in the OLEMS? 10. Is it necessary to resolve discrepancies between the description of what the landscape management scheme (LMS) would include as set out in R18 and that in the OLEMS, which includes sustainable drainage design and guidance on materials and colour of the substations [APP-698, para 65]. (Also refer to comments under R16 11. Should the agreed procedure for joint annual inspection of all planting areas set out in the OLEMS be included as a sub para of R18 (2)? 12. Should reference be made to the adoption of all Norfolk Vanguard mitigation planting as set out in the OLEMS [APP-698, para 141] for scenario 1?		
Q5.3.5	North Norfolk District Council	**Requirement 18: Provision of landscaping** 1. Resolve the timing of approvals and implementation with the article 2 definition of 'commence', in connection with sub para (2)(d) details of trees to be removed, details of trees and hedgerows to be retained and their protection measures – which might be required prior to 'commencement'. 2. Is the intention to submit the Landscaping Management Strategy (LMS) as one complete document for approval or in parts? 3. Should para (1) refer to approval by the relevant planning authorities (in the plural) as the OLEMS refers to agreeing standards with Breckland District Council and Norfolk County Council. 4. Should sub para (2)(a) set out more planting types than trees, such that it is clear that grass and ground flora areas are also covered? 5. Should sub para (2)(d) also secure an auditable system for compliance with approved protection measures? 6. Is it correct that under scenario 1, the existing trees to be removed surveys would have been undertaken by Norfolk Vanguard [APP-698 para 141]? Or does this refer only to areas of woodland? 7. How are hedgerow trees considered? Under R18 or under R24? How does this relate to article 35 (Felling or lopping of trees and removal of hedgerows) and Schedule 14? 8. Should sub para (2)(f) also refer to opportunities for advance planting. If so, should a definition of 'advance planting' be provided in article 2?	1. For the Applicant to respond 2.For the Applicant to respond 3. Requirement 15 (4) will set out the stages of the onshore transmission works to be agreed by each relevant planning authority. NNDC has assumed that stages will likely correlate with relevant planning authority boundaries so as to avoid the complexity of multi authority approval of a specific stage. If NNDC's understanding is correct then there would be no need to amend the wording of 18(1) to refer to relevant planning authorities in the plural. However NNDC agree that para 66 of the OLEMS (Version 2) should be amended to include reference to all relevant planning authorities who will need to agree Landscape Management Schemes. 4. NNDC are content that the current wording of Requirement 18(2)(a) covers more than just trees. Making the suggested changes could actually make the reader think only those specified planting types are applicable. NNDC are unclear about the precise basis for the ExA concerns about current wording. Ultimately it will come down to the judgment of each relevant planning authority as to the detail it requires when discharging requirements. In some locations less detail will be required, in other more sensitive locations greater detail will be required. Some flexibility in the wording of Requirements is entirely appropriate and proportionate in the opinion of NNDC, particularly given the procedures for discharge of Requirements as set out in Schedule 16. NNDC understands from the Vanguard examination that the Applicant will likely contact relevant planning authorities prior to discharge of requirements to understand the level of detail required specific to each stage when discharging requirements. 5. NNDC is concerned about the possible resource implications in discharging this suggested change to Requirement 18 (2)(d). NNDC would however be happy to listen to any suggested amendments to be put forward by the ExA which can then be considered by each relevant planning authority. 6.For the Applicant to respond. 7.In theory hedgerow trees could relate to both as they could have landscape and ecological implications (hence why an OLEMS has been produced). How a hedgerow is assessed will be depend on many things including how it is being managed. NNDC would be happy to consider further once the Applicant has confirmed their understanding.	The Applicant notes this response. The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers NNDC to document reference ExA.ISH1.D1.V1 / REP1-041. In relation to NNDC's response to question 3, NNDC's initial understanding is correct: the Applicant considers that, as far as is possible, it would be prudent to split each stage according to the relevant planning authority boundary. The final scheme defining the stages of development will, however, only be confirmed once contractors have been appointed. In any event, the definition of 'relevant planning authority' at Article 2 of the dDCO already provides for relevant planning authorities in the plural (in the event that more than one authority's land is affected). In relation to the OLEMS (Version 2) (REP1-018), the Applicant will update the reference at paragraph 66 to refer to all relevant planning authorities as requested. The Applicant notes and concurs with NNDC's response to question 4. In relation to question 5, as the Applicant explains in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1, the final plan will include the exact details of which trees are to be removed, and which trees and hedgerows are to be retained. This is secured through Requirement 18(2)(d) and the Landscape Management Scheme (LMS) must be implemented as approved, as secured by Requirement 18(3). The final LMS will therefore provide a detailed 'auditable' measure for enforcement purposes. The Applicant has responded to question 7 in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 (document reference ExA.ISH1.D1.V1 / REP1-041). In relation to question 8, the Applicant concurs and welcomes this approach to flexibility from NNDC. The Applicant has also responded further in its

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		9. Does sub para (2)(h) give enough detail about the maintenance operations and duration to be included for approval by the relevant local planning authority? And should it refer to an aftercare period as set out in the OLEMS? 10. Is it necessary to resolve discrepancies between the description of what the landscape management scheme (LMS) would include as set out in R18 and that in the OLEMS, which includes sustainable drainage design and guidance on materials and colour of the substations [APP-698, para 65]. (Also refer to comments under R16 11. Should the agreed procedure for joint annual inspection of all planting areas set out in the OLEMS be included as a sub para of R18 (2)? 12. Should reference be made to the adoption of all Norfolk Vanguard mitigation planting as set out in the OLEMS [APP-698, para 141] for scenario 1?	8.Advanced planting should be considered as part of Requirement 18 (2)(f) but there is a danger that providing a definition of 'advanced planting' may provide too prescriptive a definition without the flexibility that may be of assistance in securing early planting subject to landowner consent. NNDC do not want to overcomplicate the process and create unintended adverse consequences for early delivery of planting. 9.The OLEMS is used to inform the discharge of requirement 18 (h) and the Applicant will be setting out proposed maintenance regimes. NNDC are concerned again about trying to be too prescriptive in the DCO wording. Current wording is acceptable. 10.NNDC has no comments on this question 11. No - this will vary for each relevant planning authority. 12. NNDC are unclear of the issue. By the time Boreas is implemented, there will be knowledge as to whether Scenario 1 or Scenario 2 is being taken forward and this will be reflected in the submissions made in relation to discharge of Requirements including Requirement 18. NNDC are happy to consider any proposed amendments by the ExA.	Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 (document reference ExA.ISH1.D1.V1 / REP1-041). The Applicant notes and concurs with NNDC's response to question 9; the final Landscape Management Scheme (which is to be approved by the relevant planning authorities) will include the level of detail for maintenance and operation activities, including aftercare. The final LMS must be in accordance with the OLEMS. The Applicant notes NNDC's responses to questions 10-12 and the Applicant has responded in further detail in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 (document reference ExA.ISH1.D1.V1 / REP1-041).
Q5.3.5	Natural England	**Requirement 18: Provision of landscaping** 1. Resolve the timing of approvals and implementation with the article 2 definition of 'commence', in connection with sub para (2)(d) details of trees to be removed, details of trees and hedgerows to be retained and their protection measures – which might be required prior to 'commencement'. 2. Is the intention to submit the Landscaping Management Strategy (LMS) as one complete document for approval or in parts? 3. Should para (1) refer to approval by the relevant planning authorities (in the plural) as the OLEMS refers to agreeing standards with Breckland District Council and Norfolk County Council. 4. Should sub para (2)(a) set out more planting types than trees, such that it is clear that grass and ground flora areas are also covered? 5. Should sub para (2)(d) also secure an auditable system for compliance with approved protection measures? 6. Is it correct that under scenario 1, the existing trees to be removed surveys would have been undertaken by Norfolk Vanguard [APP-698 para 141]? Or does this refer only to areas of woodland? 7. How are hedgerow trees considered? Under R18 or under R24? How does this relate to article 35 (Felling or lopping of trees and removal of hedgerows) and Schedule 14? 8. Should sub para (2)(f) also refer to opportunities for advance planting. If so, should a definition of 'advance planting' be provided in	Natural England wish to be consulted on and provided with a copy of the final OLEMS, as part of the DCO requirement.	The Applicant notes this and acknowledges that Natural England will be consulted on the final version of the Landscape Management Scheme (which will be in accordance with the OLEMS), as is stipulated by Requirement 18(1) of the dDCO, which reads as follows: *"**18.-**(1) No stage of the onshore transmission works may commence until for that stage a written landscaping management scheme and associated work programme (which accords with the outline landscape and ecological management strategy) has been submitted to and approved by the relevant planning authority in consultation with the relevant statutory nature conservation body…".*

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		article 2? 9. Does sub para (2)(h) give enough detail about the maintenance operations and duration to be included for approval by the relevant local planning authority? And should it refer to an aftercare period as set out in the OLEMS? 10. Is it necessary to resolve discrepancies between the description of what the landscape management scheme (LMS) would include as set out in R18 and that in the OLEMS, which includes sustainable drainage design and guidance on materials and colour of the substations [APP-698, para 65]. (Also refer to comments under R16 11. Should the agreed procedure for joint annual inspection of all planting areas set out in the OLEMS be included as a sub para of R18 (2)? 12. Should reference be made to the adoption of all Norfolk Vanguard mitigation planting as set out in the OLEMS [APP-698, para 141] for scenario 1?		
Q5.3.5	Necton Parish Council	**Requirement 18: Provision of landscaping** 1. Resolve the timing of approvals and implementation with the article 2 definition of 'commence', in connection with sub para (2)(d) details of trees to be removed, details of trees and hedgerows to be retained and their protection measures – which might be required prior to 'commencement'. 2. Is the intention to submit the Landscaping Management Strategy (LMS) as one complete document for approval or in parts? 3. Should para (1) refer to approval by the relevant planning authorities (in the plural) as the OLEMS refers to agreeing standards with Breckland District Council and Norfolk County Council. 4. Should sub para (2)(a) set out more planting types than trees, such that it is clear that grass and ground flora areas are also covered? 5. Should sub para (2)(d) also secure an auditable system for compliance with approved protection measures? 6. Is it correct that under scenario 1, the existing trees to be removed surveys would have been undertaken by Norfolk Vanguard [APP-698 para 141]? Or does this refer only to areas of woodland? 7. How are hedgerow trees considered? Under R18 or under R24? How does this relate to article 35 (Felling or lopping of trees and removal of hedgerows) and Schedule 14? 8. Should sub para (2)(f) also refer to opportunities for advance planting. If so, should	Necton Parish Council believe that the materials and colour of the buildings should be agreed with representatives of the local community. We would like to see a few examples of what is possible and be allowed to have a say in what is selected.	The Applicant has engaged with Breckland Council and an agreed position has been reached with regards to securing the substation design parameters and this has been included in the Breckland Council Statement of Common Ground (ExA.SoCG-2.D2.V1 / REP2-039) submitted at Deadline 2. A note on the Onshore Project Substation Design was provided to Breckland Council (Appendix 1 of the SoCG) on how the design parameters are secured through the dDCO and document 8.3 Design and Access Statement (DAS) - explaining why further definition is not possible at this stage and outlining how additional information will be provided through the design process when detailed information is available. This design process has been secured through an update to the DAS, submitted at Deadline 2. Breckland Council are in agreement with the approach set out within the Onshore Project Substation Design Note and welcome the commitment to include the design process in the DAS.

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		a definition of 'advance planting' be provided in article 2? 9. Does sub para (2)(h) give enough detail about the maintenance operations and duration to be included for approval by the relevant local planning authority? And should it refer to an aftercare period as set out in the OLEMS? 10. Is it necessary to resolve discrepancies between the description of what the landscape management scheme (LMS) would include as set out in R18 and that in the OLEMS, which includes sustainable drainage design and guidance on materials and colour of the substations [APP-698, para 65]. (Also refer to comments under R16 11. Should the agreed procedure for joint annual inspection of all planting areas set out in the OLEMS be included as a sub para of R18 (2)? 12. Should reference be made to the adoption of all Norfolk Vanguard mitigation planting as set out in the OLEMS [APP-698, para 141] for scenario 1?		
Q5.3.6	The Applicant	**Requirement 19: Implementation and maintenance of landscaping** Explain why para (2) needs to be 'agreed in writing' rather than approved by the relevant planning authority in the context of Requirement 30.	The Applicant has responded to this question in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	
Q5.3.7	The Applicant	**Requirement 20: Code of Construction Practice** 1. Should contact details of the Agricultural Liaison Officer [APP-692, Appendix B] be added to the list of details to be submitted prior to commencement? 2. Should relevant local authorities approve all pre-commencement site work and preparation and if so, how? 3. Should the OCoCP include details on controlling dust during construction (particularly on parts of the route that are in close proximity to homes and businesses)? 4. Does the effect on private water supply needs to be given further consideration in this requirement?	The Applicant has provided a response to these questions in the 'Written summary of the Applicant' Oral Case at Issue Specific Hearing 1 – draft Development Consent Order' submitted at Deadline 1 (REP1-042), under Agenda Item 4 -Schedules of the dDCO, Part 3: Requirements, Requirement 20 points 1 to 4 on pages 31 and 32. The Applicant can also confirm that it has submitted a revised draft OCoCP at Deadline 1 (REP1-018) which, amongst other things, makes clear that the contact details of the Agricultural Liaison Officer will be included in the final Code of Construction Practice submitted pursuant to Requirement 20 of the DCO.	
Q5.3.7	Norfolk County Council	**Requirement 20: Code of Construction Practice** 1. Should contact details of the Agricultural Liaison Officer [APP-692, Appendix B] be added to the list of details to be submitted prior to commencement? 2. Should relevant local authorities approve all pre-commencement site work and preparation and if so, how? 3. Should the OCoCP include details on controlling dust during construction (particularly on parts of the route that are in close proximity	No further comments from a skills and employment perspective.	Noted.

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		to homes and businesses)? 4. Does the effect on private water supply needs to be given further consideration in this requirement?		
Q5.3.7	Natural England	**Requirement 20: Code of Construction Practice** 1. Should contact details of the Agricultural Liaison Officer [APP-692, Appendix B] be added to the list of details to be submitted prior to commencement? 2. Should relevant local authorities approve all pre-commencement site work and preparation and if so, how? 3. Should the OCoCP include details on controlling dust during construction (particularly on parts of the route that are in close proximity to homes and businesses)? 4. Does the effect on private water supply needs to be given further consideration in this requirement?	As per our Relevant Representation [RR-099], Natural England requests we be named as consultee on this requirement. We request we are supplied with a copy of the Final CoCP.	As requested by Natural England the relevant nature statutory conservation body are named as a consultee on this requirement, Requirement 20, within the dDCO (REP1-008) and as such will be provided with the final copy of the Code of Construction Practice.
Q5.3.7	North Norfolk District Council	**Requirement 20: Code of Construction Practice** 1. Should contact details of the Agricultural Liaison Officer [APP-692, Appendix B] be added to the list of details to be submitted prior to commencement? 2. Should relevant local authorities approve all pre-commencement site work and preparation and if so, how? 3. Should the OCoCP include details on controlling dust during construction (particularly on parts of the route that are in close proximity to homes and businesses)? 4. Does the effect on private water supply needs to be given further consideration in this requirement?	1. For the Applicant/Others to respond 2.NNDC are unclear about the scope of the question. Requirement 20 (4) covers specific pre-commencement works. Perhaps the Applicant can explain what other pre-commencement works are envisaged which would fall outside of R20(4). NNDC has set out its position on noise in Section 11 of the Local Impact Report and within the SoCG (see 2.8 Noise, Vibration and Air Quality and the matters Under Discussion). 3. NNDC understood the OCoCP (version2) already addressed the issue of dust at paragraphs 126. 4. NNDC are considering this point and will update the ExA by Deadline 4.	1. The updated OCoCP submitted at Deadline 1 (REP1-018) includes the requirement that the contact details of the ALO are included in the final Code of Construction Practice submitted pursuant to Requirement 20 of the DCO. 2. Requirement 20(4) of the dDCO relates to pre-commencement site preparation works, namely screening, fencing and site security. The Applicant is not proposing to undertake any further site preparation works of this nature prior to commencement. Other proposed pre-commencement works are covered by other Requirements within the dDCO: • Requirement 21 (3) – Access improvements; • Requirement 23 (4) – Archaeology surveys, site preparation works and archaeologic investigations; • Requirement 24 (3) – Site clearance works. 3. Noted. 4. Noted.
Q5.3.8	The Applicant	**Requirement 23: Archaeological written scheme of investigation** 1. Has the National Trust's request in its RR [RR-084] to be named in connection with the Blickling Estate as a consultee along with Norfolk County Council and Historic England in Requirement 23 been agreed? Update the ExA on progress if this point is not agreed? 2. How is Orsted's suggestion [RR-102] to manage archaeological impacts, if required, where the cable corridors cross with those proposed for the Hornsea Three Offshore Windfarm by adopting a consistent approach to targeted geophysical survey and trial trenching through a consistent approach to (Archaeological) Written Schemes of Investigation (WSI) being agreed with the relevant authorities prior to commencement of the consented works where the cables cross	1. & 2. The Applicant has provided a response to these questions in the 'Written summary of the Applicant' Oral Case at Issue Specific Hearing 1 – draft Development Consent Order' submitted at Deadline 1 (REP1-041), under Agenda Item 4 -Schedules of the dDCO, Part 3: Requirements, Requirement 23 points 1 and 4 on pages 32 and 33. In addition, the National Trust withdrew its objection to the Application on 28 November 2019. 3. & 4. The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 - draft Development Consent Order, submitted at Deadline 1 (REP1-042), under Agenda Item 4 -Schedules of the dDCO, Part 3: Requirements, Requirement 23 points 1 and 4 on pages 33 and 34 . Further to that response, the Applicant has re-considered its approach to securing mitigation measures in the intertidal area through the Outline Written Scheme of Investigation (Offshore) (document reference 8.6; APP-697) (OWSI), and proposes to amend the dDCO so that condition 14(1)(h) of Schedules 9 and 10; condition 9(1)(h) of Schedules 11 and 12, and condition 7(1)(g) of Schedule 13, refers to	

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		could be secured in the dDCO? Would the Requirement need to add a Hornsea Project Three party to those consulted in para (1)? 3. Does the dDCO adequately cover requirements for WSI regarding the intertidal zone, including needs for consultation with MMO? 4. How is it proposed within the dDCO to secure all mitigation measures included in the outline Archaeological Written Schemes of Investigations (offshore)?	the offshore Order limits seaward of mean high water, such that any mitigation relating to the intertidal area and included in the OWSI (Offshore) is also secured.	
Q5.3.9	The Applicant	**Requirement 24: Ecological management plan** Should para (3) also refer to previously un-surveyed areas and surveyed areas for which existing surveys have time expired?	The Applicant has provided a response to this question in the 'Written summary of the Applicant' Oral Case at Issue Specific Hearing 1 – draft Development Consent Order' submitted at Deadline 1 (REP1-042), under Agenda Item 4 -Schedules of the dDCO, Part 3: Requirements, Requirement 24 page 34. The Applicant can also confirm that it has amended Requirement 24(3) in version 3 of the dDCO submitted at Deadline 1 (REP1-008) to refer to "post-consent ecological surveying" in order to encompass previously un-surveyed areas and surveyed areas which require re-survey, as set out in Section 5 of the OLEMS.	
Q5.3.10	The Applicant	**Requirement 25: Watercourse crossings** The EA's RR [RR-095] notes that Norfolk Vanguard dDCO committed to site-specific water crossing plans, but the Proposed Development's OCoCP does not, although dDCO requirement 25 'Watercourse crossings' does commit to a 'scheme and programme for any such crossing, diversion and reinstatement'. Do site-specific watercourse crossing plans need to be secured in the OCoCP for the Proposed Development as well as in Requirement 25? If not, why not?	The Applicant has provided a response to this question in the 'Written summary of the Applicant' Oral Case at Issue Specific Hearing 1 – draft Development Consent Order' submitted at Deadline 1 (REP1-042), under Agenda Item 4 -Schedules of the dDCO, Part 3: Requirements, Requirement 25 page 34. Site-specific watercourse crossing plans have been secured in the updated OCoCP submitted at deadline 1 (REP1-018).	
Q5.3.10	Environment Agency	**Requirement 25: Watercourse crossings** The EA's RR [RR-095] notes that Norfolk Vanguard dDCO committed to site-specific water crossing plans, but the Proposed Development's OCoCP does not, although dDCO requirement 25 'Watercourse crossings' does commit to a 'scheme and programme for any such crossing, diversion and reinstatement'. Do site-specific watercourse crossing plans need to be secured in the OCoCP for the Proposed Development as well as in Requirement 25? If not, why not?	It is our view that site-specific watercourse crossing plans need to be secured in the OCoCP for the Proposed Development as well as in Requirement 25. This is because the Requirements set out what should be provided for the scheme overall but the CoCPs (outline and detailed) are a primary source of reference during the construction phase of a consented project. We note that Version 2 of the OCoCP (paragraph 129) now includes a commitment for a scheme and programme for each watercourse crossing which reflects the scheme referred to in Requirement 25.	Noted and the Applicant can confirm that version 2 of the OCoCP (REP1-018) includes a commitment for a scheme and programme for each watercourse crossing which reflects the scheme referred to in Requirement 25.
Q5.3.10	Natural England	**Requirement 25: Watercourse crossings** The EA's RR [RR-095] notes that Norfolk Vanguard dDCO committed to site-specific water crossing plans, but the Proposed Development's OCoCP does not, although dDCO requirement 25 'Watercourse crossings' does commit to a 'scheme and programme for any such crossing, diversion and reinstatement'.	Natural England would welcome the production of site specific water crossing plans, which incorporate environmental enhancements being included within the OCoCP.	Noted and the production of site-specific watercourse crossing plans have been secured in the updated OCoCP submitted at Deadline 1 (REP1-018).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		Do site-specific watercourse crossing plans need to be secured in the OCoCP for the Proposed Development as well as in Requirement 25? If not, why not?		
Q5.3.11	The Applicant	**Requirement 26: Construction hours** Explain the approach to determining construction hours and what consideration was given to these in locations near to sensitive receptors.	The Applicant has provided a response to this question in the 'Written summary of the Applicant' Oral Case at Issue Specific Hearing 1 – draft Development Consent Order' submitted at Deadline 1 (REP1-042), under Agenda Item 4 -Schedules of the dDCO, Part 3: Requirements, Requirement 65 pages 34 to 36.	
Q5.3.11	Necton Parish Council	**Requirement 26: Construction hours** Explain the approach to determining construction hours and what consideration was given to these in locations near to sensitive receptors.	Necton Parish Council would like to see the construction hours limited to 7am to 7pm. When all work has ceased, the lighting was frequently left on when the Dudgeon substation was being constructed. This caused annoyance to many people and we would appreciate a clause requiring lights to be extinguishes at 7pm. We would like the same requirements to be placed on National Grid.	The perimeter and site lighting would only be required during working hours. However a lower level of lighting would be required overnight for security purposes. This lighting would be kept to a minimum and adhere to the Artificial Light Emissions Management Plan detailed in section 3.7 of the OCoCP (REP1-018) which will include measures to limit obtrusive glare to nearby residential properties.
Q5.3.12	The Applicant	**Requirement 27: Control of operational noise during operational phase** dDCO [APP-020] Requirement 27 stipulates a rating level of 32dB must be achieved it at any 'noise sensitive location'. However, 'noise sensitive location' is not defined within the dDCO. 1. Clarify what is the definition of a 'noise sensitive location' in the context of dDCO [AS-019] Requirement 27. 2. Should a definition be included in the 'Interpretation' section in Part 1 of the dDCO [AS-019]?	1. Sensitive locations, in the context of noise and vibration, are typically residential premises but can also include schools, places of worship and noise sensitive commercial premises. Noise sensitive locations being referred to are the noise sensitive receptors identified in the vicinity of the onshore project substation i.e. SSR1 to SSR11, as detailed in Table 25.27 of ES Chapter 25 (APP-238) and shown on Figure 25.2 (APP-471). 2. Given that the noise sensitive locations are clearly defined in the ES, and the ES is certified under Article 37 it is not considered necessary to define 'noise sensitive location' in the dDCO.	
Q5.3.13	The Applicant	**Requirement 31: Amendments to approved details** 1. The Applicant is requested to set out its justification for this Requirement. 2. Are local planning authorities and others responsible for post consent approvals content that the provisions in this Requirement for amendments and variations are justified? 3. If not explain the need for such a requirement and/ or propose alternative wording. 4. Specifically, is the wording "that the subject matter of the agreement sought is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the environmental statement." is sufficiently tightly drawn?	The Applicant has responded to the first of these questions regarding the justification for this Requirement in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041. In relation to question 3. and 4., there is precedent for this approach in other offshore wind DCOs including East Anglia One (2014), East Anglia Three (2017), and Hornsea Two (2016), together with the draft Norfolk Vanguard Order and the draft Hornsea Project Three Order. The Applicant also considers that the flexibility provided for by this Requirement is necessary in order to help streamline the discharge of requirements related to nationally significant infrastructure projects. The wording at Requirement 31(2) provides that: "…*Such agreement may only be given in relation to changes where it has been demonstrated to the satisfaction of the relevant planning authority or that other person that the subject matter of the agreement sought is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the environmental statement*." The decision maker therefore has discretion at the time to ensure that the change does not give rise to any materially new or different environmental	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			effects from those assessed in the original environmental statement. If the relevant decision maker is not so satisfied then it will be necessary for the Applicant to provide further supporting information in order to demonstrate that the change is in accordance with the principles and assessments in the environmental statement. The Applicant therefore considers that the meaning of Requirement 31 is sufficiently clear and the Applicant does not consider it necessary to amend the dDCO in this instance.	
Q5.3.13	Broadland District Council	**Requirement 31: Amendments to approved details** 1. The Applicant is requested to set out its justification for this Requirement. 2. Are local planning authorities and others responsible for post consent approvals content that the provisions in this Requirement for amendments and variations are justified? 3. If not explain the need for such a requirement and/ or propose alternative wording. 4. Specifically, is the wording "that the subject matter of the agreement sought is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the environmental statement." is sufficiently tightly drawn?	1. Applicant to advise 2. Content as drafted 3. n/a It is considered that the specified wording is sufficiently tight.	The Applicant notes this response and welcomes the confirmation from Broadland District Council that it is content with the current drafting.
Q5.3.13	Natural England	**Requirement 31: Amendments to approved details** 1. The Applicant is requested to set out its justification for this Requirement. 2. Are local planning authorities and others responsible for post consent approvals content that the provisions in this Requirement for amendments and variations are justified? 3. If not explain the need for such a requirement and/ or propose alternative wording. 4. Specifically, is the wording "that the subject matter of the agreement sought is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the environmental statement." is sufficiently tightly drawn?	Natural England is content with the principle behind requirement 31. However, questions if it is appropriate for non-material changes to be made through amended plans and not through requesting a non-material change to the DCO.	The Applicant notes this response and welcomes the confirmation from Natural England that it is content with the current principle of Requirement 31. The principle behind Requirement 31 follows the Model Provisions, yet the current dDCO inserts further detail to the drafting and also makes clear that any amendments to, or deviations from, the approved details must be in accordance with the principles set out in the Environmental Statement; and the relevant planning authority must be satisfied that the amendment will not give rise to any new or materially different environmental effects. The Applicant therefore agrees that the changes would be minor in scale and the Applicant refers Natural England to its comments on NNDC's response below for an example of the type of amendment that may be sought. The Applicant considers that the flexibility provided for by this Requirement is necessary in order to help streamline the discharge of requirements related to nationally significant infrastructure projects. There is also precedent for this approach in other offshore wind DCOs including East Anglia Three (2017), Hornsea Two (2016), the draft Norfolk Vanguard Order, and the draft Hornsea Project Three Order.
Q5.3.13	North Norfolk District Council	**Requirement 31: Amendments to approved details** 1. The Applicant is requested to set out its justification for this Requirement. 2. Are local planning authorities and others	1. For the Applicant 2. NNDC recognise Requirement 31 is to enable minor variations to the proposal (akin to a non-material amendment under Section 96A of the TCPA 1990). Without this, any deviations from the approved plans or details would either be unlawful or need a new DCO consent. NNDC is happy to consider	The Applicant notes this response. The Applicant envisages that the mechanism in Requirement 31 would be applicable where a scheme or plan had been submitted and approved by the Relevant Planning Authority (or another person) and, subsequently, required

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		responsible for post consent approvals content that the provisions in this Requirement for amendments and variations are justified? 3. If not explain the need for such a requirement and/ or propose alternative wording. 4. Specifically, is the wording "that the subject matter of the agreement sought is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the environmental statement." is sufficiently tightly drawn?	very minor changes under Requirement 31 but has set out its position on more fundamental amendments to the DCO in Section 4 of its Local Impact Report related to Choice of Transmission System. Perhaps to aid clarity, the Applicant could set out some scenarios or examples of the sort of changes envisaged to be agreed under Requirement 31. 3. N/A 4. See 2 above	a minor amendment or variation. For instance, the Landscape Management Scheme (LMS) outlines (amongst other things) details of trees to be planted and details of the maintenance of landscaping. In the event that a tree or shrub did not take well to the new environment then it may be appropriate to agree to an amendment to the approved details under the LMS in order for the Applicant, in consultation with the relevant planning authority, to select a new species of tree. The process under Requirement 31 would therefore be followed in this case. The Applicant has responded further in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 (document reference ExA.ISH1.D1.V1 / REP1-041) as well as in its comments on the Local Impact Report submitted at Deadline 3 (document reference ExA.LIR-NNDC.D3.V4).
Q5.3.14	The Applicant	**Requirement 32: Operational drainage plan** How have allowances for climate change been considered and does the flood risk assessment take account of UK Climate Projections 2018 (UKCP18)?	The Applicant has provided a response to these question in the 'Written summary of the Applicant' Oral Case at Issue Specific Hearing 1 – draft Development Consent Order' submitted at Deadline 1 (REP1-042), under Agenda Item 4 -Schedules of the dDCO, Part 3: Requirements, Requirement 32 on pages 37.	

5.4 OTHER REQUIREMENTS

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.4.1	The Applicant	**Reinstatement** Is there provision to ensure reinstatement for areas used temporarily during construction. If not, why not? If so, where is this set out and secured in the dDCO?	The Applicant has responded to this question in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041. The Applicant has also submitted a revised OCoCP (document reference 8.1 / REP1-018) at Deadline 1 which deals with reinstatement and explains that specific replanting measures will be set out within the Ecological Management Plan (EMP) produced post consent for each stage of the works. The EMP is secured through Requirement 24, and the OCoCP is secured by Requirement 20 of the dDCO.	
Q5.4.1	North Norfolk District Council	**Reinstatement** Is there provision to ensure reinstatement for areas used temporarily during construction. If not, why not? If so, where is this set out and secured in the dDCO?	NNDC would welcome clarity from the Applicant on this point.	The Applicant has responded to this question in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041. The Applicant has also submitted a revised OCoCP (document reference 8.1 / REP1-018) at Deadline 1 which deals with reinstatement and explains that specific replanting measures will be set out within the Ecological Management Plan (EMP) produced post consent for each stage of the works. The EMP is secured through Requirement 24, and the OCoCP is secured by Requirement 20 of the dDCO. The Applicant is, however, willing to discuss this matter further with NNDC should any further clarification be required.
Q5.4.3	Norfolk County Council	**Any other requirements?** Interested parties are requested to set out any other areas which they consider should be covered by requirements and to provide initial drafting of such additional requirements. In so	The list of trenchless crossings included within R16 needs to be expanded to include the B1149 as the current method of working is not safe. An open cut trench was not considered acceptable by the Highway Authority for Norfolk Vanguard and it remains unacceptable for Norfolk	In response to requests as part of the Norfolk Vanguard examination from Norfolk County Council for trenchless crossings of the A1067 and B1149 to be included in Requirement 16 of DCO, the Norfolk Vanguard applicant undertook further investigations and traffic counts and produced a trenchless crossing report, which has been provided as Appendix 2 of the Statement of Common

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		doing, IPs are advised that all requirements must be precise and enforceable, necessary, relevant to the development and reasonable in all other respects.	Boreas. NCC do not believe this can be mitigated. See also our detailed comments in response to Q.4.1.5 above.	Ground with Norfolk County Council submitted at Deadline 2 (REP2-050). This report demonstrated that: • Forecast traffic flows along the A1067 would exceed the total vehicles per hour level at which single lane traffic management may be undertaken without network disruption. The Norfolk Vanguard applicant and the Applicant have, accordingly, included trenchless crossing of the A1067 in the list at Requirement 16 of the dDCO; • Forecast cumulative traffic flows along the B1149 would fall well below the total vehicles per hour level at which single lane traffic management would lead to network disruption; and • Ground conditions at the B1149 crossing indicate that the road subsurface has good load bearing properties and a specification for the reinstatement is readily achievable that will minimise the potential for future maintenance liability, and therefore a trenchless crossing is not necessary on this basis. The Applicant has also provided swept path drawings to demonstrate that abnormal loads can physically negotiate the proposed roadworks associated with the open cut trench solution in Appendix 5 of the Outline Traffic Management Plan (Version 2) (REP1-024). The swept path drawings included the safe working distance for deep excavations of 1.2m. The roadworks required for abnormal loads will be required for approximately one week. The final design of the proposed roadworks will form part of the final Traffic Management Plan secured under Requirement 21 of the dDCO. Any works proposed in this area must not commence until a Traffic Management Plan (including the detailed design of the roadworks proposed along the B1149) has been submitted to and approved by the relevant planning authority in consultation with the highway authority, i.e. approval from Norfolk County Council as Local Highway Authority of the detailed design of these roadworks will be required post-consent before the works can proceed. It should be noted that no temporary works areas are included within the current Order limits in proximity to the B1149. As such it would not be possible to undertake a trenchless crossing in this location without additional land outside of the current Order limits. However, the Applicant remains firmly of the view that an open cut trench crossing is appropriate and can be designed to meet health and safety requirements within the Order limits.
Q5.4.3	North Norfolk District Council	**Any other requirements?** Interested parties are requested to set out any other areas which they consider should be covered by requirements and to provide initial drafting of such additional requirements. In so doing, IPs are advised that all requirements must be precise and enforceable, necessary, relevant to the development and reasonable in all other respects.	• The ExA is requested to consider NNDC's submission in Section 14 (Tourism, Recreation and Socio-Economics) of the Local Impact Report. These is an area of disagreement between the parties but NNDC will continue to assert that the Norfolk Boreas DCO should include a requirement for a tourism and associated business impact mitigation strategy to address the likely adverse impacts on the tourism sector within North Norfolk. • New Requirement suggested (drawn from Norfolk Vanguard ExA schedule of proposed changes set out at Appendix L of NNDC's Local Impact Report): (1) No part of Works No. 4C or Work No. 5 within the District of North Norfolk may commence until such time as a tourism and associated	The Applicant notes this response and the Applicant has also responded within its comments on the North Norfolk District Council (NNDC) Local Impact Report submitted at Deadline 3 (document reference ExA.LIR-NNDC.D3.V4). The matters which NNDC raise in relation to tourism impacts do not affect the conclusions of the ES set out in ES Chapter 30 Tourism and Recreation (document reference 6.1.30 / APP-243). The Applicant's firm view is that there are no such impacts. The Norfolk Vanguard applicant responded in detail to this topic as part of the Norfolk Vanguard examination and the Applicant has included the document titled *Position Statement North Norfolk District Council Requested Requirement to Address Perceived Tourism Impacts* as an Appendix to the comments on NNDC's Local Impact Report (document reference ExA.LIR-NNDC.D3.V4).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			business impact mitigation strategy has been submitted to and approved in writing by North Norfolk District Council. (2) (2) The tourism and associated business impact mitigation strategy referred to in subparagraph (1) must include: (a) Details of a contribution to be paid by the undertaker to Tourism Information Centres, Visit North Norfolk, Visit Norfolk and any other relevant organisations supporting and promoting tourism in North Norfolk; (b) Details of a method by which the contribution by the undertaker in (a) will be apportioned to the above organisations; (c) Details of who will administer the strategy; (d) Details of how the strategy will be funded including the cost of administration; (e) Details of how any monies unspent are to be returned to the undertaker; (f) Details of marketing campaigns (including funding) to be run in order to market North Norfolk in advance of, during and after construction works have been completed for Norfolk Boreas for the purpose of generating tourist footfall and spend. (3) (3) The tourism and associated business impact mitigation strategy must be implemented as approved.	In addition, the Applicant also has significant concerns in relation to the principle of the proposed Requirement. The Applicant notes that any requirements should adhere to the tests set out in paragraph 55 of the National Planning Policy Framework (NPPF) (2019). The Applicant is of the view that it does not meet the tests, that it is: • necessary; • relevant to planning and; • to the development to be permitted; • enforceable; • precise and; • reasonable in all other respects. It should be noted that the Overarching National Policy Statement for Energy (EN-1), through paragraph 4.1.7 and 4.1.8, adopts these tests in the consideration of whether requirements or development consent obligations should be imposed. In particular, compensation is not considered necessary to mitigate impacts identified in the ES and, as such, is not relevant to planning or the development to be permitted. Further, the Requirement is not sufficiently precise and does not set out appropriate parameters to enable it to be enforceable. Given the lack of parameters, particularly the level of compensation which may be required, it cannot be considered reasonable. The Applicant also has a particular concern that the Requirement is directed towards the payment of compensation, and whether this is appropriate in the context of the advice set out in the Planning Practice Guidance (PPG) which states: *"No payment of money or other consideration can be positively required when granting planning permission. However, where the 6 tests [referenced above] will be met, it may be possible to use a negatively worded condition to prohibit development authorised by the planning permission until a specified action has been taken (for example, the entering into of a planning obligation requiring the payment of a financial contribution towards the provision of supporting infrastructure)."* Whilst the Applicant acknowledges that the draft Requirement is negatively worded, the Applicant's view is that it does not meet the PPG tests. Further, the Applicant is not aware of any local policy which supports NNDC's position. To the extent that NNDC propose that this matter can be dealt with through a Section 106 Agreement, the Applicant's position would not change. The compensation which NNDC wishes to secure does not meet the tests set out Regulation 122 of the Community Infrastructure Levy Regulations 2010, that it is: 1. necessary to make the development acceptable in planning terms; 2. directly related to the development; and 3. fairly and reasonably related in scale and kind to the development.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
				In particular, compensation is not necessary to mitigate any impacts identified in the ES; it would not be possible for claimants to prove that compensation was required as a direct result of the development; and there is no quantum of compensation specified so that it can be said that the compensation sought is fairly and reasonably related in scale and kind to the development.

5.5 SCHEDULES 9 to 13: Deemed Marine Licences

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.5.1	Natural England	**Natural England (NE) concerns in Relevant Representation** NE raised a number of concerns in its relevant rep [RR-099]. These concerns to be reviewed in the light of comments by the Applicant on Relevant Representations [AS024]	Natural England has had several discussions with the applicant regarding these issues and has made some progress. Please see our updated issues log for an update on our progress. Additionally, we are reviewing the updated dDCO and supporting documentation and will provide a further update on these issues at Deadline 3.	The Applicant agree that progress has been made on several issues and will continue to engage with Natural England to progress the remaining issues.
Q5.5.1	The Applicant	**Natural England (NE) concerns in Relevant Representation** NE raised a number of concerns in its relevant rep [RR-099]. These concerns to be reviewed in the light of comments by the Applicant on Relevant Representations [AS024]	The Applicant and Natural have discussed Natural England's concerns relating to the DCO and DMLs during a meeting on the 28th November 2019. The Applicant has submitted an updated version of the SoCG with Natural England at deadline 2 (ExA.SoCG-17.D0.V2). This reflects the Applicant's understanding of the current position regarding these concerns. Table 7 of the SoCG contains a position on each concern that Natural England included within their Relevant Representation [RR-099].	
Q5.5.2	The Applicant	**Review Applicant responses [AS-024] to MMO relevant rep [RR-069]:** 1. concurrent piling both within the project and between Norfolk Boreas and Norfolk Vanguard (underwater noise effects) with recommended consideration of inclusion of a cooperation condition between developers working in close proximity and recommendation of DCO/DML amendment for a worst-case scenario if more than one pile is to be installed within a 24-hour period [Schedules 9-13 Condition 21] expanding on [AS-024 Table 26 row 54]; 2. implication that new cable protection works are considered, by the Applicant, to be licenced for deployment at any time during the operation of the works; [RR-069 2.1.33 to 39]; and proposed requirement for new cable protection and foundation replacement during operations to be separately licenced [Schedules 9-13 Condition 22] expanding on [AS-024 Table 26 row 63]; 3. request for removal of the appeals process in [Schedules 9-13 Part 5 Procedure for Appeals]; 4. 6 instead of 4 month timescale for submission of discharge documents [Schedules 913 condition 15(5)]; and 5. appeal process related to applications for discharge of conditions. [Schedules 9-13 Conditions 14 and 15]	The Applicant and the MMO have discussed the MMO's concerns relating to the DCO and DMLs during a meeting on the 27th November 2019. The Applicant has submitted an updated version of the SoCG at deadline 2 (ExA.SoCG-10.D0.V1) to reflect the most recent position regarding these concerns. Table 8 of the SoCG contains a position on each concern that the MMO have and a full response to each of the four points raised in written question 5.5.2 can be found in that table. In summary: 1. The MMO and the Applicant have reached agreement that the current condition and the use of the SNS SIP is acceptable to both parties. 2. The Applicant has amended the wording of the Outline Operation and Maintenance Plan submitted at Deadline 1 (REP1-028) to make it clear that deploying cable protection in new areas during operation would require a separate marine licence. The MMO have agreed the changes and the MMO and the Applicant have an agreed position. 3. The MMO and the Applicant are yet to agree a position or positions regarding the appeals mechanism.	
Q5.5.2	Marine Management Organisation	**Review Applicant responses [AS-024] to MMO relevant rep [RR-069]:**	The MMO and the Applicant have discussed the MMO's concerns relating to the DCO and DMLs during a meeting on the 27th November 2019.	The Applicant concurs with this response.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		1. concurrent piling both within the project and between Norfolk Boreas and Norfolk Vanguard (underwater noise effects) with recommended consideration of inclusion of a cooperation condition between developers working in close proximity and recommendation of DCO/DML amendment for a worst-case scenario if more than one pile is to be installed within a 24-hour period [Schedules 9-13 Condition 21] expanding on [AS-024 Table 26 row 54]; 2. implication that new cable protection works are considered, by the Applicant, to be licenced for deployment at any time during the operation of the works; [RR-069 2.1.33 to 39]; and proposed requirement for new cable protection and foundation replacement during operations to be separately licenced [Schedules 9-13 Condition 22] expanding on [AS-024 Table 26 row 63]; 3. request for removal of the appeals process in [Schedules 9-13 Part 5 Procedure for Appeals]; 4. 6 instead of 4 month timescale for submission of discharge documents [Schedules 913 condition 15(5)]; and 5. appeal process related to applications for discharge of conditions. [Schedules 9-13 Conditions 14 and 15]	The Applicant has submitted an updated version of the SoCG at deadline 2 (ExA.SoCG-10.D0.V1) to reflect the most recent position regarding these concerns. Table 8 of the SoCG contains a position on each concern that the MMO have and a full response to each of the four points raised in written question 5.5.2 can be found in that table.	
Q5.5.2	Natural England	**Review Applicant responses [AS-024] to MMO relevant rep [RR-069]:** 1. concurrent piling both within the project and between Norfolk Boreas and Norfolk Vanguard (underwater noise effects) with recommended consideration of inclusion of a cooperation condition between developers working in close proximity and recommendation of DCO/DML amendment for a worst-case scenario if more than one pile is to be installed within a 24-hour period [Schedules 9-13 Condition 21] expanding on [AS-024 Table 26 row 54]; 2. implication that new cable protection works are considered, by the Applicant, to be licenced for deployment at any time during the operation of the works; [RR-069 2.1.33 to 39]; and proposed requirement for new cable protection and foundation replacement during operations to be separately licenced [Schedules 9-13 Condition 22] expanding on [AS-024 Table 26 row 63]; 3. request for removal of the appeals process in [Schedules 9-13 Part 5 Procedure for Appeals]; 4. 6 instead of 4 month timescale for submission of discharge documents [Schedules 913 condition 15(5)]; and 5. appeal process related to applications for discharge of conditions. [Schedules 9-13 Conditions 14 and 15]	1. Natural England would refer to our significant concerns regarding the lack of a clear proposed mechanism to co-ordinate noise activities within the Southern North Sea SAC. Although, Natural England does note that applying a co-ordination condition to only one development would not address those concerns. 2. Natural England and MMO are preparing a joint position statement on cable protection and parameters in which it may be consented and deployed. 3. And 5. Natural England supports the MMO position on appeals and arbitration. Natural England Relevant Representation[RR-099], has made clear the need for six months. We note the comments by the Applicant; however, our position remains unchanged. In addition, Natural England notes that the recent East Anglia One North and East Anglia two draft DCOs include six months for similar conditions.	As the Applicant explains in its response to WQ 5.2.2, the Applicant and the MMO have discussed the MMO's concerns relating to the DCO and DMLs during a meeting on the 27th November 2019. In summary: 1. The MMO and the Applicant have reached agreement that the current condition and the use of the SNS SIP is acceptable to both parties. 2. The Applicant has amended the wording of the Outline Operation and Maintenance Plan submitted at Deadline 1 (REP1-028) to make it clear that deploying cable protection in new areas during operation would require a separate marine licence. The MMO have agreed the changes and the MMO and the Applicant have an agreed position. 3. The MMO and the Applicant are yet to agree a position or positions regarding the appeals mechanism. This position is outlined in the SoCG submitted at deadline 2 (ExA.SoCG-10.D0.V1 / REP2-051). The Applicant has responded to the issue of 4 months or 6 months for condition discharge in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 (document reference ExA.ISH1.D1.V1 / REP1-041).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.5.3	Marine Management Organisation	**Disposal of any offshore non-natural material:** MMO to comment on Applicant's response [AS-024 Table 26 Row 11] to MMO's [RR-069]: 'The Applicant considers that all material dredged or drilled from the seabed would be of natural origin. Furthermore, all material would be disposed of within the vicinity of the dredge location and therefore would not be transported far from source. Therefore, the wording of the DCO should remain in keeping with the precedent set by previous DCO projects.'	The MMO note that this comments was from Natural England (NE) originally. The MMO understand this is in relation to the possibility of dredging and disposal of archaeological artefacts (classed as non-natural material) – the MMO support NE's position and will continue to discuss with the Applicant and NE.	The Applicant notes this response and will discuss this further with the MMO.
Q5.5.4	Marine Management Organisation	**Individual structure volumes and areas:** MMO to comment on Applicant's response [AS-024 Table 26 Row 49] to MMO [RR-069] recommendations that the volumes and areas should be included within the face of the DCO 'The Applicant's position is that as the DML conditions specifically require that the final plan must accord with the outline plan it is not necessary to include the level of detail sought by the MMO on the face of the DMLs…'.	After an internal review with other wind farm examinations, the MMO continues in the view that it is preferable to have these parameters stated explicitly on the DCO because of ongoing concerns regarding the clarity and enforceability of plans. We will however continue to discuss our concerns with the Applicant to explore if these concerns can be addressed in any other way.	The Applicant notes this response and will continue to discuss this with the MMO. The Applicant, however, maintains the position that the outline or in-principle plans are the appropriate place for the more lengthy and detailed measures. As the DML conditions specifically require that the final plan must accord with the outline plan it is not necessary to include the level of detail sought by the MMO on the face of the DMLs. The DMLs and the DCO would become unwieldy if the details within the plans were placed on the face of the DCO. Provided the figures contained within the plan are fixed as a worst case (which is the position here), the worst case cannot be changed without a variation of the DMLs; if it was changed then the final plan would not be in accordance with the certified outline plan as the relevant condition requires. Therefore, the Applicant does not consider it necessary to further amend Condition 14(1)(e) (Schedule 9-10), Condition 9(1)(e) (Schedule 11-12), or Condition 7(1)(e) (Schedule 13) to include a breakdown of scour protection figures on the face of the DMLs.
Q5.5.4	Natural England	**Individual structure volumes and areas:** MMO to comment on Applicant's response [AS-024 Table 26 Row 49] to MMO [RR-069] recommendations that the volumes and areas should be included within the face of the DCO 'The Applicant's position is that as the DML conditions specifically require that the final plan must accord with the outline plan it is not necessary to include the level of detail sought by the MMO on the face of the DMLs…'.	Natural England supports the position of the MMO.	The Applicant notes this response.

5.6 SCHEDULE 15: ARBITRATION RULES

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.6.1	The Applicant	1. Is there a definition in the dDCO for 'the Arbitrator' and if so, where? 2. Respond to the MMO's concerns highlighted in Section 2.1 of its RR [RR-069] relating to timescales for discharge document submission; and to an appeal process related to applications for discharge of conditions.	The Applicant has responded to these questions in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 / REP1-041.	

5.7 SCHEDULE 16: PROCEDURE FOR DISCHARGE OF REQUIREMENTS

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.7.1	Norfolk County Council	1. Views of interested parties are sought in relation to the discharge of requirements as set out in Schedule 16. 2. The Applicant to clarify which the post-consent approving bodies would be for Requirement 16.	While the County Council in its role as a discharging authority or consultee will do its utmost to meet the timescales set out in Schedule 16. It would like to highlight that, If ,for whatever reason, the deadline for requesting further information is not met and additional is required, the discharging authority would be acting unreasonably in discharging the requirement without that information. In the event that the applicant does not want to supply the further information the only reasonable option open to the discharging authority would be to refuse the application. Is this what was envisaged by the drafting of section 2(4).	It should be noted that paragraph 1 of Schedule 16 provides the starting point for the provision of information and stipulates that the Applicant must give the discharging authority sufficient information to identify the requirement(s) to which the discharge application relates and must provide such particulars, and be accompanied by such plans and drawings as are reasonably considered necessary to deal with the application. It will therefore be in the Applicant's interest to ensure that the initial application for discharge is as complete and detailed as possible. If, however, the discharging authority requires further information then paragraph 2 of Schedule 16 sets out this process, which is as follows: • The discharging authority has 20 business days to request further information in the event that no consultation with a "requirement consultee" is needed; or • In the event that consultation with a "requirement consultee" is needed, the discharging authority must issue the consultation to the requirement consultee within 10 business days of receipt of the application and the discharging authority must notify the applicant in writing specifying any further information requested by the requirement consultee within 10 business days of receipt of such a request and in any event within 42 days of receipt of the application. • These timeframes are imposed in order to unlock nationally significant (renewable energy) infrastructure projects, whilst ensuring no unnecessary delay to the commencement of development and completion of construction works. Paragraph 2(4) of Schedule 16, however, provides a mechanism to allow the Applicant to agree to any late requests for further information from the discharging authority (beyond the timeframes outlined above). The Applicant will of course act with pragmatism and seek to facilitate any reasonable late requests; and the Applicant considers that an appeal to the Secretary of State in the event of refusal or non-determination is likely to be a position of last resort.
Q5.7.1	Marine Management Organisation	1. Views of interested parties are sought in relation to the discharge of requirements as set out in Schedule 16. 2. The Applicant to clarify which the post-consent approving bodies would be for Requirement 16.	The MMO understand that the MMO are not part of Schedule 16 as these refer to requirements only.	The Applicant can confirm that this understanding is correct.
Q5.7.1	Necton Parish Council	1. Views of interested parties are sought in relation to the discharge of requirements as set out in Schedule 16. 2. The Applicant to clarify which the post-consent approving bodies would be for Requirement 16.	When 'schedule 16' was entered into the PINS website search facility, there were no matching records found. When 'schedule' was searched on the PINS website, five documents were identified but none detailing discharge of schedule 16. We are therefore unable to comment.	The reference to Schedule 16 is to Schedule 16 of the dDCO. The latest version of the dDCO was submitted at Deadline 1 with document reference 3.1 / REP1-008, and Schedule 16 can be located at page 318 of the dDCO.

5.8 CONSENTS, LICENCES AND OTHER AGREEMENTS

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.8.1	The Applicant	Comment on Norfolk County Council's suggestion that funds could be made available for the benefit of the resident and business communities affected by construction activities [RR-037].	As the Applicant outlines in its Comments on Relevant Representations, at row 4 of Table 28 (ExA.RR.D0.V1, AS-024), and also in the Applicant's Response to Open Floor Hearing (ExA.OFH1.D1.V1, REP1-036) wider benefits associated with the Project include opportunities for the local population across Norfolk in areas such as jobs, skills and employment. The	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			Applicant has committed to producing a Skills and Employment Strategy which is secured through Requirement 33 of the dDCO and an outline Skills and Employment Strategy (document 8.22, APP-713) has been produced and submitted as part of the DCO application. From January 2017, extensive work has been undertaken by the Applicant to understand and contribute, where appropriate, to existing skills, training and education initiatives. The Applicant is working with education skills providers in the area (including the local authorities, NALEP, EEEGR) to develop an appropriate skills strategy, which will facilitate direct employment in the offshore wind industry and in its supply chain. The Applicant has been engaging with the potential local supply chain since Spring 2018. In September 2018, the Applicant held a successful stakeholder event which brought together stakeholders from the local authorities, business support organisations and skills providers to discuss how Vattenfall could promote the local supply chain capitalising on the opportunities that offshore wind will present in the East Anglia NALEP area. Work is ongoing to support the local supply chain to maximise the benefits that offshore wind will bring to the area. Only mitigation which addresses impacts directly associated with the Project should be considered in the planning and DCO process. The Applicant is and continues to address wider community benefit, however this will be undertaken separately and outside of the DCO process. Specific landowner compensation amounts will be addressed as part of the commercial agreements that the Applicant will negotiate with landowners. All claims in relation to reduction in value to property will be assessed in line with the Compensation Code. A useful set of Government guidance booklets set out the basics of the Code: https://www.gov.uk/government/collections/compulsory-purchase-system-guidance	
Q5.8.1	Necton Parish Council	Comment on Norfolk County Council's suggestion that funds could be made available for the benefit of the resident and business communities affected by construction activities [RR-037].	Necton Parish Council believe that compensation as a percentage of the project cost should be made available as grant money for green-only projects tied to geographical areas affected by both construction and on-going visual or other effects. For instance, this would allow additional mitigation planting to be done where a case is made by the Parish Council or other residents. It should be borne in mind that Necton will have long term permanent effects from this project when almost all other areas will only suffer transient effects.	The Applicant has responded to this question as part of Norfolk Boreas Responses to the Examining Authority's Written Questions (document reference ExA.WQ-1.D2.V1 / REP2-021) and the following topics are covered in the Applicant's full response: • Wider benefits associated with the Norfolk Boreas project; • The commitment to a Skills and Employment Strategy secured through Requirement 33 of the dDCO; • Engagement with education skills providers in the area (including the local authorities, NALEP, EEEGR) to develop an appropriate skills strategy, which will facilitate direct employment in the offshore wind industry and in its supply chain; • Engagement with the local supply chain; • The need to keep wider community benefit separate from the DCO process; and Landowner compensation measures.
Q5.8.2	The Applicant	Provide update on discussions regarding Protective Provisions, including with Cadent Gas Limited, National Grid and the EA.	The Applicant has responded to this question in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 /REP1-041. Since the response submitted at Deadline 1, the Applicant can confirm that it is continuing to engage with these statutory undertakers.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q5.8.3	The Applicant	How should the Informative Note requested by The Coal Authority [RR-005] be addressed in the dDCO?	The Applicant has responded to this question in its Written Summary of the Applicant's Oral Case at Issue Specific Hearing 1 and the Applicant refers the ExA to document reference ExA.ISH1.D1.V1 /REP1-041. The Applicant can also confirm that the updated version of the OCoCP (document reference 8.1 / REP1-018) submitted at Deadline 1 incorporates the Informative Note from the Coal Authority, and that the Coal Authority has confirmed that this is acceptable to them.	
Q5.8.4	The Applicant	**Disapplication of legislation relevant to the Environment Agency:** The Applicant to comment on the following statement in the SoCG with the Environment Agency [AS-026]: "The Applicant seeks to disapply various pieces of legislation. We are currently considering our position in relation to the legislation which is relevant to the Environment Agency. However, the draft protective provisions contained within part 7 of Schedule 17 of the draft DCO [AS-019] do not correspond with the latest version of the Environment Agency's model protective provisions."	The Environment Agency and drainage authorities have the benefit of protective provisions at Part 7 as a result of the disapplication of certain legislative provisions (Article 7 - Application and modification of legislative provisions) in relation to works within watercourses. The wording within Part 7 of Schedule 17 has precedent from The Triton Knoll Electrical System Order 2016. The Applicant does, however, note the Environment Agency's comment in the Statement of Common Ground [AS-026] and the Applicant has engaged with the Environment Agency accordingly. The Applicant has recently received further comments and/or drafting amendments on the protective provisions from the Environment Agency and is currently considering these.	
Q5.8.4	The Environment Agency	**Disapplication of legislation relevant to the Environment Agency:** The Applicant to comment on the following statement in the SoCG with the Environment Agency [AS-026]: "The Applicant seeks to disapply various pieces of legislation. We are currently considering our position in relation to the legislation which is relevant to the Environment Agency. However, the draft protective provisions contained within part 7 of Schedule 17 of the draft DCO [AS-019] do not correspond with the latest version of the Environment Agency's model protective provisions."	Please note that since the Relevant Representations were submitted the Applicant has been in contact with the Environment Agency. We have set out our position regarding the draft Protective Provisions. We have advised that it would be helpful to revise the description of the Environment Agency as a 'drainage authority' to draw a distinction between the Environment Agency and other drainage authorities as recent experience has shown that this can potentially cause confusion about our powers and responsibilities. We have also advised 'main river' should be defined.	The Applicant notes this response and the Applicant is considering the Environment Agency's proposed changes further.

6 Fishing

6.0 Fishing

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q6.0.2	Eastern Inshore Fisheries Conservation Association	**Potential impact of development on inshore fisheries and fishing:** Comment on the Applicant's responses [AS-024] to Relevant Representation [RR-091] in regard to the following issues: 1. Impacts of pile-driving: effect on sandbanks and marine mammal populations affecting fishing gear. 2. Cable installation: sedimentation effects on shrimp population affecting inshore fisheries of bottom-feeding fish, crab and lobster. 3. Increased marine traffic: effects of windfarm service vessel traffic on fishing gear and safety of fishing vessels.	1. Impacts of pile-driving: effect on sandbanks and marine mammal populations affecting fishing gear Impacts of pile driving on fish stocks Eastern IFCA were not previously aware of the anecdotal evidence on pile driving causing mass mortality of fish after the construction of Scroby Sands Offshore Windfarm. Although the pile-driving will occur outside of the Eastern IFCA district, potential impacts on sandbanks and fish are still of concern to us. In a very brief literature search, we found that there are studies from Govoni et al. (2008)1 and Booman et al. (1996)2 that showed that exposure to loud impulse sounds can cause mortality and injuries in fish larvae, however a more recent study undertaken by Bolle et al. (2014)3 found no statistically significant differences in mean mortality between control and exposure groups of all life stages of common sole, European sea bass and herring, when exposed to reproduced pile-driving sounds. We did not find any single consensus on the impacts of pile-driving and would recommend that advice is sought from the Centre for the Environment, Fisheries and Aquaculture Science (Cefas). In particular, we would recommend seeking advice on the consensus at Cefas on the impacts of pile driving on fish stocks, and advice on whether, given the amount of offshore wind farms there are proposed and in operation in the southern North Sea, there is any cause for concern for fish populations or for geographically limited fisheries (if increased local mortality occurs). We recognise that the Applicant has highlighted that, "given the offshore location of the Norfolk Boreas site there is no potential for underwater noise associated with piling at the project to result in lethal/sub-lethal impacts on fish and shellfish in the areas targeted by Caister fishermen". Eastern IFCA would like to highlight that the concern raised in RR-091 is legitimate regardless of location, and that if pile-driving increased fish mortality the impacts would not be constrained to the location of impact origin. Sandbank formation Eastern IFCA are aware of the sandbank south of Scroby Sands offshore wind farm, which has formed since the construction of Scroby Sands and now provides haul-out habitat for large numbers of grey seals (anecdotal evidence suggests there may be up to 4,000 seals that use the sandbank to haul out). We note that the Applicants response to RR-091 refers to the conclusions of Chapter 8 of the Environmental Statement having identified no or negligible impacts on tidal, wave and sedimentary regimes. Eastern IFCA do not have expertise in sediment dynamics and therefore cannot advise on the subject. If more information is required, we would recommend seeking advice from the relevant statutory body on the matter. A non-technical comparison of the factors influencing sedimentary regimes at Norfolk Boreas compared to at Scroby Sands may be beneficial to engaging with local stakeholders who have been negatively impacted by increased seal predation resulting from sand bank formation in the past.	**1. Impacts of pile-driving, effect on sandbanks and marine mammal populations affecting fishing gear** Impacts of pile driving on fish stocks: ES Chapter 11 Fish and Shellfish Ecology (Document reference 6.1.11 , APP 224a) provides a detailed assessment of the potential impact of piling noise on fish and shellfish receptors based on the outputs of underwater noise modelling undertaken in support of the project. As agreed with Cefas during the Expert Topic Group Meeting in February 2019, the approach to the assessment of piling noise on fish and shellfish follows best practice and is appropriate. The assessment did not identify potential for significant impacts (i.e. above minor significance) on fish and shellfish (including eggs and larvae). This applies to the assessment of the project alone as well as the cumulative assessment. The Applicant notes that as described in Chapter 11 Fish and Shellfish Ecology noise levels at which mortality/recoverable injury could potentially occur would be confined to the immediate proximity of the piling operations. In addition, a soft start and ramp up protocol would be used for pile driving. This would enable mobile species to move away from the area of highest noise impact during foundation installation. Sandbank formation A detailed assessment of the potential impacts of the project on marine geology, oceanography and physical processes is provided in Chapter 8 of the ES (Document reference 6.1.8, APP-221). Amongst other aspects this considered potential for changes in seabed level during construction as well as changes to the tidal, wave and sediment regimes and potential loss of seabed morphology during operation. In all cases the assessment identified the potential impacts to be of negligible significance. This applied to both the assessment of the project alone and cumulatively with other plans and projects. The suitability of the findings of the assessment presented in Chapter 8 has been agreed with the Marine Management Organisation (MMO) in the Statement of Common Ground (Document reference ExA.SoCG-10.D2.V2, REP2-051). Impacts on increased seal population on fishing gear As noted above, the potential impacts of Norfolk Boreas with regards to marine geology, oceanography and physical processes have been assessed to be of negligible significance. It is therefore not anticipated that the construction and operation of Norfolk Boreas may contribute to increased conflict between seals and fishing gear (i.e. by providing additional haul out habitat to seals as a result of new sandbank formation). **2. Cable installation: sedimentation effects on shrimp population affecting inshore fisheries of bottom-feeding fish, crab and lobster.**

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			Impacts of increased seal populations on fishing gear With regards to the impact of seals on fishing gear, we are aware that there has been an increased impact on netting fishery operations as a direct result of increased seal predation. Cefas are currently undertaking work to investigate the impact of seals on commercial fishing, which is recognised by Defra as a serious issue in some fisheries. If more information on the impacts of seals on fishing gear is required, we would recommend seeking this from Cefas. 2. Cable installation: sedimentation effects on shrimp population affecting inshore fisheries of bottom-feeding fish, crab and lobster We recognise there will be considerable disturbance of seabed sediments, transport of sediment and re-deposition, as a result of cable installation. We would expect that shellfish would be more vulnerable than finfish to the effects of cable installation and sedimentation, simply due to their lower mobility. Again, Eastern IFCA defer to Cefas for information and advice on potential for these effects to impact on local populations of shrimp, bottom-feeding fish, crabs and lobster. With regards to contaminated sediment, we recognise that the information presented to support the HRA relating to sediment contamination shows very low levels of contaminants in the export cable corridor, with most sample stations well below Cefas Action Level 1, the threshold for values to be considered of concern. Two stations supported sediment with arsenic levels greater than Cefas Action Level 1 but less than Action Level 2. This evidence suggests it is unlikely for contaminated sediments to impact on fish and fisheries, as mentioned by the Applicant in their response to RR091. It may be worthwhile for the Applicant to provide a slightly more detailed nontechnical summary on the sediment chemistry to reassure concerned stakeholders of the scientific evidence on which their conclusions are based, either in writing or in person. Eastern IFCA do not have any particular concerns relating to sediment chemistry, however as with all grab sampling data, it is important to note the data can only be used to identify levels at specific locations and to infer and model contaminants between stations. The results do not necessarily preclude the possibility that there are contaminated sediments elsewhere in the offshore cable corridor. 3. Increased marine traffic: effects of windfarm service vessel traffic on fishing gear and safety of fishing vessels Inshore fisheries are characterised by small (mostly under 10 metres) vessels that operate within a short range from launch sites, with a highly limited ability to diversify in terms of both the areas fished and species targeted. Because of this, displacement (for example due to increased vessel traffic making an area unsuitable to fish) can have a disproportionately large impact on inshore fishery stakeholders. The area in question is fished by a low number of small boats, who predominantly pot for whelks and net for herring, generally in the grounds highlighted by Caister Inshore Fishermen's Association during consultation. We would however highlight that we are also aware of a small number of nomadic beam-trawlers who fish for brown shrimp in the area, and of low levels of potting (primarily for whelks but also potentially for crabs and lobsters) outside of the area highlighted by the Caister Inshore Fishermen's Association.	A detailed assessment of the potential impacts of increased suspended sediment concentrations (SSCs) and deposition on fish and shellfish associated with construction activities, including cable installation, was presented in ES Chapter 11 Fish and Shellfish Ecology. This took account of the findings of ES Chapter 8 Marine Geology, Oceanography and Physical Processes (Document reference 6.1.8, APP-221) which identified that sediment would rapidly fall to the seabed and any impacts would be small scale and short lived. Considering the localised and short- term nature of the potential effects, no significant impacts (i.e. above minor significance) were identified on fish and shellfish receptors in Chapter 11. This is in line with the feedback provided by the MMO in the SoCG (Document reference ExA.SoCG-10.D2.V2, REP2-051) that given the anticipated levels of SSCs associated with construction activities (outlined in Chapter 8), significant impacts on fish and shellfish should not be expected. With regards to contaminated sediment, the Applicant notes that as outlined in the SoCG with the MMO, the suitability of the survey data used to characterise the baseline with regards to marine water and sediment quality and used to inform the assessment presented was agreed with the MMO on 19th December 2017 by email (Document reference ExA.SoCG-10.D2.V2, REP2-051). **3. Increased marine traffic: effects of windfarm service vessel traffic on fishing gear and safety of fishing vessels.** In order to facilitate co-existence and avoiding and reducing potential impacts to the fishing industry, in addition to the implementation of appropriate liaison and communication with the fishing industry, the Applicant will develop a range of procedures which will evolve through discussions with fisheries stakeholders and as construction plans for Norfolk Boreas become better defined. As described in the outline Fisheries Liaison and Coexistence Plan (FLCP) , document reference 8.19, APP-710, these are anticipated to include various aspects of relevance to minimising potential interactions between project vessels and commercial fishing vessels and fishing gear, including but not limited to: • The development of a code of good practice for contracted vessels; • The development of a fisheries guidance document to reduce interaction with fishing activity and provide response procedures; • The provision of procedures for the safe recovery of lost or snagged gear; and • The development of a procedure for claims for loss of damage of fishing gear. The Applicant notes that the production of a FLCP post-consent is already secured under the draft DCO within Condition 14(1)(d) (Schedule 9-10), Condition 9(1)(d) (Schedule 11-12) and Condition 7(1)(d) (Schedule 13).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			We appreciate the Applicant's comments that appropriate liaison will be undertaken with fishery stakeholders to ensure they are informed of the project activities, including provisions ensuring maintenance vessels are aware of the location of static fishing gear and ensuring that fishing vessels are aware of the transit routes that will be used by construction and maintenance vessels. Eastern IFCA highlight the need for effective communication between developers and the fishing industry to all Applicants seeking to undertake projects in the North Sea. This needs to be a strong commitment that is upheld by the Applicant and any contractors if the proposal is accepted. Ideally, it would be an enforceable condition of the marine licence. The Caister Inshore Fishermen's Association highlighted that they have in the past had windfarm vessels that have not used designated shipping lanes, and as a result they have lost gear and had near collisions. Vessels actively fishing have limited manoeuvrability, and while the likelihood of a collision in the area may be relatively low, the consequences of a collision could be loss of life. It is important that commitments relating to navigational conflict and maritime safety are not overlooked during construction and operation and that their importance is not understated. 1Govoni, J.J., West, M.A., Settle, L.R., Lynch R.T., Greene, M.D., 2008. Effects of underwater explosions on larval fish: Implications for a coastal engineering project. Journal of Coastal Research, 24: 228 - 233. 2This report is written in Dutch and our summary of its findings are based on a review of the paper's conclusions in Bolle et al. (2014). - Booman, C., Dalen, J., Leivestad, H., Levsen, A., van der Meeren, T. and Toklum, K., 1996. Effekter av luftkanonskyting på egg, larver og yngel. Undersøkelser ved Havforskningsinstituttet og Zoologisk laboratorium, UIB. 3Bolle, L.J., Jong, C.D., Blom, E., Wessels, P.W., van Damme, C.J. and Winter, H.V., 2014. Effect of pile-driving sound on the survival of fish larvae (No. C182/14). Institute for Marine Resources and Ecosystem Studies	

7 Grid connection

7.0 Grid Connection

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q7.0.1	The Applicant	**HVDC electrical solutions** ES Chapter 5 [APP-218, paragraph 166 and 167] explains that three High Voltage Direct Current (HVDC) electrical solutions are being considered., and also another solution that is a variation of solution (c). Provide further information on the specification of the offshore electrical platform solution (c), in order to provide further assurances that it would be within the design envelope assessed.	The Applicant can confirm that there would be no difference in the infrastructure installed by the Norfolk Boreas project under electrical solution c) or the electrical solution c) variant. The variant to electrical solution c) would result in the addition of a platform constructed by the Norfolk Vanguard project within the Norfolk Vanguard site. The applicant can confirm that the additional platform installed by the Norfolk Vanguard project would be within the design envelope for that project as the design envelope includes up to two electrical platforms. Therefore, under electrical solution c) and the electrical solution c) variant, the Norfolk Boreas project would install: • 1 electrical platform; • 1 pair of DC project interconnector cables connecting the electrical platform in Norfolk Boreas with an electrical platform in Norfolk Vanguard West; • 1 AC project interconnector cable connecting the electrical platform in Norfolk Boreas with an electrical platform in Norfolk Vanguard West. • 1 pair of DC export cables connecting the electrical platform within the Norfolk Boreas site to landfall at Happisburgh South. This is included within the design envelope and has been assessed within the EIA.	
Q7.0.4	North Norfolk District Council	**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?	NNDC notes the position of various parties in relation to an Offshore Ring Main. NNDC recognises the concerns from residents and businesses within North Norfolk about the potential impacts resulting from the construction phase of multiple NSIP projects affecting the same communities. Projects affecting North Norfolk include: • Sheringham Shoal (constructed) • Dudgeon (constructed) • Ørsted Hornsea Project Three (awaiting SoS approval) • Vattenfall Vanguard (awaiting SoS approval) • Vattenfall Boreas (in examination) • Equinor – Extensions to Sheringham Shoal and Dudgoen (Scoping stage) In the absence of a coordinated UK Strategic Plan in relation to the connection of offshore wind farms to onshore electricity infrastructure, projects are working in isolation and this means that onshore cable routes that could be shared are not being shared. NNDC would welcome a more coordinated approach in relation to offshore wind so that the transition in helping decarbonise the UK's energy sector can be made without causing significant medium/long-term detriment to affected communities. Whilst an Offshore Ring Main is one way to take forward a more coordinated approach, it may not be the only option and, at this stage, no specific details of what this approach would look like have been discussed or debated with affected communities. This discussion is important in order to understand and assess whether an offshore ring main can deliver potential public benefits, to understand what any project would entail and to understand whether this is a viable proposition in the national interest. Meanwhile, there are currently three of the world's largest offshore windfarm NSIP proposals affecting North Norfolk that have been or are going through the examination process awaiting a Secretary of State decision with further	The Applicant's position in relation to an ORM is unchanged from that which was presented in the Applicant's Comments on Relevant Representations [AS-024, Table 28] and further explained in The Applicant's response to the Open Floor Hearing [REP1-036]. North Norfolk raises concerns that delaying projects currently in examination may be incompatible with the UK's commitment towards 'net zero' greenhouse gases and that any significant delay would also undermine the Climate Change Committee's recommendation in its Net Zero Report that the UK pursue a large increase in offshore wind. The Applicant agrees with these points and, as set out in the Applicant's previous submissions, the Applicant's project is currently at an advanced stage in the consenting process and must work within the constraints of the current regulatory framework in order to deliver the project.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			schemes in the pipeline. These three schemes alone would, once built, provide enough electricity combined to power in excess of 4.5 million homes (more than 15% of total UK households). Delaying these projects indefinitely until a coordinated UK Strategic Plan is in place may not be compatible with UK's commitment towards 'net zero' greenhouse gases to be delivered by 2050 through the duty in section 1(1) of the Climate Change Act (as amended by the Climate Change Act 2008 (2050 Target Amendment) Order 2019). Significant delay would also undermine the Climate Change Committee's recommendation in its Net Zero Report that the UK pursue a large increase in offshore wind (May 2019). Given its Declaration of a Climate Emergency in April 2019, NNDC fully recognises the weight that should be afforded to renewable energy proposals that can help the UK towards addressing impacts of climate change. Whilst NNDC would have genuine concerns that significant delays to the determination of NSIP projects, whilst the feasibility of an offshore ring main is explored, may not be considered in the longer term national interest, it has to offset those concerns against genuine local concerns in relation to highways and tourism impacts during extended phases of construction. NNDC will explore the options available in pursuing a UK Strategic Plan for offshore wind and renewable energy post the general election on 12 Dec 2019. NNDC will update the ExA should its position on this matter substantially change.	
Q7.0.4	Cawston Parish Council	**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?	Cawston Parish Council has been working closely with other Parish Councils to support proposals for an Offshore Ring Main as an alternative to the unnecessary environmental destruction associated with uncoordinated development of onshore cable routes. We understand that Oulton PC will be making a detailed submission at this time and we do not want to duplicate that material here.	The Applicant notes Cawston Parish council's support of the Offshore Ring Main concept. However, the Applicant's position remains unchanged from that which was presented in the Applicant's Comments on Relevant Representations [AS-024, Table 28] and The Applicant's response to the Open Floor Hearing [REP1-036].

8 Habitats Regulation Assessment

8.0 Habitats Regulation Assessment

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.0.1	The Applicant	**Screening and Integrity Matrices** A number of discrepancies have been identified between the features identified in the Applicant's matrices and NE's conservation objectives/the Ramsar Information Sheets. The Applicant is requested to perform an audit of its integrity and screening matrices to ensure the correct qualifying features/Ramsar criterion have been identified. Revised matrices, including the revised assessments that are proposed to be submitted by the Applicant, should be submitted where appropriate.	The Applicant has reviewed the features listed for English sites which are designated as both Special Protection Areas (SPAs) and Ramsar sites. The features listed for these designated sites in the screening and integrity matrices (APP-204 and APP-205) were identified through a review of data listed on the Joint Nature Conservation Committee (JNCC) website, however there appear to be some discrepancies between these data and those on the Natural England website (and the links to Ramsar information provided on the Natural England website) which resulted in the discrepancies identified by the Examining Authority. The Applicant has undertaken a review of the matrices using the Natural England information and the updated screening and integrity matrices will be submitted at a future deadline. The Applicant can confirm that following this review no additional Habitats Regulations Assessments were required for any designated feature for SPA or Ramsar sites.	
Q8.0.2	Natural England	**Screening and Integrity Matrices** The Applicant [APP-201, AS-003, AS-004] has provided revised screening and integrity matrices for North Norfolk Coast SPA/Ramsar site, Broadland SPA/Ramsar site and Breydon Water SPA/Ramsar site which now include the potential effects of collision risk to non-seabird migrants. Does NE agree with the Applicant's conclusions in relation to these European sites?	NE to provide response to updated screening and matrices for Deadline 4. AS-003 Natural England welcomes that North Norfolk Coast SPA/Ramsar Broadland SPA/ Ramsar and Breydon Water have been screened in for collision risk on non-seabird migrants. For the Broadland SPA/Ramsar site we raised in our Relevant Representation **[RR-099]** that due to lack of onshore ornithology data and linkages to agricultural patterns direct effects on ex situ habitats or Functionally Linked Land, may occur. The Applicant during Vanguard submitted a Clarification Note with mitigation, therefore suggest that direct effects on ex situ habitats should have been screened in for this site. The Applicant has agreed that Clarification Notes as submitted for Vanguard will be submitted to ExA as part of Boreas Examination.	Noted. The Applicant submitted the Norfolk Vanguard Onshore Clarification Notes on the 4th November 2019 as Appendix 2 of the Comments on Relevant Representations Appendices (AS-025); this included the Clarification Note on Bat Impact Assessment. However, the Applicant welcomes Natural England's agreement that the appropriate SPAs have been screened into the assessment. The Applicant will continue to engage with Natural England throughout the Examination with respect to the assessment in order to provide further information as requested.
Q8.0.3	The Applicant	**Screening Matrices** How have in-combination effects been assessed by the Applicant at screening stage?	The HRA assessment considers both effects from the project alone and in combination with other projects. Other plans and projects included in the in-combination assessment were based on: • Approved plans; • Constructed projects; • Approved but as yet unconstructed projects; and • Projects for which an application has been made, are currently under consideration and will be consented before the Norfolk Boreas consent decision. The classes of projects that could potentially contribute to LSE which were considered for the in-combination assessment offshore included: • Offshore wind farms; • Marine renewables (wave and tidal); • Harbour and port developments; • Marine aggregate extraction and dredging; • Licensed disposal sites; • Oil and gas exploration and extraction; • Subsea cables and pipelines; • Commercial marine fishing activity; • Recreational marine fishing activity; and • Onshore major residential, commercial and industrial development. And for those onshore included: • Construction or improvement of highways or roads; • Cycle tracks and other ancillary works;	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			• Other major transport works; • Generating station development; • Above ground electrical line installation; • Pipeline development; • Water operations (abstraction or impounding); and • Major residential or commercial development. The Applicant has taken a precautionary but proportionate approach to screening and therefore, if there was any uncertainty as to whether the project could have any effect on a European or Ramsar site then these were screened in. Under this precautionary approach if it was determined that there was no connectivity or pathway for the project alone to have an effect on a European or Ramsar site then it was reasoned that there would also be no potential for the project to have an in-combination effect on that European or Ramsar site. During stage 2 a full in-combination assessment was completed and further information can found within the Information to support HRA Assessment (document reference 5.3, APP-201). The Applicant consulted with stakeholders on the results of screening at the PEIR stage and through the Evidence Plan process (including with Natural England in April 2019), and there were no sites put forward at that stage which are not included within the Screening matrices (REP1-012).	
Q8.0.4	The Applicant	**Conservation objectives** Can the Applicant provide the Conservation Objectives for Outer Thames Estuary SPA, Breydon Water SPA and Ramsar, Broadland SPA and Ramsar, North Norfolk Coast SPA and Ramsar or signpost to where these are provided in the application documents?	The Conservation Objectives for these SPAs have been downloaded from the Natural England website (https://designatedsites.naturalengland.org.uk/) and are provided in Appendix 8.1 of this document.	
Q8.0.5	The Applicant	**Mitigation** In several areas in the HRA Report, the Applicant has relied upon mitigation to exclude a likely significant effect e.g. trenchless crossing of the River Wensum and lethal effects and permanent auditory injury to harbour porpoise from piling. Can NE comment on whether it considers this interpretation to be consistent with the People Over Wind judgement?	In Case 323/17 People over Wind and Peter Sweetman v Coillte Teoranta, the Court of Justice of the European Union ruled that where a developer has screened out the need for Appropriate Assessment of a SAC or SPA on the grounds that a significant effect is unlikely, the proposed mitigation measures must not be a factor in this decision. The Court interpreted mitigation as "measures that are intended to avoid or reduce the harmful effects of the envisaged project on the site concerned". The Court also stated that, "A full and precise analysis of the measures capable of avoiding or reducing any significant effects on the site concerned must be carried out not at the screening stage but specifically at the stage of the Appropriate Assessment". (i) Trenchless crossing (Appendix 5.2, paragraph 123) [APP-203] Paragraph 123 of Appendix 5.2 Habitats Regulations Assessment (HRA) onshore screening [APP-203] states: "the River Wensum is located in the onshore project area. The onshore cable corridor crosses the River Wensum at Elsing. As part of the embedded mitigation for the project, a trenchless technique (e.g. HDD) will be used when crossing the River Wensum. This technique will ensure that there are no direct effects upon any of the qualifying features of the SAC within the site boundary and therefore potential direct effects upon the SAC boundary are screened out from any further assessment." The trenchless techniques are inherent features of the onshore transmission works as set out in requirement 16(13). (ii) Mitigation for noise effects from piling (Appendix 5.2 Habitats Regulations	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			Assessment (HRA) Offshore Screening [APP-202] Paragraph 123 of Appendix 5.2 Habitats Regulations Assessment (HRA) Offshore Screening [APP-202] states: "Marine Mammal Mitigation Plans (MMMPs) for UXO and piling will be produced post-consent in consultation with relevant stakeholders and will be based on the latest scientific understanding, guidance and detailed project design. A draft MMMP for piling has been included with the DCO application (document 8.13). The MMMPs will contain adequate and effective mitigation measures that will reduce the risk of permanent auditory injury (Permanent Threshold Shift (PTS)) to harbour porpoise as a result of underwater noise. The commitment to the MMMP reduces the risk of permanent auditory (PTS) injury. The HRA will assess the potential effects of any permanent auditory (PTS) injury, taking into account embedded mitigation and the MMMPs."	
Q8.0.5	Natural England	**Mitigation** In several areas in the HRA Report, the Applicant has relied upon mitigation to exclude a likely significant effect e.g. trenchless crossing of the River Wensum and lethal effects and permanent auditory injury to harbour porpoise from piling. Can NE comment on whether it considers this interpretation to be consistent with the People Over Wind judgement?	According to the People over wind Judgement measures intended to avoid or reduce harmful effects, generally referred to as 'mitigation measures' cannot be taken into account when deciding whether a plan or project is likely to have a significant effect on a European site. Rather, a competent authority must take account of measures intended to avoid or reduce the harmful effects of a plan or project as part of the appropriate assessment. Only then can a conclusion be drawn as to whether the plan or project will have an adverse effect on the integrity of the site. Where mitigation is relied on to remove impact these sites should be assessed within the AA.	The Applicant provided a response to this written question at deadline 2 [REP2-021] see above. At the time of HRA screening, certain elements were already included within the project design due to a number of design principles, for example the commitment had been made to use trenchless crossing techniques to cross the River Wensum. Therefore, this was considered to be mitigation by design and not additional mitigation measures to reduce harmful effects. With regards to lethal effects and permanent auditory injury to harbour porpoise. The use of a MMMP to ensure that best practice and best available measures are used to mitigate impacts of piling had also already been committed to and would be used to mitigate any impacts on all cetacean species whether they were a designated feature of a SAC or not. Therefore, this is also not considered to be additional mitigation measures to reduce harmful effects. The final MMMP will contain the detail of specific measures agreed with the MMO in consultation with the relevant SNCBs. However, it should be noted that the River Wensum SAC was screened into the HRA for assessment. In addition, all sites that were screened out for harbour porpoise were done so due to significant distances between the Norfolk Boreas site and any SAC designated for that species. Therefore, the MMMP was not used as a mechanism for screening out likely significant effects. The Applicant and Natural England are in agreement on the list of sites that have been screened into the HRA.
Q8.0.6	Natural England	**Cumulative/in-combination assessments for Fishing** In its RR [RR-040] TWT states that fishing has not been included in any cumulative/incombination assessments within any chapters of the Norfolk Boreas application. As a principle, TWT considers fishing should not be considered in any assessments as part of the baseline. What is NEs view?	Natural England Relevant Representation to Hornsea 3 stated: Where there is ongoing fishing activity in the site it is important that the impacts of the activity are captured within the assessment in the context of the conservation objectives of the affected designated site(s). This assessment will likely take place as part of the baseline characterisation of the development area, however, as fishing activity is mobile, variable and subject to change, there may be instances whereby fishing impacts are not adequately captured in the baseline characterisation and therefore may need to be considered as part of the in-combination assessment. This could be due to a change in effort; change in management; or a change in legislation amongst other things, and fishery managers (i.e. MMO and IFCAs) would be best placed to advise on this. There may also be occasions whereby there are plans for new fisheries, or changes to existing fisheries which could be captured in-combination. Again the fishery managers would be able to advise on this.	The Applicant agrees with Natural England's conclusion in their answer to this question.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			In relation to the assessment of impacts on the SNS SCI, Natural England would consider that the impact of ongoing fishing activity in the context of the draft conservation objectives for the site, has been adequately captured for the purposes of the HRA. We are not currently aware of anything that would have significantly altered the levels of fishing activity within the site; any current plans for new fisheries, or changes to existing fisheries that have not been captured, but we would look to fisheries managers to advise more definitively on these points.	

8.1 Broadland SPA and Ramsar

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.1.1	The Applicant	**LSE** NE's RR [RR-099] advised that a LSE for Broadland SPA and Ramsar be screened in and the same mitigation commitments incorporated within the Boreas OLEMS as was proposed for Norfolk Vanguard. 1. The Applicant responded in [AS-024]. Is NE content with this explanation? 2. Can the Applicant also explain if/how avoidance and reduction measures proposed by NE are to be secured? 3. The Applicant is requested to ensure that the screening and integrity matrix are updated to reflect any changes that result from its responses to parts (i) and (ii).	2. The measures proposed by Natural England are now detailed in an updated version of the Outline Landscape and Ecological Management Strategy (REP1-020) submitted for Deadline 1. 3. As per the response provided to Q8.0.1, the screening and integrity matrices have been updated and, this includes addressing comments raised by Natural England in their RR and including Broadland SPA and Ramsar site in the integrity matrices.	
Q8.1.1	Natural England	**LSE** NE's RR [RR-099] advised that a LSE for Broadland SPA and Ramsar be screened in and the same mitigation commitments incorporated within the Boreas OLEMS as was proposed for Norfolk Vanguard. 1. The Applicant responded in [AS-024]. Is NE content with this explanation? 2. Can the Applicant also explain if/how avoidance and reduction measures proposed by NE are to be secured? 3. The Applicant is requested to ensure that the screening and integrity matrix are updated to reflect any changes that result from its responses to parts (i) and (ii).	Topic 17. Applicant has agreed to incorporate the mitigation for Broadland SPA, as agreed for Vanguard within the OLEMS. Applicant has submitted 8.7 Outline Landscape and Ecological Management Strategy (Version 2) (Tracked Changes) at Deadline 1. Natural England will provide comment for Deadline 3. NE were content with the mitigation as incorporated for Vanguard.	Noted and the measures proposed by Natural England are now detailed in an updated version of the Outline Landscape and Ecological Management Strategy (REP1-020) submitted for Deadline 1.

8.2 River Wensum SAC

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.2.1	Natural England	**Air Quality** In light of the People Over Wind Judgement, and NE's RR [RR-099] which states that mitigation is necessary to reduce air quality impacts to River Wensum SAC, can NE confirm which features of the River Wensum SAC are susceptible to changes in AQ and whether they are likely to experience LSE as a result of the proposed development?	Water courses of plain to montane levels with Ranunculion and Callitricho-Batrachion vegetation, white clawed crayfish, brook lamprey and bullhead may all be sensitive to Nitrogen levels. The Supplementary Advice on Conservation Objectives SACO for River Wensum includes an aim regarding air quality to Restore, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System.	An assessment of the potential impacts of increases in nutrient nitrogen deposition arising from increases in road traffic during construction upon sensitive habitats and species which are qualifying features designated sites is detailed in ES Chapter 26 Air Quality (APP-239) and in Section 22.7.5.1 of ES Chapter 22 Onshore Ecology (APP-235). Cumulative air quality effects, which considered traffic flows from construction of Hornsea Project Three, upon designated sites are detailed in Section 22.8.1.1 of Chapter 22 Onshore Ecology (APP-235), and Section 26.8.1.2 of Chapter 26 Air Quality (APP-239). The assessment concludes the impact is not significant and as such no mitigation is required.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			The River Wensum SSSI Fen, marsh and swamp habitat is sensitive to Nitrogen deposition. The River Wensum SSSI is un unfavourable conservation status at this point for among other reasons water pollution and discharge. The Applicant has since assured Natural England the air quality impacts from traffic at the end of examination of Vanguard, in combination with other plans and projects, was still below the minor impact effect screening threshold level. The Applicant has agreed (21.10.19) to include designated sites in the Traffic Plan, so that any potential impacts to designated sites are considered. If air quality impacts from traffic are below minor impact thresholds based on the final traffic numbers as agreed at the end of the Boreas examination (NE are not consulted on Traffic Plans) in combination with other plans and projects then mitigation will not be necessary. However if the project will contribute in combination with other projects on sites which are already in unfavourable condition then there may be a LSE and an AA should be undertaken.	
Q8.2.2	Environment Agency	**Air Quality** With regard to air quality impacts to protected sites; are NE and EA content with the Applicant's response to NE's concerns (Table 17 of [AS-024]) regarding no mitigation at designated sites?	Please note that the Environment Agency is not the Competent Authority in respect of air quality for construction activity. The Local Authority is the Competent Authority to advise on impacts on air quality in respect of vehicle movements etc. The Environment Agency's authority is in respect of air quality principally relates to impacts related to Environmental Permitting Regulations and specified installations that are subject to them.	Noted.
Q8.2.2	Natural England	**Air Quality** With regard to air quality impacts to protected sites; are NE and EA content with the Applicant's response to NE's concerns (Table 17 of [AS-024]) regarding no mitigation at designated sites?	NE understands that there will be dust management measures put in place. Please see comments above with regards mitigation.	Noted.
Q8.2.3	The Applicant	**Drilling fluid breakout contingency** NE [RR-099] has requested HDD methodology be presented and the potential effects of drilling fluid break out on designated sites and species be assessed. Specifically, it states there is insufficient information on HDD tolerance monitoring, how quickly bentonite release can be stopped or an assessment of a worst-case scenario. It also states that conservation objectives require supporting processes to be maintained. The Applicant in its response [AS-024] states that it has agreed to produce a clarification note for Natural England, when will this note be available to the examination?	The Applicant has provided the 'Clarification Note Trenchless Crossings and Potential Effects of Breakout on the River Wensum' at Deadline 1 (RE1-039) to address the concerns raised by Natural England with regards to the drilling fluid breakout.	
Q8.2.3	Natural England	**Drilling fluid breakout contingency** NE [RR-099] has requested HDD methodology be presented and the potential effects of drilling fluid break out on designated sites and species be assessed. Specifically, it states there is insufficient information on HDD tolerance monitoring, how quickly bentonite release can be stopped or an assessment of a worst-case scenario. It also states that conservation objectives require supporting processes to be maintained. The Applicant in its	This has been provided by the Applicant Deadline 1 and Natural England will respond for Deadline 3.	Noted.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		response [AS-024] states that it has agreed to produce a clarification note for Natural England, when will this note be available to the examination?		

8.3 Norfolk Valley Fens SAC

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.3.1	The Applicant	**Narrow-mouthed whorl snail** The Applicant's screening matrix [AS-002] identifies a LSE for narrow-mouthed whorl snail for 'Indirect effects on ex-situ habitats functionally connected to the SAC'. However, this feature has not been identified in the integrity matrix nor has a LSE been identified in the HRA Report [APP-201]. The Applicant to clarify whether a LSE should have been identified and to provide revised matrices to clarify this discrepancy	This is an error with the updated screening matrices – narrow-mouthed whorl snail has been screened out of further assessment on the same basis as the Desmoulin's whorl snail (i.e. that it is not present within the five sites located within 5km of the onshore project area). No LSE has been identified for this feature. The matrices will be updated to correct this error (see response to Q8.0.1).	
Q8.3.2	The Applicant	**Semi-natural dry grassland and scrubland** The Applicant's screening matrix [AS-002] identifies a LSE for in-combination effects to semi-natural dry grassland and scrubland facies on calcareous substrates, however a LSE has not been identified for this feature in the HRA Report [APP-201]. The Applicant to clarify whether a LSE should have been identified and provide revised matrices to clarify this discrepancy. If there is a LSE, the Applicant is requested to provide information to inform an appropriate assessment.	This is an error with the updated screening matrices – Semi-natural dry grassland and scrubland has been screened out of further assessment on the same basis as the Desmoulin's whorl snail (i.e. that it is not present within the five sites located within 5km of the onshore project area). This conclusion applies to the possibility for in-combination effects as well. No LSE has been identified for this feature. The matrices will be updated to correct this error (see response to Q8.0.1).	

8.4 River Wensum SAC, Norfolk Valley Fens SAC and The Broads SAC

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.4.1	Natural England	**AEOI** NE has stated [RR-099] it cannot rule out an AEOI to River Wensum SAC, but does not make the same statement in relation to Norfolk Valley Fens SAC and the Broads SAC. However, it states there is insufficient detail in the CoCP for measures to safeguard all of these sites from bentonite breakout. Can NE therefore confirm its position in relation to AEOIs to all of these sites?	Natural England are content that given the location of HDD and distance to Norfolk Valley Fens and Broads SAC there is unlikely to be an AEoI from bentonite breakout, but until further information is provided we cannot rule out AEoI for HDD directly under the River Wensum.	Noted and the Applicant has provided further information in the Clarification Note Trenchless Crossings and Potential Effects of Breakout on the River Wensum (REP1-039), which is currently under review by Natural England, who have indicated that they will respond by Deadline 3.
Q8.4.2	The Applicant	**In-combination assessments** In-combination assessments for the River Wensum SAC, Norfolk Valley Fens SAC and The Broads SAC have not been undertaken as the Applicant considers there is no potential for AEOI to these sites and no real potential of an in-combination effect occurring with other plans or projects [APP-201]. However, the Applicant has acknowledged the potential for small effects from a number of	The general principle used to determine whether in-combination effects may occur in relation to a particular European site, as set out in Information to Support Habitat Regulations Assessment Report ('HRA Report') (APP-201) [para-1382], is that in order for Norfolk Boreas to be considered to have the potential to contribute to in-combination effects, there must be sufficient cause to consider that a relevant habitat or species is sensitive to effects due to the project itself (e.g. as a result of particular influence of sensitivity, or the presence of a species in notable numbers on at least one survey occasion, rather than simply being recorded within the site).	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		different projects to add up to an effect of greater magnitude in some of the HRA in-combination assessments e.g. Paston Great Barn SAC, HHW SAC, FFC SPA and Alde-Ore Estuary SPA. The Applicant is requested to provide greater justification for not undertake incombination effects for the River Wensum SAC, Norfolk Valley Fens SAC and The Broads SAC. Do any Interested Parties have comments on the in-combination assessments for these sites?	With the exception of Paston Great Barn SAC, for each of the other onshore European sites considered within the HRA Report (APP-201) the qualifying features screened in for further assessment were either: (i) found, following targeted survey work, not to be not present within the onshore project area (e.g. Desmoulin's whorl snail in River Wensum SAC), or (ii) identified as being not sensitive to effects brought about by the project (e.g. otter associated with The Broads SAC). For Paston Great Barn, the information presented within the HRA Report shows that for the qualifying feature, barbastelle bats, effects generated by the project alone are likely to give rise to an effect upon this qualifying feature, but that these effects are small-scale, temporary and which, with mitigation, are not anticipated to result in any potential for adverse effect upon site integrity upon the qualifying habitats and species of the Paston Great Barn SAC [paras-1403 and 1409]. Therefore, an in-combination assessment has been conducted to determine whether these small-scale effects become larger in scale following the development of other nearby plans or projects.	
Q8.4.2	Natural England	**In-combination assessments** In-combination assessments for the River Wensum SAC, Norfolk Valley Fens SAC and The Broads SAC have not been undertaken as the Applicant considers there is no potential for AEOI to these sites and no real potential of an in-combination effect occurring with other plans or projects [APP-201]. However, the Applicant has acknowledged the potential for small effects from a number of different projects to add up to an effect of greater magnitude in some of the HRA in-combination assessments e.g. Paston Great Barn SAC, HHW SAC, FFC SPA and Alde-Ore Estuary SPA. The Applicant is requested to provide greater justification for not undertake incombination effects for the River Wensum SAC, Norfolk Valley Fens SAC and The Broads SAC. Do any Interested Parties have comments on the in-combination assessments for these sites?	During the Vanguard examination Natural England requested further information on in combination effects of the cable route and Hornsea 3 cable route in proximity to Booton Common SSSI/Norfolk Valley Fen SAC. This was provided in a Clarification Note and hydrological impacts were screened out.	Noted. The Applicant submitted the Norfolk Vanguard Onshore Clarification Notes on the 4th November 2019 as Appendix 2 of the Comments on Relevant Representations Appendices (AS-025); this included the Clarification Note on Water Dependent Designated Sites; Booton Common SSSI/Norfolk Valley Fen SAC.
Q8.4.2	RSPB	**In-combination assessments** In-combination assessments for the River Wensum SAC, Norfolk Valley Fens SAC and The Broads SAC have not been undertaken as the Applicant considers there is no potential for AEOI to these sites and no real potential of an in-combination effect occurring with other plans or projects [APP-201]. However, the Applicant has acknowledged the potential for small effects from a number of different projects to add up to an effect of greater magnitude in some of the HRA in-combination assessments e.g. Paston Great Barn SAC, HHW SAC, FFC SPA and Alde-Ore Estuary SPA. The Applicant is requested to provide greater justification for not undertake incombination effects for the River Wensum SAC, Norfolk Valley Fens SAC and The Broads SAC. Do any Interested Parties have	The RSPB has no comments on this issue at this point in the examination, but supports the need to ensure all sites have been included in the screening stages of alone and in-combination assessments to ensure that all impacts are identified and all necessary mitigation measures are implemented. Where sites are in unfavourable condition it is imperative that potential impact pathways to them do not exacerbate the problems and, ideally, support measures to maintain and restore the sites. We will review any updated assessments and provide additional comments through the examination if required.	Noted.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		comments on the in-combination assessments for these sites?		

8.5 Haisborough, Hammond and Winterton SAC

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.5.1	The Applicant	**Seabed Material** The Applicant to confirm the mechanism through which the commitments proposed in Table 3 of [AS-024]) to ensure seabed material would be retained within the Haisborough, Hammond and Winterton SAC would be secured.	The Applicant can confirm that the commitments made in Table 3 row 4 of the Applicant's comments on Relevant Representations have been included within Version 2 of the Outline Haisborough Hammond and Winterton (HHW) SAC Site integrity plan (SIP) which was submitted at Deadline 1 (REP1-033). This document is secured in Condition 9(1)(m) of the Transmission DMLs (Schedules 11 and 12).	
Q8.5.2	The Applicant	**Plastic frond mattressing** In its RR [RR-069] MMO questioned the inclusion of plastic frond mattressing in the design envelope. The Applicant [AS-024] agreed to investigate the issue further. The Applicant to provide an update on its findings.	The Applicant has included plastic frond mattressing in the design envelope as there are some benefits of this method of scour protection which are not afforded by more traditional methods such as rock protection. For example, frond matressing will accrete sediment and therefore if located in a sediment dominated habitat would not alter the habitat type in the long term. The Applicant does recognise that plastic in the marine environment may not be desirable however if at the detailed design stage it was considered by the MMO and SNCB(s) that the benefits of this type of protection outweigh the negative effects the flexibility of the design envelope would allow its use. The approach to cable protection within the Haisborough Hammond and Winterton SAC would be agreed with the MMO through the HHW SAC SIP. This document is secured in Condition 9(1)(m) of the Transmission DMLs (Schedules 11 and 12). The approach to cable and scour protection for the offshore project areas outside of the HHW SAC would be agreed with the MMO through the Scour protection and cable protection plan. This document is secured in Conditions 14(1)(e) of the Generation DMLs (Schedules 9 and 10) and Condition 9(1)(e) of the Transmission DMLs (Schedules 11 and 12).	
Q8.5.3	Natural England	**AEOI** NE does not agree to no AEOI to HHW SAC (both alone and in-combination). Does the Applicant's response in AS-024 satisfy NE's concern and if not, what are the outstanding issues?	Natural England has reviewed AS-024 submitted on 11th October 2019 and we do not believe that our concerns have been addressed. Both parties have set out cases and there is evidence to support all arguments. However, based on our experience and the best available evidence NE's position as stated in the Relevant Representations [RR-099], remains unchanged in relation to the conclusion that an AEoI cannot be ruled out.	The Applicant maintain the position that an AEoI can be ruled out. However the Applicant will continue to work with Natural England in order to achieve as much agreement on this issue as possible.
Q8.5.4	Marine Management Organisation	**Fisheries Byelaws** MMO and EIFCA to provide an update on the likely timeframes for implementation of the proposed fisheries byelaws?	The MMO defer to EIFCA.	The Applicant will continue to consult with the MMO to better understand the implications of the DEFRA byelaw for the Norfolk Boreas project.
Q8.5.4	Eastern Inshore Fisheries and Conservation Authority	**Fisheries Byelaws** MMO and EIFCA to provide an update on the likely timeframes for implementation of the proposed fisheries byelaws?	Background to the development of spatial fishing restrictions within Haisborough, Hammond and Winterton SAC On 15th May 2019, the Eastern Inshore Fisheries and Conservation Authority approved the proposed spatial restrictions to bottom-towed gear to protect Annex 1 Biogenic Reef: Sabellaria spinulosa. These restrictions include Restricted Area 36 (Figure 1 Proposed closures agreed by the Eastern Inshore Fisheries and Conservation Authority on the 15th May 2019.) of the draft Marine Protected Areas Byelaw 2019, which lies within the Norfolk Boreas cable corridor. In order to develop the restrictions, Eastern IFCA reviewed Natural England's modelled data, acoustic data and ground truthing data as well as Eastern IFCA	The Applicant has engaged with the EIFCA on this matter and will continue to work with the EIFCA to understand the possible implications of each parties' plans on the other.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			habitat mapping data. These results were used in conjunction with an assessment of raw video data supplied by Cefas to confirm the presence of Sabellaria reef. Restricted Areas 36, 37 and 38 are areas where both Eastern IFCA and Natural England consider the evidence of feature occurrence to be strongest, and to therefore require protection. The byelaw making process and where we are with the Marine Protected Areas Byelaw 2019 The spatial restrictions in Figure 1 form part of the Marine Protected Areas Byelaw 2019. This byelaw has been made under Section 155 of the Marine and Coastal Figure 1. Proposed closures agreed by the Eastern Inshore Fisheries and Conservation Authority on the 15th May 2019. Access Act4 and has been subject to a formal consultation. The byelaw will not, however, have effect until the Secretary of State confirms the byelaw, which itself is dependent on quality assurance from the Marine Management Organisation (MMO) policy and legal teams. We anticipate the byelaw to potentially come into force in 2020. The byelaw is due for submission to the MMO at the end of 2019 or very start of 2020. The MMO quality assure IFCA byelaw applications within 28 days of receipt prior to submission to Defra, noting that if there are any problems with the byelaw then this process can take longer. Assuming submission to the MMO in January 2020, we would anticipate quality assurance to be finalised and the byelaw submitted to Defra for consideration by March/April 2020. Defra consideration of IFCA byelaws tends to take approximately six months. The Marine Protected Areas Byelaw 2019 is essentially a new iteration of the Marine Protected Areas Byelaw 2016 (currently in force), with additional closures included. This may result in faster processing of the byelaw; however, it is also important to consider potential delays in the process resulting from changes in government following the December 2019 General Election and EU exit. 4Section 155 of the Marine and Coastal Access Act 2009 details the power of IFCAs to make byelaws. It outlines that the authority for an inshore fisheries and conservation district may make byelaws for that district, further explaining that a byelaw made under this section does not have effect until it is confirmed by the Secretary of State (SoS). The SoS may confirm a byelaw without modification or with such modifications as are agreed to by the authority that made the byelaw.	
Q8.5.5	The Applicant	**Compensation** If agreement cannot be reached between the Applicant and NE on no AEOI for HHW SAC, what would the Applicant's approach be to the provision of alternatives or compensation and the argument for IROPI?	The Applicant does not consider it appropriate to submit any further information relevant to consideration of alternatives, compensatory measures or information to inform an IROPI case at this stage, if at all. The Applicant considers that such a requirement would only arise (i.e. the engagement of the derogation provisions in Article 6(4) of the Habitats Directive) if the Secretary of State were to conclude that the project will adversely affect the integrity of this site, and if so, to what extent. In that event, the Applicant would then expect the Secretary of State, as competent authority, to revert back to the Applicant to ask the Applicant to consider the issue at that stage. At that point the Statutory Nature Conservation Bodies (including Natural England) would then need to be asked to advise on the nature of the appropriate compensation measures to the extent that an adverse effect on integrity (AEoI) was concluded, and to what extent.	

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			In summary therefore the Applicant's position is as follows: (i) Article 6(4) is not engaged as a result of Norfolk Boreas (either alone or in-combination). (ii) The Applicant's evidence demonstrates that there would be no adverse effect on the integrity of this European site. (iii) Article 6(4) would only be engaged if, contrary to the Applicant's position, an appropriate assessment were to reach a negative conclusion and it relied upon the nature and extent of any adverse effect on integrity having been identified through an appropriate assessment under Article 6(3). That would then underpin any proper consideration of alternative solutions, IROPI and compensatory measures. (iv) Consideration of alternative solutions, IROPI and compensatory measures at this stage is therefore premature. Formally these matters would only arise if the Secretary of State did not accept the Applicant's position and were to identify an adverse effect on the integrity of the site. (v) Since the Applicant does not identify any adverse effect on integrity of this European site, and Natural England has not yet explained to what extent (in their opinion) there is an adverse effect on integrity, these considerations cannot be addressed by the Applicant. This can only be done if the precise nature and quantified extent of any contended adverse effect on integrity is identified. (vi) It is not considered reasonable to go further with any submission regarding Article 6(4) at this stage, given that it can only be on a speculative basis. (vii) In the event that the ExA and/or the Secretary of State were to produce a negative appropriate assessment or Natural England were to carry out a "shadow" appropriate assessment or provide further reasoning and quantitative analysis to support their conclusion of adverse effect on integrity in respect of this European site, the Applicant can legitimately expect the right to be afforded time to make further detailed representations at that stage.	

8.6 Offshore ornithology

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.6.1	The Applicant	**CRM Assessment** The ExA has had regard to the RRs [RR-054, RR-099] raised in relation to offshore ornithology and is aware of the complex arguments and disagreement between the various parties. Noting these positions, the ExA requests that the Applicant, NE, RSPB and other relevant parties work collaboratively to respond effectively to each of the points raised in RR's on this issue.	The Applicant has been working closely with both Natural England and the Royal Society for the Protection of Birds (RSPB) with the aim of resolving outstanding issues of concern raised on the assessment wherever possible. With respect to the collision risk modelling assessment raised in this Written Question, the Applicant considers that the only outstanding methodological issue with both stakeholders relates to the use of the Marine Scotland Science stochastic collision risk model (sCRM). The Applicant has investigated the use of this model on several occasions, however the errors in the outputs identified by the Applicant (in September 2019) have still not been resolved and therefore it is not considered appropriate to use this model at present. However, it is important to note that the sCRM uses an identical model to the deterministic Band (2012) CRM used in the current assessment, with the only difference	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			being that the model is run repeatedly with input parameters drawn at random from appropriately defined probability distributions for each model run. Therefore the mean output values obtained with the sCRM will be identical to the values obtained from the Band CRM using the mean parameter values as inputs. Therefore the current mean CRM outputs on which the assessment is based will be unaffected. Furthermore, the Applicant has undertaken an updated ornithology assessment which has been submitted at Deadline 2 (ExA; AS-1.D2.V1) which addresses the issues raised by Natural England in their Relevant Representation. This updated assessment also addresses those issues raised by the RSPB for which further assessment was required. The Applicant and Natural England and the RPSB do not agree the conclusions of the collision risk assessment due to the application by Natural England and the RSPB of what the Applicant considers to be overly precautionary assumptions (e.g. over-estimated model parameters for nocturnal activity and avoidance rates and use of consented wind farm designs rather than built ones in the cumulative and in-combination assessments). The Applicant considers that the methods used in its assessments have adopted a proportionate approach to precaution which takes into account reviews of available evidence.	
Q8.6.1	Natural England	**CRM Assessment** The ExA has had regard to the RRs [RR-054, RR-099] raised in relation to offshore ornithology and is aware of the complex arguments and disagreement between the various parties. Noting these positions, the ExA requests that the Applicant, NE, RSPB and other relevant parties work collaboratively to respond effectively to each of the points raised in RR's on this issue.	Noted. Natural England is aware that the Applicant is working on an updated assessment which will be submitted at Deadline 2. We will provide our headline responses to this updated assessment prior to ISH with detailed comment at Deadline 4.	The Applicant can confirm that an updated ornithology assessment which addressed the points raised by Natural England in their relevant representation (RR-099) was submitted at Deadline 2 (REP2-035). The Applicant will continue to engage with Natural England throughout the Examination in order to address as many of the issues raised as possible.
Q8.6.1	RSPB	**CRM Assessment** The ExA has had regard to the RRs [RR-054, RR-099] raised in relation to offshore ornithology and is aware of the complex arguments and disagreement between the various parties. Noting these positions, the ExA requests that the Applicant, NE, RSPB and other relevant parties work collaboratively to respond effectively to each of the points raised in RR's on this issue.	The RSPB remains committed to working collaboratively with all parties to attempt to address the outstanding issues. We will review the new assessments when they are made available and continue to work with the applicant and other parties in advance of the 22nd January hearing.	See response above. The Applicant can confirm that an updated ornithology assessment which addressed key points raised by the RSPB in their relevant representation (RR-054) was submitted at Deadline 2 (REP2-035). The Applicant has also submitted responses to points raised by the RSPB in their written representation (REP2-096) which has been submitted at Deadline 3 (ExA.WQR.D3.V1). The Applicant will continue to engage with the RSPB throughout the Examination in order to address as many of the issues raised as possible.
Q8.6.2	Natural England	**CRM Assessment** NE to explain why it considers in [RR-099] the Applicant takes a more narrative approach to CRM assessment and considers the Option 1 outputs for gannet, kittiwake and great black-backed gull in the context of the relevant Option 2 figures for the 95% confidence intervals of the density data, as part of a more range-based approach to consideration of CRM impacts. How does NE consider this approach should be used by the ExA to inform its consideration of HRA matters?	Following submission of our Relevant Representations [RR-099], Natural England had discussions with the Applicant via a Telecall on 10th September to discuss issues raised in RR-099 where the site-specific flight height data and hence Option 1 figures were discussed. During this call the Applicant confirmed that there was no confidence in any of the site-specific flight height data following the survey contractor's statement that heights estimated from digital aerial surveys are inaccurate. Therefore given this it was agreed that the use of generic seabird flight height estimates in Collision Risk Modelling (CRM), i.e. Option 2 is appropriate. However, this highlights the importance and need for a range-based approach. The site-specific flight height data and hence Option 1 values, though potentially suspect, highlight the level of uncertainty around the flight heights of seabirds. In that context, there is a level of risk in basing assessments on a single, central value. Therefore the advantage of a range-based approach is that it encompasses the most likely extent of potential impacts.	The Applicant welcomes Natural England's confirmation that the collision risk modelling methods used in the original assessment (APP-201, APP-226) and the updated assessment submitted at Deadline 2 (REP2-035) have followed current advice and have made use of the best available data and evidence. This includes presentation of 95% confidence intervals for the Norfolk Boreas collision predictions, as specifically requested by Natural England (RR-099).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			Therefore, as we have advised the Applicant, consideration of HRA matters should take into account the range of predicted collision impacts apportioned to relevant designated sites, drawing not just from the mean/central predicted collision figures, but also the range of predicted figures resulting from the Applicant's analysis of the uncertainty/variability in the input data (in the Boreas case, the greatest range results from consideration of the 95% confidence intervals of the seabird density).	
Q8.6.3	Natural England	**Stochastic Collision Model** Confirmation is required from NE that it accepts the inability of the Applicant to use Marine Scotland Science's Stochastic Collision Model, due to issues with the model providing accurate outputs (no timescale for when this model will be fixed), and that NE accepts the Applicant's proposed modelling outputs.	We note that the Marine Scotland Science (MSS) stochastic collision risk model (sCRM) is essentially based on the Band (2012) model, but allows uncertainty in input parameters (e.g. avoidance rate, flight height, bird density etc.) to be fully incorporated into a predicted collision impact with estimated variability. As the sCRM is compatible with the Band (2012) model, for the same mean/central input parameters the sCRM when run as a deterministic model (i.e. standard deviations for all parameters set at 0) should therefore give the same central/mean collision predictions as those predicted by the Band (2012) model for these same input parameters. However, at present it has been identified that this is not the case, due to technical issues with the sCRM. This issue has also been identified by the Applicant. These issues are currently subject to ongoing discussion/investigation between the SNCBs, MSS and the sCRM developers. However the timescales required to resolve the issues are currently uncertain. Hence, at the present time, the Applicant's current approach to the assessment (use of the Band 2012 model and varying each input parameter in turn, i.e. bird density, avoidance rate, flight heights, nocturnal activity) therefore represents appropriate use of the currently recommended collision risk model and the best approach to incorporating uncertainty that is available at this time. Natural England will base our advice on the ranges of predictions for the parameter that predicts the greatest uncertainty in the predictions from the variations of Band model outputs, which as noted above is the variation of bird density. If the issues with the sCRM do get resolved in the timescale of the Boreas examination and updated collision risk modelling is required (e.g. due to modification to design parameters), then we would advise this is undertaken using the stochastic model.	The Applicant welcomes Natural England's agreement that the stochastic collision risk model (sCRM) uses an identical model structure to the deterministic Band model and that it will therefore generate identical outputs when all random variation (in the sCRM) has been turned off. The Applicant also welcomes Natural England's agreement that the current version of the sCRM contains an error which means that this is not the case (the Applicant understands this error has now been identified and a model revision is planned, although no date has been made available for this release). The Applicant will endeavour to present collision outputs generated using the sCRM for the project, although this is dependent on when the revised model is made available and taking into account the Examination timetable. The Applicant confirms that the original and updated assessments (APP-210, APP-226, REP-035) all presented assessment based on the deterministic Band collision model, with uncertainty and variation incorporated as advised by Natural England.
Q8.6.3	RSPB	**Stochastic Collision Model** Confirmation is required from NE that it accepts the inability of the Applicant to use Marine Scotland Science's Stochastic Collision Model, due to issues with the model providing accurate outputs (no timescale for when this model will be fixed), and that NE accepts the Applicant's proposed modelling outputs.	Whilst this question is directed to Natural England, the RSPB agrees that the Applicant is unable to use the Marine Scotland Science's Stochastic Collision Risk Model. Until the issues with this model version are resolved, the RSPB prefer that the Band 2012 model version is used, using a range of input parameters to reflect stochasticity arising through uncertainty and variability.	See response above. In addition the Applicant welcomes the RSPB's agreement on this matter.
Q8.6.4	The Applicant	**Reducing collision impacts** The Applicant to provide an update on the additional measures being considered for reducing collision impacts noted in [AS-024] in response to NE's recommendation for raising turbine draught height.	Notwithstanding the fact that the Applicant has been able to conclude that Norfolk Boreas will not have any significant impacts or AEoI due to collisions at the project alone, cumulatively or in-combination with other wind farms, the Applicant is giving consideration to options for further reducing the risk of collisions and this includes the possibility of raising the turbine draught height to reduce the proportion of bird flights at rotor height. The Applicant will provide further updates to the Examining Authority once options for additional mitigation have been considered further.	
Q8.6.4	Natural England	**Reducing collision impacts** The Applicant to provide an update on the additional measures being considered for reducing	Natural England has previously provided regulators with our advice regarding our concerns about predicted level of cumulative/in-combination collision impacts on North Sea seabirds, e.g. EIA great black-backed gull at East Anglia 3,	As noted in the Applicant's response to this question, even though the Applicant has concluded there will be no significant impacts or adverse effects on SPA integrity, options for further impact mitigation are being considered and

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		collision impacts noted in [AS-024] in response to NE's recommendation for raising turbine draught height.	Flamborough and Filey Coast (FFC) SPA kittiwake at Hornsea 2. These concerns intensified during the recent three offshore wind farm (OWF) examinations (Hornsea 3, Norfolk Vanguard, Thanet Extension), and given three further OWF NSIPs have recently been submitted to PINS (Norfolk Boreas, East Anglia One North, East Anglia Two) with a further project expected to submit in 2020 (Hornsea 4), Natural England considers that without major project-level mitigation being applied to all relevant projects coming forward, there is a significant risk of large-scale impacts on seabird populations. As stated in our Relevant Representations [RR-099], Natural England therefore recommends that Norfolk Boreas (and all relevant future projects located in the North Sea), considers raising turbine draught height, as has been done by other projects (e.g. Hornsea 2, East Anglia 3 and Vanguard) as mitigation in order to minimise their contribution to the cumulative/in-combination collision totals by as much as is possible. We would also advise that Norfolk Boreas considers a range of possible options of draught heights be presented, to demonstrate due consideration of alternative mitigation options.	updates on these considerations will be submitted to the Examining Authority once further analysis has been completed.
Q8.6.4	RSPB	**Reducing collision impacts** The Applicant to provide an update on the additional measures being considered for reducing collision impacts noted in [AS-024] in response to NE's recommendation for raising turbine draught height.	Whilst directed to the Applicant, the RSPB recommends that mitigation is provided through raising the turbine draught height for the purposes of reducing the project's collision risk when considered alone, and its contribution to in-combination collision risk. We therefore request that collision risk to key species for height rises up to and including 35m are modelled.	See response above.

8.7 Alde-Ore Estuary SPA

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.7.1	Natural England	**Lesser black backed gull** The commentary that supports the Applicant's in-combination assessment for lesser black backed gull of Alde-Ore Estuary SPA infers that reliance has been placed on the as-built scenarios for other offshore wind farm developments. The RSPB has raised concerns with this Approach. What is NE's advice?	As Natural England have stated previously during the Vanguard examination (see our Deadline 2 and 8 responses for this examination) Natural England acknowledges that as built scenarios are an important issue with regard to cumulative/in-combination CRM predictions and assessments. However, without a legally secured reduction in the consented Rochdale envelope, and a re-run CRM with the final design parameters, cumulative/in-combination assessments should be based on consented parameters. We note that East Anglia 1 is currently the only project to date to meet these tests.	The Applicant welcomes Natural England and the RSPB's agreement that consideration of impacts which reflect actual built wind farms rather than consented designs is important for cumulative and in-combination assessment. However the Applicant considers that it is not always necessary for consented parameters to be formally amended. In reality, operational wind farms could not be further developed without a new marine licence and updated ES, not least because the original design plan submitted pursuant to the deemed marine licence would need updating and the update would need to be environmentally assessed., . In addition, turbine wake effects preclude the insertion of turbines within existing arrays. On this basis the Applicant does not consider that it is necessary that built wind farms require formal variation as described by Natural England in order for as-built designs to be used as the basis for cumulative and in-combination assessment
Q8.7.1	RSPB	**Lesser black backed gull** The commentary that supports the Applicant's in-combination assessment for lesser black backed gull of Alde-Ore Estuary SPA infers that reliance has been placed on the as-built scenarios for other offshore wind farm developments. The RSPB has raised concerns with this Approach. What is NE's advice?	It is stated that many of the collision estimates for other windfarms are based on higher numbers of turbines than were actually installed. Based on a method of updating collision estimates presented by EATL (2016)[1] this is stated to overestimate cumulative mortality, for example, great black-backed gull by some 30%. This is an acceptable point for windfarms where the DCO has been amended and therefore there is legal certainty regarding the reduction, but where windfarms still have their original DCOs, it is not appropriate to do anything less than assess the full extent of those DCOs when considering in-	See response above.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			combination/cumulative effects, as the final layout and therefore required assessment parameters will not be known. [1] EATL (2016) Revised CRM. Submitted for Deadline 5: Available online at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010056/EN010056-001644-EA3%20-%20Revised%20CRM.pdf	
Q8.7.2	The Applicant	**Lesser black backed gull** NE [RR-099] and RSPB [R-054] do not agree to no AEOI to lesser black backed gull of Alde-Ore Estuary SPA and Ramsar. NE has concerns on the basis of the breeding season apportionment and advises a range of rates. RSPB does not agree no AEOI from collision mortality alone and in-combination. NE explains it could not agree to no AEOI from collision risk to LBBG for Norfolk Vanguard and Boreas adds more birds to these totals. The Applicant [AS-024] states that it will respond to these concerns, when will the response be available?	The Applicant has produced an updated assessment, submitted at Deadline 2 (ExA;AS-1,D2.V1), which responds to the points made. With respect to Natural England's request for assessment using a wider range of apportioning rates during the breeding season, the Applicant has discussed this with Natural England and confirmed that in fact the original assessment which covered values up to 30% was in line with previous Natural England advice and that no higher values are required. Additional assessment as per Natural England's relevant representation (RR-099) requests is provided in the updated assessment (ExA;AS-1,D2.V1) (this includes an assessment for the project alone using the 95% confidence intervals of abundance, additional wind farms in the cumulative and in-combination assessments and with and without the Hornsea Project Three and Four wind farms). However, it should be noted that the Applicant does not agree with either Natural England's or the RSPB's conclusions that an AEoI for Norfolk Boreas alone or in-combination cannot be ruled out. Through the application of evidence based methods the Applicant has been able to conclude that Norfolk Boreas will not have an AEoI on the Alde Ore Estuary Special Protection Area (SPA) population of lesser black-backed gulls either alone or in-combination.	

8.8 Alde-Ore Estuary SPA and Flamborough and Filey Coast SPA

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.8.1	The Applicant	**Compensation** NE and RSPB advise that an AEOI cannot be ruled out for Alde-Ore Estuary SPA, Flamborough and Filey Coast SPA. It is acknowledged that NE and RSPB previously reached these conclusions for Norfolk Vanguard and that Norfolk Boreas is proposing to add additional mortalities to those figures. In light of this, the Applicant is requested to present information relevant to the subsequent stages of the HRA process; namely consideration of alternatives, compensation and information to inform an IROPI case for these sites.	The Applicant considers that Natural England's and the RSPB's conclusions that AEoI cannot be ruled out for these SPAs have been reached through the application of highly precautionary methods which over-estimate the magnitude of impacts to a large degree. These reasons have been set out in detail in ExA;AS-1.D2.V1, and in a report on precaution submitted to the Norfolk Vanguard Examination at Deadline 8 (REP8-067). The Applicant has concluded that when more proportionate levels of precaution are applied AEoI can be ruled out for these SPAs. The Applicant has set out its position in relation to alternatives/compensatory measures/IROPI in the response to Written Question 8.5.5 and this position applies equally to this question. As explained in response to Written Question 8.5.5, the issues of alternatives/compensatory measures/IROPI would only arise in the event that the Secretary of State were to produce a negative appropriate assessment which identified the precise nature and quantified extent of any contended adverse effect on integrity of these European sites.	
Q8.8.1	RSPB	**Compensation** NE and RSPB advise that an AEOI cannot be ruled out for Alde-Ore Estuary SPA, Flamborough and Filey Coast SPA. It is acknowledged that NE and RSPB previously reached these conclusions for Norfolk Vanguard and that Norfolk Boreas is proposing to	We will review further information on these issues as it is presented and provide more detailed comments. In this context, the RSPB draws the Examiners' attention to BEIS's decisions to delay determination of Hornsea Three[2] and Norfolk Vanguard[3] offshore wind farms. The delay on each scheme is to, among other things, seek the views of	The Applicant acknowledges the RSPB's comments on this matter and refers to the Applicant's response to this question above (WQ 8.8.1).

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		add additional mortalities to those figures. In light of this, the Applicant is requested to present information relevant to the subsequent stages of the HRA process; namely consideration of alternatives, compensation and information to inform an IROPI case for these sites.	the applicants and interested parties in respect of the in-combination impacts on the Flamborough to Filey Coast SPA (and in the case of Norfolk Vanguard, also the Alde-Ore Estuary SPA) and the implications of those impacts for the derogation tests set out in the Habitats and Offshore Regulations and summarised in paragraph 3.2.2 of our Written Representation for Deadline 2. The RSPB considers such matters are directly relevant to the examination of the Norfolk Boreas scheme.	

8.9 Greater Wash SPA and Outer Thames Estuary SPA

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.9.1	Natural England	**Mortality Rates** NE [RR-099] states that definitive mortality rates are unknown, therefore a range of mortality rates between 1% and 10% should be presented. It disagrees with the Applicants evidence review and that a magnitude of 100% out to 4km is over precautionary. NE calculates 0.87-2.46% increase in baseline mortality during construction phase, which it states is not insignificant. The Applicant [AS-024] states that the full range of outputs was presented in its assessment. Does NE have further comments?	As definitive mortality rates of seabirds, including red-throated diver (RTD) and auks, are unknown Natural England continues to advise a range of mortality rates of between 1 and 10% are considered in assessments. Critically though, empirical evidence regarding the energetic consequences of displacement for seabirds and wintering waterbirds using the marine environment are very limited, and the role of overwinter survival on seabird population dynamics is poorly understood. Furthermore, we again note that the mortality rates are a crude method of capturing a range of potentially deleterious effects that could arise from displacement, including reduced fitness for migration and reduced productivity during the breeding season. These are particularly relevant when considering displacement effects within sites designated for the species affected, such as the RTD feature of the Greater Wash SPA. We acknowledge that in its assessments of displacement for RTD and auks, the Norfolk Boreas Applicant has considered the range of predicted impacts from the displacement and mortality rates as recommended by Natural England alongside those predicted from their considered 'evidence based' rates. We note that our recommendation to consider up to 100% displacement over a 4km buffer is with respect to displacement of sensitive species such as divers and seaduck from operational offshore windfarms, whilst for all other species it is for a 2km buffer (SNCBs 2017), which have been used by the Applicant in their assessments. The calculations referred to in the question of a 0.87-2.46% increase in baseline mortality during the construction phase are with regard to 100% displacement and up to 10% mortality of RTD in the Greater Wash SPA from a 2km buffer around each cable laying vessel, based on the RTD density from the data used in the SPA Departmental Brief (Natural England & JNCC 2016). We consider that the use of the upper density figure for the cable route is likely to be appropriate bearing in mind recent surveys of the neighbouring Outer Thames Estuary SPA have identified higher RTD densities when digital aerial surveys have been undertaken. This results in a prediction of up to 8.5 RTD mortalities, equating to up to 2.46% of baseline mortality of the SPA RTD population at the upper range of the NE recommended mortality rates. Therefore, at this level, the predicted impacts are not insignificant and without the mitigation proposed by Norfolk Boreas may not have resulted in no adverse effect on site integrity.	The Applicant acknowledges Natural England's position and advice for assessing displacement impacts which has been presented in the original and updated assessments (APP-201, APP-226 and REP-035). The Applicant has also made reference to reviews of evidence for rates of displacement and mortality and has presented both the reviews and assessment based on this evidence. The Applicant also welcomes Natural England's agreement that the proposed mitigation to minimise potential impacts on red-throated diver due to cable installation ensures there will not be an adverse effect on the integrity of the Greater Wash SPA.
Q8.9.1	RSPB	**Mortality Rates** NE [RR-099] states that definitive mortality rates are unknown, therefore a range of mortality rates between 1% and 10% should be presented. It disagrees with the Applicants evidence review and that a magnitude of 100% out to 4km is over precautionary. NE calculates 0.87-2.46% increase in	Whilst this question is directed to Natural England, the RSPB supports the full range of mortality rates to be provided. The alone assessment for Norfolk Boreas must be based on mean bird densities based on birds in flight and on the water, as advised by Natural England, and the outputs incorporated into a revised cumulative assessment. The assessment should then consider cumulative mortality based on displacement rates of up to 100% and mortality rates of up to 10% and, given that it would be expected that this	The Applicant has undertaken assessment of potential impacts of cable installation on red-throated diver using the methods advised by Natural England. Furthermore, mitigation has been agreed with Natural England which will ensure that an adverse effect on the integrity of the Greater Wash SPA can be ruled out.

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		baseline mortality during construction phase, which it states is not insignificant. The Applicant [AS-024] states that the full range of outputs was presented in its assessment. Does NE have further comments?	would result in an increase of 2% or more on baseline mortality, PVA is then be required to assess the effect on the population. In order to rule out cumulative effects, density independent PVA outputs in the form of counterfactuals of population size must be presented to be considered alongside contextual information such as population status and importance, other potential sources of mortality and the extent of uncertainty in assessment.	
Q8.9.2	Natural England	**Red throated diver** In its response to NE's RR [AS-024] the Applicant provides proposed mitigation measures for red throated diver of the Greater Wash SPA and Outer Thames Estuary SPA during operation and maintenance. Does the commitment in Schedules 9 & 10 Condition 14(1)(d)(vi) sufficiently alleviate NE's concerns to enable it to conclude no AEOI?	In AS-024 the Applicant confirms that the same mitigation agreed for the operation and maintenance phase of Norfolk Vanguard has been adopted for Norfolk Boreas, specifically: • Avoid and minimise maintenance vessel traffic, where possible, during the most sensitive time period for red throated diver (RTD) in January/ February/ March. • During the months of January to March inclusive, construction activities consisting of cable installation for Work No. 4A and Work No. 4B must only take place with one main cable laying vessel. • Restrict vessel movements where possible to existing navigation routes. • Avoid over-revving of engines (to minimise noise disturbance). • Avoid rafting birds either in-route to array from operational port and/or within the array (dependent on location) and where possible avoid disturbance to areas with consistently high diver density. This mitigation has been included in the Outline PEMP [APP-705]. Condition 14 (1) (d) (vi) of Schedules 9 and 10 of the updated draft DCO version 2 [AS019] secures that the final project environmental management plan (in accordance with the outline project environmental management plan) covering the period of construction and operation must include details of: *"procedures to be adopted within vessel transit corridors to minimise disturbance to red-throated diver during operation and maintenance activities."* Therefore, based on the adoption of best practice vessel operations to minimise disturbance to RTD, we agree that an AEOI from operation and maintenance vessel movements can be ruled out for RTD feature of the Greater Wash SPA and of the Outer Thames Estuary SPA.	The Applicant welcomes Natural England's confirmation that the adoption of these mitigation measures will ensure there will be no adverse effect on the integrity of the Greater Wash SPA and Outer Thames Estuary SPA.
Q8.9.3	Natural England	**Red throated diver** NE [RR-099] recommends avoiding/reducing cable laying activities during the nonbreeding season/period of peak red throated diver numbers. The Applicant [AS-024] confirms that the same mitigation agreed for Norfolk Vanguard has been adopted for Norfolk Boreas, as included in the outline PEMP [APP-705]. Does the Applicant's commitment to mitigation for red throated diver of the Greater Wash SPA, as included in section 6.1.3 of the outline PEMP [APP-705] enable NE to agree to rule out an AEOI?	As noted in response to question 8.9.2 above, the Applicant confirms that the same mitigation agreed for Norfolk Vanguard has been adopted for Norfolk Boreas, which includes: • During the months of January to March inclusive, construction activities consisting of cable installation for Work No. 4A and Work No. 4B must only take place with one main cable laying vessel. This mitigation has been included in the Outline PEMP [APP-705], the final version of which is secured through Condition 14 (1) (d) (vi) of Schedules 9 and 10 of the updated draft DCO version 2 [AS019]. Therefore, based on this commitment from the Applicant, we agree that an AEOI from displacement due to construction activities from the project alone and in-combination can be ruled out for RTD feature of the Greater Wash SPA.	The Applicant welcomes Natural England's confirmation that the adoption of these mitigation measures will ensure there will be no adverse effect on the integrity of the Greater Wash SPA and Outer Thames Estuary SPA.
Q8.9.3	RSPB	**Red throated diver** NE [RR-099] recommends avoiding/reducing cable laying activities during the nonbreeding season/period of peak red throated diver numbers. The Applicant [AS-024] confirms that the same mitigation agreed for Norfolk Vanguard has been	Whilst this question is directed to Natural England, the RSPB notes that the proposed benefits of the measures set out in Section 6.1.3 of the outline PEMP have not been quantified. The current proposal appears uncertain with respect to the benefit that would be derived from the operational constraints being proposed in the PEMP and whether these would be sufficiently coordinated with other activities to ensure disturbance and displacement effects are	The Applicant considers that the mitigation as agreed in consultation with Natural England, and which was also agreed and adopted for the East Anglia THREE and Norfolk Vanguard wind farms, is based on the current understanding of the potential effects on red-throated divers and draws on studies of red-throated diver responses to vessels. The Applicant also considers it appropriate to note that the assessment of cable installation remains highly

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		adopted for Norfolk Boreas, as included in the outline PEMP [APP-705]. Does the Applicant's commitment to mitigation for red throated diver of the Greater Wash SPA, as included in section 6.1.3 of the outline PEMP [APP-705] enable NE to agree to rule out an AEOI?	minimised such that cumulative impacts can be considered to avoid adverse effects on integrity. We will review Natural England's response and provide additional comments as appropriate.	precautionary for several reasons. Firstly, it is very likely that no cable installation activities will take place during the winter months due to the requirement for extended periods of relatively calm weather, with the consequence that there will be no impact on red-throated diver at all (this species is only present during the nonbreeding season). Secondly, cable installation vessels move very slowly especially when considered in relation to tidal flow rates. Thus displacement around the vessel will be a static effect which will last for a matter of weeks at most. Taken together with the proposed mitigation it can therefore be seen that the conclusion of no adverse effect on integrity can be reached with a high degree of certainty, as acknowledged by Natural England.
Q8.9.4	Natural England	**Red throated diver** Can NE confirm whether its comments regarding cumulative operational displacement to red throated diver in section 6.2 of Appendix 1 of its Relevant Representation [RR-099] also apply to red-throated diver qualifying features of Greater Wash SPA and Outer Thames Estuary SPA?	The comments in 6.2 of Appendix 1 of our Relevant Representation [RR-099] only apply to the cumulative (EIA scale) displacement assessment for RTD. Given the commitment by the Norfolk Boreas Applicant to the same mitigation as at Norfolk Vanguard for RTD displacement (in terms of reductions in cable laying vessels in the Greater Wash SPA during the key periods and to *procedures to be adopted within vessel transit corridors to minimise disturbance of RTD during operation and maintenance activities) set* out in the Outline PEMP [APP-705], the final version of which is secured through Condition 14 (1) (d) (vi) of Schedules 9 and 10 of the updated draft DCO version 2 [AS019], we can agree that AEoI from displacement due to construction activities in-combination can be ruled out for RTD feature of the Greater Wash SPA and that an AEoI from operation and maintenance vessel movements can be ruled out for RTD feature of the Greater Wash SPA and of the Outer Thames Estuary SPA.	The Applicant welcomes Natural England's confirmation that operational displacement of red-throated diver from the Norfolk Boreas wind farm itself will not have an effect on the integrity of the Greater Wash SPA or Outer Thames Estuary SPA. The Applicant also welcomes Natural England's agreement that both construction and operation disturbance effects can be ruled out for both SPAs following the adoption of the agreed mitigation.
Q8.9.4	RSPB	**Red throated diver** Can NE confirm whether its comments regarding cumulative operational displacement to red throated diver in section 6.2 of Appendix 1 of its Relevant Representation [RR-099] also apply to red-throated diver qualifying features of Greater Wash SPA and Outer Thames Estuary SPA?	The RSPB appreciates that this question is directed towards Natural England. However, given the range of activities taking place within both the Greater Wash SPA and the Outer Thames Estuary SPA we would anticipate red-throated divers in both sites should be assessed to ensure impacts on both sites have been adequately considered.	The Applicant has assessed all the potential effects on red-throated diver in the original and updated assessment (APP-201, APP-226 and REP-035). This has included detailed consideration of the potential for impacts on the Greater Wash SPA and Outer Thames Estuary SPA populations due to relevant effects (construction and operational vessel movements and cable installation) and to the wider population with the southern North Sea biologically defined minimum population scale (BDMPS) region through the Environmental Impact Assessment (EIA) and Cumulative Impact Assessment (CIA) process. On this basis the Applicant considers that the potential for impacts on this species has been thoroughly assessed and the Applicant has concluded there will be no significant impacts or adverse effects on integrity due to the Norfolk Boreas project alone or in-combination with any other plans and projects.
Q8.9.5	The Applicant	**Construction Vessels** The Applicant to explain how it would ensure that there would not be more than two construction vessels in use in any one non-breeding season.	In the Habitats Regulations Assessment (APP-201) the Applicant stated that the worst case impact for disturbance of red-throated diver due to cable installation through the Greater Wash SPA would result from the presence of a maximum of two main cable laying vessels during the non-breeding season. In the draft DCO submitted at Deadline 1 (Norfolk Boreas Updated draft DCO Version 3, REP1-008) it has been stated at pt. (4) Condition 19: *During the months of January to March inclusive, construction activities consisting of cable installation for Work No. 4A and Work No. 4B must only take place with one main cable laying vessel.* This commitment in the DCO thereby ensures that during the potentially most sensitive period of the year for red-throated diver disturbance, the maximum level of impact will in fact be half that which was assessed as the precautionary worst case (of two main cable laying vessels) in the original assessment (APP-201). Furthermore, this commitment mirrors that proposed and agreed with Natural England for Norfolk Vanguard.	

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Q8.9.6	The Applicant	**Little gull collision risk** NE states the Applicant has not considered variability/uncertainty and a range of collision impacts for little gull. What is the Applicant's response?	The Applicant has provided the additional assessment requested by Natural England in the ornithology update submitted at Deadline 2 (ExA;AS-1.D2.V1). The conclusions of this assessment remain that Norfolk Boreas will not have an AEoI on the little gull population of the Greater Wash SPA either alone or in-combination with other plans and projects.	
Q8.9.6	RSPB	**Little gull collision risk** NE states the Applicant has not considered variability/uncertainty and a range of collision impacts for little gull. What is the Applicant's response?	Whilst the RSPB has not commented on little gull previously, it is a species for which we do have growing concerns. We will review future assessments and provide comments as appropriate.	Please see the response to Q8.9.4.

8.10 Flamborough and Filey Coast SPA

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.10.1	The Applicant	**Kittiwake** 1. NE [RR-099] and RSPB [RR-054] do not agree the apportionment of 26.1% of kittiwakes to the FFC SPA to be appropriate. The IPs recommend that a range of apportionment rates should be considered, up to 100%. 2. NE was unable to rule out AEOI for Norfolk Vanguard from in-combination collision risk, and Boreas is adding more birds. 3. RSPB does not agree no AEOI from in-combination collision mortality. The Applicant to respond to these concerns.	1. The Applicant has updated the assessment of potential kittiwake impacts at the Flamborough and Filey Coast SPA in the update submitted at Deadline 2 (ExA.AS-1.D2.V1) and this includes consideration of apportioning of up to 100% of the breeding season collisions to the SPA population. This additional assessment notwithstanding, the Applicant considers that the estimate of 26.1% is appropriate and was based on a review of the available evidence, which included, but was not limited to, RSPB kittiwake tracking data. 2 and 3. With respect to Natural England's and the RSPBs conclusions on AEoI, the Applicant considers that these have been reached using highly precautionary methods and assumptions and that when more proportionate levels of precaution are applied to the assessment (e.g. built designs vs. consented, over-estimated nocturnal activity rates, over-estimate flight speed, use of density independent population models; these are discussed in more detail in ExA.AS-1,D2.V1) it is possible to reach the Applicant's conclusion that there is no risk of AEoI for Norfolk Boreas alone or in-combination with other plans and projects.	
Q8.10.1	RSPB	**Kittiwake** 1. NE [RR-099] and RSPB [RR-054] do not agree the apportionment of 26.1% of kittiwakes to the FFC SPA to be appropriate. The IPs recommend that a range of apportionment rates should be considered, up to 100%. 2. NE was unable to rule out AEOI for Norfolk Vanguard from in-combination collision risk, and Boreas is adding more birds. 3. RSPB does not agree no AEOI from in-combination collision mortality. The Applicant to respond to these concerns.	The RSPB notes the additional assessments that are due to be submitted at deadline 2. We will review and aim to provide some comments by Deadline 3 and certainly in advance of the 22nd January hearing. We will consider the additional comments provided by the applicant.	The Applicant refers to their response to this question in the row above. .
Q8.10.2	RSPB	**Gannet** RSPB [RR-054] does not agree no AEOI to gannets of Flamborough and Filey Coast SPA from collision mortality from the project alone and in-combination (but it may be able to rule out from the project alone through raising of draught height of turbines). Can the RSPB provide further details as to why it does not consider an AEOI to gannets of the Flamborough and Filey Coast SPA can be ruled out as a result of collision risk from the project alone?	We maintain our position that, whilst we agree with the use of a 98.9% avoidance rate for non-breeding gannets, in the breeding season, a 98% avoidance rate is appropriate. Cleasby *et al.,* (2015)[1], while not discussing avoidance rates, demonstrated that foraging birds are at more risk of collision than commuting birds. In order to provision chicks, gannets will need to forage more during the breeding season and will also be constrained by central place foraging. Such behavioural differences are likely to result in changes in avoidance behaviour (Cook *et al.,* 2018)[2], and since the figures used for the calculation of avoidance rates advocated by the SNCBs are largely derived from the non-breeding season for gannet (Cook *et al*., 2014[3] and Cook	The Applicant has provided detailed assessment and evidence in support of the conclusion that collisions at Norfolk Boreas alone and in-combination with other plans projects will not have an adverse effect on the population (APP-201 and REP-035). This assessment used the Natural England advised gannet avoidance rate (98.9%), although it should be noted that the most recent study of avoidance rates (Bowgen and Cook 2018) recommended that the gannet avoidance rate could be increased to 99.5%. This rate represents a reduction in predicted collision risk of over 50% and is applicable to all wind farms (i.e. this would be used in the cumulative and in-combination assessments). With respect to the RSPB's comment that increasing the rotor draught height might permit a conclusion of no adverse effect for the project alone, even

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			et al., 2018) we recommend a more precautionary avoidance rate for the breeding season. The Applicant concludes that there will be no adverse effect on the integrity of the Flamborough and Filey Coast SPA as a result of collision mortality to gannets from the Norfolk Boreas project alone (para. 220 of the Information for HRA (doc. 5.3; APP-201)) or in-combination with other projects (para. 221 of the Information for HRA (doc. 5.3;APP-201)). We do not agree there can be sufficient confidence in these conclusions. The Applicant's own calculations indicate that there will be a decrease in the SPA population of around **40%** in the lifetime of the project. We therefore find it impossible to conclude no adverse effect on integrity of the Flamborough and Filey Coast SPA as a result of collision mortality through the project in combination. We also consider that it is not currently possible to rule out an adverse effect on integrity of the Flamborough and Filey Coast SPA arising from the project alone as the Applicant's own calculations, with adjusted Avoidance Rate in the breeding season to RSPB preferred value, indicate a decline in the SPA population of up to 18% as a result of the project alone. [1] Cleasby, IR, Wakefield, ED, Bearhop, S, Bodey, T W, Votier, SC and Hamer, KC (2015), Three-dimensional tracking of a wide-ranging marine predator: flight heights and vulnerability to offshore wind farms. J Appl Ecol, 52: 1474–1482. [2] Cook, A., Humphreys, E., Bennet, F., Masden, E. & Burton, N. (2018) Quantifying avian avoidance of offshore windfarms: Current evidence and key knowledge gaps. Marine Environmental Research 140:278-288 https://doi.org/10.1016/j.marenvres.2018.06.017 [3] Cook, A., Humphreys, E., Masden, E. & Burton, N. (2014) The avoidance rates of collision between birds and offshore turbines. BTO Research Report No. 656. http://www.gov.scot/resource/0046/00464979.pdf	though the Applicant concluded that there would be no adverse effects on the SPA integrity due to gannet collisions, options for further mitigation are being investigated. With respect to the RSPB's statement that there will be a decrease in the SPA population of 40%, the Applicant would like to note that this is a misinterpretation of the population viability analysis (PVA) results. This is a reference to the counterfactual of population size prediction, which is the ratio of the impacted population size to that predicted in the absence of the impact. Thus, this indicates how much *smaller* the population may be following the imposition of any given magnitude of impact. However, this is not the same as a decrease in the population size, but rather that one (the impacted population) will be smaller than the non-impacted. Furthermore, the result referred to by the RSPB was derived from the density independent PVA model. This model permits unlimited population growth which is biologically unrealistic (but preferred by the RSPB and Natural England due to the difficulty in estimating density dependent responses in seabird populations). Thus, this is a comparison of exponentially growing populations and the differences between them after a period of 30 years. It is for these reasons that the Applicant considers that the counterfactual of population growth rate is a more robust metric for density independent simulations, and it is on this basis that a conclusion of no adverse effect was obtained.
Q8.10.3	Natural England	**Breeding birds** RSPB [RR-054] advises a 98% avoidance rate for breeding birds as the review from which the SNCB advice of a 98.9% avoidance rate acknowledges the majority of evidence of gannet avoidance behaviour is from non-breeding birds and that breeding birds would behave differently. What is NE's advice regarding RSPB's assertion that a 98% avoidance rate is more appropriate for breeding gannets, than the 98.9% they have advocated?	We acknowledge RSPB's advice regarding this. However, we note that the work underpinning the SNCB advice note (Cook et al. 2014; SNCBs 2014) looked at all the data available and determined that 98.9% across all seasons was the most appropriate advice. We note that there is no empirical evidence to calculate an avoidance rate of 98% for gannet in the breeding season. This again highlights the importance and need for a range-based approach where there is uncertainty regarding CRM input parameters.	The Applicant acknowledges the RSPB's position on gannet collision avoidance rates but notes that the SNCBs (including Natural England) do not share this position and also that this remains appropriate given the evidence for high macro avoidance recorded in this species (e.g. Skov et al. 2018 and Bowgen and Cook 2018). Furthermore, in the most recent study of avoidance rates (Bowgen and Cook 2018) it was recommended that the gannet avoidance rate could be increased to 99.5%. The Applicant also notes Natural England's response on this aspect, which was reiterated in their response to WQ 8.10.3 submitted at Deadline 2 (repeated below): *We acknowledge RSPB's advice regarding this. However, we note that the work underpinning the SNCB advice note (Cook et al. 2014; SNCBs 2014) looked at all the data available and determined that 98.9% across all seasons was the most appropriate advice. We note that there is no empirical evidence to calculate an avoidance rate of 98% for gannet in the breeding season*. Skov, H., Heinänen, S., Norman, T., Ward, R.M., Méndez-Roldán, S. & Ellis, I. 2018. ORJIP Bird Collision and Avoidance Study. Final report – April 2018. The Carbon Trust. United Kingdom. 247 pp Bowgen, K. & Cook, A. 2018. Bird Collision Avoidance: Empirical evidence and impact assessments. JNCC Report No. 614, JNCC, Peterborough, ISSN 0963-8091.
Q8.10.3	RSPB	**Breeding birds** RSPB [RR-054] advises a 98% avoidance rate for	The RSPB has added additional information on this point in Q8.10.2	See response above.

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		breeding birds as the review from which the SNCB advice of a 98.9% avoidance rate acknowledges the majority of evidence of gannet avoidance behaviour is from non-breeding birds and that breeding birds would behave differently. What is NE's advice regarding RSPB's assertion that a 98% avoidance rate is more appropriate for breeding gannets, than the 98.9% they have advocated?		
Q8.10.4	Natural England	**Auk** In response to NE's [RR-099] relating to definitive mortality rates for auk (razorbill and guillemot), the Applicant [AS-024] notes that the full range of outputs was presented in the assessment as requested. Using its own preferred rates, does NE consider an AEOI to razorbill and guillemot of the FFC SPA as a result of displacement can be excluded?	**Razorbill (alone):** We agree with the apportionment rates to the FFC SPA used by the Applicant (namely 0% in the breeding season, 3.4% for autumn and spring, and 2.7% for winter) in APP-201. Based on this at the lower end of the range of the Natural England advised rates of 30% displacement and 1% mortality results in an additional 0.15 (range based on 95% confidence intervals of abundance: 0.1-0.2) razorbill mortalities from the FFC SPA from Boreas alone. Whilst at the upper end of the range of the Natural England advised rates of 70% displacement and 10% mortality results in an additional 3.5 (range: 1.5-5.7) razorbill mortalities from the FFC SPA are predicted from Boreas alone. At the upper end of the Natural England advised range (i.e. 70% displacement and 10% mortality, this equates to 0.16% (range: 0.07 - 0.26%) of baseline mortality of the razorbill population of the FFC SPA, based on the designated colony size of 10,570 pairs (21,140 adults) and an adult mortality rate of 10.5% (calculated from the adult survival rate of 0.895 in Horswill & Robinson 2015). The Conservation Objective for the razorbill feature of the FFC SPA is to maintain the size of the breeding population at a level which is above 10,570 breeding pairs whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent. Given that the predicted impacts (even using the upper 95% confidence intervals of the abundance data) equates to less than 1% of baseline mortality of the colony, therefore we consider that this level of additional mortality could be considered non-significant and therefore would not be an AEOI. The conservation objectives regarding the razorbill feature would be met and **therefore Natural England advises an adverse effect on integrity (AEoI) of the razorbill feature of the FFC SPA can be ruled out for displacement impacts from Boreas alone**. **Guillemot (alone):** We agree with the apportionment rates to the FFC SPA used by the Applicant (namely 0% in the breeding season and 4.4% in the non-breeding season) in APP-201. Based on this at the lower end of the range of the Natural England advised rates of 30% displacement and 1% mortality results in an additional 1.8 (range based on 95% confidence intervals of abundance: 1.1-2.6) guillemot mortalities from the FFC SPA from Boreas alone. Whilst at the upper end of the range of the Natural England advised rates of 70% displacement and 10% mortality results in an additional 42.4 (range: 25.1-60.5) guillemot mortalities from the FFC SPA are predicted from Boreas alone. At the upper end of the Natural England advised range (i.e. 70% displacement and 10% mortality, this equates to 0.84% (range: 0.50-1.19%) of baseline mortality of the guillemot population of the FFC SPA, based on the designated colony size of 41,607 pairs (83,214 adults) and an adult mortality rate of 6.1% (calculated from the adult survival rate of 0.939 in Horswill & Robinson 2015). The Conservation Objective for the guillemot feature of the FFC SPA is to maintain the size of the breeding population at a level which is above 41,607 breeding pairs whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent. Whilst the prediction based on	The Applicant welcomes the agreement from Natural England that project alone adverse effects on guillemot and razorbill can be ruled out for the Flamborough and Filey Coast SPA. The Applicant confirms that the additional wind farms which Natural England requested (RR-099) were included in the updated assessment submitted at Deadline 2 (Rep2-035). Following this update the Applicant has confirmed that the original conclusions (APP-201) remain valid and there will be no adverse effects on the integrity of the Flamborough and Filey Coast SPA guillemot and razorbill populations as a consequence of in-combination displacement.

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			the mean abundance even at the upper end of the Natural England recommended rates equates to less than 1% of baseline mortality, the displacement prediction based on the upper 95% CI of the abundance data does equate to more than 1% of baseline mortality of the FFC SPA colony at the upper range of the Natural England rates. However, the predicted displacement figures using the upper 95% CI of the abundance data equate to 1% or more of baseline mortality of the FFC SPA colony only at the very upper end of the Natural England recommended range at 60-70% displacement and 10% mortality and even then at no more than 1.19%. Alde-Ore Estuary SPA colony. Therefore based on this, we consider that the conservation objectives regarding the guillemot feature would be met and **therefore Natural England advises an adverse effect on integrity (AEoI) of the guillemot feature of the FFC SPA can be ruled out for displacement impacts from Boreas alone**. **Razorbill and guillemot (in-combination):** As we noted in our Relevant Representations [RR-099], several relevant offshore wind farms were missing from the in-combination assessments of impacts on the FFC SPA, and updates were required to some of the sites included in the assessments. We understand that these issues are to be addressed by the Applicant in the updated offshore ornithology assessment due to be submitted at Deadline 2. Therefore, we will provide our advice on this following review of this document once it is submitted into the process. However, we note that at the end of the Norfolk Vanguard examination Natural England advised the Applicant that an AEoI could not be ruled out for razorbill or guillemot in-combination operational displacement when Hornsea Project Three was included (see our Deadline 9 response at Vanguard). Since Norfolk Boreas (and it is assumed East Anglia ONE North and East Anglia TWO) will be adding additional mortality to the in-combination figure presented for Norfolk Vanguard it is likely that Natural England will provide similar advice here.	
Q8.10.5	RSPB	**Auk** RSPB [RR-054] does not agree no AEOI to razorbill and guillemot from in-combination operational displacement. Following the Applicant's response [AS-024] does RSPB have any further concerns?	There are few robust studies of displacement, results differ, and we do not know the consequences for mortality or population trajectories, hence it is appropriate to consider a range of putative displacement and mortality rates. We agree with Natural England that displacement of up to 100% and mortality of up to 10% represents an appropriate level of precaution and should be used in the assessment and welcomes the Applicant's presentation of a full range of displacement and mortality rates for guillemot, in accordance with SNCB advice. However, we do not agree with the Applicant that rates of 50% displacement and 1% mortality are precautionary. In the context of the considerable uncertainty inherent in the assessment, the upper range advocated by Natural England, 70% displacement and 10% mortality, can be considered *realistic* rather than over-precautionary. The assessment concludes that the magnitude of effect is negligible and that there will be no adverse effect on integrity of the Flamborough and Filey Coast SPA guillemot and razorbill populations. However, the Applicant's own calculations show an in-combination mortality of up to up to 1635 guillemots and 419 individuals apportioned to the Flamborough and Filey Coast SPA in the lifetime of the wind farm. The results of the PVA carried out to explore the population scale consequences of this displacement (table 6.23 of Information to inform HRA, document 5.3) show a potential **decrease of 43%** for both the guillemot and razorbill populations of the SPA. It is therefore not possible, in our view, to avoid an adverse impact on the integrity of the SPA.	See response above. In addition, the Applicant's response above to the RSPB's response to WQ 8.10.2 is also relevant here with respect to apparent mis-interpretation of the density independent PVA counterfactual of population size metrics and the Applicant's consideration that the counterfactual of population growth rate is a more robust metric to use. Thus the RSPB's statement that the populations will decrease by 43% is not appropriate (rather the impacted populations may be this much smaller than the unimpacted ones which have experienced exponential growth over the same period).
Q8.10.6	The Applicant	**Puffin** The screening matrix for FFC SPA [AS-002] identify a	Puffin was recorded in the Norfolk Boreas wind farm and 2km buffer in only two months (February and March) and in very small numbers: the estimated	

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		LSE for puffin from operational displacement, however puffin is not included in the FFC SPA integrity matrix, nor is it identified in the HRA Report [APP-201]. The ExA understands that puffin forms part of the seabird assemblage feature of the FFC SPA, which has not been included on the screening matrix. The Applicant to confirm whether a LSE should be screened in for the seabird assemblage of FFC SPA, and if so, provide information to support the making of an appropriate assessment for this feature.	population sizes in these months were 5 and 23. Apportioning of the peak estimate to the Flamborough and Filey Coast SPA using Natural England's advised rate for the nonbreeding season (0.041%) it is predicted that less than 0.1 individuals from the SPA are present on the Norfolk Boreas site. On this basis there is no risk of a Likely Significant Effect (LSE) for puffin and its original inclusion in the screening matrix for the Flamborough and Filey Coast SPA was erroneous. Puffin has now been removed from the updated Screening Matrices submitted at Deadline 1 (REP1-012, 5.3.5.3 - Norfolk Boreas Updated Appendix 5.3 Habitats Regulations Assessment Screening Matrices (Version 3)) and there is also no requirement for any additional assessment, therefore this species is not included in the updated assessment submitted at Deadline 2 (ExA;AS-1,D2.V1). On the advice of Natural England, the seabird assemblage feature of the SPA has been screened in (5.3.5.3 - Norfolk Boreas Updated Appendix 5.3 Habitats Regulations Assessment Screening Matrices (Version 3)) and consideration of this has been included in the Deadline 2 ornithology update (ExA;As-1.D2.V1) and summarised in the notes provided for this SPA in the integrity matrices submitted at Deadline 1 (REP1-014, 5.3.6.1 - Norfolk Boreas Updated Habitats Regulations Assessment Integrity Matrices (Version 3).	
Q8.10.6	RSPB	**Puffin** The screening matrix for FFC SPA [AS-002] identify a LSE for puffin from operational displacement, however puffin is not included in the FFC SPA integrity matrix, nor is it identified in the HRA Report [APP-201]. The ExA understands that puffin forms part of the seabird assemblage feature of the FFC SPA, which has not been included on the screening matrix. The Applicant to confirm whether a LSE should be screened in for the seabird assemblage of FFC SPA, and if so, provide information to support the making of an appropriate assessment for this feature.	The RSPB understands that the Applicant has revised the screening matrix and puffin has now been included. The RSPB will review the updated document once it is made available.	The Applicant would like to clarify that puffin has not been assessed in its own right. The basis for this, as detailed in the updated assessment (REP2-035), is that the number recorded on Norfolk Boreas was extremely small (a maximum population estimate of 23), and only in February and March (i.e. outside this species' breeding season) and that the estimated number apportioned to the Flamborough and Filey Coast SPA was less than 0.1 individual. On this basis the risk of a likely significant effect (LSE) on the Flamborough and Filey Coast SPA population can be ruled out. Furthermore, the remaining features of the seabird assemblage have either been assessed in their own right (gannet, kittiwake, guillemot and razorbill) or the risk of an LSE has been ruled out due to the very low likelihood of connectivity (herring gull, shag and cormorant) or the absence of predicted wind farm impacts (fulmar). As a consequence, the Applicant has concluded that there is no risk of an adverse effect on the integrity of the SPA due to impacts on the seabird assemblage feature.
Q8.10.7	The Applicant	**Sea bird Assemblage** The Applicant to explain why it is unable to provide a submission of assessment of sea bird assemblage for FFC SPA as requested by RSPB [AS-030].	The seabird assemblage feature of the Flamborough and Filey Coast SPA comprises the named individual species (gannet, kittiwake, guillemot and razorbill) and five other species which are not named individually (herring gull, fulmar, shag, cormorant and puffin). Following advice from Natural England the Applicant has now included consideration of the potential for effects on the seabird assemblage feature in the updated assessment submitted at Deadline 2 (ExA;AS-1.D2.V1) and in the screening and integrity matrices submitted at Deadline 1 (REP1-012, 5.3.5.3 - Norfolk Boreas Updated Appendix 5.3 Habitats Regulations Assessment Screening Matrices (Version 3 and REP1-014, 5.3.6.1 - Norfolk Boreas Updated Habitats Regulations Assessment Integrity Matrices (Version 3)). The Applicant considers that there is no risk of an AEoI for the following reasons. 1) The species which are also features of the SPA in their own right (gannet, kittiwake, guillemot and razorbill) have been assessed in detail and the Applicant has concluded that there will be no AEoI for any species due to the project alone or in-combination with other plans and projects.	

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			2) The other species in the assemblage feature are either considered to be at negligible risk of wind farm impacts (fulmar), have no likelihood of connectivity (herring gull, shag and cormorant), or were present in such low numbers (puffin) that there is no risk of an impact. On the basis of these considerations the Applicant has concluded that there will be no AEoI on the seabird assemblage feature due to the project alone or in-combination with other plans and projects.	

8.11 Marine Mammals

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.11.1	The Wildlife Trusts	**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?		The Applicant note that TWT did not respond to this Written Question. The Applicant and TWT have outlined their positions within the SOCG (REP2-057). The Applicant and TWT continue to progress a Memedom of Understanding between the two parties.
Q8.11.2	The Applicant	**Harbour porpoise** Table 8.3 of the HRA Report states that lethal effects and permanent auditory injury to harbour porpoise from piling would be mitigation, however measures have not been specified. Can the Applicant provide further details on the mitigation measures to be employed?	Mitigation measures to reduce the risk of lethal effects and permanent auditory injury to harbour porpoise from piling are outlined in Section 8.2.1, Section 8.2.1.2.1 and Section 8.3.1.1.1 of the HRA report (5.3 Information to Support HRA report, APP-201). In addition, mitigation is set out in the draft Marine Mammal Mitigation Protocol (MMMP) for Piling, APP-704. The MMMP for piling will be developed post-consent in consultation with the MMO and relevant SNCBs and will be based on the latest scientific understanding and guidance, and detailed project design. The MMMP for piling will detail the proposed mitigation measures to reduce the risk of permanent auditory injury (PTS) to harbour porpoise during piling. For example, the activation for acoustic deterrent devices (ADDs) for 10 minutes prior to a 30 minutes soft-start and ramp-up would enable harbour porpoise to move beyond the maximum predicted range for auditory injury (PTS).	
Q8.11.3	The Applicant	**Grey Seal** NE's RR [RR-099] raised concerns regarding potential impacts on up to 37% of the Humber Estuary SAC. The Applicant's response [AS-024] states that it is more appropriate to use a wider reference population for the assessment; this results in total of 6.6% of the grey seal population being temporarily disturbed, not all of which would be from the Humber Estuary SAC. The Applicant to explain why this figure differs so differently from the originally quoted 37%. Does NE have any comments on the Applicant's response?	As outlined in the Applicant's comments on Relevant Representations [AS-024] and specifically in response to Natural England's Relevant Representation (RR-099) on the in-combination assessment of grey seal, to take into account the wide ranging movements of the species and the large area covered by the in-combination projects that have been included, it is much more appropriate to use the wider reference population for assessment, which includes the South East England, North East England, South Coast Scotland MUs and the Waddenzee. Using this wider, more appropriate, reference population (22,290 grey seal) for the assessment results in a total of 6.6% of the grey seal population being potentially temporarily disturbed. The 37% referred to in Natural England's RR [RR-099] is based on the count of grey seal at the Humber Estuary SAC (3,964 grey seal) and that all grey seal that could be impacted from in-combination effects are only from the Humber Estuary SAC. However, not all grey seal that have been predicted to be temporarily affected from the in-combination effects could be from the Humber Estuary SAC, due to the large distances between the projects included in the in-combination assessment and the Humber Estuary SAC. Therefore, the maximum predicted effects of up to 6.6% of the wider grey seal population is more realistic and appropriate for the in-combination assessment.	
Q8.11.3	Natural England	**Grey Seal** NE's RR [RR-099] raised concerns regarding	Natural England is in agreement with the explanation provided by the Applicant to this point in AS-024. Natural England considers it is reasonable to	The Applicant have no further comment and will update the SoCG accordingly for Deadline 6.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		potential impacts on up to 37% of the Humber Estuary SAC. The Applicant's response [AS-024] states that it is more appropriate to use a wider reference population for the assessment; this results in total of 6.6% of the grey seal population being temporarily disturbed, not all of which would be from the Humber Estuary SAC. The Applicant to explain why this figure differs so differently from the originally quoted 37%. Does NE have any comments on the Applicant's response?	put the impact to grey seal in the context of the wider in-combination reference population here and agrees it is unlikely that all the grey seal potentially impacted will be from the Humber Estuary SAC.	
Q8.11.4	Marine Management Organisation	**South North Sea SAC** Can MMO advise whether there is likely to be any impediment to granting the licence for UXO clearance?	The MMO are preparing a response to this question and will provide an update at deadline 3.	The Applicant look forward to receiving the response at Deadline 3 and will respond accordingly at the relevant Deadline.
Q8.11.5	The Applicant	**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.	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. The Applicant does not consider it necessary to include a maximum hammer energy for pin-piles within the DCO. This approach is consistent with other recent DCOs for wind farm projects both made (East Anglia THREE) and in draft (Hornsea Project Three and Norfolk Vanguard).	
Q8.11.6	Marine Management Organisation	**Piling** Provide an update on discussions between the Applicant and MMO regarding the need to prevent concurrent piling between Norfolk Boreas and Norfolk Vanguard and restrict the number of piles to be installed per 24 hour period [AS-027].	The MMO are in agreement in principle that the noise management of the Southern North Sea Special area of conservation (SNS SAC) will be assessed adequately within the Site Integrity Plan (SIP) and the Marine Mammal Mitigation Plan (MMMP). If required, any issues relating to concurrent piling between Norfolk Boreas and Norfolk Vanguard and the number of piles being installed within a 24 hour period, can be assessed further to determine if any restrictions or mitigation is required. The MMO and the Applicant are continuing discussions to ensure all wording in relation to this commitment is covered within the SIP and MMMP.	As stated by the MMO, discussions are ongoing to ensure that this issue is resolved.
Q8.11.6	Natural England	**Piling** Provide an update on discussions between the Applicant and MMO regarding the need to prevent concurrent piling between Norfolk Boreas and Norfolk Vanguard and restrict the number of piles to be installed per 24 hour period [AS-027].	Natural England has briefly discussed this issue with both the Applicant and the MMO. We note that the number of piles may be limited through the SIP. However, also note our concerns regarding the mechanism to manage inter-project co-ordination have not yet been addressed by the MMO.	The Applicant have no further comment at this stage.
Q8.11.6	The Applicant	**Piling** Provide an update on discussions between the Applicant and MMO regarding the need to prevent concurrent piling between Norfolk Boreas and Norfolk Vanguard and restrict the number of piles to be installed per 24 hour period [AS-027].	The Applicant and the MMO are in agreement in principle that the development and management of the SNS SAC SIP and MMMP (both within and outside of designated sites) is where, if required, any issue of concurrent piling within the project and between Norfolk Boreas and Norfolk Vanguard and the number of piles to be installed in a 24 hour period can be assessed further to determine, if any restrictions or mitigation is required (ExA.SoCG-10.D0.V2). There are ongoing discussions regarding how this is currently secured.	
Q8.11.7	The Applicant	**Piling** WDC [RR-056] and TWT [RR-040] advise that foundations requiring piling should not be used due to noise impacts. The Applicant to advise whether	The Applicant is not currently able to commit to a particular foundation type, nor any potential combination of the foundation types currently described within the Project Description (See 6.1.5 Environmental Statement - Chapter 5 Project Description, APP-218) or the dDCO (as defined in Schedule 1, Part 9	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		there are any areas in the array where piling could be excluded?	of the dDCO, REP1-008). The worst case assumption regarding noise impacts as a result of foundation installation is therefore that monopiles (in terms of greatest spatial impact) and pin piles (in terms of greatest temporal impact) will be used to install all turbines throughout the site as assessed within Document 6.1.12 Environmental Statement - Chapter 12 Marine Mammals (APP-225). Final turbine type and locations will be driven by a number of constraints including, cost, availability, ground conditions, water depth, sensitive habitats, and existing infrastructure. There is potential for turbines to be excluded from a small part of the site due to a requirement for a Helicopter Refuge Area however the parameters for this would be defined post consent. Therefore, the Applicant is currently not in a position to exclude piling activity from any areas of the site. The Applicant also does not consider that such exclusions would allay WDC and TWT's concerns regarding piling activity.	

8.12 Benthic Ecology

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q8.12.1	Natural England	**Baseline data** The Applicant [AS-024] has provided a response to NE's concerns regarding the baseline data in the HHW SAC. Does NE have any further comments to make regarding the baseline for the assessment of effects?	Natural England has no further comment.	The Applicant has no further comment.
Q8.12.2	The Applicant	**Annex 1 Reef** The Applicant [AS-024] explains what action would be required in the event that Annex I reef encountered along the connection route was so extensive that micrositing was not possible. Can the Applicant explain how any such action would be consistent with the site's conservation objectives? Is NE in agreement with the Applicant that these proposals are consistent with the site's conservation objectives?	At the request of Natural England, the information to support HRA (document 5.3, APP-201) contains an assessment for a theoretical scenario where *S. spinulosa* reef spans the full 2km to 4.7km width of the offshore cable corridor and micrositing is not possible. The assessment concludes that due to the fact that the area of disturbance would only be a small percentage of the area occupied by reef in that theoretical scenario, there would be no AEoI. Within the conservation objectives for the HHW SAC site there are targets attached to the conservation objective for reef to recover. The targets acknowledge that, currently the extent of reef within the site is unknown stating that: "*due to the ephemeral nature of the reef its presence can be highly variable in both space and time and therefore estimating its total extent is not possible*"[4]. Therefore, it is currently not possible to quantify what would constitute favourable condition for reef extent. However, if reef were so extensive across the offshore cable corridor that there was no route through the reef, it is likely that the target for that conservation objective would have been reached, and in all likelihood exceeded. Therefore, a small amount of minimal impact would not reduce the reef extent sufficiently to bring the reef feature of the SAC into unfavourable condition.	

[4] https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK0030369&SiteName=hais&SiteNameDisplay=Haisborough%2c+Hammond+and+Winterton+SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=0

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			If it was not possible to agree with the MMO and Natural England that, under conditions where the entire cable route supported *S.spinlulosa* reef, impacts from cable installation would not cause AEoI the Outline HHW SAC SIP (document 8.20, APP-711) contains the following statement: *"If such a finding could not be reached, construction could not commence and the onus would be on Norfolk Boreas Limited to consider alternative solutions. For example, this could include: minor amendments to the redline boundary in discrete areas where the cable route interacted with reef to provide space for micrositing…"* The minor amendments to the redline boundary would be made in order for the cable route design to have further room to microsite around *S.spinulosa* reef and therefore not inhibit the site's conservation objective to restore the reef. Noting that in such a scenario it is likely that the restore objective would have already been achieved and exceeded in any event.	
Q8.12.2	Natural England	**Annex 1 Reef** The Applicant [AS-024] explains what action would be required in the event that Annex I reef encountered along the connection route was so extensive that micrositing was not possible. Can the Applicant explain how any such action would be consistent with the site's conservation objectives? Is NE in agreement with the Applicant that these proposals are consistent with the site's conservation objectives?	Only if impacts to all areas of Annex I reef are avoided would this be consistent with sites conservation objectives, which are to maintain and 'restore' areas of Annex I reef. As the site is already in unfavourable condition any further detrimental impacts to the interest feature is not consistent with the conservation objectives. There would also need to be clear evidence to demonstrate recoverability from similar impacts to the site feature, which currently remain uncertain.	The Applicant maintains that it is likely that impacts to Annex 1 reef would be avoided, and in the event that they could not be avoided due to Annex 1 *S.spinulosa* reef occupying the full width of the offshore cable corridor, impacts would occur over such a relatively small area that the maintain and restore objectives for the site would not be compromised.
Q8.12.3	Marine Management Organisation	**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?	The MMO is still in discussion with our scientific advisers and will continue to discuss this with the applicant through the SoCG. The MMO will provide a written response at deadline 3.	The Applicant will continue to engage with the MMO over this issue and will respond to the submission made at Deadline 3 accordingly.
Q8.12.4	Natural England	**Annex 1 reef** What is NE's view of the Applicant's commitment regarding disposal of material within the HHW SAC (see Table 3 Row 8 of [AS-024])?		The Applicant notes that Natural England have not provided a response to this question at Deadline 2. The Applicant will continue to engage with Natural England regarding the best disposal strategy for promoting recovery of sandbanks and their biological communities within the SAC.
Q8.12.5	The Applicant	**Sandwave levelling** NE [RR-099] request that areas of Annex I reef be avoided when depositing sediment from sandwave levelling. Is the Applicant willing to commit to this, and if so how would such a commitment be secured?	The Applicant can confirm that a commitment has been made within the HHW SAC SIP to not dispose of material within 50m of *Sabellaria reef* (REP1-033). The document states that: "*The location(s) of sediment disposal, must include a minimum buffer of 50m from S.spinulosa reef, and will therefore be informed by the pre-construction surveys*."	
Q8.12.6	The Applicant	**Haisborough, Hammond and Winterton SAC (HWW SAC)** NE [RR-099] and MMO [RR-069] advise that an AEOI cannot be ruled out for HHW SAC and that alternatives and/or compensation should be secured. However, it advises that it is unlikely agreement could be found for compensation for the permanent loss of Annex I reef. The Applicant [AS-024] considers that cable protection is a suitable habitat for Annex I reef communities. Can the Applicant, NE and MMO agree a joint position	The Applicant has discussed this written question with both the MMO (27th November) and Natural England (28th November) and will continue working with both parties to attempt to agree a joint position during the examination. However, any joint position reached is likely to build on (or respond to) Natural England and the MMO's joint position statement on cable protection, which has not yet been submitted to the examination. Therefore following submission of Natural England and the MMO's joint position statement on cable protection, the Applicant will attempt to progress a joint position in relation to this matter with Natural England and the MMO.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		on AEOI for HWW SAC?		
Q8.12.6	Natural England	**Haisborough, Hammond and Winterton SAC (HWW SAC)** NE [RR-099] and MMO [RR-069] advise that an AEOI cannot be ruled out for HHW SAC and that alternatives and/or compensation should be secured. However, it advises that it is unlikely agreement could be found for compensation for the permanent loss of Annex I reef. The Applicant [AS-024] considers that cable protection is a suitable habitat for Annex I reef communities. Can the Applicant, NE and MMO agree a joint position on AEOI for HWW SAC?	In discussions to date the between Natural England and the MMO, and Natural England and the Applicant no agreement has been reached on this matter. MMO are guided by the advice of the SNCBs on the scale of any impact and mitigation/alternatives/compensation for the impacts. As set of in our relevant representation [RR-099] compensating for impacts on Annex I reef is challenging. And that reef on artificial substrate is not consider to be Annex I habitat on soft/mixed sediments for which the site was designated for.	As stated in the Applicant's response to this question at Deadline 2 [REP2-021], the Applicant will continue to engage with the Natural England and the MMO to attempt to reach a joint position; meetings with both parties have been agreed in early January to discuss the HHW SAC.
Q8.12.6	The Marine Management Organisation	**Haisborough, Hammond and Winterton SAC (HWW SAC)** NE [RR-099] and MMO [RR-069] advise that an AEOI cannot be ruled out for HHW SAC and that alternatives and/or compensation should be secured. However, it advises that it is unlikely agreement could be found for compensation for the permanent loss of Annex I reef. The Applicant [AS-024] considers that cable protection is a suitable habitat for Annex I reef communities. Can the Applicant, NE and MMO agree a joint position on AEOI for HWW SAC?	The MMO are working with the Applicant and NE towards a position throughout the examination. This will be influenced by a cable protection joint position statement between the MMO and NE and further engagement between the three parties.	
Q8.12.7	The Applicant	**Offshore cable** 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?	As detailed surveys of the cable route have yet to be undertaken, the precise areas of Annex 1 reef within the cable route are not yet known. Even if areas of Annex 1 reef had been identified at this stage, due to their ephemeral nature these may change by the point of construction. Similarly, it is not known whether, and the extent to which, Annex 1 reef will recover in areas to be managed as reef or where fisheries byelaws are proposed. Detailed surveys will be undertaken to establish areas of Annex 1 reef within the cable corridor pre-construction. The HHW SIP secures mitigation for the HHW SAC, such as micrositing of the cable route to avoid identified areas of Annex 1 reef where possible. In addition, any impacts of installing cables on Annex 1 reef will be temporary. Whilst impacts from cable protection have been assessed as permanent impacts, the Applicant has submitted evidence (Annex 3 of the HHW SIP, document reference 8.20; REP1-033) which shows that cable protection is not likely to be required in areas to be managed as reef. Further, the Grampian condition in the dDCO (Condition 14(1)(m) of Schedule 11-12) requires the MMO to be satisfied that such mitigation as is necessary to avoid AEoI is secured in the final HHW SIP. Therefore, it is not necessary or appropriate to exclude certain parts of the HHW SAC from the cable route at this stage and to do so would be unduly restrictive. Further, excluding parts of the HHW SAC from the cable route at this stage will reduce the area available for micrositing and therefore has the potential to inhibit the Applicant's ability to avoid areas of known Annex 1 reef during construction.	
Q8.12.8	The Applicant	**Offshore cable** Confirm how often there would be post	Routine cable burial surveys will be conducted using non-intrusive techniques. Such techniques include Ground-Penetrating Radar (GPR) and drop-down	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		construction visual inspections of the cable corridor – via Sub Seas Remote Vehicle.	video. The interval between surveys is likely to be around 5 years, with a minimum of 3 years. Electrical faults in the export cables will normally take the form of line-to-ground short circuits. Faults will be detected automatically, and the cable system will immediately be isolated from all sources of electrical energy. (Note: This is standard practice for all high-voltage electrical systems; the required technical solutions are well-established and understood.) As a consequence of these measures, the possibility of 'stray' electrical currents persisting in the marine environment – and any associated impacts and hazards – is eliminated. Distributed Temperature Sensing (DTS), which uses strain in the communications cable as a measure of cable temperature, could also be used to identify the location of the fault. A proportionate risk-based approach would use the post construction geophysical survey(s) to build up evidence of sand wave mobility and erosion/deposition rates and find the area with the most variation, thus the surveys could then be made of cables in those areas with the highest risk of exposure.	
Q8.12.9	Natural England	**Site Integrity Plan (SIP)** NE [RR-099] advises the SIP has insufficient detail to absolve the need for a scour and cable protection plan for the HHW SAC. The Applicant referred in [AS-024] to its assessment of scour and cable protection and its SIP. What further information does NE require in the SIP to absolve the need for a scour and cable protection plan?	These are two separate documents that have a different remit. The SIP that the Applicant proposes is only for HHW SAC and the cable and scour protection plan is for the whole project in which methodologies, areas, locations and amount are considered holistically as required under a DCO/DML.	The Applicant agrees with Natural England's description of the purpose of each of these documents and has no further comment at this stage.
Q8.12.10	Natural England	**Disposal location and impacts** NE [RR-099] requested an assessment of the disposal location and impacts. The Applicant [AS-024] explained that the strategy for disposal can only be determined at the detailed design stage and that the HHW SAC SIP would provide an appropriate mechanism for further discussions and agreement. Does NE have remaining concerns, and if so, what are they?	The use of a SIP does not address the issues we raised in our Relevant Representation [RR-099]. Natural England have sought further legal input on the use of a Site Integrity Plan, which has strengthened our position that it is not appropriate under the Habitat Directives to defer consideration of AEoI to post consent through use of a Grampian condition. Therefore both the MMO and NE strongly advise against the use of a SIP for benthic SACs to enabling consenting. Please see our Relevant Representation [RR-099] for further details.	For the reasons detailed within Tables 3 and 5 of the Applicant's Comments on Relevant Representations [AS-024] the Applicant continues to advocate the use of the SIP to give the MMO and Natural England the control to ensure that no AEoI can be achieved for the HHW SAC.
Q8.12.11	The Applicant	**Drill arisings** In response to MMO's concerns regarding worst case for drill arisings [RR-069] the Applicant [AS-024] states that the overall figure (16,305m2) is secured within the dDCO at Condition 1 and 3 of the Transmission DMLs. 1. Is this correct, or should this refer to the Generating Asset DMLs? 2. Where is the overall figure of 16,305m2 secured? 3. What is the consequence of greater than 50% of foundations having to be drilled?	1. The ExA is correct that the reference should have been to the Generation DMLs (Schedules 9 and 10). 2. The SoCG between the Applicant and the MMO (AS-027) contains, within Table 8 (page 67), a full answer to the MMO's question regarding how the drill arisings were calculated and how they have been secured. This has now been agreed with the MMO and the agreement is reflected in version 2 of the SoCG (ExA.SoCG-10.D2.V2) which has been submitted at deadline 2. 3. The ground conditions within the Norfolk Boreas site indicate that piling will be possible at the vast majority of foundation locations. Drilling may not be required at all. Therefore the 50% of locations is a very precautionary assumption which has been made for the purposes of the assessment. If more than 50% of foundations did require drilling, although the magnitude of that impact may increase, it is unlikely that significance of any impacts would change, because the drill arisings would remain in small discrete areas local to the site of each foundation.	

9 Landscape and Visual Effects

9.0 The Applicant's landscape and visual assessment

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.0.1	Natural England	**Methodology and its application** Provide comments on the Applicant's landscape and visual assessment methodology, clearly distinguishing between those on the actual methodology and those on its application as described in the ES and supporting documents [APP-242, APP-484 to APP582, APP-677 to APP-678].	NE has no further comment on this.	Noted
Q9.0.1	Broadland District Council	**Methodology and its application** Provide comments on the Applicant's landscape and visual assessment methodology, clearly distinguishing between those on the actual methodology and those on its application as described in the ES and supporting documents [APP-242, APP-484 to APP582, APP-677 to APP-678].	Content as drafted	Noted
Q9.0.1	North Norfolk District Council	**Methodology and its application** Provide comments on the Applicant's landscape and visual assessment methodology, clearly distinguishing between those on the actual methodology and those on its application as described in the ES and supporting documents [APP-242, APP-484 to APP582, APP-677 to APP-678].	Please see the NNDC comments as set out in the Local Impact report and those set out in the Statement of Common Ground submitted at Deadline 2.	The Applicant has provided comments on North Norfolk District Council Local Impact Report at Deadline 3 (ExA.LIR-NNDC.D3.V1)
Q9.0.1	Necton Parish Council	**Methodology and its application** Provide comments on the Applicant's landscape and visual assessment methodology, clearly distinguishing between those on the actual methodology and those on its application as described in the ES and supporting documents [APP-242, APP-484 to APP582, APP-677 to APP-678].	The landscape and visual assessment methodology is subjective and appears to minimize the effects of the large buildings being planned at Necton. In the absence of scaled detail, the assessment methodology has serious flaws.	The Landscape and Visual Impact Assessment (LVIA) methodology presented in ES Appendix 29.1 (APP-677) sets out an objective approach to the assessment of landscape and visual effects and attempts to reduce subjectivity in the process. In areas where a degree of subjectivity inevitably occurs, this is dealt with by applying professional judgement. In respect of Optimised Environments (OPEN) as the authors responsible for the production and review of the LVIA, professional judgement is based on over 18 years of experience of producing LVIAs for energy infrastructure projects. OPEN's methodology and approach is informed through its regular involvement in Public Inquiries and Public Hearings to ensure that the methodology and approach is evolving in line with current concerns and feedback from the planning system. In terms of the methodology used in the production of the visualisations, the following process is applied: OPEN select the LVIA viewpoints, take the 360 degree panorama photographs on site using a GPS reading for the camera tripod position. This GPS position is then verified back at the office using Ordnance survey maps and high resolution aerial imagery. OPEN build a 3D model of the proposed substation and infrastructure using Visual Nature Studio software. For this OPEN use OS Terrain 5 DTM data (accuracy measurement - 2.5 metres RSME in rural areas) to construct the existing landform together with the high resolution aerial imagery draped over the landform to help show some landscape context such as field boundaries and hedgerows. The viewpoint locations are entered into the 3D model so that it replicates the same view in the 3D model as that taken by the camera in the real world. To help scale the model correctly to the existing photography, OPEN uses the landform horizon line, topographic context shown in the aerial imagery draped on the landform, in conjunction with landscape markers for the location of

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
				existing buildings, pylons, telephone poles, trees etc. The location of these markers are extracted from Ordnance Survey Mastermap data. Using all of these inputs in combination helps to scale the 3D model view proportionally, without distorting the scale in any way, to the existing view photography.
Q9.0.2	Necton Parish Council	**Consideration of cumulative effects on landscape and visual** Has the Applicant's response to RRs [RR-014] and [RR-006] which questioned the way in which the baseline and cumulative assessments for landscape and visual effects have considered other existing and proposed substation infrastructure in the area proposed for the Norfolk Boreas substation works [AS-024, Table 1, No. 5] addressed concerns? If not set out what further information is required.	Necton Parish Council supports the Necton Substation Action Group concerns. The Boreas project as well as the Vanguard project did not consider the alternative sites proposed by Necton Parish Council and the Necton Substation Action Group. The applicant's response has not addressed any concerns about the siting of the substation or the cumulative effects on both landscape and visual vistas. The PEIR information seems to be lacking in clarification as to why the alternative sites have not been seriously considered. We would like to see the documentation that assesses both alternative suggested sites, at Scarning and Top farm. We would also like to see an adequate mitigation strategy proposal.	The Applicant has undertaken a cumulative Landscape and Visual Impact Assessment which is provided in section 29.8 of ES Chapter 29 (APP-242). In the Applicant's response to the Open Floor Hearing (REP 1-036) the Applicant has responded on the issue of site selection and onshore project substation siting (reference 1, page 2) and this response also addresses the potential site at Top Farm. The site at Top Farm is also addressed in the Consultation Report (document reference 5.1; APP-027) at pages 138 and 139 (Finding the best possible substation location) and at section 28.11 (Learnings from the Norfolk Vanguard examination and community representations). As detailed in section 4.13 of ES Chapter 4 (APP-217) (Identification of the onshore project substation location) in order to minimise the distance between the onshore connection point, the existing Necton National Grid substation, and the onshore project substation a 3km substation search area was identified. Distances beyond 3km were considered unacceptable due to transmission losses and included consideration of National Grid's Guidelines on Substation Siting and Design (The Horlock Rules) which prioritise the grouping of existing electrical infrastructure. This 3km study area was consulted on as part of the Scoping Report, through formal and informal community consultation, and during community drops in, meetings with landowners, stakeholders and regulators. The suggested Scarning site falls outside the 3km search area and would require the construction of a new 400kV National Grid substation, an additional footprint of infrastructure which would not be required at Necton.
Q9.0.3	The Applicant	**Localised significant effects** How extensive geographically can a "Localised significant effect" be [APP-242, assessment tables]?	On the subject of the geographical extent of effects, Guidelines for Landscape and Visual Assessment (GLVIA 3) makes the following comment; "*The extent of effects will vary widely depending on the nature of the proposal and there can be no hard and fast rules about what categories to use. In general effects may have an influence at the following scales, although this will vary according to the nature of the project and not all may be relevant on every occasion:* • At the site level, within the development site itself; • At the level of the immediate setting of the site; • At the scale of the landscape type or character area within which the proposal lies; • On larger scale, influencing several landscape types or character areas." In respect of the LVIA, the term localised has been applied to describe geographical extent. The Oxford Dictionary definition of localised is "restricted to a particular place." In relating the term localised to the four scales presented in GLVIA 3, the intended meaning includes "*the level of the immediate setting*" and also "*the scale of the landscape type or character area within which the proposal lies*" but not "*the larger scale, influencing several landscape types or character areas.*" While the effects do extend across more than one landscape type, they only affect part of each landscape type and so in respect of scale this is commensurate with the scale of the landscape types.	

9.1 The Applicant's visual assessment

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.1.1	The Applicant	**Study area parameters** The study areas for the onshore project substation/ substation extension and the landfall site are defined as a 3km radius area and 1km radius area respectively [APP-242, paras 46-48] and [APP-677, para 7]. However, the study area is shown as 500m from all elements of the Proposed Development on most Figures. The representative viewpoints are mostly at or within 500m of the onshore project substation/ substation extension, with no discussion of potential impacts to more distant views. 1. Explain how the representative viewpoints were selected. 2. Why are there not more viewpoints within the areas of potential visibility shown on the Zones of Theoretical Visibility [APP-488], [APP-489], [APP-500] and [APP-501]?	1. The purpose of viewpoint selection is to determine those visual receptors with potential to undergo significant effects as a result of the project. Viewpoint selection, therefore, looks to identify publicly accessible settlements, routes and paths from which actual visibility of the project would occur. Furthermore, there needs to be a notable sensitivity attached to the visual receptors and the potential for a notable magnitude of change to occur, such that a significant effect would have the potential to arise. The representative viewpoints were identified during extensive study area investigations and selected to best represent the visual amenity of local visual receptors. The viewpoints were agreed through consultation with the statutory consultees. The relatively close proximity of many of the viewpoints reflects the enclosed character of the rural landscape surrounding the onshore project substation and National Grid substation extension. This has made finding appropriate viewpoints difficult as there are very few clear views apart from within the immediate setting of the project, and then from the more distant ridgeline 2.5 to 3 km to the south. Owing to the enclosure from mostly tree cover and hedgerows in the rural areas, but also built form in the settlements, there are few available or appropriate viewpoints within the 1 to 2 km range. 2. There are not more viewpoints within areas of theoretical visibility shown on the Zones of Theoretical Visibility for the following reasons. Firstly, actual visibility is much more contained than theoretical visibility, owing to the enclosure of trees and hedgerows in the rural areas and built form in the settlements. This means that there are often no views or limited visibility from settlements and roads in the area. Secondly, many of the patches of theoretical visibility cover areas where there are no visual receptors, for example, areas of open field, and therefore there is no potential effect on visual amenity and no representative viewpoints need to be included. Thirdly, with distance, the likelihood of significant effects typically dissipates. This is often because the relative scale of the project decreases and the influence of the wider surrounding landscape or townscape increases.	
Q9.1.2	Broadland District Council	**Study area parameters** Do you have any comments relating to the study areas adopted for the onshore project substation/ substation extension and the landfall site, and the selection of representative viewpoints?	No comment as the proposed landfall site and project substation are outside of Broadland District.	Noted.
Q9.1.3	The Applicant	**Description of effects** Confirm for the benefit of Interested Parties that all effects as stated are adverse unless otherwise indicated.	Yes - all effects are adverse unless stated otherwise. Generally, a precautionary approach is adopted, which assumes that significant landscape and visual impacts would be weighed on the adverse side of the planning balance. This is in light of the subjective nature of landscape and visual effects and ensures that a worst case assumption is covered.	
Q9.1.4	The Applicant	**Distance: susceptibility of a receptor and the magnitude of change** 1. Confirm whether distance between a visual receptor and the proposed development should (according to the stated methodology [APP-677]) be a factor in influencing the susceptibility of a receptor or the magnitude of change. It appears in some parts of the visual assessment that distance has been used as an influencing factor for both; such as residents of Whimpwell Green [APP-242, Table 29.10, VP8].	1. Distance between a visual receptor and the proposed development is a factor in considering **both** the susceptibility of the visual receptor to the proposed development and the magnitude of change that the visual receptor will experience as a result of the proposed development. As set out in ES Appendix 29.1 LVIA Methodology Paragraph 57 [APP-677] the assessment of susceptibility needs to consider the susceptibility of a visual receptor to a specific project, so within the assessment of sensitivity, consideration of how views towards the site will be affected are being made. How far the visual receptor is from the site, is therefore a valid consideration, as it will have a direct effect on their susceptibility. For example, a visual receptor at 500m is likely to have a much higher susceptibility to the project than a visual receptor	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		2. Likewise, should screening by existing intervening landform be a factor in determining susceptibility of a receptor or the magnitude of change? It appears in places that screening has been used as an influencing factor for both [APP-242, Table 29.13, VP8]. 3. Could these instances (and others if they exist) result in a downplaying of the sensitivity of receptors to change, and therefore the assessment of whether effects are significant or not?	at 5km. This is just one of many considerations made in the assessment of susceptibility. 2. Screening between a visual receptor and the proposed development is also a factor in considering **both** the susceptibility of the visual receptor to the proposed development and the magnitude of change that the visual receptor will experience as a result of the proposed development. The susceptibility of a visual receptor is being assessed relative to that specific project and therefore if a visual receptor is set behind intervening landform or woodland, their susceptibility to the effects of that project will inevitably be reduced. 3. In terms of the suggestion that this approach may downplay the sensitivity of receptors and subsequently give rise to the possibility that significant effects may have been overlooked as a result, this is not the case. These considerations are a valid part of the assessment, as it is the susceptibility of visual receptors relative to the specific view towards the site and inevitably if there are elements screening the site or those views are being experienced some distance from the site then this will affect susceptibility. Following on from this, the assessment of significant effects is in line with the methodology and there has been no downplaying of effects.	
Q9.1.5	The Applicant	**Visualisation assumptions** Confirm what assumptions have been made for the production of visualisations and the assessment of effects: 1. with regards to existing ground levels showing the project substation and the National Grid substation extension, with reference to the existing ground levels defined in Requirement 16 of the dDCO [AS-019], and with reference to ground levels in the OS Terrain 5 DTM data; 2. regarding the maximum height of structures within the project substations, do the blue dotted lines on the visualisations show the proposed maximum height of the buildings at 19m or the masts at 25m? For clarity, please confirm the maximum height AOD of the 'blue Rochdale Envelope' referred to in the Applicant's comments on Relevant Representations [AS-024, Table 4, No.4]. 3. regarding the maximum height of equipment within the National Grid substation extension? Is this 15m? 4. whether or not the potential 2m high (Scenario 1) and 1.5m high (Scenario 2) bunding for planting on the western boundary [APP-698, paras 53 and 58] has been included in the visualisations.	1. The assumption made is that the substation footprint is on a uniformly level platform which would be formed by a balanced cut and fill of the existing ground levels (as provided in the OS Terrain DTM model), with no import or export of material or reuse of material on the site for other purposes such as landscape bunding. The ground level of this uniformly level platform is then utilised for production of visualisations, assessment of effects and the 'existing ground levels' defined in Requirement 16 of the dDCO. 2. The blue-dotted lines show the maximum envelope of 25m to include the masts, despite the maximum height of the buildings being 19m. The maximum height of the blue Rochdale Envelope is also shown at 25m. 3. Yes – 15m. 4. Yes – bunding has been included in the visualisations.	
Q9.1.5	Necton Parish Council	**Visualisation assumptions** Confirm what assumptions have been made for the production of visualisations and the assessment of effects: 1. with regards to existing ground levels showing the project substation and the National Grid substation extension, with reference to the existing ground levels defined in Requirement 16 of the dDCO [AS-	National Grid have provided vague information and no visualizations of their installation. Consequently Necton Parish Council cannot make any reasoned comments. For a project of this size, more information should be made available and time given for assessments and comments to be made. National Grid have a published obligation to consult with stakeholders when planning an installation. We would like the Planning Inspectorate to ask National Grid for a copy of their consultation with Necton Parish Council and	The works at the existing Necton National Grid substation required for Norfolk Boreas project are included within the Norfolk Boreas Application and details of the works are provided in ES Chapter 5 (APP-218). These elements have been included as part of the consultation undertaken by Norfolk Boreas, and the Applicant has provided a detailed response on consultation with regards to substation siting in response to Q9.2.8 in Responses to the ExA's First Written Questions (REP2-021).

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		019], and with reference to ground levels in the OS Terrain 5 DTM data; 2. regarding the maximum height of structures within the project substations, do the blue dotted lines on the visualisations show the proposed maximum height of the buildings at 19m or the masts at 25m? For clarity, please confirm the maximum height AOD of the 'blue Rochdale Envelope' referred to in the Applicant's comments on Relevant Representations [AS-024, Table 4, No.4]. 3. regarding the maximum height of equipment within the National Grid substation extension? Is this 15m? 4. whether or not the potential 2m high (Scenario 1) and 1.5m high (Scenario 2) bunding for planting on the western boundary [APP-698, paras 53 and 58] has been included in the visualisations.	other stakeholders. The published obligation is for National Grid to consult with stakeholders in their own right, not through a third party. One matter that needs more investigating is the new tower / overhead line proposals for the Necton / National Grid site. Greater detail is needed. It could be that, if an NG L12 termination tower is required, this could be up to 50 metres tall (164 ft). Even a 'smaller' L6 tower could be around 30 – 40 metres tall (approx. 100 ft). We recommend that additional information regarding this apparatus is requested as the towers would dwarf the new substation site extension with no real possibility of screening.	Under Scenario 1 these works would involve an extension to the east, details of which are provided in ES Chapter 5 section 5.6.4.1, which include the dimensions (135m by 140m) and maximum height of outdoor electrical equipment (15m). Under Scenario 2 these works would involve an extension to the west and modifications to the existing overhead lines. ES Chapter 5 section 5.7.4.1 presents the key parameters for the extension to the west, including dimensions (200m by 150m) and maximum height of outdoor equipment (15m) and provides details on the overhead line modifications, which include an additional tower (maximum height 55m) and incremental change in the location and height of another tower. The details from ES Chapter 5 on the works at the existing Necton National Grid substation have informed the Landscape and Visual Impact Assessment presented in ES Chapter including the photomontages. The photomontages presented in the ES (ES Figures 29.23 to 29.46 (APP-509 to APP-532) include the National Grid substation extensions and overhead line modifications (under Scenario 2) as well as the onshore project substation. The Applicant has produced some additional figures to illustrate the the proposed changes to the overhead lines, these are presented in Appendix 1 to the Applicant's Comments on Written Representations and Additional Submissions (ExA.WRR.D3.V1) submitted at Deadline 3.
Q9.1.6	The Applicant	**3-D model of substations** In responding to [RR-109] regarding the 3-D model of the substation [AS-024, Table 24, No.4] would it be more appropriate to say the 3-D model has been used to give an indication of what the substation "could" or "might" look like (rather than "will" – as all details are subject to post consent approvals?	Yes.	
Q9.1.7	The Applicant	**Height of vegetation** Assumptions are made [APP-242, paras 137, 138 and 200, and Table 29.12] and the OLEMS [APP-698, para 63] on the height of mitigation planting at 20 and 30 years. The methodology for the production of the visualisations [APP-509, Figure 29.23] and [APP521, Figure 29.35] state that the visualisations show 15 years growth. 1. Confirm what has been shown on the visualisations. 2. If this is planting at 15 years growth, what height is mitigation and advance planting expected to achieve at 20 to 30 years? Would the views differ e.g. through clear stems from that shown on the visualisations? 3. With reference to the assessment of VP1 in [APP-242, Table 29.18], confirm what height mitigation planting has been assumed to reach after 25 years.	1. 15 years growth which is shown as approximately 5 to 7m in height. 2. At 20 years approximately 6 to 8m in height. At 30 years approximately 9 to 12m in height. The views would not differ as the planting would be designed to include an under-storey to avoid openness between clear stems and ensure an effective screen from tops to bases. 3. In respect of viewpoint 1 it is anticipated that the height of mitigation planting will be approximately 7.5 to 10m after 25 years. All estimates for planting growth are conservative in respect of guidance produced by the Institute of Environmental Management Assessment where a broad average of 7 to 7.5m height after 15 years is presented but with reference also made to many faster growing species.	
Q9.1.8	North Norfolk District Council	**Cumulative effects** Are you content with the list of projects included in the assessment of potential cumulative landscape and visual effects [APP-242, Table 29.14]?	Content.	Noted.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.1.8	Broadland District Council	**Cumulative effects** Are you content with the list of projects included in the assessment of potential cumulative landscape and visual effects [APP-242, Table 29.14]?	Yes	Noted.
Q9.1.9	The Applicant	**England Coastal Path - views** Provide comment on the potential for cumulative visual effects to users of the England Coast Path arising from impacts during the construction of the proposed development, acting cumulatively with impacts from Bacton and Walcott Coastal Management Scheme and Coastal defence/protection works, Happisburgh [APP-242, Table 29.14].	For users of the England Coastal Path, the potential for a cumulative visual effect to arise as a result of the project being added to a cumulative situation comprising Bacton and Walcott Coastal Management Scheme and Happisburgh Coastal Defence and Protection Works is unlikely for the following reasons. Bacton and Walcott Coastal Management Scheme has already been implemented and involved the deposition of large volumes of sand on the beach. It is unlikely that the addition of the project to a baseline comprising this scheme will give rise to a significant cumulative effect as it will appear as a natural part of the coast and not a development. Furthermore, these works were carried out more than 1km from the landfall site. Happisburgh Coastal Defence and Protection Works were approved in August 2018. They involve a 10 year programme of moving rocks that are already on the coast into new locations and re-cutting a ramp to provide access onto the beach. This will involve the periodic presence of heavy machinery on the beach to move rock. While there may be some overlap in terms of the construction period for the landfall, it is unlikely that the addition of the project to these relatively small scale works would give rise to a significant cumulative effect. The reasons why these cumulative projects were discounted at the time of writing relate to the following points. Firstly, there is the baseline character in which most of this coastline has been modified by human intervention and as a result there are very few natural sections. This means that sea defence features, including timber groynes, rock armours and concrete walls are an integral feature of the urban and rural coastal character. This also means that future developments, such as the Happisburgh Coastal Defence and Protection Works, will have less of an impact than if they were to occur along an unmodified coastline. Secondly, the localised extent and short term nature of the effect on visual receptors on the coastal path, as a result of the project, limits the potential for a significant cumulative effect to arise in conjunction with other projects. As stated at Paragraph 7.20 of GLVIA 3; "*The approach must be reasonable and proportional in order to keep the task manageable and ensure that the focus is on cumulative landscape effects that are likely to be significant.*"	

9.2 Alternatives considered

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.2.1	Necton Parish Council	**Signposting document for alternatives considered** Has the Applicant's response to the RRs [AS-024, Table 1, No. 2 and 3] provided the information you sought on alternatives? If not, what further evidence do you consider is required?	Necton Parish Council and the Necton Substation Action Group proposed two alternative sites. The applicant's response has not given adequate reasons for rejecting both these sites. We would like to see the documentation that assesses both the alternative suggested sites, at Scarning and TOP farm.	Please refer to the Applicant's comments on the response to Q.9.0.2.
Q9.2.2	The Applicant	**Policy position for alternatives** Set out the legal and policy position concisely for the consideration given to alternatives in the ES and the various reports and that form part of the application; and cross reference how the application for the proposed development has met this. A table might be	The Applicant has responded to this question by summarising (i) the legal requirement for consideration of alternatives, (ii) the relevant EIA Regulations and (iii) the NPS Guidance on alternatives, and responding (in italics) in each case as to how these are addressed in the application. **1. The legal requirement for consideration of alternatives**	

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		a suitable way of presenting this.	In law, the test set out by the Courts (*GLC v Secretary of State and London Docklands Development Corporation (1986) JPL193*) as to when the existence of an alternative site is a relevant factor in the determination of a planning application is as follows: (a) the presence of a clear public convenience or advantage in the proposal under consideration; (b) the existence of inevitable adverse effects or disadvantages to the public or some section of the public in the proposal; (c) the existence of an alternative site which would not have those effects, or would not have them to the same extent; (d) a situation in which there could only be one permission granted for such a development, or at least only a very limited number of permissions. The issue of consideration of alternative sites, in law, as a material consideration, is therefore dependent on a number of "tests". If the proposal is to develop land in a way which is acceptable in planning terms, then the existence of other land which is more acceptable does not justify refusal of planning permission. However if there are clear planning objections or inevitable adverse effects it may be relevant to consider alternative sites. There are also other instances where alternatives need to have been properly considered by the Applicant, for example in an appropriate assessment of the impact on a protected habitat (see Managing Natura 2000 Sites, European Commission) and in particular where it is to be argued that "imperative reasons of overriding public interest" justify a project being permitted which would result in adverse effects on a protected habitat. Similarly if the Secretary of State is asked to exercise compulsory acquisition powers as part of a DCO (Section 120 and 122-134 Planning Act 2008), alternative means of achieving the objectives behind the acquisition will have to be considered (see Circular 06/2004). **Applicant's Response** *Alternative sites have been considered in Chapter 4 of the ES (Site Selection and Assessment of Alternatives) (Document 6.1.4, APP-217) in relation to:* • *The offshore wind farm location (4.6)* • *The offshore cable corridor (4.7 and 4.8.1)* • *The National Grid connection point (4.8)* • *The landfall area (4.7 and 4.9)* • *The onshore cable corridor (4.10)* • *The onshore cable route (4.11)* • *The onshore project substation location (4.13)*	

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			• *The National Grid extension works location (4.14).* **2. EIA Regulations** The Infrastructure Planning (Environmental Impact Assessment) Regulations, both 2009 and 2017, require the Applicant to provide within the Environmental Statement a description of the reasonable alternatives considered in developing the project for which a DCO is sought. The 2017 EIA Regulations advise that this assessment of alternatives should include "a description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen taking into account the effects of the development on the environment". **Applicant's Response** *Alternative sites have been considered in Chapter 4 of the ES (Site Selection and Assessment of Alternatives) (Document 6.4, APP-217) in relation to* • *The offshore wind farm location (4.6)* • *The offshore cable corridor (4.7 and 4.8.1)* • *The National Grid connection point (4.8)* • *The landfall area (4.7 and 4.9)* • *The onshore cable corridor (4.10)* • *The onshore cable route (4.11)* • *The onshore project substation location (4.13)* • *The National Grid extension works location (4.14).* *In addition to section 4.8 of Chapter 4 of the ES, the report on the Strategic Approach to Selecting a Grid Connection Point for Norfolk Boreas and Norfolk Vanguard (ES Appendix 4.3, Document 6.3.4.3, APP-539) provides a summary of the context and work carried out by National Grid and Vattenfall Wind Power Ltd (Parent Company of the Applicant) to select an appropriate location to connect to the National Electricity Transmission System.* *In the Applicant's comments on Relevant Representations (AS-205), the Applicant has further addressed in section 1.1 (Site selection) issues relating to the selection of the landfall site south of Happisburgh village (1) landfall site selection (2) alternative sites (onshore project substation) (3) selection of the grid connection point (4) and cumulative impact of the Norfolk Boreas onshore project substation (5).* *In the Applicant's response to the Open Floor Hearing (REP 1-036), the Applicant has responded (reference 1) on the issue of site selection and onshore project substation siting.* **3. NPS Guidance on alternatives**	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			The overarching National Policy Statement for Energy (EN-1) states (page 14): "The IPC should start its assessment of applications for infrastructure covered by the energy NPSs on the basis that need has been demonstrated. The IPC does not need to consider the relative advantages of one technology over another given the Government's view that companies should be permitted to determine the individual projects to bring forward within the strategic framework set by the Government, taking account of the clear benefits of a diverse energy mix." More detailed consideration of the approach to alternatives is set out at paragraph 4.4 of NPS EN-1. This represents the approach, as a matter of policy, which the Secretary of State will take in considering alternatives in connection with energy projects. In particular the following points from section 4.4 of NPS EN-1 should be noted: "4.4.1 As in any planning case, the relevance or otherwise to the decision making process of the existence (or alleged existence) of alternatives to the proposed development is in the first instance a matter of law, detailed guidance on which falls outside the scope of this NPS. From a policy perspective this NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option. 4.4.2 However: • applicants are obliged to include in their ES, as a matter of fact, information about the main alternatives they have studied. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility; • in some circumstances there are specific legislative requirements, notably under the Habitats Directive, for the IPC to consider alternatives. These should also be identified in the ES by the applicant; and • in some circumstances, the relevant energy NPSs may impose a policy requirement to consider alternatives (as this NPS does in Sections 5.3, 5.7 and 5.9)." Under Section 5.3 (Biodiversity and geological conservation) paragraph 5.3.7 states "As a general principle, and subject to the specific policies below, development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives (as set out in section 4.4 above); where significant harm cannot be avoided, then appropriate compensation measures should be sought." **Applicant's Response**	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			The consideration of reasonable alternatives is set out in Chapter 4 of the ES. *The mitigation measures to avoid significant harm to biodiversity and geological conservation interests are set out in the respective chapters of the ES on Marine geology, oceanography and physical processes (chapter 8), Fish and shellfish ecology (chapter 11), Marine mammals (chapter 12), Offshore ornithology (chapter 13), Onshore ecology (chapter 22), and Onshore ornithology (chapter 23).* Under section 5.7 (Flood risk) paragraph 5.7.16 states "All three elements of the [Exception] test will have to be passed for development to be consented. For the Exception Test to be passed: • it must be demonstrated that the project provides wider sustainability benefits to the community that outweigh flood risk; • the project should be on developable, previously developed land or, if it is not on previously developed land, that there are no reasonable alternative sites on developable previously developed land subject to any exceptions set out in the technology specific NPSs; and • a FRA must demonstrate that the project will be safe, without increasing flood risk elsewhere subject to the exception below and, where possible, will reduce flood risk overall. **Applicant's Response** *Considerations of flood risk are addressed in ES chapter 20 (Water resources and flood risk).* Under section 5.9 (Landscape and visual) paragraph 5.9.10 states: "Nevertheless the IPC may grant development consent in these [nationally designated] areas in exceptional circumstances. The development should be demonstrated to be in the public interest and consideration of such application should include an assessment of: • the need for the development, including in terms of national considerations, and the impact of consenting or not consenting it upon the local economy; • the cost of, and scope for, developing elsewhere outside the designated area or meeting the need for it in some other way, taking account of the policy on alternatives set out in section 4.4; and • any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated. **Applicant's Response**	

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			The extent to which the project affects nationally designated areas is addressed in Chapter 29 (Landscape and visual impact assessment) of the ES. "4.4.3 Where there is a policy or legal requirement to consider alternatives the applicant should describe the alternatives considered in compliance with these requirements. Given the level and urgency of need for new energy infrastructure, the IPC should, subject to any relevant legal requirements (e.g. under the Habitats Directive) which indicate otherwise, be guided by the following principles when deciding what weight should be given to alternatives: • the consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner; • the IPC should be guided in considering alternative proposals by whether there is a realistic prospect of the alternative delivering the same infrastructure capacity (including energy security and climate change benefits) in the same timescale as the proposed development;[…] • alternatives not among the main alternatives studied by the applicant (as reflected in the ES) should only be considered to the extent that the IPC thinks they are both important and relevant to its decision;[…] • alternative proposals which are vague or inchoate can be excluded on the grounds that they are not important and relevant to the IPC's decision; and • it is intended that potential alternatives to a proposed development should, wherever possible, be identified before an application is made to the IPC (so as to allow appropriate consultation and the development of a suitable evidence base in relation to any alternatives which are particularly relevant). Therefore where an alternative is first put forward by a third party after an application has been made, the IPC may place the onus on the person proposing the alternative to provide the evidence for its suitability as such and the IPC should not necessarily expect the applicant to have assessed it." **Applicant's Response** *Two alternative proposals have been put forward by third parties – the first relating to an Offshore Ring Main and the second relating to a site for the onshore substation at Top Farm.* *In section 1.28 of the Applicant's Comments on Relevant Representations (AS-25) the Applicant has addressed proposals for an Offshore Ring Main (reference 3). In the Applicant's Response to the Open Floor Hearing (REP 1-136) the Applicant has also responded on the proposals for an Offshore Ring Main (Reference 4).The Applicant takes the view that these proposals are both "vague" and "inchoate" and do not offer "a realistic prospect…of…delivering*	

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			the same infrastructure capacity…in the same timescale as the development", as referred to in 4.4.3 above. *In the Applicant's response to the Open Floor Hearing (REP 1-036) the Applicant has responded on the issue of site selection and onshore project substation siting (reference 1) and this response also addresses the potential site at Top Farm. The site at Top Farm is also addressed in the Consultation Report (5.1; APP-027) at pages 138 and 139 (Finding the best possible substation location) and at section 28.11 (Learnings from the Norfolk Vanguard examination and community representations).* *The Applicant considers that these proposals can only be described as "vague and inchoate" and were not identified in any detail "sufficient to allow appropriate consultation and the development of a suitable evidence base" nor with "evidence for its suitability as such" within the terms of paragraph 4.4.3 above.* *Further detail on the consultation regarding the siting of the substations and consideration of alternative sites is provided in response to WQ 9.2.8 below.*	
Q9.2.3	The Applicant	**Construction stage effects** Were construction stage effects (including those away from the actual cable corridor alignments) taken into consideration in the assessment of alternatives for the cable route? If so indicate where.	Construction stage effects were considered as part of the site selection process as outlined in ES Chapter 4 Site Selection and Assessment of Alternatives (APP-217). As identified in Table 4.2 Key strategic project alternatives considered, there is significant environmental benefit of installing ducts and backfilling the trenches in a staged/ sectionalised approach. The alternative to this would be installing ducts along the entirety of the route before backfilling which would increase the amount of land being worked on at any one time and would also increase the duration of works on any given section of the route. Details of the onshore cable route refinement and other considerations taken into account are detailed in Appendix 4.7 Identification of Onshore Cable Corridor (APP-543).	
Q9.2.4	The Applicant	**High Voltage Direct Current (HDVC)** Were there any changes following the decision to adopt high voltage direct current (HVDC) technology?	The decision to adopt the HVDC technology resulted in the following changes: • Removal of the requirement for a Cable Relay Station as above ground infrastructure near the Coast; • Fewer onshore cables resulting in a reduction in the width of the onshore cable route to 45m from 100m; • The width of the permanent easement is reduced from 54m to 20m; • Reducing the maximum number of jointing pits from 450 to 150; • Reduction on the number of offshore export cables from six to two; • The onshore project substation consists of an HVDC substation.	
Q9.2.5	North Norfolk District Council	Are you satisfied with the response from the Applicant in its response to RRs, which sets out that HVDC export infrastructure was assessed under the Environmental Statement and therefore the project to be consented is for an HVDC export infrastructure system only; and an HVAC export system could not be constructed under the terms of the draft DCO [AS-024, Table 26, No. 84]. If not set out what further explanation you require.	Please see NNDC position as set out in the Local Impact Report (Section 4. Choice of Transmission System - paras 4.3 to 4.7)	The Applicant has provided comments on North Norfolk District Council's Local Impact Report at Deadline 3 (ExA.LIR-NNDC.D3.V1).
Q9.2.6	The Applicant	**Cable corridor selection** Respond to the point [RR-109] regarding whether consideration was given to the route corridors and connections for Norfolk Boreas and Hornsea Three; whether potential to shorten the length of the cable corridor was taken into account.	Alternative cable routes and connection points were assessed and have been considered in Chapter 4 Site Selection and Assessment of Alternatives (APP-217). As outlined in Section 4.8, following a review of landfalls and the offshore cable corridors, the long list of 14 onshore connection points was refined down to two options, either Necton or Norwich Main. Broad cable corridor search areas	

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			were identified for both options using high level siting principles to allow both options to be compared. The assessment of the two study areas found that the Necton study area: • Contained fewer road crossings for cables to make; • Contained less designated sites to cross; • Contained less populated areas (and the associated infrastructure and utilities) to navigate; and • Allowed the Broads National Park to be avoided. Due to these findings, VWPL and National Grid agreed that the most effective and economical option overall was the Necton option. In July 2016, following the process outlined above, an offer was made by National Grid for a connection point at the existing Necton National Grid substation and this was accepted by one of Norfolk Boreas Limited's affiliate companies in November 2016. Following this, an onshore scoping area was defined and the onshore scoping process commenced. This was completed as part of the Norfolk Vanguard scoping (Royal HaskoningDHV, 2016). Details on the approach to a grid connection point are detailed in Appendix 4.3 Strategic Approach to Selecting a Grid Connection Point (APP-539), Section 9 outlines the identification of the final onshore connection point and summarises that in general, there is an increase in all constraints such as designated sites, roads, rivers and populated areas, from west to east across the study area due to the proximity of Norwich (and the associated infrastructure and utilities) and The Broads National Park. Please also refer to Table 1, Row 3 of the Comments on Relevant representations document submitted in response to the Rule 6 letter (A-024) for more details on the selection of the grid connection point.	
Q9.2.7	The Applicant	**Substations' siting** NPS EN-5 requires an applicant's assessment for routeing new overhead lines to follow the Holford Rules. The Holford Rules states that in siting substations, account should be taken of the effects of the terminal towers and line connections and that advantage should be taken of screening features such as ground form and vegetation. 1. How have the Holford Rules been considered in the siting of the substations? 2. Provide a copy of the Holford Rules. Also provide a copy of the Horlock Rules. It is noted that the Applicant sets out how the design guidelines in the Horlock Rules have been applied in the Site Selection and Assessment of Alternatives [APP-217, Table 4.4 and other places] and in the Onshore Substation Site Selection [APP-546]. However, these appear to relate mainly to vegetation screening and have made little reference to screening by landform. This point is made by several Interested Parties in their Relevant Representations. 1. Notwithstanding your response to RRs [AS-024, Table 1, No.3] respond to those comments from Interested Parties in their Relevant Representations that consider insufficient attention has been paid to design principles set out in the Horlock Rules.	1. The Holford Rules are concerned principally with the routeing of new high voltage overhead transmission lines and not the siting of substations. The project does not include any new high voltage overhead transmission lines, only the replacement of one tower and the addition of a tower on an existing and established route. There is one reference to the siting of substations under Rule 7 'When siting substations, account should be taken of the effects of the terminal towers and line connections and that advantage should be taken of screening features such as ground form and vegetation.' This is not relevant to the project for two reasons. Firstly, the onshore project substation which has been sited as part of the project has no overhead transmission lines either going in or coming out of the site, as these are embedded in the ground. Secondly, with regard to the siting of the National Grid substation extension, the guidance is not referring to the effects of the substation, but the effects of terminal towers and line connections whose position will be determined as a result of the siting of the substation. While one tower would be relocated and another tower added, this would occur largely within the area of the existing route. The siting of the National Grid substation extension is largely determined by the existing infrastructure in order to avoid new high voltage overhead transmission lines from being constructed and thus reducing the overall landscape and visual impact. 2. A copy of the Holford Rules are attached at Appendix 9.5 and a copy of the Horlock Rules are attached at Appendix 9.6.	

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			3. The Horlock Rules at Point 4 states; "The siting of substations, extensions and associated proposals should take advantage of the screening provided by land form and existing features and the potential use of site layout and levels to keep intrusion into surrounding areas to a reasonably practicable minimum." Norfolk is characterised by a relatively flat landscape, with the highest point being Beacon Hill (103m AOD) on the North Norfolk Coast. The landform in this county is not of a sufficient scale to substantially screen either the onshore project substation or the National Grid substation extension. While the landform lacks the necessary scale to completely screen, it does, nonetheless, have enough elevation to partly screen, and this has been an important consideration in the siting of the onshore project substation and National Grid substation extension. The local landscape is shaped around the un-named water course that flows from the A47 at Redgate to Ivy Todd village. This follows a predominantly north to south course and the landform folds into the valley from the west and the east. To the north-west and east of this subtle valley the land levels into relatively small plateaux, before continuing to gently rise to the north and north-east. These plateaux have provided the most appropriate sites for the project for the following reasons. Firstly, whilst the valley may have provided a greater degree of enclosure in terms of landform, the technical issues of accommodating a 250 x 300m footprint on sloping landform meant this option was discounted at a relatively early stage in the iterative design process. Furthermore, there is no existing tree or woodland cover to provide additional screening in this area. The rising landform to the north was also discounted as it made the sites too prominent, introducing more extensive visibility to the eastern edge of Necton and along the A47. The intermediate plateaux provided the best option; the landform was relatively level which meant the large footprint of the onshore project substation could be accommodated with minimal modification to the landform, whilst there was still enough screening from the subtle undulation of the intervening ridgeline to the east of Necton to ensure visibility did not overly impinge on this settled area. Furthermore, there was sufficient space to accommodate Norfolk Boreas and Norfolk Vanguard under Scenario 1, thus ensuring their consolidation within one area. In respect of the National Grid substation extension, the plateaux closer to the A47 similarly presented the opportunity of a relatively flat site for development, albeit with some slope towards the south-east and similarly benefitted from some landform screening from the rising landform to the east of Necton.	
Q9.2.8	The Applicant	**Siting of substations** [RR-042] is concerned about the adequacy of the consultation regarding the siting of the substations and the apparent lack of consideration of an alternative nearby site put forward by the community. We note you have provided signposting to the consultation which has been undertaken with communities in connection with the siting of the proposed substations [AS-024, Table 1, No.3]. 1. Provide evidence of (or signposting to) the specific consultation which has been undertaken with the communities local to the proposed substations site for the Proposed Development. Set out how this consultation has informed the substation siting for the Proposed Development.	1. As summarised in Plate 2 Norfolk Boreas and Norfolk Vanguard overarching consultation timeline (APP-027 Consultation Report document 5.1, Page 23) the Applicant held public exhibitions and a workshop in the Necton Community Centre and Swaffham Green Energy Centre on 5 separate occasions, including during statutory consultation for the project, between October 2016 and November 2018. The information and materials provided can be found at Appendix 12.7 – Phase I non-statutory public exhibition materials (APP-092), Appendix 12.9 – Phase II non-statutory public exhibition materials (APP-094), Appendix 14.8 – Necton substation workshop presentations (APP-132), Appendix 18.3 – Phase III non-statutory public exhibition materials (APP-137) and Appendix 22.14 – Formal consultation exhibition boards (APP-163). Following each series of events (phases of consultation), the responses of consultees and the regard given to those responses by the Applicant were communicated to stakeholders through interim reports, Appendix 3.1 – 3.4 –	

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		2. Was consideration given to the alternative substation site to which [RR-042] refers? 3. Is this the same site to which several RRs refer, such as Savills, the NFU and LIG on behalf of landowners; which is described as north of the existing substation site on lower lying ground?	Hearing Your Views I through to IV (APP-028, -029, -030, -031) and Appendix 14.9 – Necton substation workshop feedback report (APP-133). At the first drop-in event (October 2016) a group of local residents, particularly those living on the outskirts of Necton and in neighbouring conurbations, gave their views that the substation should not be located in their local area. While not a high proportion of local residents, the Applicant has sought to explain throughout the consultation process the rationale for site selection and the approach to consideration of alternatives, over and above the detail provided in ES Chapter 4: Site Selection and Assessment of Alternatives (APP-217), and Chapter 5: Project Description (APP-218). This has included using a range of different illustrative tools, and communication techniques, such as photomontages, 3D visual models, exhibition boards, slide shows, and explanations from a range of experts in their field. At the first event held in Necton, participants were invited to highlight ideas and issues the Applicant should consider in relation to finding the most appropriate onshore project substation location. Participants provided arguments for or against the five sectors delineated within the 3km radius search zone. Many people preferred to state where they did not wish to see additional infrastructure – namely to the west and north of the existing National Grid substation, around Little Dunham and Little Fransham, and in areas closer to the village of Necton itself. A refined search area was consulted on during Phase II, by which point the land referred to in part 2 of this Written Question was eliminated from the search area considered appropriate for substation siting. The main reasons for removing this area of land related to residential buffers – to ensure infrastructure was located as far away as possible from homes, in addition to landscape and visual impact, noise and vibration, flood risk and engineering constraints. Landscape and visual impact considerations are dealt with in more detail at part 2 of this Written Question, below. During the multiple phases of consultation undertaken, few residents have suggested alternative sites. Some of these are within the original 3km diameter search area, including that mentioned in parts 2 and 3 of this Written Question, and some are more distant. The Applicant has produced a document called "A strategic approach to selecting a grid connection point for Norfolk Vanguard and Norfolk Boreas" (APP-539), which provides a summary of the context and work carried out by National Grid and Vattenfall Wind Power Ltd to select an appropriate location to connect up to 3.6GW of offshore generation to the national electricity transmission system (NETS) for the development of the Norfolk Vanguard and Norfolk Boreas Offshore Wind Farms. This responds to the "Why Necton?" question and why not somewhere outside of the original search zone. In terms of sites within the original search zone, including the site highlighted by NSAG members and others, and referred to in points 2 and 3 of this Written Question, a workshop and open drop-in event was convened) to guide interested residents through the complex balance of factors to be achieved when determining siting of proposed infrastructure. This information was also made available on the Norfolk Boreas project website following the workshop and drop-in event. Factors feeding into site selection, including EIA surveys and assessments, engineering requirements, landowner discussions and consultation results were described in detail (Appendix 14.8 – Necton substation workshop presentations (APP-132)). These combined factors resulted in the current siting of the onshore project substation.	

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			In response to continued suggestions from NSAG and others that the location referred to in parts 2 and 3 of this Written Question could be appropriate, the Applicant's approach and response to site selection has been clarified further (see Chapter 28.2.11 of the Consultation Report – "Learnings from the Norfolk Vanguard examination process and community representations" (APP-027)). 2. An assessment of a number of alternative sites around the proposed site was undertaken to ascertain the most suitable site based on a number of criteria. The key consideration from an LVIA perspective was ensuring that the project was sited as far away as possible from the key visual receptors, such as Necton, Ivy Todd and Little Fransham, as well as from Ivy Todd Road and the A47. The site that was selected also benefitted from relatively level landform and enclosure from existing woodland. The area to the north-west of the site was discounted owing to the location of a water course through this area and the steep valley sides leading down to it. The area to the north, towards Top Farm, was also reviewed as an alternative site. In terms of landform, this site is higher than the proposed site, with a range of 65m to 75m as opposed to 65m to 70m. It is also on more steeply sloping landform and without the levelling off that occurs around the proposed site, it would potentially be more visible from the surrounding landscape. Furthermore, it would also bring a new development closer to the heavily trafficked A47. 3. OS maps show that the landform to the north and north-east of the onshore project substation rises. It is, therefore, simply not possible for a site to the north to be on lower-lying ground. The proposed site is situated between the existing contours of 65m and 70m AOD. Land towards Top Farm, to the north, is situated between the contours of 65m and 75m AOD. The land to the north-west, however, falls away to 60m to 65m AOD which would be lower-lying but then the site would be in the valley of the un-named river and potentially covering its course, giving rise to issues of large scale earthworks required to accommodate a large level site and issues of culverting the water course in an area which is already prone to flooding.	

9.3 Landscape effects

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.3.1	The Applicant	**Tree removal** 1. Provide a plan which shows the extent of woodland/ trees removed for Scenario 2. 2. Confirm that no additional woodland/ trees would be removed for Scenario 1. 3. Is it anticipated that there may be trees other than in the woodland areas or hedgerows described which would be removed in either Scenario?	1. In respect of the Scenario 2 onshore project substation, no woodland would be removed. A small number of hedgetrees would be removed as marked on Figure 1 in Appendix 9.1. 2. A small number of hedgetrees would be removed in respect of the Scenario 1 onshore project substation, as marked on Figure 2 Appendix 9.1. 3. It is not anticipated that any other trees would be removed.	
Q9.3.2	The Applicant	**Hedgerow removal** Quantify the hedgerow removal for both Scenarios 1 and 2 (This could be added to dDCO [AS-019] Schedule 14 if appropriate).	Under Scenario 2, sections of 196 hedgerows will be subject to partial removal along the onshore cable route to facilitate construction, with a total of approximately 2.5km of hedgerow removed during construction. A further approximately 727m and 344m of hedgerow will be removed to facilitate construction at the onshore project substation and National Grid substation extension respectively. A total of approximately 3.5km of hedgerow is therefore removed to facilitate construction under Scenario 2.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			Under Scenario 1, approximately 796m and 498m of hedgerow will be removed to facilitate construction at the onshore project substation and National Grid substation extension respectively. A total of approximately 1.3km of hedgerow is therefore removed to facilitate construction under Scenario 1. All of this hedgerow removal is subsequently reinstated (if it is along the onshore cable route) or compensated for (if it is at the onshore project substation or National Grid extension works).	
Q9.3.3	The Applicant	**Tree and hedgerow replacement** NPS EN-1 (paras 5.3.15 and 5.3.18) point to making opportunity for beneficial biodiversity, enhancing existing habitats and creating new habitats of value. 1. Explain how the landscape design for the Proposed Development recreates and replaces any ecological connections severed by construction of the onshore project substation [APP-688, item 172], when the details are yet to be agreed, and there is less connectivity than the baseline condition. 2. Is there a proposed ratio for tree and hedgerow replacement? 3. If certain hedgerows are not replaceable, and tree species in hedgerows are restricted because of the cable easement, how do the proposals meet Breckland Council's Adopted Core Strategy and Development Control Policies Development Plan Document (2009), policy DC12: Trees and Landscape [APP-235]?	1. As detailed in Chapter 22 (APP-235) [para 317], construction of the onshore project substation will, under Scenario 2, result in the permanent loss of approximately 390m of hedgerow (of which 360m is species-poor hedgerow with trees, and 30m species-rich hedgerow with trees), and under Scenario 1, result in the permanent loss of 240m of species-rich hedgerow with trees. The indicative areas for mitigation planting which have been included with Strategic Plan of Indicative Mitigation Planting for each Scenario (APP-495 and APP-508) have been selected to ensure that habitat connectivity is created across the onshore project substation site from north to south and west to east. Under Scenario 1, this includes mitigation planting running north-south to the east of the onshore project substation, to replace the hedgerow lost in the eastern area of the onshore project substation and to create new connectivity with the woodland block to the east of Necton Wood. Under Scenario 2, this includes mitigation planting running north-south to the east and to the west of, and east-west to the south of, the onshore project substation, to replace the hedgerow lost within the centre and south of the onshore project substation, and to improve connectivity provided by existing species-poor hedgerows to the west of the onshore project substation. Please refer to the Strategic Plan of Indicative Mitigation Planting for Scenario 1 (APP-495) and Scenario 2 (APP-508) for these locations. Whilst the specific details of the mitigation planting will be agreed within the Written Landscape Scheme under Requirement 18 of the draft DCO (AS-019), these details are required to "accord with the outline landscape and ecological management strategy" under the wording of the DCO. The Outline Landscape and Ecological Mitigation Strategy (APP-698) describes the location of new planting proposed to replace and improve existing ecological connections surrounding the onshore project substation, as described above. 2. A specific ratio for the tree or hedgerows replacement has not been defined. As detailed in Chapter 22 (APP-235), the Applicant has committed to replanting all hedgerows temporarily removed for the project where possible [para-423] and ensuring that new planting is created to compensate for the permanent loss of species-rich hedgerow at the onshore project substation [para-425]. The landscape proposals will be finalised in consultation with the relevant planning authorities through the final Landscaping Management Scheme post-consent under Requirement 18 of the draft DCO. 3. As detailed in Chapter 22 (APP-235) [para-423], all hedgerows identified for removal will be replaced by the project to a standard which is in accordance with the Norfolk Hedgerow Biodiversity Action Plan (NBP, 2009), which will result in a habitat of equal or higher ecological value once the hedgerows mature. Therefore, proposals comply with Policy DC12, which states that "…where the loss of [trees, hedgerows and other natural features] is unavoidable, replacement provision should be of a commensurate value to that which is lost.".	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.3.4	The Applicant	**Hedgerows** Clarify how processes for agreeing hedgerow removal, replanting, aftercare and management and maintenance are undertaken. Refer to the involvement of local planning authorities, Natural England and landowners (including the undertaker).	The principles which will be adhered to during hedgerow removal and reinstatement will be detailed within a Hedgerow Mitigation Plan, which forms part of the Ecological Management Plan submitted post-consent under Requirement 24 of the draft DCO. As detailed in Requirement 24, the Ecological Management Plan must be approved by the relevant planning authority in consultation with the relevant statutory nature conservation body. Key principles regarding hedgerow removal and reinstatement are set out within section 7.2, 9.2 and 9.8 of the Outline Landscape and Ecological Management Strategy (REP1-020). These include maximum extents to be removed, seasonal restrictions on removal, replanting principles and aftercare periods. These key principles will be carried forward into the Hedgerow Mitigation Plan, post-consent.	
Q9.3.5	The Applicant	**Hedgerows where removal assessed an adverse significant effect in Scenario 2** 1. Applicant to plot the hedgerows where significant adverse effects are located in Scenario 2 at Blickling Road, N of Aylsham; Silvergate Lane, NW of Aylsham; Aylsham Road, W of Aylsham; Elsing Road, near River Wensum; B1145, N of Reepham; and B1145, W of Reepham [APP-242,Table 29.11] for 20 years. Marking up relevant sheets of the Important hedgerows plans [APP-018] would be a suitable way of presenting this. 2. Does this significant adverse effect remain for 30 years until decommissioning? The 'duration of effect' column of Table 29.11 is not clear in this regard. 3. Would it assist Local Planning Authorities if more detail was prepared by the Applicant during the examination for these areas in terms of planting reinstatement?	1. Figures showing the areas of hedegrow and tree removal where significant adverse effects have been identified are presented in Appendix 19.2. This includes figures showing the hedgerows at Blickling Road (Figure 2); Silvergate Lane (Figure 3), Alysham Road (Figure 4), B1145 north of Reepham (Figure 5), B1145 west of Reepham (Figure 6), and Elsing Road near the River Wensum (Figure 8). 2. These are direct effects on the landscape element of hedgerows. Hedgerows will be replaced post-construction which will mitigate effects over a period of 3 to 5 years where the baseline comprised a low hedgerow and 5 to 10 years where the baseline comprised a high hedgerow. Any significant effects would be mitigated within these time frames. In the few instances where hedgetrees would be removed, these could not be replaced and the direct effect on these few landscape elements would be long term and in a few specific instances their removal would give rise to a significant effect. 3. Details regarding planting reinstatement will be produced post consent in line with Requirement 18 of the DCO.	
Q9.3.5	Broadland District Council	**Hedgerows where removal assessed an adverse significant effect in Scenario 2** 1. Applicant to plot the hedgerows where significant adverse effects are located in Scenario 2 at Blickling Road, N of Aylsham; Silvergate Lane, NW of Aylsham; Aylsham Road, W of Aylsham; Elsing Road, near River Wensum; B1145, N of Reepham; and B1145, W of Reepham [APP-242,Table 29.11] for 20 years. Marking up relevant sheets of the Important hedgerows plans [APP-018] would be a suitable way of presenting this. 2. Does this significant adverse effect remain for 30 years until decommissioning? The 'duration of effect' column of Table 29.11 is not clear in this regard. 3. Would it assist Local Planning Authorities if more detail was prepared by the Applicant during the examination for these areas in terms of planting reinstatement?	1. Applicant to advise 2. Applicant to advise It would assist the LPA if more detail was prepared by the applicant in this respect.	Final details regarding the planting reinstatement will be provided to all the relevant planning authorities as part of the final Landscape Management Strategy, developed post-consent in accordance with Requirement 18 of the dDCO. In addition, as detailed in the OLEMS (REP1-020) a Hedgerow Mitigation Plan will be developed prior to the removal of hedgerows. This mitigation plan will be included within the Ecological Management Plan (secured through DCO Requirement 24). This mitigation plan will detail the reinstatement approach for hedgerows removed during construction and the monitoring and maintenance requirements following hedgerow planting.
Q9.3.5	North Norfolk District Council	**Hedgerows where removal assessed an adverse significant effect in Scenario 2** 1. Applicant to plot the hedgerows where significant	3. NNDC note this does not relate to hedgerows within NNDC jurisdiction.	Noted.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		adverse effects are located in Scenario 2 at Blickling Road, N of Aylsham; Silvergate Lane, NW of Aylsham; Aylsham Road, W of Aylsham; Elsing Road, near River Wensum; B1145, N of Reepham; and B1145, W of Reepham [APP-242,Table 29.11] for 20 years. Marking up relevant sheets of the Important hedgerows plans [APP-018] would be a suitable way of presenting this. 2. Does this significant adverse effect remain for 30 years until decommissioning? The 'duration of effect' column of Table 29.11 is not clear in this regard. 3. Would it assist Local Planning Authorities if more detail was prepared by the Applicant during the examination for these areas in terms of planting reinstatement?		
Q9.3.6	The Applicant	**Trees where removal assessed an adverse significant effect in Scenario 2** 1. As above, Applicant to plot where significant adverse effects are located in Scenario 2 at Colby Road, N of Banningham; Minor road near Hackford Hall; and Norwich Road, Swanton Morley [APP-242, Table 29.11]. 2. Is this a significant effect in the 'duration of effect' column, as it is reversible only on decommissioning? Is this also the case for The Wensum Way (also Table 29.11)?	1. Figures showing the areas of hedgegrow and tree removal where significant adverse effects have been identified are presented in Appendix 9.2. This includes the trees at Colby Road (Figure 1); Minor Road near Hackford Hall (Figure 7), and Norwich Road, Swanton Morley (Figure 9). The requested figures are presented in Appendix 9.2., 2. Yes - it is a significant effect for the locations listed and the Wensum Way. The effects relate only to the trees as landscape elements and not the wider landscape character.	
Q9.3.6	North Norfolk District Council	**Trees where removal assessed an adverse significant effect in Scenario 2** 1. As above, Applicant to plot where significant adverse effects are located in Scenario 2 at Colby Road, N of Banningham; Minor road near Hackford Hall; and Norwich Road, Swanton Morley [APP-242, Table 29.11]. 2. Is this a significant effect in the 'duration of effect' column, as it is reversible only on decommissioning? Is this also the case for The Wensum Way (also Table 29.11)?	NNDC comment here because comments in respect of Colby Road north of Banningham have been made within NNDC's Local Impact Report (See Section 13 - Landscape and Visual Impact Assessment paras 13.17 to 13.19). NNDC note that the Secretary of State assessing the Norfolk Vanguard proposal has requested (See Appendix A) submissions from NNDC and other interested parties regarding, amongst other things, additions to trenchless crossings including two particular sections of the local road network – along the B1149 and on Colby Road (Church Road), north of Banningham. Deadlines for submissions extend to 28 Feb 2020. NNDC consider that this will have a bearing on the Norfolk Boreas determination.	The Applicant has provided comments on NNDC's Local Impact Report at Deadline 3 (ExA.LIR-NNDC.D3.V1).
Q9.3.7	The Applicant	**Advance planting** 1. Notwithstanding the Norfolk Vanguard planting which would be existing in Scenario 1, would there be any other opportunities for advance planting to be implemented in Scenario 1? If so where? 2. Can areas for potential advance planting be identified for Scenario 2? If so where?	1 & 2. The opportunities for advanced planting at the substation, are currently being explored as part of discussions with landowners and will be carried out where practicably possible once detailed design is finalised post-consent. Where possible, advanced planting would be implemented at the start of the construction phase, allowing approximately three years of growth prior to completion of construction and commencement of operation. Advance planting could not be undertaken where bunding is required until earthworks on site are completed.	
Q9.3.7	Necton Parish Council	**Advance planting** 1. Notwithstanding the Norfolk Vanguard planting which would be existing in Scenario 1, would there be any other opportunities for advance planting to be implemented in Scenario 1? If so where? 2. Can areas for potential advance planting be identified for Scenario 2? If so where?	Necton Parish Council are concerned at the length of time the mitigation planting will take to provide even inadequate cover. Advance planting is crucial to shortening the time taken for the mitigation Vattenfall are suggesting. Even so, it will not be adequate within the operational life of the installation but better than nothing.	As stated in the Applicant's response to Q9.3.7 in Responses to the ExA's First Written Questions (REP2-021), opportunities for advance planting are being explored and will be carried out where practicably possible.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.3.8	The Applicant	**National Grid planting easements** 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. 1. Provide dimensioned plans for Scenarios 1 and 2 (which set out the overhead line's lateral limits of deviation (LoD)) at a more detailed scale, to illustrate if this is the case. 2. Seek clarification from National Grid on its tree planting exclusion zones and vegetation height restrictions. 3. If it is the case that the mitigation planting would be compromised from what is shown, provide solutions for Scenarios 1 and 2, including consideration of limiting the lateral LoD secured in Article 4 for Scenario 2.	1. Appendix 9.3 includes figures showing the proposed planting for Scenario 1 and Scenario 2 and the overhead line limits of deviation (including the 5.3 minimum safety clearance (see part 2)). 2. National Grid Guidance on Development near overhead lines, July 2008 (available at https://www.nationalgrid.com) Appendix III provides details of safety clearances, which identifies for trees under or adjacent to a 400kV lines up to 5.3m (for tress capable of supporting ladder/climber). This safety distance has been included in the limits of deviation shown on the figures in Appendix 9.3. 3. The Figures in Appendix 9.3 indicate that a strip of proposed woodland to the north of the National Grid extension to the west is within the limits of deviation. The limits of deviation have been proposed by National Grid and reflect the necessary flexibility required at this time, prior to detailed design, on the final alignment of the existing overhead line in this area, as a result of the necessary overhead line modifications to facilitate the connection of Norfolk Boreas. Under Scenario 2 this is proposed planting to be undertaken by Norfolk Boreas and the proposed solution would be for this planting to be moved further south so it falls outside the overhead line limits of deviation. The movement of this small section of proposed woodland is not critical to the mitigation of the project and will not affect the findings of the assessment. The key reason is that the only visual receptors on this northern aspect are road-users on the A47 and existing road-side planting already provides fairly continuous screening along the A47. Furthermore, this screen is in the process of being bolstered by a band of woodland planting currently establishing as part of the Dudgeon Substation's mitigation measures. The proposed woodland effected was included to add an extra layer within the combined mitigation measures. This could be captured when the final landscape scheme is developed. Under Scenario 1 none of the planting proposed by Norfolk Boreas is compromised. However, the same strip of woodland is proposed by Norfolk Vanguard, however the solution outlined for Scenario 2, could be implemented by Norfolk Vanguard and incorporated into their final landscape scheme.	

9.4 Visual effects

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.4.1	The Applicant	**Height of structures at the substations** Is it correct, as stated in [RR-042], that the decision to adopt HDVC technology gave rise to taller structures at the substations? If so, explain how these have been assessed?	Prior to the commitment to a HVDC solution for Norfolk Boreas, made in February 2018, the Applicant fully assessed and consulted upon a complete Rochdale Envelope which considered the maximum extents of either a HVAC or HVDC project, including the potential height of a HVDC onshore project substation, should a HVDC solution be utilised. The Applicant's Scoping Report submitted to the Secretary of State on 8 May 2017 (document PB5640-102-101) noted under Section 1.5.4.3 that the onshore project substation would be 'approximately 300m x 250m, based on the maximum parameters of an HVDC substation. The maximum height of the buildings would be approximately 25m'. At the Applicant's Phase 2 non-statutory exhibitions both a HVAC and HVDC visualisation were illustrated on the exhibition materials (document 5.1.12.9, APP-094) and interactive 3D model, with the maximum height for a HVDC option again being noted as 25m. Photomontages of both a HVAC and HVDC onshore project substation were	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			consulted upon during the Necton Substation Workshop Presentations (document 5.1.14.8, APP-132).	
Q9.4.1	Necton Parish Council	**Height of structures at the substations** Is it correct, as stated in [RR-042], that the decision to adopt HDVC technology gave rise to taller structures at the substations? If so, explain how these have been assessed?	HVDC substations are significantly higher than HVAC substations, approaching double in height when the lightning conductors are included. Necton already host an HVAC substation for a wind-farm connection to the National Grid, the Dudgeon substation. Necton Parish Council were informed by Vattenfall that there was only one Vanguard and Boreas proposal, for HVDC. When questions were asked about the less obtrusive substation building with an HVAC option, mirroring the already installed Dudgeon substation, we were told this was not an option. No reasoning or assessment was forthcoming. Necton Parish Council support renewable energy but would prefer an HVAC installation instead of the HVDC option proposed.	The Applicant has provided a detailed response on this point in response to Q9.4.1 in Responses to the ExA's First Written Questions (REP2-021).
Q9.4.2	The Applicant	**Effects of lighting** 1. Has the Applicant's response on lighting [AS-024, Table 24, No.2] responded to the concerns set out by those IPs who submitted RRs in relation to lighting [RR-019] and [RR-053]? 2. Applicant to respond to the concerns set out in [RR-053] regarding the mobilisation area (MA11) near Ridlington.	2. RR-053 notes concerns with regard to MA11 in respect of usage, lighting and access. **Usage of MA11.** The Applicant can confirm that MA11 will only be used during duct installation, required only under Scenario 2. **Site Lighting of MA11** As detailed in para 474 of ES Chapter 5 Project Description (document 6.1.5, APP-218), site lighting and secure fencing around the perimeter of the mobilisation areas will be used for safety and security purposes. The Applicant has committed to producing an Artificial Light Emissions Management Plan prior to construction as outlined in the OCoCP (document 8.1, REP1-018), required under Requirement 20(2)(c) of the dDCO. The plan will detail the mitigation measures to be taken to manage emissions from artificial light in accordance with good practice, such as the use of directional beams, non-reflective surfaces and barriers and screens, to avoid light nuisance whilst maintaining safety and security obligations. Details of the location, height, design and luminance of all floodlighting to be used during the construction of the project, together with measures to limit obtrusive glare to nearby residential properties, will be set out in the plan which will be submitted to the local authorities for approval prior to construction commencing. The approved scheme will be maintained throughout the construction of the relevant works. Site lighting will be positioned and directed to minimise nuisance to footpath users and residents, to minimise distractions to passing drivers on adjoining public highways and to minimise skyglow, so far as reasonably practicable. Lighting spillage will also avoid or minimise impacts on ecological resources, including nocturnal species. **Access to MA11** The OTMP (document reference 8.8, REP1-022) Section 4.1, sets out the general principles for managing HGV movements and sets out a strategy of mobile traffic management - 'pilot vehicles' - to control low HGV demand on lightly trafficked narrow roads. The pilot vehicle strategy avoids vehicles needing to pass on narrow roads and the associated verge erosion and is appropriate to address the concerns outlined for Happisburgh Road. Paragraph 112 of the OTMP states, "Suitable scale plans of pilot control routes with any proposed widening would be submitted with the final TMP pursuant to the discharge of Requirement 21 of the DCO"; there is therefore an	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			acknowledgement that localised highway improvements may be required to facilitate the use of pilot vehicles.	
Q9.4.3	The Applicant	**Bunding round substations** 1. Were concealment options such as a lower ground level and/ or bunding for planting as suggested by [RR-109] considered in the detailed visual mitigation for the substations siting? 2. Why is the western boundary planting in Scenario 1 described as "potentially set on an earth bund up to 2m in height" [APP-698, para 53]? What has been assessed? 3. Why under Scenario 2 is there uncertainty about the earthworks to be provided? "There is potential to include a subtle earthwork bund of up to 1.5 along the western side of the permanent footprint…" [APP-698, para 58]? What has been assessed?	1. In terms of landscape and visual considerations, the options of lowering the ground level and large scale bunding were considered and discounted for the following reasons. In order to ensure a design is responsive to the unique characteristics and attributes of a local landscape, the best approach is generally to work with the landform, in order to minimise the magnitude of change. While the landform is gently undulating, it falls more steeply towards the south-east. In order to cut a level platform of 250m x 300m at a lower ground level would require a huge amount of earthworks and would fundamentally alter the character of the local landscape. Similarly, the introduction of large scale bunds would appear out of character in this traditional, rural landscape and at variance with the gently undulating landform. 2. The assessment of Scenario 1 is based on a 2m bund being included along the western boundary. 3. The assessment of Scenario 2 is based on a 1.5m bund being included along the western side of the permanent footprint.	
Q9.4.4	The Applicant	**Long term reversible effects** NPS EN-1, para 5.9.16 requires the decision maker to consider whether adverse impacts on landscape is temporary and/or capable of being reversed in a reasonable timescale. Does "long term and reversible", when not elaborated in the 'duration of effect' column of the assessment tables [APP-242] mean that the reversibility is only achieved on decommissioning?	ES Appendix 29.1 LVIA Methodology, paragraph 93 [APP-677] states "*Long term effects are used to describe those effects which would last between 5 and 30 years and relate to the residual effects of the presence and operational processes of visible components of the project and the time taken for trees and taller hedgerows to fully establish.*" When not elaborated in the duration of effects column this is because the effect is not significant.	
Q9.4.5	The Applicant	**Construction stage views from England Coast Path, PRoW RB22 and Happisburgh** 1. Confirm that views of construction activities from the Norfolk Coastal Path, Public Right of Way (PRoW) RB22 and the southern edge of Happisburgh would be limited to 20 weeks [APP-242, Table 29.10] and that this significant adverse effect is the same for Scenarios 1 and 2. Is that 20 consecutive weeks or is it over a longer period, if so what? 2. If views would occur for over a longer period does this affect the assessment?	1. The construction activities at the landfall would be limited to 20 consecutive weeks. The significant adverse effect assessed in respect of localised effects on PRoW RB22 and Happisburgh would be the same for Scenarios 1 and 2. 2. ES Appendix 29.1 LVIA Methodology, paragraphs 4 to 6 [APP 677] explains how duration and reversibility form a separate consideration to the assessment of significance and therefore if visibility of the construction activities at the landfall were to occur over a longer period then the significant effect would be attributed a longer duration.	
Q9.4.6	The Applicant	**Fencing** 1. Submit photographs of the proposed 2.4m palisade fencing and the electric pulse fencing [APP-218, para 348]. 2. Would these fences types occur next to each other or independent of each other?	A photograph is provided in Appendix 9.4 showing an example for the existing Necton National Grid substation. This type of fencing is common for securing electrical infrastructure perimeters. The two fences are combined to form a single barrier in that the 2.4m palisade fence is ground mounted with the further 1.0m electrical pulse fencing mounted upon the palisade fence.	

9.5 Outline Landscape and Ecological Management Strategy (OLEMS)

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.5.1	The Applicant	**Landscape and visual mitigation** Is the design of the substations considered to be part of the landscape and visual mitigation? This does not appear to be stated; the mitigation appears to rely upon planting.	The design of the substation is not considered to be part of the landscape and visual mitigation which relies largely upon existing and proposed mitigation planting.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.5.2	The Applicant	**Aftercare** 1. Why is the aftercare period specified as five years [APP-698, paras 20 and 67] when localised, cumulative, significant, adverse landscape and visual effects are assessed as lasting 25 years [APP-242, Table 29.18] before they become not significant? 2. Set out the difference between aftercare and management and maintenance? Should this be clarified in places in the documentation? 3. Would management and maintenance of the planting be required even after 25 years? If so, how is this secured?	1. In contracts for landscape services, it is industry standard for the maintenance period to be set at a period of five years. This is mainly because it is within this first five years that the majority of failures, in terms of plant establishment, will occur. After this first five years the plants will mostly be well established and any defects which arise are more likely to relate to their ongoing management rather than the original planting stock or planting process. Detailed recommendations for the longer term management would be set out in the Landscape Management Scheme in line with requirement 18 of the dDCO. 2. The aftercare and maintenance essentially have the same meaning. They refer to the short to medium term period in which the planting will need a greater level of attention to ensure successful establishment. Management refers to the longer term plan which includes the initial 5 year aftercare period, but which also extends into the longer term, when the planting will be well established and will need less attention, for example occasional thinning to ensure the plants have space to mature and monitoring for pests and diseases, with treatment and removal of plants where necessary. Definition of the aftercare period and the management period and the difference between them will be included in an updated version of the OLEMS. 3. After 25 years there would be no specific requirements for the management and maintenance of the on-site mitigation planting, other than the general good practice measures that the owner of the substation site would undertake as part of their overall site management. The trees will have long passed the critical stage of establishment and would have reached a sufficient height to achieve their purpose in terms of mitigation. Securing a formal management and maintenance plan after 25 years would, therefore, not be necessary.	
Q9.5.3	The Applicant	**Ash dieback in the vicinity of the substations** 1. In setting out a process to deal with ash dieback [APP-698, para 67], does this relate only to existing vegetation? 2. Has the potential effect of ash dieback been assessed? 3. For how long is the replacement of trees affected by ash dieback with non-native species proposed to extend? 4. Is this for 10 years or for the lifetime of the Proposed Development?	1. Yes – because of ash dieback, ash is never included in new planting proposals. There are very few existing trees within the Order Limits of the onshore project substation for Scenario 1 and Scenario 2. The only group of trees occurs around Lodge Farm. This is a relatively small area and from photographs taken during site work, there does not appear to be a predominance of ash species. 2. No – detailed tree surveys have not been carried out and will conducted pre-construction. 3. 10 years 4. 10 years	
Q9.5.4	The Applicant	**Monitoring** Section 12 of the OLEMS [APP-698] relates to monitoring, but only in respect of trees and hedges specified to be retained which are damaged during construction. 1. Why does this not cover mitigation planting? 2. Is the monitoring of that covered elsewhere? 3. If not, propose how and where this could be covered.	1. Monitoring referenced under Section 12 of the OLEMS, is in relation to the Ecological Management Plan (EMP) and not the Landscape Management Plan under which the mitigation planting would be undertaken. During construction there will be no mitigation planting unless areas of advanced planting are implemented. Advanced planting would only occur in those areas that would be separate from construction works and protected from potential damage. 2. Monitoring of mitigation planting would be covered in the Landscape Management Scheme produced in line with Requirement 18 of the DCO. 3. See point 2 above.	
Q9.5.5	The Applicant	**Terminology** Some of the terminology in the OLEMS [APP-698] (such as "it is expected…" "would seek to….") lacks certainty in terms of delivery. How could this certainty be provided?	In the Landscape Management Scheme certainty will be provided. Another level of design at a more detailed scale is required to consolidate the design principles and add in deliverability of the mitigation planting.	
Q9.5.6	The Applicant	**Substations site -specific landscape management scheme** 1. To whom do the "Recommendations to	1. This comment refers to the post-decommissioning period when the land would be returned to landowners and recommendations for the ongoing management of trees and hedgerows may be relevant.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		landowners, for management of trees and hedgerows in the longer term" refer [APP-698, para 67 final bullet]? Is some of the land with mitigation planting returned to landowners? Or does this refer to replacement planting? 2. Set out in more detail the type of management recommendations which are to be included. 3. Have any landowners been consulted?	2. Detailed recommendations for the longer term management would be set out in the Landscape Management Scheme in line with requirement 18 of the dDCO. The recommendations will follow all relevant standards and legislation including "BS 8545-2014 Trees: from nursery to independence in the landscape – Recommendations", and will include recommendations on pruning, cutting, irrigation, weed control. 3. The landowners concerned with the onshore project substation have been consulted regarding form and management of the mitigation planting. Discussion with these parties is ongoing in relation to species composition of planting and associated management.	
Q9.5.7	The Applicant	**Failure of planting scheme to progress to achieve objectives** The OLEMS [APP-698, para 73 final bullet] does not set out what the remedy would be if in the opinion of the Local Planning Authority, there was significant failure of the planting scheme or if it was failing to progress to the extent that it would not achieve the objectives of the scheme. Further explanation is required for this Examination and in the OLEMS.	While there is always some degree of uncertainty in respect of the establishment of new planting, it is highly unlikely that significant failure would occur or that the progress of planting would prevent the objectives of the scheme from being achieved. Potential risks will be significantly reduced by applying best practice and ensuring all materials and workmanship comply with the relevant British Standards and that the Landscape Contractors employed are industry approved, as secured in the Outline Landscape and Ecological Management Strategy (document 8.7, REP1-020) and Requirement 19 (1) of the dDCO. In the unlikely event that significant failure occurs, then in accordance with Requirement 18(2)(h) and Requirement 19 (2) of the dDCO, further planting would be required to be carried out to satisfy the requirements of the Local Planning Authority and to ensure the planting was achieving the objectives of the scheme.	
Q9.5.8	The Applicant	**Removal of vegetation** What is the difference between a bird nesting season (March to August) [APP-698, para 148] and a bird breeding season (March to October) APP-698, para 142]? What is the significance of the difference in timings for the different vegetation removals?	There is no difference, however the second period cited – March to October inclusive – is an error in both Chapter 22 (APP-235) and the Outline Landscape and Ecological Management Strategy (REP1-020) – it should read 'March to August inclusive', as per para 148. This error will be included in an update to the Outline Landscape and Ecological Management Strategy (REP1-020).	
Q9.5.9	The Applicant	**Removal of Vegetation** The Project Description [APP-218, para 417] proposes hedge and tree netting because hedge and tree removal is seasonal and removal ahead of the main works provides flexibility to account for seasonal restrictions and mitigates potential programme delays. 1. Netting is not mentioned in the OLEMS or the OCoCP. Does that mean it is not proposed to use netting? 2. What is Natural England's and the RSPB's view of the use of netting?	1. The option to use netting is retained by the Applicant, but only as a last resort if hedgerow removal outside of the bird nesting season is not a viable option. As set out in the Outline Landscape and Ecological Management Strategy (REP1-020) [section 9.2.3.1], vegetation which provides suitable habitat for nesting birds is intended to be removed as close to the start of construction as possible, but outside the bird nesting season (March – August inclusive). If hedgerows cannot be removed during this period, then the Applicant would consider the use of netting of trees in advance of the forthcoming breeding season. In these circumstances, the Applicant would follow the RSPB's advice on the use of netting on trees, bushes and hedgerows to prevent nesting birds (https://www.rspb.org.uk/our-work/rspb-news/news/stories/use-of-netting/#m3SB71xJFBOizt8E.99).	
Q9.5.9	Natural England	**Removal of Vegetation** The Project Description [APP-218, para 417] proposes hedge and tree netting because hedge and tree removal is seasonal and removal ahead of the main works provides flexibility to account for seasonal restrictions and mitigates potential programme delays. 1. Netting is not mentioned in the OLEMS or the OCoCP. Does that mean it is not proposed to use netting?	**Large scale netting** [APP-218, para 417] It is for the Applicant to establish working practices that ensure no offence is committed under the Wildlife and Countryside Act 1981. There are no details provided on the specifics or scale of netting proposed and so it is difficult to comment. However, generally netting may come with its own welfare issues and difficulties including regular maintenance to ensure holes to do not occur and breeding birds enter and/or become entangled. It may be more effective to ensure breeding birds are not disrupted to remove vegetation	Noted. As detailed in the Applicant's response to Q9.5.9 in the Responses to the ExA's First Written Questions (REP2-021), the option of netting will only be used as a last resort if hedgerow removal outside of the bird nesting season is not a viable option.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		2. What is Natural England's and the RSPB's view of the use of netting?	in the appropriate season and then reinstate to an equal or better state to ensure no net loss of habitat and preferably net gain. Should the Applicant wish to proceed with netting we would be happy to provide comment on a more detailed proposal.	
Q9.5.9	The RSPB	**Removal of Vegetation** The Project Description [APP-218, para 417] proposes hedge and tree netting because hedge and tree removal is seasonal and removal ahead of the main works provides flexibility to account for seasonal restrictions and mitigates potential programme delays. 1. Netting is not mentioned in the OLEMS or the OCoCP. Does that mean it is not proposed to use netting? 2. What is Natural England's and the RSPB's view of the use of netting?	While the practice of netting is legal, the RSPB would like planners and developers to ensure that this approach is absolutely necessary. We have developed detailed, technical guidance for developers so they can follow this best practice and contact us for any advice: • Think about whether it is really necessary to remove the hedges and trees that are vital for supporting wildlife; • Netting should not be the easy alternative. If the work is absolutely necessary, then the use of netting could be avoided by tree and hedge removal being completed outside of nesting season (September – February); • This should be backed up by a commitment to plant new trees and hedges; • It is essential developers work with a trained ecologist to ensure appropriate netting is used and is not the type that will catch and hold birds and other wildlife; • It is also essential that a trained ecologist ensures the correct netting is fitted in a way that wildlife cannot get through or behind the netting and then become trapped; • It is essential that netting is checked at least once a day (but ideally three times) by a trained ecologist to ensure that no wildlife is caught or that the netting has become defective. If any wildlife is seen to be caught within or trapped behind netting they must be freed immediately and the netting fixed or removed; If anyone perceives birds and other wildlife to be harmed by netting, then the RSPB's advice is for the Police Wildlife Crime Officer to be informed.	Noted. As detailed in the Applicant's response to Q9.5.9 in the Responses to the ExA's First Written Questions (REP2-021), the option of netting will only be used as a last resort and the Applicant will follow the RSPB's advice on the use of netting on trees, bushes and hedgerows.

9.6 Good design

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q9.6.1	Necton Parish Council	**Policy requirements for good design** Do you consider the Applicant has satisfactorily demonstrated how the proposed development would meet the national and local policy requirements for good design in its Planning Statement [APP-693] and Design and Access Statement [APP-694]? If not, what is missing?	Only an indicative layout has been provided so far for the substations. This is not the first installation the Applicant will have carried out so there should be more design details available that would allow an assessment of the quality of the design to be made. Necton Parish Council would appreciate more detailed information and the opportunity to make a reasoned comment on whether it can be classed as a good design.	The Applicant has produced a note in consultation with Breckland Council on the Onshore Project Substation Design which was submitted at Deadline 2 (Appendix 1 of the Statement of Common Ground with Breckland Council (ExA.SoCG-2.D2.V1, REP2-039)). The note details how additional information on the onshore project substation design will be provided through the design process when detailed information is available. This will be undertaken through the production of a Design Guide. The Design Guide will be shared with key stakeholder and interested parties, and feedback will be sought on those aspects of the design which could be influenced. The Applicant and Breckland Council will work together to communicate and implement this process effectively.
Q9.6.2	The Applicant	**Design and Access Statement** Compliance with the Design and Access Statement (DAS) [APP-] is one of the means which would be used in the dDCO [AS-019, Requirement 16 (4)] to secure the onshore detailed design through further approvals. The ExA has noted some differences	The Applicant has submitted an updated Design and Access Statement at Deadline 2, with tracked changes, to address Action Points 1 and 12 from the Issue Specific Hearing 1 – draft DCO. The Applicant will provide a further updated Design and Access Statement at Deadline 7 to include any further updates required.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		between the DAS and other application documents (substation descriptions, landscape drawings). 1. In the first instance Interested Parties are requested to point out any differences that they have noticed. 2. The Applicant is requested to update the DAS for conformity, providing a track changed version at Deadline 7.		
Q9.6.2	Necton Parish Council	**Design and Access Statement** Compliance with the Design and Access Statement (DAS) [APP-] is one of the means which would be used in the dDCO [AS-019, Requirement 16 (4)] to secure the onshore detailed design through further approvals. The ExA has noted some differences between the DAS and other application documents (substation descriptions, landscape drawings). 1. In the first instance Interested Parties are requested to point out any differences that they have noticed. 2. The Applicant is requested to update the DAS for conformity, providing a track changed version at Deadline 7.	Necton Parish Council believe a meeting with the Boreas technical team covering the substation design details, height above sea level and mitigation plans are necessary to permit us to adequately assess any gaps in the design specification with respect to the substations.	The Applicant will arrange a meeting with Necton Parish Council in early 2020 to discuss these points. With regard to the substation design details, the Applicant refers to Q9.6.1. and the production of a Design Guide in consultation with Breckland Council and key stakeholders.

10 Marine and Coastal processes

10.0 Marine and Coastal processes

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q10.0.1	The Applicant	**Coastal erosion issues** The Applicant to provide guidance to where in its Application the assessment of implications of potential worst-case coastal erosion and any Shoreline Management Plan is discussed.	The assessment of effects/impacts on coastal erosion and the implications for the Shoreline Management Plan (SMP) are discussed in several places in Chapter 8 of the ES (APP-221) and in Appendix 4.5 of Chapter 4 (APP-541). These are: Section 8.6.11. Coastal Processes at the Landfall in Chapter 8 (APP-221) provides an appraisal of baseline coastal processes at the landfall location. A summary of the SMP policy is also stated (Managed Realignment over the next 100 years). Section 8.7.4.1 of the ES chapter (Embedded Mitigation Relevant to Marine Physical Processes) provides a description of the long HDD and highlights that its burial at sufficient depth below the coastal shore platform and cliff base will ensure that its operation will have no effect on coastal erosion. Erosion would continue as a natural phenomenon driven by waves and subaerial processes, which would not be affected by Norfolk Boreas. Natural coastal erosion throughout the lifetime of the project has been taken into account within the project design by ensuring appropriate set back distances from the coast for the HDD entry point. Within section 8.7.7.6 of the ES chapter (Operational Impact 6: Morphological and sediment transport effects due to cable protection measures within the offshore cable corridor) it is stated that the HDD will be designed to be sufficiently far below the cliff base (including a significant margin for safety) to have no effect on the natural erosion of the cliff. The HDD will be secured beneath the surface of the shore platform and the base of the cliff, drilled from a location greater than 150m landward of the cliff edge. The material through which the HDD will pass, and through which the cables will ultimately be located, is consolidated and will have sufficient strength to maintain its integrity during the construction process and during operation. Also, the cable will be located at sufficient depth to account for shore platform steepening (downcutting) as cliff erosion progresses, and so will not become exposed during the design life of the project (approximately 30 years). The continued integrity of the geological materials and the continued depth of burial of the cables mean that they will have no impact on coastal erosion during both construction and operation. Hence, the project will not affect the SMP because allowance has been made for predicted erosion rates during the project design. Also, the project is compatible with the SMP as there will be no impact on existing or planned coastal defences. A coastal erosion study is provided in Appendix 4.5 (APP-541) of the ES, which informed the landfall site selection and design of the HDD works and the assessment of potential effects/impacts of the landfall on coastal erosion. This study takes account of the Shoreline Management Plan in section 2.3 of that document as well as other available sources such as North Norfolk District Council's Coastal Management Studies.	

11 Navigation

11.0 Marine Navigation and Shipping

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q11.0.1	Maritime and Coastguard Agency (MCA)	**Radar interference effects on navigation deviated around the proposed OWF** Section 22.8 of the Navigation Risk Assessment (NRA) [APP-569] discusses potential impacts of the Proposed Development on ship-borne marine radar with specific effects discussed at paras 403 to 408, which the ExA understands to indicate that effects increase significantly within 1.5nm of the OWF WTG array. Figure 22.1 of the NRA shows the deviation of shipping around the proposed OWF that would be an effect of the Proposed Development and shows vessel routes deviating and turning around the north-eastern corner of the proposed OWF through an appreciable angle and within 1.5nm of the Red Line Boundary (RLB). IPs to comment on the implications to navigational safety of vessels passing closer than 1.5nm to the proposed WTG array RLB at the north-eastern extent of the OWF array and whether specific risk mitigation should be considered in this location.	The North Hoyle wind farm research back in 2004/5 tried to obtain scientific and practical operational data on the performance of various navigation and communications systems within and in the vicinity of offshore wind farms. The research focused on how the performance of systems would be adversely affected, with cost effective solutions recommended. Ultra-high frequency and other microwave systems (within the frequency spectrum of the marine radars) suffered from the normal masking effect when turbines were in the line of the transmissions. Although the turbines produced strong radar echoes giving early warning of their presence, at close range however, due to their vertical structures, strong reflecting surfaces and close proximity, turbines may produce multiple reflected and side lobe echoes that can mask real targets on the ships' and other small craft radar displays. These develop at about 1.5 nautical miles, with radar displays becoming worse as the range closes. Where a shipping lane passes within this range, considerable interference may be expected along a line of turbines. There is little further evidence at present on how this has changed since the growth in size of turbines or on how to mitigate this interference. Vessels will have to adapt accordingly when the interference is identified, and utilise other means, including training/familiarisation and other such navigation operational procedures, for the purposes of safe navigation as per SOLAS and the COLREGS.	It is noted within the SoCG agreed with the MCA (REP-049) that 'adopted measures for minimising impacts on shipping and navigation receptors are sufficient to bring risks to tolerable levels'. The Applicant therefore understood that this matter was agreed between the parties. Notwithstanding this, in order to understand and discuss the MCA's response to Q11.0.1 in more detail, the Applicant has approached the MCA to arrange a meeting in early January 2020 with the aim of clarifying any remaining points.
Q11.0.1	Trinity House (THLS)	**Radar interference effects on navigation deviated around the proposed OWF** Section 22.8 of the Navigation Risk Assessment (NRA) [APP-569] discusses potential impacts of the Proposed Development on ship-borne marine radar with specific effects discussed at paras 403 to 408, which the ExA understands to indicate that effects increase significantly within 1.5nm of the OWF WTG array. Figure 22.1 of the NRA shows the deviation of shipping around the proposed OWF that would be an effect of the Proposed Development and shows vessel routes deviating and turning around the north-eastern corner of the proposed OWF through an appreciable angle and within 1.5nm of the Red Line Boundary (RLB). IPs to comment on the implications to navigational safety of vessels passing closer than 1.5nm to the proposed WTG array RLB at the north-eastern extent of the OWF array and whether specific risk mitigation should be considered in this location.	Trinity House recognise that there is an effect on maritime radar caused by navigating close to Offshore Wind Turbines as shown in the studies carried out in 2004 and 2005, highlighted by the applicant. These studies were carried out at an early windfarm and there have been no additional trials carried out as turbine sizes have dramatically increased in recent years. During the Thanet Extension Offshore Windfarm hearings there was evidence presented by the London Pilots Council showing pictures of the effects to radar on a large vessel navigating close to the existing windfarm. This was quite severe but could only show the effect on that particular type, size and arrangement of vessel. The applicant's submission in the NRA Sec 22.8 Impact on Maritime Radar Systems relies heavily on assumptions and we cannot realistically confirm or refute these. Page 158 (402) last bullet states " .. mainly a problem during periods of reduced visibility .. " We would recommend that if the "problem" does occur it is important in all visibilities as the responsibility for good lookout on the vessel does not change. Page 159 (404). The applicant makes the assumption that vessels are "likely to pass over 1 nm from the site". When analysing maritime traffic around existing windfarms it can be seen that some mariners will navigate closer than 1 nm to turbines when passing them. Whether a mariner passing the windfarm would consider increasing the passing distance if they became aware of radar interference could be considered supposition and open a discussion which would not come to a final conclusion. Page 160 (408) It should be noted that whilst MCA guidance is produced and made available publicly, only UK registered shipping is required to be in receipt of it. Foreign flag vessels and their crews may not, and need not, be aware of these documents.	It is noted within the SoCG agreed with the Trinity House (REP-040) that all matters are agreed apart from a small number DCO/DML conditions in relation to notification timeframes and arbitration/deemed approval that are currently under discussion. Therefore in order to understand this response in more detail the Applicant has approached Trinity House to arrange a meeting in early January 2020 in order to clarify any remaining points.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			In conclusion, if this development progresses it is unclear what size turbine would be used and to what level any interference will be experienced on marine radars. As such we cannot say what mitigation would be appropriate and must assume, as has the applicant, that mariners will identify any interference and navigate appropriately.	
Q11.0.2	Maritime and Coastguard Agency (MCA)	**Separation distance to Davy gas platform related to safety of deviated navigation** APP-228 ES chapter 15 states 'There is one gas platform (normally unmanned) within the Norfolk Boreas site, associated with the Davy Field. The platforms associated with the Sean Field are positioned north of the Norfolk Boreas site, with the closest being 1.4nm from the boundary.' Are MCA and Rijkswaterstaat satisfied at this separation distance of 1.4nm in relation to safety of navigation for shipping routes that may need to deviate around the north of the proposed Norfolk Boreas OWF as referred to in Table 5.3 of [APP-569]?	The introduction of the Norfolk Boreas OWF development will no doubt decrease the available sea room in this area and as a result will push vessels around to the north of the site. We note that there are a few vessel routes passing to the north in close proximity to three platforms in the Sean Field. These will likely have a 500m exclusion zone around them, further constricting the area. It is difficult to say whether 1.4nm is an acceptable distance, as it would depend on the size and type of vessel deviating to the north, the met ocean conditions, experience of the master and knowledge of the area etc., and whether they consider the available sea room as sufficient. Further consultation with those expected to deviate to the north would be useful here.	As with the response to Q11.0.1, the Applicant intends to discuss this response further with the MCA in order to seek further clarity on this point. However the Applicant notes that the regular operator consultation undertaken as part of the Navigational Risk Assessment (NRA [APP-569]) process (section 5.5 and Appendix 15.4) included consultation with vessels operating regularly in the area – including those likely to pass north of the site. This included vessels transiting to the Sean Field.
Q11.0.3	The Applicant	**Effects of development on adverse weather routing** It is understood by the ExA [from APP-228 para 342] that the frequency of deviation southwards of shipping due to adverse weather is assessed as 'reasonably probable' (ranking 4). The Applicant to justify further why the probable occurrence is not rated as 'Frequent', i.e. at least yearly; and if it were to be at least a yearly occurrence, how this would influence the conclusion of the assessment in the north-east corner of the proposed OWF	Commercial vessel transits, outside of routeing measures and channels, are not constrained and although general habitual courses are often seen, in reality these tend to vary according to the vessel, Master preference, traffic and/or weather conditions. Adverse weather in particular can lead to a variety of headings and courses taken by vessels operating between the same ports. This is due to the fact that mitigations required to minimise the effects of weather are specific to the conditions at the time i.e., bearing and strength of the wind, direction of the tide, and height of the swell. Although adverse weather scenarios can occur frequently (yearly) the "remote" frequency (1 in 10 to 100 years) assessed refers to the frequency at which adverse weather conditions (i.e., the specific bearing and strength of the wind, direction of the tide, and height of the swell) would require a vessel to route in a way that it could be likely to result in a moderate safety 'consequence' not just the frequency of adverse weather occurring. Whilst Norfolk Boreas has the potential to impact upon adverse weather routes (noting above the variation in these) on a more frequent basis (as per section 15.8.2 of 6.1.15 Environmental Statement - Chapter 15 Shipping and Navigation ES [APP-228], the significant majority of such cases were assessed as being likely to be of a lower or no safety consequence, hence the "reasonably probable" occurrence.	

11.1 Aviation and Radar

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q11.1.1	The Applicant	**Consultations with MoD on Military aviation and Air Defence Radar (ADR):** APP-229 Table 16.2 Consultation Responses reports: Dec 2018: 'In response to statutory consultation the MoD stated that when operational the Norfolk Boreas wind turbines will be detectable to and cause unacceptable interference to the radar. Furthermore, the wind turbines and associated	The Applicant submitted a proposed mitigation solution to the MoD to mitigate the potential impact on the Trimingham ADR that has been accepted by the Ministry of Defence (MoD). On the 6th September 2019 (DIO ref. 10039925) the MoD confirmed acceptance of the mitigation proposal to the Planning Inspectorate and that the wording of two Requirements (12 and 13) included in the dDCO (REP1-008) had been agreed. Consequently the MoD maintains no safeguarding objection to this application subject to the inclusion of Requirements 12 and 13. These Requirements relate to (1) the	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		offshore platforms will affect military low flying activities conducted in the area. The MoD have accepted a proposed mitigation solution to mitigate the Norfolk Boreas 'sister project' Norfolk Vanguard impact to the Trimingham ADR, it is expected that this mitigation solution will also be applicable to Norfolk Boreas.' The Applicant to provide an update on consultation with the MoD with regard to 1. effects on the Trimingham ADR system; and 2. effects to low-flying activities in the area.	need to attach aviation warning lighting to relevant offshore structures necessary to maintain safety for military low flying aircraft and (2) the provision of a technical mitigation scheme to resolve the adverse impacts of the development upon the air defence radar.	
Q11.1.1	MOD	**Consultations with MoD on Military aviation and Air Defence Radar (ADR):** APP-229 Table 16.2 Consultation Responses reports: Dec 2018: 'In response to statutory consultation the MoD stated that when operational the Norfolk Boreas wind turbines will be detectable to and cause unacceptable interference to the radar. Furthermore, the wind turbines and associated offshore platforms will affect military low flying activities conducted in the area. The MoD have accepted a proposed mitigation solution to mitigate the Norfolk Boreas 'sister project' Norfolk Vanguard impact to the Trimingham ADR, it is expected that this mitigation solution will also be applicable to Norfolk Boreas.' The Applicant to provide an update on consultation with the MoD with regard to 1. effects on the Trimingham ADR system; and 2. effects to low-flying activities in the area.	APP-229 Table 16.2 Consultation Responses reports: Dec 2018: 'In response to statutory consultation the MoD stated that when operational the Norfolk Boreas wind turbines will be detectable to and cause unacceptable interference to the radar. Furthermore, the wind turbines and associated offshore platforms will affect military low flying activities conducted in the area. The MoD have accepted a proposed mitigation solution to mitigate the Norfolk Boreas 'sister project' Norfolk Vanguard impact to the Trimingham ADR, it is expected that this mitigation solution will also be applicable to Norfolk Boreas.' The Applicant to provide an update on consultation with the MoD with regard to 1. effects on the Trimingham ADR system; and 2. effects to low-flying activities in the area.	The Applicant concurs with this position and welcomes confirmation from the MOD that there is no safeguarding objection to the application in view of the mechanisms within Requirements 12 and 13 of the dDCO.
Q11.1.2	The Applicant	**Consultations with Anglia Radar on Helicopter Main Route aviation:** APP-229 para 50 states 'Helicopter operators and ATC service providers have been consulted with regard to any potential impact on HMRs with limited response in return. Furthermore, Anglia Radar did not respond to a request for consultation …'. The Applicant to provide an update on consultation with Anglia Radar with regard to potential effects on Helicopter Main Routes (HMRs).	Anglia Radar was contacted on the 23rd November 2019 in order to provide a response to the previous request for consultation. The Air Traffic Control Manager at Anglia Radar confirmed by email on the 25th November 2019 that the agreed mitigation of radar effect with NATS meets the need of the Anglia Radar operation furthermore; in respect to Helicopter Main Routes (HMR) Anglia Radar has no objection in this regard to the Norfolk Boreas Offshore Wind Farm.	
Q11.1.3	The Applicant	**Mitigation of effects to Civil and Military Radar:** APP-229 para 91 states that: 'Until mitigation is in place; the impact to [PSR and ADR] radar systems is of major significance. However, mitigation of the radar systems will be agreed with NATS and the MoD prior to offshore construction works which will remove the impact created by Norfolk Boreas and reduce the impact to not significant.' The Applicant to provide updated statements of agreement of mitigation from NATS and MoD.	A Primary Radar Mitigation Scheme (PRMS) has been agreed with NATS which will remove the impact created to the NATS Cromer Primary Surveillance Radar (PSR) system. The Applicant has agreed a Mitigation and Services Contract (MSC) with NATS for implementation of the PRMS which will reduce impact to the PSR to negligible. A proposal to mitigate the impact on the Trimingham ADR has been accepted by the MoD (see response to Q11.1.1), and the MoD maintains no safeguarding objection to this application subject to the inclusion of draft Requirements 12 and 13.	
Q11.1.3	MOD	**Mitigation of effects to Civil and Military Radar:** APP-229 para 91 states that: 'Until mitigation is in place; the impact to [PSR and ADR] radar systems is of major significance. However, mitigation of the	APP-229 para 91 states that: 'Until mitigation is in place; the impact to [PSR and ADR] radar systems is of major significance. However, mitigation of the radar systems will be agreed with NATS and the MoD prior to offshore construction	Please see the response the Applicant has provided to Q11.1.1.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		radar systems will be agreed with NATS and the MoD prior to offshore construction works which will remove the impact created by Norfolk Boreas and reduce the impact to not significant.' The Applicant to provide updated statements of agreement of mitigation from NATS and MoD.	works which will remove the impact created by Norfolk Boreas and reduce the impact to not significant.' The Applicant to provide updated statements of agreement of mitigation from NATS and MoD.	

12 Onshore construction effects

12.0 Cable corridor and ducting

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q12.0.1	The Applicant	**Installation of onshore cable ducts** ES Chapter 5 [APP-218, paragraphs 422 and 423] proposes an onshore cable duct installation strategy to minimise impacts. Construction teams would work on a short length (approximately 150m section) and once the cable ducts have been installed, the section would be back filled and the top soil replaced before moving onto the next section. This would minimise the amount of land being worked on at any one time. Have you considered an alternative approach for Scenario 2 should you find the current strategy to not be viable for all or parts of the route? If so, what are the details? If not, why not?	The onshore duct installation strategy (Scenario 2 only) has been a very early project commitment as an embedded mitigation method following early consultation feedback from stakeholders and landowners. This comes as a result of experience from other utility installations opening up long sections (potentially multiple kilometres) of trenches for prolonged periods and the impacts caused as a result. The construction methodology is a standard trenching approach common across the utility industry, with the benefit of duct installation (rather than direct cable installation) being that short lengths of duct can be installed at a time, rather than long lengths of cables. To ensure the viability of the construction method throughout the onshore cable route, the strategy includes all supporting infrastructure requirements during construction such as a running track, soil storage areas and multiple mobilisation areas distributed along the cable route. The construction method is included as embedded mitigation within the OCoCP (document 8.1, REP1-018) and secured within Requirement 20 of the dDCO. As part of the OCoCP, the Applicant has committed to producing Construction Method Statements which will further detail good practice in line with achieving the construction strategy.	
Q12.0.2	The Applicant	**Method statement for crossing of River Wensum**: To give clarification to the action point from the HRA and environmental matters Issue Specific Hearing on 14 November 2019: Provide a method statement to explain the cable crossing of the River Wensum, its associated land drainage and streams, works access [APP-011, Sheet 29 of 42, AC130 AC129, AC128] and long distance trail closure; to expand on [APP-010] Works Plan Sheet 29.	A 'Method Statement for the crossing of the River Wensum and adjacent watercourses' has been submitted at deadline 2 (ExA.AS-5.D2.V1).	
Q12.0.2	Norfolk County Council	**Method statement for crossing of River Wensum**: To give clarification to the action point from the HRA and environmental matters Issue Specific Hearing on 14 November 2019: Provide a method statement to explain the cable crossing of the River Wensum, its associated land drainage and streams, works access [APP-011, Sheet 29 of 42, AC130 AC129, AC128] and long distance trail closure; to expand on [APP-010] Works Plan Sheet 29.	Whilst this question is directed to the Applicant. Norfolk County Council would be keen to be part of any ongoing discussions regarding the closure of this section of Norfolk Trail.	Noted. As secured through section 4 of the OCoCP (REP1-018) details on closures of all Public Rights of Way, including the Norfolk Trail, will be agreed in advance with the local authority and detailed within the final CoCP.
Q12.0.3	The Applicant	**Cable corridor width** 1. Signpost where in the documentation, details for the justification of the width of the cable corridor is set out. 2. What tolerance has been allowed for micro siting? 3. Would it be possible to include a temporary haul road within the current working width? If not, why not?	1. Section 5.7.2 of ES Chapter 5 Project Description (document 6.1.5, APP-218) provides details on the construction requirements within the cable corridor to facilitate installation of the ducts (Scenario 2 only) which includes land to store stripped topsoil, separate land to store excavated subsoil, up to two trenches, a running track for access and delivery of materials to the excavation site and temporary perimeter fencing. A cable corridor section drawing is provided in Plate 5.15 to visually illustrate these requirements and the associated dimensions to justify the required cable corridor width in Scenario 2. In Scenario 1, Norfolk Vanguard will have conducted the duct installation and only	

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			the cables will need to be installed within the pre-installed ducts by Norfolk Boreas. 2. In Scenario 2, the cable corridor requirements are 35m, providing 10m opportunity for micrositing within the 45m cable route Order Limits, as presented in the Works Plan (document 2.4, APP-010). 3. A temporary haul road (named a running track) is included within the cable route, as illustrated in Plate 5.15 and detailed in Section 5.7.2.2.3 of ES Chapter 5 Project Description (document 6.1.5, APP-218).	
Q12.0.4	The Applicant	**Cable corridor works where boundary barriers exist** How is construction achieved when the cable corridor crosses a solid boundary for example a wall such as that along the minor road along the west side of Elsing Lane, the minor road which runs north/ south between Bawdeswell and Mill Street (just north of the River Wensum)? This is the boundary of a non-designated heritage asset. Is a feature such as this boundary wall retained?	During duct installation (Scenario 2 only) crossing of such a feature would be conducted similar to crossing of hedgerows whereby the width of the onshore cable route would be reduced to the running track and cable trenches only (13m for perpendicular crossing) to minimise the extent of impact. The wall would then be removed for this width during construction and replaced so far as possible post duct installation. In Scenario 1, the feature in question would be unaffected by Norfolk Boreas as the ducts would have already been installed by Norfolk Vanguard and the cable pulling can be achieved using construction side accesses. See response to Q1.2.6 for further information on the clarification of non-designated heritage assets.	
Q12.0.5	Natural England	**Construction near ancient woodland** Do you consider there should be specific provision in the outline CoCP and/ or the OLEMS for protection measures in the vicinity of ancient woodland? A requirement for a 15m buffer zone is referred to in the mitigation strategy [APP-688, ref 163], but not secured in either of the aforementioned documents	As raised in Relevant Representations [RR -099] we note that the onshore cable route will not encroach within 15m of Ancient Woodland. We refer the Applicant to Natural England's standing advice for ancient woodland and the management of buffers and suggest these are incorporated into the OLEMS. Natural England has discussed the buffer for Ancient woodlands with the Applicant as part of SoCG (AS-028) and recommended that the commitments to buffers should be included within the OLEMS. The 15m buffer is the absolute minimum required and a larger buffer may be required based on site specific circumstances. There is the potential for wording in the OLEMS to be misconstrued and recommend this is amended to more accurately reflect the standing advice and local circumstances. We would also welcome this being included in the CoCP.	The Applicant will review the wording within the OLEMS in consultation with Natural England.

12.1 Mobilisation areas

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q12.1.1	The Applicant	**Mobilisation Areas** 1. Explain how the location of Mobilisation Area MA5b, on the edge of the settlement of Sparham meets your selection criteria for the location of Mobilisation Areas, in particular properties on Well Lane. 2. Specify when each of the 14 Mobilisation Areas is likely to be installed and uninstalled under Scenario 2 and reference the indicative construction programmes in ES Chapter [APP-218, Table 5.39, Table 5.43]. 3. Is it correct, as set out in the Project Description [APP-218, Table 5.32], that no mobilisation areas are required for Scenario 1? 4. If this is not the case, what is required? 5. Respond to the point made by [RR-053] about the location of MA11 in relation to the B1159 and	1. Section 5.7.2.5.1 of ES Chapter 5 Project Description (document 6.1.5, APP-218) notes that mobilisation areas (Scenario 2 only) must be located adjacent to the onshore cable route and accessible from the local highways network suitable for the delivery of heavy and oversized material and equipment. MA5b is therefore sited in consideration to meet these requirements with accessibility from the A1067 and adjacent to the onshore cable route. MA5b has been included to prevent construction traffic on the running track crossing the A1067 from MA5a, following consultation with the local highways authority. Consideration was given to avoiding proximity to local residents as part of the key embedded design principles in the siting of MA5b, however there are no suitable alternatives in the area which meet the criteria of being accessible from the local highways network and adjacent to the onshore cable route. A full construction noise assessment (document 6.1.25, APP-238) has included properties on Well Lane as receptor CRR20 which concludes negligible impact	

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		whether consideration was given to sites immediately off the B road or ones which could be accessed via the running track. Provide detail for the access arrangements for MA2, as the minor road is narrow and the alternative would be access off the A47.	with standard mitigation (document 6.3.25.2, APP-658). The area was also considered specifically within the air quality assessment as receptor R16 (document 6.1.26, APP-239) which concluded negligible impacts. The Applicant has committed to a range of environmental management measures and construction good practice as provided in the OCoCP (document 8.1, REP1-018) and secured in Requirement 20 of the dDCO to limit any impacts to properties in the vicinity. 2. Each of the mobilisation areas along the onshore cable route have been assessed as being in place for up to 2 years, during the period 'duct installation' as illustrated in Table 5.39 of ES Chapter 5 Project Description (document 6.1.5, APP-218). However, each mobilisation area will only be required for the period of time in which the one or two workfronts operating from it have completed the duct installation for the associated cable route sections (see Figure 3a of the OTMP, (document 8.8, APP-699), at an approximate rate of 150m/week, plus mobilisation and demobilisation. In general therefore, the majority of mobilisation areas will be required for notably less than two years, typically 12 to 18 months. Appendix 24.22 (document 6.3.24.22, APP-637) provides an indicative establishment, use and demobilisation period of each mobilisation area within the wider two year assessed period. 3. No mobilisation areas are required along the onshore cable route for Scenario 1. Mobilisation area MA1a, located close to the junction of the A47 and the onshore project substation access road is however required under Scenario 1 during the construction of the onshore project substation, as illustrated in Figure 2a of the OTMP (document 8.8, APP-699). 4. Mobilisation area MA1a only is required under Scenario 1, to support construction of the onshore project substation. 5. Consideration was given to the siting of MA11 directly off the B1159, however concern was raised during consultation with the local highways authority regarding having an additional access in very close proximity to the existing crossroads. Furthermore, siting adjacent to the B1159 would locate the mobilisation area closer to residences directly to the North. With respect to accessibility from a running track, the mobilisation area is the first location off the public highway to which materials and equipment are delivered. Therefore the running track cannot be established until the mobilisation area is established, from which the running track is then constructed as part of the progressive duct installation process. Pre-construction of a running track to access the mobilisation area is therefore not possible. Furthermore, use of the running track as an access point from the B1159 to the mobilisation area after the duct installation has progressed to the B1159 crossing would not be feasible for the safety concerns raised above regarding proximity to the crossroads and that the running track is sufficient for delivery of materials to the workfront, not all deliveries to and from the mobilisation area. In response to Q9.4.2, the Applicant has outlined how access to MA11 is considered within the OTMP (document 8.8, APP-699).	

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			6. Section 4.4.1 of the OTMP (document 8.8, APP-699) provides details of the access arrangements for MA2, the final details of which are being discussed with Highways England and will be included in the final traffic management plan.	

12.2 Noise and Vibration

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q12.2.1	The Applicant	**Location of noise sensitive receptors** ES Chapter 25 [APP-238, paragraph 148] states that the study area comprises the entire onshore project area. The assessment has not identified a buffer zone within which effects would be considered, rather Noise Sensitive Receptors (NSR) have been identified, as detailed in Table 25.27 and shown on Figure 25.2. These are stated to have been agreed with relevant stakeholders (Table 25.3 and paragraph 122). With reference to the location of noise sensitive receptors as identified in the ES Chapter 25 [APP-238, Figure 25.2], explain why: 1. The majority of NSRs on Map 1 of 9 are located south of the cable route, although there are some potential receptors (e.g. Chimney Farm) to the north; 2. There are no NSRs in North Walsham close to the indicative mobilisation area (see Map 2 of 9); 3. There are no NSRs in proximity of trenchless crossing (TC) 16, although there are residential properties in proximity of this area (see map 2 of 9); 4. There are no NSRs in proximity of TC6, although there are a number of farms in proximity of this area (see Map 6 of 9)? 5. IPs may wish to comment.	1. The Noise and Vibration method statement (APP-060) contained an outline approach to the assessment methodology and through the identification of the nearest sensitive receptors was used to inform a strategic baseline noise survey. Each Local Planning Authority agreed that these measurement and assessment locations were representative based on the project design detailed at the time of submission. Details on the Evidence Plan for noise, vibration and air quality can be found in Consultation Report Appendix 9.23 (APP-060) and Appendix 9.24 (APP-061). Refinements to the scheme occurred during the evolution of the project design, through consultation with stakeholders during the Evidence Plan Process held from the initial stage and beyond PEIR. Any changes were incorporated in the Environmental Statement (ES) submission, an example is the change in cable route alignment within the study area. The assessment is still considered representative as the nearest sensitive receptors to the proposed construction works and operational infrastructure in each direction have been taken into account. Chimney Farm is at a greater separation distance than receptor CRR1E; therefore, noise impacts would be expected to be no greater than those experienced at CRR1E. 2. The closest mobilisation areas to North Walsham are identified as MA10a and MA10. The nearest assessed receptor is CRR2 approximately 42m from the closest works area indicated at the location. Receptors at Lyngate Industrial Estate were categorised as a lower sensitivity to CRR2. The nearest medium sensitivity receptors (residential) in North Walsham (along Mundesley Road) are at a greater distance from MA10/MA10a than CRR2 and would be expected to have impacts no greater than those identified at CRR2. 3. Duct Installation works were modelled at all Trenchless Crossing (TC) locations simultaneously i.e. TC16, TC15/TC14a, TC14a/b. Receptor CRR3C was identified in the initial Noise and Vibration Method Statement (APP-060) as the closest measurement location representative of a receptor to the trenchless crossings along the proposed cable route. Works at other TC areas are closer to receptors i.e. CRR2 and CRR1 than the closest immediate receptors in the vicinity of TC16; therefore, the predicted noise levels provided in Chapter 25 represent a conservative scenario. 4. There are a number of receptors (CRR17, CRR17 NEW, CRR18, CRR18 NEW) included in the construction phase assessment in the vicinity of TC6; however, it is acknowledged that there are also other properties (farms) closer to TC6 than those assessed at this location as residential receptors in the ES chapter. On balance, the overall assessment does consider residential receptors at closer proximity to indicative Trenchless Crossing works, for example TC4 is of a similar separation distance from CRR26, as the nearest residential receptors are to proposed TC6 works footprint. All TC work areas were modelled using a representative type and number of plant; therefore, on this basis, impacts are considered to be no worse at TC6 than for works at TC4.	

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			5. The approach to the noise impact assessment, including the methodology, worst case assumptions and assessments has been agreed with the relevant local authorities through the Statements of Common Ground, submitted at Deadline 2.	
Q12.2.1	Breckland Council	**Location of noise sensitive receptors** ES Chapter 25 [APP-238, paragraph 148] states that the study area comprises the entire onshore project area. The assessment has not identified a buffer zone within which effects would be considered, rather Noise Sensitive Receptors (NSR) have been identified, as detailed in Table 25.27 and shown on Figure 25.2. These are stated to have been agreed with relevant stakeholders (Table 25.3 and paragraph 122). With reference to the location of noise sensitive receptors as identified in the ES Chapter 25 [APP-238, Figure 25.2], explain why: 1. The majority of NSRs on Map 1 of 9 are located south of the cable route, although there are some potential receptors (e.g. Chimney Farm) to the north; 2. There are no NSRs in North Walsham close to the indicative mobilisation area (see Map 2 of 9); 3. There are no NSRs in proximity of trenchless crossing (TC) 16, although there are residential properties in proximity of this area (see map 2 of 9); 4. There are no NSRs in proximity of TC6, although there are a number of farms in proximity of this area (see Map 6 of 9)? 5. IPs may wish to comment.	1. the majority of NSRs on Map 1 of 9 are located south of the cable route, although there are some potential receptors (e.g. Chimney Farm) to the north; Part of map 6 and maps 7, 8 and 9 show Breckland district. For the cable route receptors CCR, there are 14, of which 6 are on the southern or south east side of the cable route. Having looked again I feel they are representative of the residential areas.	Noted.
Q12.2.1	Broadland District Council	**Location of noise sensitive receptors** ES Chapter 25 [APP-238, paragraph 148] states that the study area comprises the entire onshore project area. The assessment has not identified a buffer zone within which effects would be considered, rather Noise Sensitive Receptors (NSR) have been identified, as detailed in Table 25.27 and shown on Figure 25.2. These are stated to have been agreed with relevant stakeholders (Table 25.3 and paragraph 122). With reference to the location of noise sensitive receptors as identified in the ES Chapter 25 [APP-238, Figure 25.2], explain why: 1. The majority of NSRs on Map 1 of 9 are located south of the cable route, although there are some potential receptors (e.g. Chimney Farm) to the north; 2. There are no NSRs in North Walsham close to the indicative mobilisation area (see Map 2 of 9); 3. There are no NSRs in proximity of trenchless crossing (TC) 16, although there are residential properties in proximity of this area (see map 2 of 9); 4. There are no NSRs in proximity of TC6, although	1. Applicant to advise 2. Applicant to advise 3. Applicant to advise 4. Applicant to advise 5. Reserve the right to comment further once the location of all noise sensitive receptors are known.	The Applicant provided a response on these matters in the Applicant's Responses to the Examining Authorities Written Questions, Q12.2.1 (ExA.WQ-1.V2.V1 / REP2-021).

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		there are a number of farms in proximity of this area (see Map 6 of 9)? 5. IPs may wish to comment.		
Q12.2.1	North Norfolk District Council	**Location of noise sensitive receptors** ES Chapter 25 [APP-238, paragraph 148] states that the study area comprises the entire onshore project area. The assessment has not identified a buffer zone within which effects would be considered, rather Noise Sensitive Receptors (NSR) have been identified, as detailed in Table 25.27 and shown on Figure 25.2. These are stated to have been agreed with relevant stakeholders (Table 25.3 and paragraph 122). With reference to the location of noise sensitive receptors as identified in the ES Chapter 25 [APP-238, Figure 25.2], explain why: 1. The majority of NSRs on Map 1 of 9 are located south of the cable route, although there are some potential receptors (e.g. Chimney Farm) to the north; 2. There are no NSRs in North Walsham close to the indicative mobilisation area (see Map 2 of 9); 3. There are no NSRs in proximity of trenchless crossing (TC) 16, although there are residential properties in proximity of this area (see map 2 of 9); 4. There are no NSRs in proximity of TC6, although there are a number of farms in proximity of this area (see Map 6 of 9)? 5. IPs may wish to comment.	NNDC will consider the Applicant's response to this question and respond by Deadline 4.	Noted.
Q12.2.2	The Applicant	**Operational vibration** ES Chapter 25 [APP-238, Table 25.3] states that in relation to operational vibration from the onshore project substation, industry standards require the use of vibration isolation pads to prevent transmission of ground borne vibration. It states that the substation would be designed to achieve negligible levels of ground-borne vibration and therefore scoped out operational vibration from the ES. 1. Provide further information on the design of the vibration isolation pads, and specify the industry standards that would be adhered to. 2. Explain how the implementation of the vibration isolation pads would lead to negligible residual effects. 3. Where is this secured?	1. ES Chapter 25 (APP-238), Table 25.3 contains consultation responses and specific to vibration in which the Applicant confirmed "The onshore project substation will be designed to achieve negligible levels of ground-borne vibration. Therefore, operational vibration can be scoped out of the EIA requirements for the operational phase of the project." National Grid have published a series of documents defining the relevant technical specifications, policies and procedures that must be complied with by all Users connected to or seeking connection to the National Electricity Transmission System as set out under CC or ECC.6.2.1.2 of the Grid Code Connection Conditions, as applicable and pursuant to the terms of the Bilateral Connection Agreement (Source: National Grid Electricity Transmission (2018) Relevant Electrical Standards Issue 3, Page 1). Section 2.1 Environment of National Grid Technical Specification Environmental and Test Requirements for Electronic Equipment TS 3.24.15 (RES) Issue 1 October 2014 states "the equipment shall be subjected to environmental factors such as electrical interference, supply voltage variations, nuclear radiation, dust, vibration, temperature, and salt mist." Further, section 2.10 states "equipment shall not generate vibration at a level that could be damaging to its performance or that of other equipment or personnel". CENELEC document Electronic Equipment for Use in Power Installations (BS EN 50178) details minimum design and manufacture requirements with which control equipment and specification must comply. This specification is an equipment policy specification within the Substation Information, Control and Protection suite of technical specifications. All	

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			electronic equipment supplied to the user for operational use in transmission locations must meet its specified functionality and performance as set out in individual Technical Specifications and under the relevant environmental conditions stated in this Specification. 2. The specification of any vibration isolation for power equipment should be undertaken by competent engineers during the detailed design and procurement stage. Adhering with the relevant standards and guidance would minimise the level of vibration generated by the plant, and therefore transferred to the environment in the vicinity of the scheme. 3. At the detailed design stage where it is necessary to assess the operational phase compliance with dDCO Requirement 27 Control of Noise during operational phase , which forms part of the procurement process.	
Q12.2.3	The Applicant	**Construction noise thresholds** ES Chapter 25 [APP-238, Paragraph 280] states "*Initial calculations determined that with the application of standard mitigation measures as detailed in section 25.8.5.6 and an increased separation distance from the noisiest mobile and stationary plant, would ensure that the BS 5228 daytime construction noise thresholds are not exceeded at CRR1E, CRR3F, CRR10*". This does not concur with para 200 which identifies a moderate to major adverse impact to these receptors following the application of standard mitigation. Explain this apparent discrepancy.	ES Chapter 25 (APP-238), paragraph 200 assesses the effects of temporary construction works incorporating standard mitigation measures. The paragraph details the effects determined from the noise modelling at receptors CRR1E, CRR3F and CRR10 during cable pulling, jointing and electrical commissioning works. Furthermore, the paragraph specifically states that enhanced mitigation measures will be required as detailed in section 25.8.5.7 due to moderate to major adverse impacts. Section 25.8.5.7 Enhanced Mitigation introduces various measures which could further reduce temporary construction phase effects at the nearest sensitive receptors to the proposed scheme footprint and works. One of the enhanced mitigation measures detailed in paragraph 280 (ES Chapter 25, APP-238) is to ensure there is an increased separation distance between receptors CRR1E, CRR3F, CRR10 and the noisiest plant at the proposed works. There is no discrepancy in the reported impacts. Paragraph 200 of ES Chapter 25 (APP-238) reports impacts which are based on the inclusion of standard mitigation measures as outlined in Section 25.8.5.6. These measures are embedded mitigation and part of the construction phase commitments as detailed in the OCoCP (APP-018). It is acknowledged in Paragraph 200 that enhanced mitigation is required to reduce, offset and minimise the construction phase impacts. Paragraph 280 (ES Chapter 25, APP-238) then considers the construction phase and proposed work-fronts with the use of Enhanced mitigation measures (detailed in Section 25.8.5.7). The assessment re-evaluates the predicted impacts with these additional mitigation measures (above the embedded standard mitigation measures), including as an example, an increased separation distance between the noisiest plant and receptors. The resulting impacts are detailed in paragraph 281.	
Q12.2.4	The Applicant	**Noise barriers** The ES Chapter 25 [APP-238] refers to the use of noise barriers during construction. The Construction Noise Management Plan (CNMP) within the OCoCP states that noise barriers *"may be installed to further reduce noise emissions in proximity to noise sensitive receptors"* 1. The ExA acknowledges that detailed design is not yet available for the Proposed Development. Nevertheless, can the Applicant explain why it has not identified the locations at which noise barriers would be implemented? 2. Without a firm commitment to the implementation of noise barriers to a given	1. The Noise and Vibration assessment presented a conservative worst case scenario, whereby tasks/phases were identified across the study area and anticipated numbers of plant, type, operational on-time specific for those tasks assigned accordingly. All plant was assumed to be operating at the closest point to the study area footprint. Selection of the exact plant requirements and phasing would be completed at the detailed design stage with a commitment to minimising noise and vibration related impacts through the use of the OCoCP and BPM. This assessment (at the detailed design stage) would identify where enhanced mitigation i.e. noise barriers, would be temporarily installed should they be required. 2. BS5228:2009+A1:2014 identifies that the effectiveness of a barrier is limited by transmission over and around the barrier, provided that the barrier material has a mass per unit of surface area exceeding about 7kg/m^2. Standard	

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		specification, what confidence can the Applicant provide to the ExA that the noise reductions identified in Tables 25.34, 25.36, 25.37 and 25.39 are possible through the implementation of noise barriers and construction plant selection? 3. Can the Applicant explain what criteria would be applied to determine whether noise barriers would be required? For example, proximity to residential receptors/type of construction activity? 4. Can the Applicant confirm whether there is a minimum specification for the noise barriers, and if so, how is it secured? 5. Would the Applicant agree the location(s) and specification(s) of the noise barriers with the relevant local authorities? 6. Can the Applicant confirm the likely timeframes within which the noise barriers would be in place? What assurances are there that they would not be left permanently insitu? 7. Can the Applicant confirm whether the potential impacts that the proposed noise barriers would have on other aspects have been assessed within the ES? The Applicant is requested to provide such an assessment where significant effects are likely.	demountable barriers are widely available from a number of manufacturers to attenuate noise where necessary. Furthermore, BS5228:2009+A1:2019 (Section F.2.2.2.1, page 130) indicates that *"as a working approximation, if there is a barrier or other topographic feature between the source and the receiving position, assume an approximate attenuation of 5 dB when the top of the plant is just visible to the receiver over the noise barrier, and of 10 dB when the noise screen completely hides the sources from the receiver. High topographical features and specifically designed and positioned noise barriers could provide greater attenuation."* ES Chapter 25 identified only 3 assessed locations where enhanced mitigation was necessary during the daytime during Cable Pulling, jointing and commissioning. A number of enhanced mitigation measures were identified in Section 25.8.5.7 to reduce these impacts effectively, further outlined in the project commitment to an OCoCP and using BPM (Section 9.1.2 of OCoCP (REP1-018). 3. ES Chapter 25, Section 25.8.5.7 Enhanced Mitigation introduces measures which could further reduce construction phase effects at the nearest sensitive receptors to the proposed scheme footprint and temporary works. These are in addition to the standard mitigation measures - Best Practicable Means (BPM). Barrier deployment is one of many enhanced mitigation measures detailed and may be used in combination with selecting quieter plant, partial enclosure etc. as outlined in the Section 9.1.2 of OCoCP (REP1-018). 4. Barrier design would be dependent on the surroundings and optimised depending on the required level of required mitigation. There are various methods which could be employed and varying designs. BS5228:2009+A1:2014 identifies that the effectiveness of a barrier is limited by transmission over and around the barrier, provided that the barrier material has a mass per unit of surface area exceeding about 7kg/m^2. Standard demountable barriers are widely available from a number of manufacturers to attenuate noise where necessary. The actual final design would need to be selected based on level of required attenuation, proximity to sensitive receptors, task specific and using BPM. 5. Where barriers are identified as being appropriate for noise mitigation, the location would be agreed with the Local Planning Authority (Section 9.1.2.2 of the OCoCP (REP1-018). 6. The construction phase is a temporary period only. Barrier design would be dependent on the surroundings and optimised depending on the required level of mitigation. Where necessary, barriers forming part of an enhanced noise mitigation strategy would be removed on completion of the temporary construction works. 7. Given the temporary nature of the noise barrier is not anticipated that the presence of noise barriers will have any significant effects. The design and location of the noise barriers will be optimised dependent on the surroundings and on the required level of mitigation. The potential for any associated impacts will need to be considered once the location and type of barrier has been confirmed. However, where possible consideration has been given to potential associated impact, as such the need for non-reflective surfaces to avoid light nuisance or potential impacts to bats (section 3.7 of OCoCP, REP1-018). Where barriers are identified as being appropriate for noise mitigation, the locations would be agreed with the Local Planning Authority (Section 9.1.2.2 of the OCoCP (REP1-018) and will consider any potential associated impacts.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q12.2.5	The Applicant	**Piling methods** The ES Chapter 25 [APP-238, Paragraph 260] states that in order to prevent cosmetic damage to buildings in the vicinity of the works, priority should be given to piling methods which minimise vibration i.e. augured piling (subject to suitable ground conditions). Explain the criteria used to determine the priority piling method at specific locations and confirm how it would be secured	Piling works are required at specific locations as detailed in the Project Description. The chosen method is subject to a number of parameters. Parameters to be considered when determining piling technique include proximity to sensitive receptors, duration of proposed works, number of piles, ground (geo-technical) parameters, other cumulative works being undertaken simultaneously and safety. ES Chapter 25 assessed a worst-case scenario with all piling works being undertaken at Trenchless Crossing during the daytime, evening and night time periods, in accordance with the BS5228:2009+A1:2014 'ABC' methodology. ES Chapter 25 identified that evening and night time works may be necessary at trenchless crossing locations or at the substation due to safety reasons, therefore; to minimise effects from evening and night time works, a commitment to using a reduced number of plant was detailed in Chapter 25. ES Chapter 25 Table 25.19 considered various piling techniques and proximity of works to the nearest receptors. The assessment concluded that piling works are 230m from the nearest receptors representing a no impact magnitude at a medium sensitivity (residential) receptor, representing a negligible impact significance. BS5228:2014+A1:2019, Section 8.5.2.1 (Page 16) states "a *decision regarding the type of pile to be used on a site should not be governed solely by noise, but should also take into account criteria such as loads to be carried, strata to be penetrated and the economics of the system, e.g. the time it will take to complete the installation and other associated operations such as soil removal*." Further, the guidance details "it *might not be possible for technical reasons to replace a noisy process by a quieter alternative. Even if it is possible, the adoption of a quieter method might prolong the piling operation; the net result being that the overall disturbance to the community, not only that caused by noise, will not necessarily be reduced*." A commitment to reducing noise and vibration from each construction phase is outlined in the OCoCP (REP1-018). Suitable piling methods will be reviewed by the Geo-technical engineers at the detailed design stage taking into account the parameters identified above, with a further commitment to incorporating Best Practicable Means (BPM) and preference given to methods which generate the lowest levels, subject to appropriateness.	
Q12.2.6	The Applicant	**Monitoring of noise rating levels** ES Chapter 25 [APP-238, Section 25.8.2] states that the requirement for monitoring would be agreed with the appropriate stakeholders and included within the final CoCP commitments (to be agreed post-consent as secured through dDCO [AS-019] Requirement 20). The outline CoCP [APP-692] states that 'a programme of monitoring may be required'. It is noted that in relation to the onshore project substation, Requirement 27(3) of the dDCO [AS-019] states that the Applicant must produce a scheme for monitoring compliance with noise rating levels (ie those set for the existing Dudgeon substation). The scheme must be approved by Breckland Council and implemented as approved. 1. Explain what action could be taken should monitoring identify that the noise rating levels specified in Requirement 27 are exceeded? 2. Is Breckland Council content that the drafting of	1. At the detailed design stage it will be necessary to assess predicted compliance of the onshore infrastructure at the substation during the operational phase to ensure this would meet the restrictions in dDCO Requirement 27 on Operational Noise. This would therefore form part of the procurement process. Noise modelling would be undertaken to predict conformity with dDCO Requirement 27 and suitable mitigation measures would be identified to reduce the operational phase impacts to within the dDCO requirements. Where, during operational compliance monitoring, an exceedance of Requirement 27 is demonstrated, then the Applicant would be required to implement a mitigation strategy. The mitigation measures may include for example, partial/full enclosure, enhanced sound insulation of buildings. Upon completion of works a further noise survey would need to be completed to demonstrate compliance with Requirement 27. 2. Breckland Council have agreed the wording of Requirement 27 as identified in the Statement of Common Ground submitted at Deadline 2. ES Chapter 25, Table 25.3 states "An OCoCP will be submitted alongside the DCO application, detailing the objectives for managing and minimising construction noise and vibration on-site and at nearby sensitive receptors.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		dDCO [AS-019] Requirement 27 is sufficient to ensure corrective action be taken should the specified rating levels be exceeded? Complaint monitoring, part of communication liaison process, is included in the outline CoCP [APP-692]; although not specifically under the Noise and Vibration section. ES Chapter 25 [APP-238, Table 25.3] states that if complaints are related to construction noise, any investigation would likely include noise monitoring to determine any requirement for rectifying action. However, this is not included in the outline CoCP [APP692]. Explain why details relating to the complaints procedure for noise and vibration, as referred to in ES Chapter 25 [APP-238, Table 25.3], are not reflected in the outline CoCP [APP-692]?	Detailed design of onshore assets will incorporate Best Available Technique (BAT) and BPM to minimise any associated noise impacts. Furthermore, in the unlikely event of an operational noise complaint, investigations will be undertaken with the relevant local authority." The Noise and Vibration section of the Outline Code of Construction Practice (OCoCP) (REP1-018) will be updated to include the information identified in Table 25.3 of ES Chapter 25.	
Q12.2.6	Breckland Council	**Monitoring of noise rating levels** ES Chapter 25 [APP-238, Section 25.8.2] states that the requirement for monitoring would be agreed with the appropriate stakeholders and included within the final CoCP commitments (to be agreed post-consent as secured through dDCO [AS-019] Requirement 20). The outline CoCP [APP-692] states that 'a programme of monitoring may be required'. It is noted that in relation to the onshore project substation, Requirement 27(3) of the dDCO [AS-019] states that the Applicant must produce a scheme for monitoring compliance with noise rating levels (ie those set for the existing Dudgeon substation). The scheme must be approved by Breckland Council and implemented as approved. 1. Explain what action could be taken should monitoring identify that the noise rating levels specified in Requirement 27 are exceeded? 2. Is Breckland Council content that the drafting of dDCO [AS-019] Requirement 27 is sufficient to ensure corrective action be taken should the specified rating levels be exceeded? Complaint monitoring, part of communication liaison process, is included in the outline CoCP [APP-692]; although not specifically under the Noise and Vibration section. ES Chapter 25 [APP-238, Table 25.3] states that if complaints are related to construction noise, any investigation would likely include noise monitoring to determine any requirement for rectifying action. However, this is not included in the outline CoCP [APP692]. Explain why details relating to the complaints procedure for noise and vibration, as referred to in ES Chapter 25 [APP-238, Table 25.3], are not reflected in the outline CoCP [APP-692]?	1. Possibly a question for the applicant, however the mitigation methods modelled are standard enclosures for a worst case scenario. It would be possible to provide bespoke enclosure with more mass to further attenuate sound 2. Yes 3. Again probably a question for the applicant, but I feel that it might be prudent to ensure construction noise is directly mentioned in the noise and vibration. Also light pollution, in particular outside working hours.	The Applicant has provided a detailed response on these points in response to Q12.2.6 in Responses to the ExA's First Written Questions (REP2-021). The details of enclosures will be confirmed once the specification of the equipment is known at the detailed design stage. Section 3.7 of the OCoCP (REP1-018) details an Artificial Light Emissions Management Plan that will be prepared in accordance with Requirement 20(2)(c) if the dDCO.

13 Socio-economic effects

13.0 Skills and Employment Strategy

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q13.0.1	The Applicant	**Skills and Employment Strategy Scenario 1** The Outline Skills and Employment Strategy (OSES) [APP-713, para 15] states that the SES for Scenario 1 would be developed on behalf of both projects, according to the OSES submitted to the Norfolk Vanguard Examination and secured pursuant to Requirement 33 of the Norfolk Vanguard DCO. Submit the OSES submitted to the Norfolk Vanguard Examination	The Applicant has submitted the Norfolk Vanguard Outline Skills and Employment Strategy submitted during the Norfolk Vanguard examination at Deadline 2 (ExA.AS-2.D2.V1). Note this is relevant to Scenario 1 only.	
Q13.0.2	Norfolk County Council	**Skills and Employment Strategy Scenario 2** 1. Are you content with the high-level principles and commitments in the Scenario 2 OSES [APP-713]? 2. If not, list and explain concerns. 3. What further detail could be reasonably requested from the Applicant to resolve any concerns during this Examination (if relevant)?	1. Norfolk County Council are happy with the high level principles of the OSES and have no further comments. Please note in the agreed position between the applicant and Norfolk County Council as set out in the Statement of Common Ground. 2. No further comment from a from a skills and employment perspective. 3. No further comment from a from a skills and employment perspective.	The Applicant welcomes this confirmation from Norfolk County Council.
Q13.0.3	The Applicant	**Supply chain planning** ES Chapter 31 Socio-economics [APP-244, Paragraph 138] states that the Applicant is committed to developing a Supply Chain Strategy to promote the use of local supply chain and support services, where applicable. 1. When would the Supply Chain Strategy be produced? Where is this secured? 2. Who has already been or would be consulted in the production of the Supply Chain Strategy. The OSES [APP-713, Appendix D] outlines a number of meetings and events with supply chain organisations that were held during the pre-application stage. 3. Have the findings of these meetings, particularly those that are relevant to the local businesses, been shared with Norfolk County Council? 4. If so, does Norfolk County Council have any comments? 5. If not, does the Applicant intend to share the findings of these meetings with NCC? If so when? If not, why not?	1.A draft Supply Chain Strategy is in progress. The final Supply Chain Strategy will be submitted by the Applicant to the Department for Business Energy and Industrial Strategy (DBEIS) in pursuit of an award for a Contract for Difference. 2. The Applicant is ultimately responsible for their Supply Chain Strategy. However, the applicant has consulted, and is working closely with local stakeholders, including the relevant departments within NCC and LPAs local Chambers of Commerce and the New Anglia LEP, East of England Energy Group (EEEGr) and local businesses. Supply chain engagement continues now, the most recent event was held at the new Energy Centre, East Coast College Lowestoft on 20th November, 2019, further meetings to inform and prepare the local supply chain will continue between now and finalisation of the Supply Chain Strategy. 3. To date two reports have been published which share the findings of early supply chain meetings. Both report were submitted as appendices to the Consultation Report: Appendix 29.2 of the Consultation Report – 20th September 2018 skills and supply chain stakeholder workshop report (APP-197)) Appendix 29.3 of the Consultation Report – 5th December 2018 onshore works supply chain workshop report (APP-198). A further report will be produced from the recent event, most likely in Q1 2020. A final report will also be produced by Vattenfall and partners NCC, and Norwich and Norfolk Chambers of Commerce, in relation to the "Gearing up to Grow" project supported by the NALEP, at its conclusion, currently anticipated to be the end of 2020.	
Q13.0.3	Norfolk County Council	**Supply chain planning** ES Chapter 31 Socio-economics [APP-244, Paragraph 138] states that the Applicant is committed to developing a Supply Chain Strategy to promote the use of local supply chain and support services, where applicable. 1. When would the Supply Chain Strategy be produced? Where is this secured?	1. The Supply Chain Strategy is included within the OSES (Section 8) and is therefore secured through the OSES being a requirement within the draft DCO (requirement 33) and the County Council are happy with this. In regard to timing Norfolk County Council, in line with draft DCO requirement 33 would expect no stage of the onshore transmission works to commence until a skills and employment strategy (which accords with the outline skills and employment strategy) has been submitted to and approved in writing by Norfolk County Council.	1. The Applicant concurs with this response. 2. Noted. 3. The Applicant welcomes this confirmation. 4. Noted. 5. Noted.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		2. Who has already been or would be consulted in the production of the Supply Chain Strategy. The OSES [APP-713, Appendix D] outlines a number of meetings and events with supply chain organisations that were held during the pre-application stage. 3. Have the findings of these meetings, particularly those that are relevant to the local businesses, been shared with Norfolk County Council? 4. If so, does Norfolk County Council have any comments? 5. If not, does the Applicant intend to share the findings of these meetings with NCC? If so when? If not, why not?	2. No further comment from a from a skills and employment perspective. 3. The County Council are satisfied the issue of consultation has been sufficiently covered in the OSES. Norfolk County Council has been engaged with the applicant throughout the process in terms of preparing the OSES and that mechanisms are in place through the draft DCO that maximise the potential opportunities for local businesses. 4. No further comment from a from a skills and employment perspective. 5. No further comment from a from a skills and employment perspective	
Q13.0.4	The Applicant	**Benefits for the local area** Have you forecast the implications of implementing the Scenario 2 OSES [APP-713] on the likely long-term effects on the wider NOMIS (Office for National Statistics service providing Official Labour Market Statistics) and Business Register and Employment Survey (BRES) indicators assessed in Appendix 31.1 [APP-680]?	The long-term effects on the wider NOMIS and BRES indicators are not directly discussed specifically for the OSES in Scenario 2 nor Scenario 1. The NOMIS and BRES indictors presented in the Environmental Statement (ES) Appendix 31.1 [APP-680] which are relevant to the OSES – Plates 1.1 to 1.10 - are discussed in ES Chapter 31, Sections 31.7.5.1, 31.7.6.1 [APP-244] in order to provide the context and baseline understanding of current socio-economic matrices. The purpose of the Skills and Employment Strategy, currently outlined in Document 8.22 [APP-713], will be to deliver support and complement other local, regional and sector-wide initiatives that aim to enhance the opportunities for local people and businesses to derive maximum benefits from potential supply chain growth, high value capital expenditure and long term Operations and Maintenance expenditure from the Project and other (current and future) Offshore Wind Projects, including in alignment with The Offshore Wind Sector Deal. Development of the Skills and Employment Strategy is an iterative process and the strategy and its implementation will evolve over the course of the Project to ensure that businesses, the labour market and therefore local residents derive the greatest benefit. This is why only an outline plan has been submitted to date. Work is ongoing by the Applicant, alongside partner organisations to inform the final strategy .	

13.1 Jobs

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q13.1.1	Norfolk County Council	**Construction jobs** ES Chapter 31 Socio-economics [APP-244, table 31.30] sets out the local content of jobs created and supported in each year by onshore construction under Scenario 2. 1. Are you content that the jobs can be created and supported each year? 2. How would these local jobs be secured?	1. Norfolk County Council is broadly happy with ES Chapter 31 Socio-economics but clearly it is a matter for the applicant to decide on the level/number of jobs that can be created, which will be on based on technology, scale, timing etc. which are business related factors that are outside the scope and control of Norfolk County Council. 2. No further comment from a from a skills and employment perspective.	Noted. The Applicant refers to the Outline Skills and Employment Strategy (document reference 8.22, APP-713), which sets out the out the approach that will be adopted by the Applicant to maximise the economic benefit associated with Norfolk Boreas in Norfolk and the East of England.
Q13.1.2	The Applicant	**Role of other stakeholders** ES Chapter 31 Socio-economics [APP-244, Paragraph 282] states, "*Under Scenario 1 the direct employment reduces slightly to 425FTE jobs. These would create a major beneficial impact for the region as it is assessed that the relevant stakeholders are preparing to develop skills to supply them.*"	The relevant stakeholders referred to which the Applicant is collaborating closely with include the New Anglia Local Enterprise Partnership, Norfolk County Council, Breckland Council, Broadland District Council, North Norfolk District Council, Gt. Yarmouth Borough Council, Department for Work and Pensions, and East of England Energy Group (specifically Skills for Energy Group). In addition, the Applicant has engaged and worked with key Academic partners, including: University Technical College Norwich (and the Colleges on	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		1. Specify who the 'relevant stakeholders' are, referred to above and how would locally based skills be developed? 2. How would this be secured in the dDCO?	the onshore cable route), University of East Anglia, East Coast College (Lowestoft), Centre for Energy Skills, East Coast College (Gt. Yarmouth) Offshore Wind Skills Centre, and College of West Anglia. The Applicant is committed to continued collaboration with such stakeholders to appropriately support those engaged in developing skills and employability. This commitment is secured through the Outline Skills and Employment Strategy (document reference 8.22, APP-713), which sets out the out the approach that will be adopted by the Applicant to maximise the economic benefit associated with Norfolk Boreas in Norfolk and the East of England and the principles that must be adhered to, including the types of activities to be undertaken by the Applicant as part of the development and implementation of the Skills and Employment Strategy. For further details the Applicant refers the ExA to the Outline Skills and Employment Strategy (document reference 8.22, APP-713), which is secured through Requirement 33 of the dDCO (document reference 3.1, REP1-008).	

13.2 Tourism

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q13.2.1	Norfolk County Council	**Effects on tourism and recreation** In light of the significance of tourism to the local economy, particularly tourism along the coast, are you content that the ES Chapter 30 Tourism and Recreation [APP-243] sets out in adequate detail the effects of the Proposed Development and proposed mitigation on the tourism industry and recreational activities?	Norfolk County Council has no comments on this matter and would expect the District Council to lead on local tourism matters.	Noted.
Q13.2.1	North Norfolk District Council	**Effects on tourism and recreation** In light of the significance of tourism to the local economy, particularly tourism along the coast, are you content that the ES Chapter 30 Tourism and Recreation [APP-243] sets out in adequate detail the effects of the Proposed Development and proposed mitigation on the tourism industry and recreational activities?	NNDC have provided extensive submissions within Section 14 of its Local Impact Report related to Tourism, Recreation and Socio-Economics. The Statement of Common Ground (2.11 Tourism, Recreation and Socio-economics) sets out the areas of agreement, areas under discussion and areas not agreed in relation to tourism impacts This is one of the biggest areas of disagreement between the Applicant and NNDC. The ExA are invited to consider the submissions with the LIR and SoCG and the answer to Q5.4.3 above which includes wording for a proposed new Requirement. NNDC consider that this matter should be discussed in detail at the next onshore Issue Specific Hearing planned for 21 Jan 2020. It would also be helpful, without prejudice, to understand the position of the ExA on this matter.	The Applicant has provided comments on North Norfolk District Council's Local Impact Report at Deadline 3 (ExA.LIR-NNDC.D3.V1).
Q13.2.1	Necton Parish Council	**Effects on tourism and recreation** In light of the significance of tourism to the local economy, particularly tourism along the coast, are you content that the ES Chapter 30 Tourism and Recreation [APP-243] sets out in adequate detail the effects of the Proposed Development and proposed mitigation on the tourism industry and recreational activities?	All reference to tourism sites in Necton have been ignored by the Boreas application and the Parish Council are concerned about the effects on holiday lets, campsites, caravan sites and lodges for hire in the area close to the substation. Moving the substations to Top farm, lowering the ground level, making the installation HVAC and providing adequate screening would alleviate the likely effects on tourism.	ES Chapter 30 Tourism and Recreation (APP-243) provides an overview of the existing tourism and recreational assets where the onshore project area is proposed, followed by an assessment of the potential impacts and associated mitigation. This includes potential impacts during construction, such as the potential visual impact of construction activity to tourism and recreational receptors (section 30.7.4.5) and obstruction or disturbance of inland tourism and recreation assets (section 30.7.4.7.1). Also, potential impacts during the operational phase relating to the visual and noise impact on land-based tourism and recreation assets (section 30.7.52.), specifically the long-term presence of the onshore project substation (including the National Grid substation extension) on onshore tourism.

13.3 Land Use and Agriculture

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q13.3.4	The Applicant	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	Please see the response the Applicant has provided to Q2.2.2. As the Applicant outlines in its response to Question 2.2.2 above, the minimum depth of onshore cable burial has been included in the private land agreements being sought for all affected land interests. The minimum depth would be included in Construction Method Statements as required by the OCoCP (document 8.1, APP-692) which is secured in Requirement 20 of the dDCO. Through consultation with the Land Interest Group (LIG) and National Farmers Union (NFU), the Applicant has committed to a minimum depth of 1.2m to the top of the duct across all land, which supersedes the minimum depth of 1.05m to the top of duct in 'normal' agricultural land as detailed in Chapter 5 Project Description (document 6.1.5, APP-218). This commitment has been made to appreciate that land may be subject to 'deep ploughing' in the future and to simplify the installation process and specification. The additional minimum depth does not impact on the assessments as no additional materials are required and the time required to excavate a further 0.15m of trench depth is negligible to the works programme.	

13.4 Public Health

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q13.4.1	The Applicant	**Mental Health** In the ES Chapter 27 Human Heath [APP-240], how has the impact of the volume and frequency of construction traffic movement on the mental health and well-being of children, vulnerable users and other users been considered?	ES Chapter 27 Human Health (APP-240) provides an assessment which follows best practice guidance (Cave et al., 2017a), in considering health effects with regard to the general population and vulnerable population groups. Populations are considered at both regional and local levels and the assessment follows the World Health Organisation (WHO) definition of health as a state of physical, mental and social wellbeing, as well as the absence of disease or infirmity. Similarly, it also considers issues of wellbeing as a state in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to their, her or his community. The WHO and Public Health England (PHE) consider that health and wellbeing are influenced by a range of factors, termed the 'wider determinants of health'. Determinants include the social and economic environment, the physical environment, and individual characteristics or behaviours. The assessment focussed on community health and wellbeing, and following consideration of potential health effects during the construction and operation phases of the project, there were not predicted to be any significant effects on physical or mental health as a result of the project under either Scenario 1 or Scenario 2.	
Q13.4.2	The Applicant	**Effects of electromagnetic fields (EMF)** 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? 2. National Grid, to confirm the Applicant's assumptions and assessment regarding EMF in ES Chapter 27 Human Heath [APP-240]. 3. Public Health England, to confirm the Applicant's	The Applicant provided a response to concerns raised with respect to EMFs in its comments on relevant representations (AS-024) under Table 22 item 1 and associated documents including ES Chapter 27 Human Health (document 6.1.27, APP-240), Appendix 4.2 of the Consultation Report – FAQ documents (document 5.1.4.2, APP-033) and the analysis of potential EMF effects, undertaken by National Grid for Vattenfall Wind Power Ltd and Orsted, which is presented in two documents, Vattenfall EMF information sheet and Vattenfall and Orsted EMF information sheet (AS-025). The Applicant has provided a further detailed response at Deadline 1 in The Applicant's Response to the Open Floor Hearing (REP1-036). A summary of the key principles of the co-operation agreement between Vattenfall and Orsted	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		assumptions and assessment regarding EMF effects on Human Health in ES Chapter 27 Human Heath [APP-240].	has also been provided in the Statement of Common Ground with Orsted submitted at Deadline 2 (ExA.SoCG-27.D2.V1).	

13.5 Other offshore industries and activities

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q13.5.1	The Applicant	**Offshore petroleum production** NPS EN-3, para 2.6.176 to 2.6.188 requires decision makers to be satisfied that offshore wind farm site selection and design has been made to avoid or minimise disruption or economic loss or adverse effect on safety to other offshore industries. 1. Eni UK Limited to set out any specific geographic areas where you have concerns that the siting of infrastructure associated with the Proposed Development could / would have a significant adverse impact on your ability to carry out your proposed activities. 2. Are there any provisions you feel necessary for inclusion in the dDCO [AS-019]? 3. Confirm whether the Applicant has engaged with you with the aim of resolving issues. 4. The Applicant's views are also sought.	The Applicant met with Eni UK Limited on the 7th of October 2019 to discuss respective projects and the potential for any interaction between them in the offshore environment. On the 3rd of December 2019 Eni UK Limited confirmed that it had relinquished the part of licence P1964 that extends into the Norfolk Boreas Site. With regard to current activities, Eni UK Limited has informed the Applicant of an exploratory drilling campaign scheduled for a duration of 55- 60 days, commencing in October 2019 and taking place in the Aspen Well (53/14a-2). This well is located some 28km from the Norfolk Boreas Site at its closest point and 19km from the Norfolk Boreas offshore cable corridor at it closest point. The Applicant received a further update from Eni UK Limited on the 4th December 2019 which confirmed that operations on the Aspen well are completing with the expectation that the rig will leave site by mid-December 2019. As such, there is no potential for any interaction by Norfolk Boreas with the activities of Eni UK Limited and it is therefore not necessary or appropriate to include any provisions in the dDCO for the benefit of Eni UK Limited.	

14 Traffic and Transportation

14.0 Traffic and Transport

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q14.0.1	Norfolk County Council – Highways Authority	**Outline Traffic Management Plan (OTMP)** The OTMP [APP-699] is the same as that submitted for the Norfolk Vanguard application. Norfolk County Council is asked to confirm if the submitted OTMP [APP-699] is up to date and relevant for the Proposed Development	The OTMP was updated by the applicants at Deadline 1 but is still not acceptable. As indicated in our response to Q.4.1.5 above, the applicants proposed method of working is not safe. Further clarification is also required in relation to traffic management for the proposed new cable logistics area to be provided along Link 68 which did not form part of the Vanguard submission.	Please refer to the Applicant's comments on the response to ExA Q4.1.5 (2). The Applicant submitted a Clarification Note on the Cable Logistics Area at Deadline 2 (ExA.AS-4.D2.V1, REP2-027) which provided further details on the Cable Logistics Area and associated traffic movements.
Q14.0.2	Norfolk County Council – Highways Authority	**Operational traffic impacts** ES Chapter 24 [APP-237, section 24.5.1.3, paragraph 75] states that operational traffic impacts are scoped out of the assessment through agreement at the Expert Topic Group (ETG) meeting due to the limited traffic movements required. However, in paragraph 373, the Applicant identifies the potential for adverse road safety impacts from new access points on the highway network. The Applicant explains that the detailed design of each access point would be set out in the AMP, which would be agreed post-consent based on the OAMP (which includes generic designs). Norfolk County Council and Highways England to confirm that they are content with the approach undertaken by the Applicant and that the level of detail in the OAMP is sufficient to inform future approvals. If not, what additional information should be included in the OAMP?	This is acceptable to us.	Noted
Q14.0.3	The Applicant	**Cumulative peak traffic impacts** ES Chapter 24 [APP-237, paragraph 91] states that as part of HE's road investment strategy (RIS) six improvement schemes are proposed along the A47 corridor with an expected start date of 2019/2020. Paragraph 45 states that due to information available at this stage, it is not possible to provide a meaningful assessment of cumulative impacts. Furthermore Table 24.45 states that if consent was granted, the Applicant and its contractors would engage with stakeholders to establish opportunities to coordinate activities and avoid cumulative peak traffic impacts. This commitment would be contained in the OTMP which would be contained in the final dDCO submission. The OTMP [APP-699] refers to the OCoCP [APP-692] for this commitment. However, there is no evidence of this specific commitment within the OCoCP [APP-692]. How would this commitment be secured?	The revised OTMP [REP1-022 to 026], Table 3.5 contains the following commitment: *"..It is therefore proposed that, should the two projects overlap, Norfolk Boreas Limited and its Contractors would engage with HE to establish opportunities to co-ordinate activities and avoid peak traffic impacts."*	
Q14.0.4	The Applicant	**Collision site cluster** Mitigation is applicable to each collision site cluster, including the introduction of high friction surfacing. While this is secured through the OTMP [APP-699] and dDCO [AS-019], it is not specified that this mitigation should be carried out before	The OTMP Section 3.7 will be updated to commit to the implementation of mitigation measures prior to the commencement of construction.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		construction commences. Set out when this mitigation would be carried out and where this is secured.		
Q14.0.5	The Applicant	Mitigation for Link 69 (Little London Road from the B1145 Lyngate Road junction to an access point approximately 210m east) ES Chapter 24 [APP-237, paragraph 238] states that that the mitigation for link 69 may comprise of mitigation measures that include: extended construction programme, location of trenchless crossing points, and sequential planning for construction activities. 1. How would certainty of the mitigation measures be provided? There would be residual significant adverse effects on Link 69 in terms of pedestrian amenity and severance for Scenario 2 despite mitigation, but no residual significant adverse effects identified following mitigation for Scenario 1. ES Chapter 24 [APP-237, paragraph 241] states that the contractor would engage with the community to further mitigate residual adverse effects on Link 69 in terms of pedestrian amenity and severance. 2. Clarify if the appointed contractor would undertake community engagement to identify periods that are particularly sensitive to HGV movements. 3. How would the appointed contractors' commitment to undertake community engagement be secured? 4. Explain how this would influence the assessment of significant adverse effects. 5. What confidence can the Applicant provide that the measures would be effective? 6. Would monitoring be required and what remedial measures could be implemented? 7. Where is the mitigation and monitoring secured?	1. ES Chapter 24 [APP-237] Table 24.31 sets out the resultant HGV demand following mitigation and indicates a maximum HGV flow of 48 daily movements. The mitigation measures presented are indicative 'logistic tools' at the contractor's disposal to achieve the 'capped' HGV flow of 48 movements for Scenario 2. The revised OTMP [REP1-022 to 026] Appendix 2, reaffirms a commitment to a Scenario 2 daily HGV flow cap of 48 movements for Link 69. The full details of the mitigation measures to be adopted by the contractor to meet the HGV cap would be agreed with Norfolk County Council as Highway Authority and secured via a final Traffic Management Plan (TMP) to be submitted pursuant to the discharge of dDCO Requirement 21. 2&3. The OCoCP [APP – 692] Section 24, gives a firm commitment to *"open communication with local residents and businesses that may be affected by noise or other aspects affecting amenity caused by the construction works."* Communications will be co-ordinated by a designated member of the construction management team and would extend to identifying periods that are particularly sensitive to HGV movements. Final details of local community engagement would be secured in the Communications Plan contained in the Code of Construction Practice to be submitted pursuant to dDCO Requirement 20. 4. Noting the impact affects a small number of dwellings and the durations of HGV movements are relatively small, a proactive engagement would serve to ensure the impacts are not significant by ensuring access is maintained, delays are minimised, sensitive periods are avoided where possible and generally reduce anxiety by keeping the community informed. 5, 6 and 7. The revised OTMP [REP1-022 to 026] Section 5 sets out a comprehensive monitoring and enforcement regime to give assurance that the measure would be both effective and achievable. Key measures include: • Local community liaison; • Establishing the role of a Traffic Management Plan Co-ordinator with responsibility for implementing the TMP; • Identification of potential breaches of the TMP to establish the grounds for enhancement; and Enforcement under the jurisdiction of the contract and UK employment law and corrective processes.	
Q14.0.6	The Applicant	**Traffic effects in Cawston and Oulton** The RRs from Broadland District Council [RR-028], Cawston Parish Council [RR-016] and Oulton Parish Council [RR-017] raise concerns about the traffic assessment surrounding the villages of Cawston and Oulton. This includes concerns regarding the same access routes to Norfolk Vanguard, the Proposed Development and Hornsea Project Three during potentially the same time frame, and traffic impacts on the B1145 through Cawston.The Applicant's response to the RRs [AS-025, Table 19, row 3] refers to a 'highway intervention scheme' developed by Orsted for the objective of mitigating the construction traffic impacts of Hornsea Three and	1. The Applicant has committed to adopting the Orsted highway intervention scheme as a basis for mitigation through the B1145 Cawston in section 4.3.2 of the OTMP (REP1022). Section 4.3.2 provides the details of the mitigation, and plans showing the scheme are included in OTMP Appendix 6 (REP1-024) As detailed in the Applicant's response to RRs [AS-024] on close of the Norfolk Vanguard examination, Norfolk County Council confirmed in their final Statement of Common Ground (REP9-047) *"The intervention scheme drawings and proposal before us are very much 'work in progress'. In short, the scheme needs several changes, but they will be amendments rather than a complete re-think."* The Applicant is currently engaging with Norfolk County Council and Cawston Parish Council to refine the scheme design.	

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		cumulative impacts with Norfolk Vanguard and Norfolk Boreas through Cawston. 1. The Applicant to confirm if it would adopt the same 'highway intervention scheme' to mitigate the construction traffic impacts through Cawston. If yes, the Applicant to provide details of the 'highway intervention scheme'. 2. How has the impact of the proposed 'highway intervention scheme' been assessed in the ES Chapter 24 [APP-237]? 3. In the response to the RRs [AS-025, Table 19, row 3], you refer to 'the final SoCG (REP9-047) with Norfolk County Council at the close of the Norfolk Vanguard examination'. Submit the final SoCG with NCC for the Norfolk Vanguard Examination. 4. NCC, to provide comments on the 'highway intervention scheme'. List any changes necessary for the Proposed Development, Scenario 1 and Scenario 2. 5. Has the proposed 'highway intervention scheme' been adequately secured through mitigation set out in the ES Chapter 24 [APP-237] and in the dDCO [AS-019]? 6. Broadland District Council, Cawston Parish Council, Oulton Parish Council and Corpusty and Saxthorpe Parish Council to highlight the specific areas of the Applicant's assessment that you have concerns with. Outline what else the Applicant would need to take into account when assessing the effects of traffic in Oulton and Cawston.	2. The highway intervention scheme is part of a package of mitigation measures that would serve to reduce traffic impacts through Cawston. These measures are set out in the revised OTMP [REP1-022] and include: • Prohibition of deliveries during term time school pick up and drop off times (07:30-9:00 and 15:00-16:00); • HGV cap of 112 movements per day and 239 movements per day (cumulative with Horsea Project Three); • Delivery management measures; and • Driver induction, information and safety awareness measures; • Communication, monitoring and enforcement measures. With these mitigation measures in place the residual impacts on Link 34 (B1145 through Cawston) are assessed in ES Chapter 24 (APP-237) in Section 24.8.2.5.2 – *Link 34*, to be reduced below significant levels. 3. The Norfolk Vanguard SoCG with NCC (REP-047) is presented in Appendix 14.1 to this response. 4 & 5. The current position of Norfolk County Council on the Cawston Mitigation is included in the Applicant's Statement of Common Ground with Norfolk County Council, submitted at Deadline 2 (ExA.SoCG-19.D2.V1). 5. The Applicant believes the mitigation scheme is adequately secured. The intervention is detailed in and secured through the OTMP (REP-022) and dDCO Requirement 21 requires that the final TMP must be in accordance with the OTMP.	
Q14.0.6	Norfolk County Council – Highways Authority	**Traffic effects in Cawston and Oulton** The RRs from Broadland District Council [RR-028], Cawston Parish Council [RR-016] and Oulton Parish Council [RR-017] raise concerns about the traffic assessment surrounding the villages of Cawston and Oulton. This includes concerns regarding the same access routes to Norfolk Vanguard, the Proposed Development and Hornsea Project Three during potentially the same time frame, and traffic impacts on the B1145 through Cawston.The Applicant's response to the RRs [AS-025, Table 19, row 3] refers to a 'highway intervention scheme' developed by Orsted for the objective of mitigating the construction traffic impacts of Hornsea Three and cumulative impacts with Norfolk Vanguard and Norfolk Boreas through Cawston. 1. The Applicant to confirm if it would adopt the same 'highway intervention scheme' to mitigate the construction traffic impacts through Cawston. If yes, the Applicant to provide details of the 'highway intervention scheme'. 2. How has the impact of the proposed 'highway intervention scheme' been assessed in the ES Chapter 24 [APP-237]? 3. In the response to the RRs [AS-025, Table 19, row	1. The applicants to advise. 2. The applicants to advise. 3. The applicants to submit. 4. Please refer to our detailed comments in response to Q1.2.3 above. The 'highway intervention scheme' did not pass safety audit and no further details have been sent to us since April/May 2019. 5. If a scheme can be agreed – then yes.	1. Please refer to the Applicant's response to Q14.0.6 (1) in Applicant's Response the ExA's First Written Questions (REP2-021) . 2. Please refer to the Applicant's response to Q14.0.6 (2) in Applicant's Response the ExA's First Written Questions (REP2-021). 3. Please refer to the Applicant's response to Q14.0.6 (3) in Applicant's Response the ExA's First Written Questions (REP2-021). 4. Please refer to Applicant's response to Q1.2.3 in Applicant's Response the ExA's First Written Questions (REP2-021). 5. Please refer to Applicant's response to Q14.0.6 (5) in Applicant's Response the ExA's First Written Questions (REP2-021).

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		3], you refer to 'the final SoCG (REP9-047) with Norfolk County Council at the close of the Norfolk Vanguard examination'. Submit the final SoCG with NCC for the Norfolk Vanguard Examination. 4. NCC, to provide comments on the 'highway intervention scheme'. List any changes necessary for the Proposed Development, Scenario 1 and Scenario 2. 5. Has the proposed 'highway intervention scheme' been adequately secured through mitigation set out in the ES Chapter 24 [APP-237] and in the dDCO [AS-019]? 6. Broadland District Council, Cawston Parish Council, Oulton Parish Council and Corpusty and Saxthorpe Parish Council to highlight the specific areas of the Applicant's assessment that you have concerns with. Outline what else the Applicant would need to take into account when assessing the effects of traffic in Oulton and Cawston.		
Q14.0.6	Broadland District Council	**Traffic effects in Cawston and Oulton** The RRs from Broadland District Council [RR-028], Cawston Parish Council [RR-016] and Oulton Parish Council [RR-017] raise concerns about the traffic assessment surrounding the villages of Cawston and Oulton. This includes concerns regarding the same access routes to Norfolk Vanguard, the Proposed Development and Hornsea Project Three during potentially the same time frame, and traffic impacts on the B1145 through Cawston.The Applicant's response to the RRs [AS-025, Table 19, row 3] refers to a 'highway intervention scheme' developed by Orsted for the objective of mitigating the construction traffic impacts of Hornsea Three and cumulative impacts with Norfolk Vanguard and Norfolk Boreas through Cawston. 1. The Applicant to confirm if it would adopt the same 'highway intervention scheme' to mitigate the construction traffic impacts through Cawston. If yes, the Applicant to provide details of the 'highway intervention scheme'. 2. How has the impact of the proposed 'highway intervention scheme' been assessed in the ES Chapter 24 [APP-237]? 3. In the response to the RRs [AS-025, Table 19, row 3], you refer to 'the final SoCG (REP9-047) with Norfolk County Council at the close of the Norfolk Vanguard examination'. Submit the final SoCG with NCC for the Norfolk Vanguard Examination. 4. NCC, to provide comments on the 'highway intervention scheme'. List any changes necessary for the Proposed Development, Scenario 1 and Scenario 2. 5. Has the proposed 'highway intervention scheme' been adequately secured through mitigation set out in the ES Chapter 24 [APP-237] and in the dDCO [AS-	1. Applicant to advise 2. Applicant to advise 3. Applicant to submit 4. NCC highways department to advise 5. Yes, under Part 3 of the DCO as drafted, if a highway intervention scheme can be agreed. Cawston The details of the proposed highway mitigation scheme through the village of Cawston remain to the finalised and have not been agreed with Norfolk County Council's highways department, Cawston Parish Council or Broadland District Council. Therefore the traffic effects in Cawston have not been fully assessed and we reserve the right to comment further. Oulton In respect of the proposed cable logistics area (cla) on Heyden Road to the south of the village of Oulton, the District Council is concerned about the cumulative impacts arising from the construction traffic associated with three nationally strategic infrastructure projects in close proximity to one another and the following details are required: • the number of each type of vehicle that will require access to the cla each day (in and out), • the likely time of day that access to the cla will be required, • the cumulative effect in terms of vehicular movements as a result of the Hornsea Three and Norfolk Vanguard and Boreas projects, along The Street in terms of noise, vibration, air quality and traffic safety, • confirmation that the mitigation measures previously proposed by the Hornsea Three and Norfolk Vanguard projects along The Street and in proximity The Old Railway Gatehouse will be secured through the Norfolk Boreas project.	1. Please refer to the Applicant's response to Q14.0.6 (1) in Applicant's Response the ExA's First Written Questions (REP2-021). 2. Please refer to the Applicant's response to Q14.0.6 (2) in Applicant's Response the ExA's First Written Questions (REP2-021). 3. Please refer to the Applicant's response to Q14.0.6 (3) in Applicant's Response the ExA's First Written Questions (REP2-021). 4 and Cawston – Please refer to the Applicant's comment on the response to Q1.2.3. 5. Please refer to the Applicant's response to Q14.0.6 (5) in Applicant's Response the ExA's First Written Questions (REP2-021). Oulton The Applicant submitted a Clarification Note on the Cable Logistics Area at Deadline 2 (ExA.AS-4.D2.V1, REP2-027) which provided further details on the Cable Logistics Area and associated traffic movements. The Applicant has confirmed in responses to Q4.1.2 of the Applicant's Responses to ExA First Written Questions (REP2-021), that mitigation measures previously proposed by the Hornsea Three and Norfolk Vanguard projects along The Street at Oulton has been adopted for the Norfolk Boreas Project and are secured as commitments in the revised OTMP (REP1-022 to REP-026), para. 3.2.1 (Cumulative HGV restrictions), para. 3.5 (Delivery Periods), section 4.3 (Highway Mitigation Schemes) and summarised in Table 4.3.

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		019]? 6. Broadland District Council, Cawston Parish Council, Oulton Parish Council and Corpusty and Saxthorpe Parish Council to highlight the specific areas of the Applicant's assessment that you have concerns with. Outline what else the Applicant would need to take into account when assessing the effects of traffic in Oulton and Cawston.		
Q14.0.6	Cawston Parish Council	**Traffic effects in Cawston and Oulton** The RRs from Broadland District Council [RR-028], Cawston Parish Council [RR-016] and Oulton Parish Council [RR-017] raise concerns about the traffic assessment surrounding the villages of Cawston and Oulton. This includes concerns regarding the same access routes to Norfolk Vanguard, the Proposed Development and Hornsea Project Three during potentially the same time frame, and traffic impacts on the B1145 through Cawston.The Applicant's response to the RRs [AS-025, Table 19, row 3] refers to a 'highway intervention scheme' developed by Orsted for the objective of mitigating the construction traffic impacts of Hornsea Three and cumulative impacts with Norfolk Vanguard and Norfolk Boreas through Cawston. 1. The Applicant to confirm if it would adopt the same 'highway intervention scheme' to mitigate the construction traffic impacts through Cawston. If yes, the Applicant to provide details of the 'highway intervention scheme'. 2. How has the impact of the proposed 'highway intervention scheme' been assessed in the ES Chapter 24 [APP-237]? 3. In the response to the RRs [AS-025, Table 19, row 3], you refer to 'the final SoCG (REP9-047) with Norfolk County Council at the close of the Norfolk Vanguard examination'. Submit the final SoCG with NCC for the Norfolk Vanguard Examination. 4. NCC, to provide comments on the 'highway intervention scheme'. List any changes necessary for the Proposed Development, Scenario 1 and Scenario 2. 5. Has the proposed 'highway intervention scheme' been adequately secured through mitigation set out in the ES Chapter 24 [APP-237] and in the dDCO [AS-019]? 6. Broadland District Council, Cawston Parish Council, Oulton Parish Council and Corpusty and Saxthorpe Parish Council to highlight the specific areas of the Applicant's assessment that you have concerns with. Outline what else the Applicant would need to take into account when assessing the effects of traffic in Oulton and Cawston.	The same access routes are to be used by Norfolk Vanguard, the Proposed Development and Hornsea Project Three during potentially the same time frame. All could have traffic impacts on the B1145 through Cawston. Specific areas of the Applicant's assessment that you have concerns with. The Highway Intervention Scheme On 22nd November 2019 Vattenfall consulted with Cawston Parish Council to put forward their latest suggested amendments to their proposed Highway Intervention Scheme. Pedestrians' safety in Cawston was said to be a priority for the first version of the Highway Intervention Scheme and footpath widening was the key feature of the scheme proposed to mitigate the impact on pedestrians. Now, in what we believe is its sixth version of the scheme, the applicant has decided they require every inch of road, and footpath, to enable their HGV and other construction traffic to manoeuvre past each other in the village centre. To accomplish this feat the proposed footway widening, previously said to be crucial to guaranteeing pedestrian safety, has been completely removed. Cawston Parish Council is concerned about: 1. how pedestrians in Cawston village might safely cross the B1145 to use local services and facilities with the large volumes of construction traffic travelling in both easterly and westerly directions. 2. the safety of pedestrians using the narrow footways on the B1145 in Cawston village when HGV movements are taking place. 3. the total numbers of construction traffic and its phasing. Whilst HGV traffic is planned to avoid Link 34 at sensitive times, the large volumes of non-HGV construction traffic will still be trying to negotiate the village centre when it is at its busiest under current road conditions. 4. the impact on residents of poor air quality of large numbers of diesel vehicles trying to negotiate the village centre has not been adequately assessed. It was reported on the BBC (25/11) that King's College London found that increased air pollution has a major impact on children's lungs, and the Guardian (27/11) reported a study in the BMJ of increased risks from air pollution in a number of conditions from strokes to cancer and mental health. The Applicant's current proposed scheme locates two passing areas in the village centre where traffic will wait for the road ahead to clear. In a narrow space with buildings on both sides there will be a severe effect on air quality. 5. the inadequate data upon which the Applicant's assessment of mitigation of noise and vibration impacts has been based. Only four locations in the centre of the village were sampled for just 48 hours with results subjected to	ES Chapter 24 (APP-237) Section 24.8 contains the traffic cumulative assessment for Norfolk Boreas and notes the following: "The indicative programmes for both Norfolk Vanguard and Norfolk Boreas indicate that Norfolk Vanguard would be completing its cable pulling phase at the same time that Norfolk Boreas commences construction at the onshore project substation and landfall." Therefore, the cumulative considerations are limited to Norfolk Boreas cumulative Traffic with Hornsea Project Three as there could not be a scenario whereby Norfolk Vanguard would cumulatively impact with Norfolk Boreas in Cawston. (i.e. if consented, Norfolk Vanguard would place ducting prior to the commencement of Norfolk Boreas Scenario 1 cable pull stage). 1 and 3. ES Chapter 24 (APP-237) as amended by OTMP (REP1-022) contains the forecast traffic flows for link 34 Cawston as follows: | | Total traffic movements | HGV component | |---|---|---| | Norfolk Boreas Sc1 | 130 | 61 | | Norfolk Boreas Sc2 | 276 | 112 | | Hornsea Project Three | 370 | 127 | | NB Sc2 + HP3 (Worst case cumulative traffic) | 646 | 239 | • With reference to the worst case cumulative traffic, 407 movements are car journeys for worker travel to and from workfronts (approx. 200 arrivals and 200 departures). The working hours are 7am to 7pm dictating that the majority of car movement would occur outside of sensitive periods. It should be noted that for the purpose of the assessment, single occupancy trips have been assumed and no allowance has been made for workers car sharing or being transferred to site by crew van or mini-bus for Norfolk Boreas traffic demand; whilst a 25% car share take up has been assumed for Hornsea Project Three. It is typical that construction sites of this size would achieve a car share ratio ranging from 1.5 to 2.5 workers per vehicle, significantly reducing construction traffic.

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			smoothing and averaging. Inferences were then made which do not account for the impact of peak noise and vibration experienced by residents. 6. that no proposal has been made by the applicant to properly assess the condition of those properties along the B1145 which are most at risk from damage from construction traffic. Full independent structural surveys are needed for all affected properties, before, during and after work on each project.	The Outline Travel Plan (APP-700) Section 4, contains a commitment range of measures to deter single occupancy journeys including, crew van, mini-bus pick up, car share syndicates and on-site parking management. HGV movements would be managed to be spread evenly throughout the day avoiding the sensitive periods of 07:30 to 09:00 and 15:00 to 16:00. This equates to a cumulative hourly demand of approximately 27 HGV movements or approximately 1 movement every two minutes. This level of demand would not pose a significant constraint to pedestrian's ability to cross the road. Notwithstanding, it is important to note that this maximum demand has a forecast duration of one week. After which, the flows for both HGV and workforce will be significantly reduced For context, the following table reproduces the forecast Norfolk Boreas daily HGV profiles for Cawston (reproduced from the Norfolk Vanguard examination), the figures are equivalent to a worst-case Norfolk Boreas Scenario 2 traffic demand. Duration | HGV movements 1 week | 112 22 weeks | 95 13 weeks | 44 23 weeks | 8 2. ES Chapter 24 (APP-237) Section 24.6, contained a review of the road safety baseline and did not find a significant pattern of accidents (referred to as collision clusters) in Cawston. Whilst it is recognised that the highway infrastructure reflects the historic nature of the village and is narrow in places, it is reasoned that this also has benefits in reducing vehicle speeds and raising driver/pedestrian awareness, therefore reducing the probability and severity of accidents. The highway intervention scheme would formalise on-street parking and provide a 20mph speed limit thus providing a more managed environment of reduced speeds and road narrowing affording pedestrian protection. The design would mitigate incidents of vehicles being impeded by sporadic on-street parking and the propensity of large vehicles to mount the pavement. 4. The air quality assessment considered two receptor locations in Cawston (R17 and R18) adjacent to the B1145 Aylsham Road, where the impact of development-generated traffic, including cumulative flows with Hornsea Project Three was considered. The assessment considered the worst-case year in terms of Norfolk Boreas and Hornsea Project Three traffic flows, and used base year (2017) background pollutant concentrations and emission factors to provide a conservative approach. Pollutant concentrations, without and with the proposed developments, were compared to the UK air quality Objectives for nitrogen dioxide (NO2) and particulate matter (PM10 and PM2.5), which are set on the basis of medical and scientific evidence of how each pollutant affects human health. The assessment highlighted that pollutant concentrations, without and with the proposed development, would be well below the relevant air quality

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				Objectives for NO2, PM10 and PM2.5 at the receptor locations considered in Cawston. A comparison of predicted pollutant concentrations during the worst case year of construction with the relevant air quality Objectives is presented in the table below.

Receptor	NO2 Annual Mean Concentration (µg.m-3)	PM10 Annual Mean Concentration (µg.m-3)	PM2.5 Annual Mean Concentration (µg.m-3)
R17	11.18	13.93	8.90
R18	9.80	13.65	8.92
Annual Mean Air Quality Objective	40	40	25

Predicted PM2.5 concentrations at receptor R17 and R18 are also below the World Health Organisation (WHO) annual mean air quality standard for PM2.5 (10µg.m-3), which the Government aims to meet in the Clean Air Strategy.

The impact of cumulative development-generated traffic at these receptors in the worst-case year of construction was predicted to be negligible, in accordance with Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK) guidance.

Measures such as reduced speed limits and limiting of on-street parking during construction are being implemented to prevent queueing traffic and idling vehicles.

5. An assessment was undertaken by Orsted Hornsea Project Three Offshore Wind Farm for traffic movements for the proposed scheme through Cawston Village (Hornsea Project Three Offshore Wind Farm – Appendix 26 to Deadline 7 submission – Construction Traffic Noise and Vibration Assessment for Cawston Village, Hornsea Project Three document REP7-046). Consideration was also given to the cumulative impacts from the Norfolk Vanguard Scheme and are also relevant to Norfolk Boreas and has been included as Appendix 2.The findings from the Hornsea Three report were reviewed and considered in the response to the Examination deadline for Norfolk Vanguard.

Furthermore, the data gathered for the Hornsea Project Three assessment regarding duration and number of locations is deemed reasonable in order to determine the effects at receptors along Link 34 Cawston from scheme related traffic.

Measurements were undertaken by the Hornsea Project Three consultants at four receptors along Link 34 between 11th to 13th February 2019. The measurement duration is considered sufficient in duration and geographical spread along Link 34 to determine typical existing weekday traffic flow conditions and to enable representative LAeq,16hr, LAeq8hr, L10,8hr indices to be gathered.

From the measured data presented in the subsequent Hornsea Three assessment, the recorded Sound Exposure Level/Single Event Level (SEL) at each specific location was used at each of the 4 receptors to determine the noise impacts and calculate a daytime level based on the proposed flows for Hornsea Three and cumulatively with Norfolk Vanguard.

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				Vibration measurements were taken at each of the four locations and the highest measured values used to determine impacts from any proposed increases in vehicular movements. This approach for noise and vibration represents a reasonable worst case scenario (conservative approach), is location specific and determined the impacts based on measured noise and vibration levels from HGV passbys at each of the four locations. In addition, it is normal practice to measure at a selection of receptor locations which are deemed representative of groups of receptors. Therefore it would be reasonable to extrapolate these assessed levels to other nearby receptors along the same road link (Link 34). For these reasons, it would not normally be expected to measure at every receptor along a road link. Traffic impacts for Link 34 Cawston were reported in the Norfolk Boreas Environmental Statement. The ES chapter considered an assessment year of 2023 and 2024 for Scenario 2, and 2026 and 2027 for Scenario 1. The highest predicted impact for Scenario 1 along Link 34 was minor adverse, and under Scenario 2, minor adverse. Basic Noise Levels were calculated for each link in accordance with the methodology described in Calculation of Road Traffic Noise (CRTN) and reported in Norfolk Boreas Offshore Wind Farm ES Appendix 25.2 Construction Phase Assessment (APP-658). For Norfolk Vanguard, in order to reduce the predicted noise emission impacts from cumulative construction traffic flows along Link 34 to minor adverse (i.e. not significant) the relative change in noise level needs to be no greater than +2.9dBA. The scheme committed to adopt and maintain cumulative peak construction traffic flows below the levels that generate noise increases in excess of 2.9dB. 6. Structural Surveys request. A Noise and Vibration Assessment for Cawston Village was undertaken by Orsted Hornsea Project Three Offshore Wind Farm (Hornsea Project Three document REP7-046, included as Appendix 2). The assessment considered the potential cumulative impacts with the Norfolk Vanguard project and are therefore also relevant to the Norfolk Boreas project. The assessment concluded that there were no significant vibration impacts associated with cumulative traffic using Link 34, therefore the Applicant considers that structural surveys are not necessary.
Q14.0.6	Oulton Parish Council	**Traffic effects in Cawston and Oulton** The RRs from Broadland District Council [RR-028], Cawston Parish Council [RR-016] and Oulton Parish Council [RR-017] raise concerns about the traffic assessment surrounding the villages of Cawston and Oulton. This includes concerns regarding the same access routes to Norfolk Vanguard, the Proposed Development and Hornsea Project Three during potentially the same time frame, and traffic impacts on the B1145 through Cawston.The Applicant's response to the RRs [AS-025, Table 19, row 3] refers to a 'highway intervention scheme' developed by Orsted for the objective of mitigating the	Oulton Parish Council apologises in advance for the inclusion of several screenshots of tables, charts and plans in this submission, but we have tried to provide evidence of our sources from primary documentation for all observations made, for ease of reference for the ExA. 1. Link 68 traffic assessments During Norfolk Vanguard's (NV) Examination, the baseline daily total traffic movements were estimated at 1,000. This number was later changed by NV, when they were given sight of the results of a brief ATC, that had been carried out by Hornsea Project Three (HP3) on Link 68 (HP3's Link 208) on 16th October 2018.	<u>1 Link 68 traffic assessment and 2. Link sensitivity for Link 68</u> Appendix 8 to Deadline 5 submission - Main Construction Compound Access Strategy VISSIM Modelling Update was submitted to the Honrsea Project Three Examination by Orsted to provide a basis for design for the Oulton Highway Intervention Scheme. This document has been included as Appendix 1. The document contained details of traffic counts, journey time surveys and the factors applied to the count data to account potential data gaps. The data informed a microsimulation traffic model, the outputs of which, informed the design of the Oulton Highway Intervention Scheme.

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		construction traffic impacts of Hornsea Three and cumulative impacts with Norfolk Vanguard and Norfolk Boreas through Cawston. 1. The Applicant to confirm if it would adopt the same 'highway intervention scheme' to mitigate the construction traffic impacts through Cawston. If yes, the Applicant to provide details of the 'highway intervention scheme'. 2. How has the impact of the proposed 'highway intervention scheme' been assessed in the ES Chapter 24 [APP-237]? 3. In the response to the RRs [AS-025, Table 19, row 3], you refer to 'the final SoCG (REP9-047) with Norfolk County Council at the close of the Norfolk Vanguard examination'. Submit the final SoCG with NCC for the Norfolk Vanguard Examination. 4. NCC, to provide comments on the 'highway intervention scheme'. List any changes necessary for the Proposed Development, Scenario 1 and Scenario 2. 5. Has the proposed 'highway intervention scheme' been adequately secured through mitigation set out in the ES Chapter 24 [APP-237] and in the dDCO [AS-019]? 6. Broadland District Council, Cawston Parish Council, Oulton Parish Council and Corpusty and Saxthorpe Parish Council to highlight the specific areas of the Applicant's assessment that you have concerns with. Outline what else the Applicant would need to take into account when assessing the effects of traffic in Oulton and Cawston.	It must be noted that this ATC was carried out on one single day, and only after the Applicant for Hornsea 3 was put under pressure for the lack of any proper assessment of the baseline traffic status of The Street, Oulton. It must also be noted that the baseline traffic numbers for Norfolk Boreas (NB) have also been derived from that same, single-day ATC that was provided by Hornsea Project Three. Oulton Parish Council (OPC) has consistently maintained that the brief snapshot nature of this traffic count cannot possibly provide an accurate picture of baseline traffic for this particular access route, due to the high volume of agricultural vehicles using The Street and the consequent high variability in HGV traffic numbers, depending on the time of year. The only change made by HP3 in response to this challenge, was a small upward adjustment to their figures, to account for the existence of what they called "the potato farm" in The Street. This was a completely inadequate response, as the farming activities that actually use The Street include 2 (not one) major commercial agribusinesses and a large intensive poultry farm. These agribusinesses are based on the airfield and at Street Farm respectively, and between them they farm thousands of acres in the surrounding area. They generate multiple, sequential, and often overlapping, harvests including cereals, beans, potatoes, carrots, maize and sugar beet. These harvests begin in June and go on continuously until Christmas and beyond. OPC remains extremely frustrated at the persistent failure of both Applicants to grasp or acknowledge the true scale of the existing agricultural traffic that will be competing with either or both of these projects at any given time. The Boreas application refers to the construction traffic as working around "local planned events, (e.g. harvests)" (see sources for Point 4. below). Such a statement demonstrates a complete lack of understanding of modern agricultural practices: "harvest" is not an "event" – it is a process that generates relentless and intense HGV traffic for 6 months of every single year. This issue is of particular concern to this community as, if the southern end of The Street (Link 68) becomes regularly congested or dysfunctional because of the proposed construction traffic, then that percentage of the farming traffic which now proceeds out of the village to the south, will begin to choose instead to come through the north – the residential end. Traffic, like water, finds its own level. Were that to happen, it would be intolerable for the residents of Oulton Street, whose cottages almost entirely directly front the roadway, and who are already struggling to absorb the size, noise, and vibration of the current level of agricultural HGVs. OPC has already highlighted the shortcomings of the short time period used for the traffic count as part of Hornsea Project Three and then carried over into Norfolk Vanguard's DCO, and the dangers inherent in the practice of one developer borrowing already inadequate and flawed data from another developer, thus amplifying persistent errors. To produce a truer picture of the baseline competing agricultural HGVs routinely using the southern end of Oulton Street, the Applicant would have to set up its own ATC and operate it for a series of several weekly periods, dotted throughout the months of June to December. Sources:	Norfolk County Council's Responses to the ExA's Further Information - Rule 17 _ Transport and highway safety [REP9-086 of the Hornsea Project Three Examination] confirmed: With regard to b) The main construction compound at The Street NCC confirmed *"A series of road improvements and mitigation measures have been agreed with the applicant. These are to be incorporated into the Outline CTMP to be submitted at Deadline 9. NCC can confirm that these matters relating to its holding objection have now been resolved."* In the subsequent SoCG between Orsted and NCC (REP9-027 of the Hornsea Project Three Examination), Design Option 1 Passing Places (REP3-010 of the Hornsea Project Three Examination] was agreed as an acceptable solution for mitigating traffic demand for Hornsea Project Three and any cumulative traffic associated with Norfolk Vanguard and Norfolk Boreas. The Applicant has reviewed the referenced documents and concurs with Orsted and Norfolk County Council findings. ES Chapter 24 (APP-237) Section 24.8 contains the traffic cumulative assessment for Norfolk Boreas and notes significant amenity impacts. With the adoption of the Oulton Highway Intervention Scheme the residual impacts are assessed as minor adverse. To ameliorate the potential disruption relating to temporary roadworks. The Applicant has committed to implement the scheme for Norfolk Boreas in isolation if a cumulative scenario is not apparent at commencement of construction. 3. Air Quality <u>Consideration of road Link 68 and Link 75</u> - in section 26.8 ES Chapter 26 Air Quality (APP-239) cumulative traffic flows as a result of the Norfolk Boreas and Hornsea Project Three projects for each road link in the study area were compared to screening criteria provided by the Institute of Air Quality Management (IAQM) and Environment Protection UK (EPUK). The screening criteria advise that a detailed assessment is not required where there is an increase in total vehicle flows of less than 500, or less than 100 Heavy Goods Vehicles (as Annual Average Daily Traffic Flows) on any road link outside of a statutory designated Air Quality Management Area (AQMA). The cumulative increase in traffic movements on road links Link 68 and Link 75 from the Norfolk Boreas and Hornsea Project Three are below the IAQM and EPUK screening criteria, and therefore air quality impacts are considered to be insignificant in accordance with the IAQM and EPUK guidance. Therefore, road links Link 68 and Link 75 were not included in the detailed assessment. This was also the case for Norfolk Vanguard. Whilst the IAQM and EPUK screening criteria are not exceeded, a further modelling study was carried out to determine the potential impact of queuing traffic on Link 68, due to the narrow nature of this road meaning that traffic management measures would need to be employed to control HGV traffic, which may lead to periodic idling of HGVs. Impacts were principally considered at the Old Railway Gatehouse on Link 68, the assessment completed by Norfolk Vanguard has been considered by Norfolk Boreas and is included as Appendix 1 of Norfolk Boreas Broadland District Council Statement of Common Ground submitted at Deadline 2 (REP2-047). The results highlighted that air quality impacts would be negligible, in accordance with IAQM and EPUK guidance, and that pollutant concentrations would be well below the respective Objectives.

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			From Hornsea Project Three: **For Link ID 208 (Oulton), baseline 2022 data was obtained from additional traffic count surveys undertaken in Oulton in October 2018. From Norfolk Boreas ES Chapter 24 (APP-237): Link 68 The Street / Heydon Road 727 Total 40 HGV 2018 HP3 ATC From Hornsea 3 Appendix 8 – Main Construction Compound Access Strategy VISSIM Modelling Update Jan. 2019: " 2.1 Create has commissioned independent traffic survey company MHC Traffic to undertake following surveys along The Street between its junction with The Street/ B1149 Junction and The Street/ Main Construction Compound Access junction on Tuesday 16th October 2018: Manual Classified Counts (MCC) between 07:00-10:00 and 16:00-19:00; Queue Counts; Journey time surveys; and Automatic Traffic Counts – all day." [Our emphasis] **PICTURE HERE, SEE: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010087/EN010087-001400-DL2%20-%20Oulton%20Parish%20Council%20-%20Response%20to%20ExA's%20WQ.pdf 2. Link sensitivity for Link 68 From Norfolk Boreas (APP-237) ES Chapter 24 Traffic & Transport: Low 'An A-road, B-road or minor road that can accommodate a high volume of traffic and / or has limited sensitive receptors. There is minimal, including sporadic, frontage development and footways are wide and / or buffered.' OPC disagrees that LINK 68 is of low sensitivity: there is one property which will be wholly affected by ALL traffic from Hornsea Project Three, Norfolk Vanguard and Boreas, namely 'The Old Railway Gatehouse', of which the frontage is directly on the road. The fact that HP3 & Vanguard have agreed to a road mitigation scheme for The Street, involving several passing places and other significant alterations, indicates that this route is unable to accommodate the increased traffic flow without such measures. However, notwithstanding the mitigation scheme, OPC remain of the opinion that The Street will not cope with the cumulative impact of the competing HGV/staff traffic/ agricultural vehicles and abnormal loads going into and out of HP3's Main Construction Compound. To illustrate just one example: Hornsea Project Three requires the use of 1,121 cable drums for the completion of the project. Because of their likely use of HVAC technology, these cable drums are larger and wider than those proposed for Vanguard/Boreas and will be delivered as Abnormal Indivisible Loads (AILs). HP3 intends to use a different construction model to that used by NV/NB and will deliver all or most of these AILs direct from the port to its Main Construction Compound at Oulton. This process will go on relentlessly, as the cable drums will be delivered in batches of 36 "every 3-5 weeks" to the port, over the entire two and a half years of HP3's active construction period. In reality, if they are to construct the cable corridor within their own declared window of 2.5 years, then these deliveries to port will have to take place every four weeks, or else the whole project will over-run.	Consideration of future PM2.5 guidelines - The Clean Air Strategy acknowledges the World Health Organisation's (WHO's) annual mean guideline of 10µg.m-3, and advises that it will review suitable approaches to reach this value within the UK. The Strategy sets out the Government's aims to halve the population living in areas above by 10µg.m-3 2025, but does not set legally binding targets. Subsequent reports carried out by the Air Quality Expert Group on behalf of the Government advise that PM2.5 concentrations below 10µg.m-3 are achievable for most of the UK by 2030. The assessment used 2017 'base year' emission factors and background map concentrations to provide a conservative scenario. Base year (2017) background pollutant concentrations, obtained from Defra were above the WHO annual mean guideline for PM2.5 of 10µg.m-3 at just 17 of the 89 receptor locations considered in the assessment. Due to anticipated future improvements (for example a decrease in emissions due to improvements in the road vehicle fleet and stricter regulation on other combustion processes), it is expected that future year pollutant concentrations will decrease. The maximum increase in PM2.5 concentrations as a result of development-generated traffic, cumulatively with Hornsea Project Three at all of the receptors considered in the assessment was 0.12µg.m-3, which is 1.2% of the WHOs annual mean guideline for PM2.5. It is therefore considered likely that future year pollutant concentrations will be below the WHO's guideline of 10µg.m-3. 4. Link 75 Blicking Road Link 75 utilised during Norfolk Vanguard requires 36 HGVs (72 movements) to access the southern side of TC9 – River Bure. Employee traffic associated with TC9 (south) would route via Link 43 through Ingworth negating the need to use Link 75. This would be repeated for Norfolk Boreas - Scenario 2 with 35 HGVs (70 movements). Norfolk Boreas - Scenario 1 differs as the construction traffic is to serve the cable jointing pit locations where cables are pulled through the pre-installed buried ducts. As it is currently not known where the jointing pits will be located (and will not be known until a contractor is appointed). Potential access points to Cable Pull Section 10 (AC77, AC78) and Cable Pull Section 11 (AC77 and AC75) are required. These access points are located along link 75. The maximum HGVs required for Cable Pull Section 10 is 18 (36 movements) and Cable Pull Section 11 is 17 (34 movements) equating to the 70 total HGV movements referenced. A peak of 10 employees per jointing pit per cable pull section are required and have been assigned to each cable pull section jointing pit. Thus 2 x10 (20) employee arrivals and 2 x10 (20) employee departures equate to the 'extra' 40 vehicle movements. ES Chapter 24 Appendix 24.22 (APP-637) and Appendix 24.7 (APP-622) details the programmed HGV demand for Scenario 2 and Scenario 1 respectively. The duration of construction is 5 weeks for Scenario 2 and 6 weeks per joint pit (2No. max for Link 75) for Scenario 1. Both Scenarios exhibit peak HGV flows during the first week (site establishment) and final week (site reinstatement). During the interim weeks the HGV demand drops off substantially which affords the contractor the flexibility to stockpile and schedule HGV deliveries to accommodate planned events and programme constraints without having to divert traffic or rely on offsite stockpiles.

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			Under pressure to demonstrate the feasibility of the regular deliveries of these AILs to the compound at Oulton, especially in-combination with NV/NB traffic, HP3 produced a traffic simulation. Although based on the flawed baseline traffic data discussed above, this modelling still effectively demonstrated that these AILs could not exit the Oulton compound (for onward delivery to the cable route) without closing the southern end of Oulton Street, and holding the traffic on the Holt Road in both directions for over 5 minutes, to allow each AIL to depart, and that this could cause dangerously long tailbacks -up to 67 vehicles- on the B1149 Holt Road. The suggested solution was that all or some of these AILs should be delivered at night. This "solution" is of course hugely alarming to local residents, as it effectively opens the door to 24-hour operation of the Main Construction Compound for a minimum of 2.5 years. For a full description of this AIL scenario please see, attached below, OPC's submission to the Hornsea Three Examination at Deadline 7, Point 1.3.1, including the final chart illustrating the likely pattern of AIL deliveries. The residents of The Gatehouse will be highly sensitive receptors to all traffic going past their property. During the Examination of Hornsea Project Three, the Applicant changed the sensitivity of Link 68 (their Link 208) from Low to Medium as it finally acknowledged that cumulative traffic, with Vanguard, would impact the smooth functioning of the road, and impact the residents of the Old Railway Gatehouse. It appears from the Application that Norfolk Vanguard and Norfolk Boreas have not assessed LINK 68 as medium sensitivity, nor taken into consideration cumulative impacts, as was the case for Hornsea Project Three. Sources: From Hornsea Project Three LINK 208: "Link ID 208 at Oulton was defined in Annex 7.2 – Description of Network Links and Sensitivity from the Environmental Statement (APP-160) as having receptors of negligible sensitivity. However, to enable a cumulative assessment with Norfolk Vanguard, as well as to respond to feedback from Broadland District Council, Norfolk County Council and Cawston Parish Council, and the Applicant's own further consideration of the link during additional site visits, it was agreed by all parties that this link should be considered a receptor of 'medium' sensitivity for the purposes of this updated cumulative assessment and the assessment below has therefore been undertaken on this basis." From Boreas Link 68 sensitivity: ** PICTURE HERE, SEE: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010087/EN010087-001400-DL2%20-%20Oulton%20Parish%20Council%20-%20Response%20to%20ExA's%20WQ.pdf 3. Air Quality LINK 68 and LINK 75 are missing from air quality assessments and maps for Scenarios 1 & 2. Link 68 is impacted by cumulative traffic and was assessed for HP3/Vanguard. One residential property is within 2 metres of a road where	The OTMP (REP1-022) states "Norfolk Boreas Limited has committed to not routing HGV construction traffic along Oulton Street north of the junction between the Street and Heydon Road". Section 4 of the referenced document sets out a mobile traffic management strategy (escorted HGVs) for addressing the constraints outlined for Link 75. 5. B1149 (Holt Road) trenched - Please refer to the Applicant's comments on the response to Q4.1.5 (2). 6. Cable Logistics Area - Please refer to the Applicant's comments on the response to Q14.0.1. 7. Road Intervention Scheme – Noted 9. Appeal Decision APP/K2610/A/14/2212257 [REP3-008 of the Norfolk Vanguard Examination] was submitted to the Norfolk Vanguard Examination for the ExA's consideration. It is noted the key ground for refusal was that the design of the highway intervention scheme was not agreed with Norfolk County Council. 10. Norfolk Vanguard Decision The Secretary of State's request for further information (Ref. EN010079) refers to unresolved traffic matters as submitted to Deadline 9 of the Norfolk Vanguard Examination (REP9-032). They can be summarised as follows: • Requested trenchless crossings of the B1149 (Refer to Applicants response to ExA Q4.1.5 (1) in this table). • Concerns raised within a Road Safety Audit of the proposed package of highway measures along the B1145 Cawston (Refer to Applicants response to ExA Q1.2.3 in this table). • Coordination, communication and confirmation of responsibilities between Norfolk Vanguard and Hornsea Project Three with respect to the Oulton Highway Intervention Scheme Cawston (Refer to Applicants response to ExA Q4.1.4 in this table). The Applicant has submitted at Deadline 3 a note on Implications for the Norfolk Boreas Application for Development Consent of any SoS decision on the Norfolk Vanguard Offshore Windfarm Application (ExA.AS-1.D3.V1).

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			they will be exposed to the full impact of cumulative traffic, including a massive percentage increase in emissions. The Applicant has failed to transfer data collected as part of the Norfolk Vanguard DCO, which would be relevant to the Norfolk Boreas DCO. Given the government's proposed clean air strategy (see Table 1 below) and the World Health Organisation annual limits for PM2.5 (to be reduced to 10ug m3 by 2025), will the Applicant be able to comply with air quality standards during the years they intend to construct this project, for proposed traffic movement numbers, in isolation and cumulatively? ** PICTURE HERE, SEE: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010087/EN010087-001400-DL2%20-%20Oulton%20Parish%20Council%20-%20Response%20to%20ExA's%20WQ.pdf 4. Link 75 Blickling Rd OPC are intrigued by the traffic numbers proposed for Link 75 for Norfolk Boreas Scenario 1. These appear to be, for Scenario 1 - 110 (all traffic), 70 HGVs, and for Scenario 2 - 70 (all traffic), 70 HGVs. During the Norfolk Vanguard examination, we were given the numbers as 72 (all traffic), 72 HGVs, for the whole of the Vanguard project. OPC therefore seeks to understand why there is a daily increase of 40 vehicles on Link 75 for Boreas Scenario 1? Link 75 is a rural unclassified road and very narrow, with awkward bends and no centre line in parts; it has a weak bridge with priority signage; several properties directly front this route; and there are 2 listed buildings - Oulton Lodge and Blickling Hall (National Trust). This route is also the main access for all visitors to Blickling Hall, who on occasion will have to be diverted from Aylsham via Saxthorpe roundabout (a long detour) due to trenching of the Blickling road. This route is also used by local farms at all times of the year. It is noted that there is provision to manage traffic demand and to stockpile materials in an effort to reduce HGV movements during 'events and harvests' etc. OPC would like to know whether this will increase the intensity of construction traffic at other times, if such traffic is to be reduced for events - and whether this means using other routes. Regarding stockpiling of materials: where will they be kept and does this mean the Cable Logistics Area (CLA) will be used more often than OPC were given to believe? If so, OPC seeks assurance from the Applicant that they remain committed to never using the northern residential end of Oulton Street e.g. to cut through from the CLA to the trenched road crossing and the Horizontal Direct Drilling of the Bure River valley near Aylsham Old Hall. Sources: From Norfolk Boreas: LINK 75 from OTMP version 2 at Deadline 1 "Managing traffic demand during major events on the highway (e.g. bike races, parades, etc.) and around public holidays. The Contractor will ensure that a stockpile of materials is maintained to allow HGV movements to be reduced during planned major events whilst not impacting upon the construction	

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			programme. The Contractor will also work closely with the local liaisons groups to identify the dates of local planned events, (e.g. harvests) that could impact upon the project and seek to effectively manage deliveries during these events. Special provisions will be made in the Communications Plan for events relating to the Blickling Estate (Link 75)." ** PICTURE HERE, SEE: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010087/EN010087-001400-DL2%20-%20Oulton%20Parish%20Council%20-%20Response%20to%20ExA's%20WQ.pdf 5. B1149 (Holt Road) trenched crossing It is noted that there have been changes to the proposed road works to the trenching on B1149. These changes appear in the Applicant's Outline Traffic Management Plan appendices (version 2) submitted at Deadline 1. There are changes to the width and length and M3 required for resurfacing the area; these differ from the plans as submitted at Deadline 8 for the Norfolk Vanguard DCO. OPC queries whether this would mean the need to use more of the verge to produce the increased road width, and if so, is this land secured within the DCO? OPC also queries whether these revised plans have been accepted by Norfolk County Council, given their negative response at deadline 9 of the Norfolk Vanguard examination? Is the separation between the B1149 junction with The Street and the proposed road works (205m) sufficient? Has the Applicant also taken into consideration the cumulative impact of Norfolk Boreas Scenario 2 with Equinor's Dudgeon and Sheringham Extension project, if they were to be constructed during the same time period? The cable corridor for the latter will pass extremely close to this trenched crossing. ** PICTURE HERE, SEE: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010087/EN010087-001400-DL2%20-%20Oulton%20Parish%20Council%20-%20Response%20to%20ExA's%20WQ.pdf 6. Cable Logistics Area OPC seeks assurance that the use of the Cable Logistics Area(CLA) is to be limited to occasional use for Scenarios 1 & 2. Currently OPC have been told that cable drums will be delivered directly to the jointing bays and that the CLA will only have cable drums stored on site if there is a hold-up during the cable pulling phase. OPC notes the statement below* which refers to managed traffic during events and harvest periods. As Oulton is an entirely agricultural area, with harvest periods extending over approximately 6 months of every year, does this mean more concentrated use of the Cable Logistics Area, or is it referring to Mobilisation Areas, - or both? * "The Contractor will ensure that a stockpile of materials is maintained to allow HGV movements to be reduced during planned major events whilst not impacting upon the construction programme. The Contractor will also work closely with the local liaisons groups to identify the dates of local planned events, (e.g. harvests) that could impact upon the project and seek to effectively manage deliveries during these events."	

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			Would this mean a more concentrated traffic flow at certain times of the year: i.e. have traffic movement numbers been averaged out? 7. Road Intervention Scheme It had been noted with concern that there were omissions from the proposed road intervention scheme for LINK 68 in earlier submitted documents. OPC confirms that these have now been included as part of the Applicant's Deadline 1 submission and now form part of the OTMP (version 2). 8. In view of points 1 (Link 68), 2 (sensitivity) and 3 (air quality) above OPC would like to draw the ExA's attention to the AD Appeal Decision document of 2014 which relates entirely to this stretch of road, and which is appended to this submission. We would in particular draw the ExA's attention to the Planning Inspector's detailed description of the deficiencies and dangers of using Passing Places as a traffic management solution for the difficulties presented by the regular use of a single-lane road for large numbers of daily HGV (and other) traffic in two directions. Furthermore, the Inspector lays out a vivid deconstruction of what it might actually feel like to be a human 'receptor' trying to live in a dwelling directly fronting this lane. 9. Norfolk Vanguard decision Finally, OPC assumes that the ExA is aware of the Secretary of State's recent announcement (6/12/19) to delay her decision on the Norfolk Vanguard application, pending further information from the Applicant and responses from Interested Parties. This delay will clearly have implications for the Examination of Norfolk Boreas. OPC would in particular draw the attention of the ExA to the fact that the Secretary of State has requested further information not only on offshore matters, but also on several onshore issues including "unresolved traffic matters", some of which relate to issues we have described above.	
Q14.0.7	The Applicant	**Assessment of Link 34 (B1145 from the B1149 Holt Road junction, through Cawston village to the eastern town extents of Reepham)** 1. Link 34 is assessed as a medium sensitive route [APP-237, paragraph 500]. Justify this classification in light of the highway width, direct frontage development, narrow footways, resident parking, and frequency of use of footways by children and other users. 2. The Proposed Development Scenario 2's HGV third peak in combination with Hornsea Project Three's peak construction HGV traffic is stated as 260 daily movements [APP237, paragraph 504]. Justify how a 896.5% increase in HGVs on Link 34 is assessed as an impact of moderate adverse significance.	1. In their role as Local Highway Authority, Norfolk County Council (NCC) have classified the High Street through Cawston as the B1145, a 'Main Distributor'. The Main Distributor category indicates a route linking Primary Distributors (i.e. linking significant settlements to A roads serving the County) and are not subject to any restrictions on Heavy Goods Vehicles (HGV). Whilst the assessment recognised that Cawston does have concentrations of sensitive receptors the route has been designated as suitable for HGV traffic and therefore, on balance medium sensitivity classification was deemed appropriate. 2. ES Chapter 24 [APP-237] Section 24.4 sets out the magnitude and impact significance thresholds which form the basis for a detailed assessment. Link 34 is subject to a cumulative 896.5% increase in HGV traffic, applying the thresholds detailed in Table 24.6 for pedestrian amenity, the magnitude falls in the low to high banding. Assessed as medium magnitude when applied to the significance matrix in Table 24.8 for a medium sensitivity receptor the resultant impact significance is moderate adverse. Moderate adverse is deemed significant in EIA terms and therefore (having established no suitable alternative routes exist, see Q14.0.8 response) a package of mitigation measures was developed and assessed to reduce the residual impact below significant levels.	
Q14.0.7	Norfolk County Council – Highways Authority	**Assessment of Link 34 (B1145 from the B1149 Holt Road junction, through Cawston village to the eastern town extents of Reepham)**	1. Norfolk County Council does not consider link 34 to be a medium sensitive route.	Please refer to the Applicant's response to Q14.0.7 in response the ExA's First Written Questions (REP2-021).

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		1. Link 34 is assessed as a medium sensitive route [APP-237, paragraph 500]. Justify this classification in light of the highway width, direct frontage development, narrow footways, resident parking, and frequency of use of footways by children and other users. 2. The Proposed Development Scenario 2's HGV third peak in combination with Hornsea Project Three's peak construction HGV traffic is stated as 260 daily movements [APP237, paragraph 504]. Justify how a 896.5% increase in HGVs on Link 34 is assessed as an impact of moderate adverse significance.	2. We do not believe the impact to be of moderate adverse significance but rather the impact is considerably greater. It is for this reason we have asked for a "highway intervention scheme". Norfolk County Council believes a suitable access strategy can be produced that mitigates highway impact however, the intervention scheme drawings and proposal before us are very much "work in progress". In short, the scheme needs several changes. As currently submitted the scheme failed to pass safety audit. In addition, as we pointed out several times during the Vanguard hearings, we believe there may be environmental impacts to be mitigated by the scheme (e.g. amenity) which are not the jurisdiction of the highway authority. Our remit is to consider the impact to highway users.	
Q14.0.7	Cawston Parish Council	**Assessment of Link 34 (B1145 from the B1149 Holt Road junction, through Cawston village to the eastern town extents of Reepham)** 1. Link 34 is assessed as a medium sensitive route [APP-237, paragraph 500]. Justify this classification in light of the highway width, direct frontage development, narrow footways, resident parking, and frequency of use of footways by children and other users. 2. The Proposed Development Scenario 2's HGV third peak in combination with Hornsea Project Three's peak construction HGV traffic is stated as 260 daily movements [APP237, paragraph 504]. Justify how a 896.5% increase in HGVs on Link 34 is assessed as an impact of moderate adverse significance.	Cawston Parish Council has consistently argued that Link 34 should be regarded as a high sensitive route for the following reasons: 1. The B1145 close to the B1149 Holt Road junction is too narrow for two HGVs to pass. 2. Slow moving vehicles on the B1145 typically reach Cawston, from east or west, with a queue of following faster traffic which prevents HGVs reversing and making other manoeuvres to pass each other. 3. The B1145 in the village centre is too narrow to allow HGVs to pass each other. 4. Restricted vision around the bend and the narrow road by the Village Hall makes it difficult for opposing traffic of any size, let alone HGVs, to safely pass. 5. Poor visibility around the old railway bridge, which has no footway, is a problem for traffic to pass and is a hazard for pedestrians living in Glebe Crescent and the users of Marriott's Way. 6. The number of sensitive receptors along the length of the B1145 through the village. 7. The small and narrow bridge over Salle Beck is inadequately proportioned for HGVs to pass. The bridge has recently been rebuilt following two impacts from heavy vehicles in recent months.	Please refer to the Applicant's response to Q14.0.7 in response the ExA's First Written Questions (REP2-021).
Q14.0.8	The Applicant	**Construction traffic route through Cawston** 1. Were other construction traffic routes considered, that would eliminate the need for construction traffic to go through the settlements of Cawston and Oulton Street? 2. Explain why Link 34 was the preferred option for construction traffic movement. 3. Could or was a haul route within the cable corridor of the Proposed Development from the B1145 (north east of Reepham) to the B1149 (north east of Cawston) [APP-462, Map 5 of 9] considered? If not, why not?	1 and 3. **Cawston** A detailed assessment of two possible alternative routes applicable for the Norfolk Vanguard Project to avoid the B1145 through Cawston (Link 34) was undertaken and submitted during Deadline 7 of the Norfolk Vanguard Examination. Given the similarities between Norfolk Boreas and Norfolk Vanguard this assessment is also relevant for Norfolk Boreas. The document titled 'Alternative Construction Traffic Routes at Cawston' is provided in Appendix 14.2 and provides a detailed assessment of the following routes. • Route 1: To use the Norfolk Vanguard onshore cable route between Cawston and the B1149 near Oulton to divert construction traffic and avoid use of the B1145 through Cawston. • Route 2: To divert construction traffic off the B1145 and onto Heydon Road via an unclassified road to the west of Cawston.	

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			In summary Route 1, would require a 2.8km running track to be in situ for a period of up to 4 years with an increased construction depth to accommodate the increase in HGV flow. It was concluded this option would compromise the assessed impact on sensitive watercourses, flood risk, conservation, topsoil management and noise. For Route 2 it was noted Heydon Road is a single 2.5m wide carriageway stretching for approximately 2.5 km with no passing facilities. To facilitate HGV traffic the route would require significant improvements to the carriageway to accommodate the additional loading as well as frequent passing bays to ensure the construction vehicles and background traffic can pass. It was concluded that the use of Heydon Road would be counter to planning principles established by NCC's highway hierarchy, in that, traffic would be diverting from a Main Distributor to a minor local route. It was reasoned that works required to Heydon Lane would be disproportional, the enabling works would increase construction traffic demand and mitigation would be better concentrated on Link 34 to support the Main Distributor classification. **<u>Oulton</u>** The alternative route investigated involved construction HGV traffic diverting off the B1149 at its roundabout junction with the B1145 (Cawston Road). HGV traffic would head east for approximately 2.4km until the junction with Sankence Lane, which leads to the north. HGV traffic would head north on Sankence Lane for approximately 500 metres, then turning west, would leave the public highway and onto private farm routes. The final leg of the journey would involve heading north on the private farm tracks and entering Mobilisation Area 7 from the south. Upon review of the alternative route, a number of substantial constraints/infrastructure requirements were identified, including the following: • Major upgrade of the B1145 junction with Sankence Lane. • Provision of either full length carriageway widening or passing places along Sankence Lane. • Upgrade of the junction of Sankence Lane and farm track. • Requirement to cross Marriott's Way by HGV construction traffic. • Farm track identified as a Restricted byway (not for use by mechanically propelled vehicles). In conclusion, the impacts related to the requirement of major infrastructure works required to Sankence Lane and the use of restricted byways and crossing of Marriott's Way by HGV construction traffic were considered to potentially introduce significant environmental impacts and Link 68 would be a more viable route. 2. In their role as Local Highway Authority, Norfolk County Council (NCC) have classified the High Street through Cawston as the B1145, a 'Main Distributor'. The Main Distributor category indicates a route linking Primary Distributors (i.e. linking significant settlements to A roads serving the County) and are not subject to any restrictions on Heavy Goods Vehicles (HGV). Whilst the assessment recognised that Cawston does have concentrations of sensitive receptors the route has been designated as suitable for HGV traffic and therefore, on balance the route was deemed appropriate.	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q14.0.8	Norfolk County Council – Highways Authority	**Construction traffic route through Cawston** 1. Were other construction traffic routes considered, that would eliminate the need for construction traffic to go through the settlements of Cawston and Oulton Street? 2. Explain why Link 34 was the preferred option for construction traffic movement. 3. Could or was a haul route within the cable corridor of the Proposed Development from the B1145 (north east of Reepham) to the B1149 (north east of Cawston) [APP-462, Map 5 of 9] considered? If not, why not?	1. The County Council considered all alternative routes and were satisfied that without re-locating/diverting the cable route, this is the only viable option. 2. The alternative routes are far worse in terms of impact to highway use. 3. A haul route was considered but the greatest HGV impact is from the traffic carrying the aggregate needed to construct the cable corridor. Accordingly, the cable corridor cannot be used until it is constructed, but it cannot be constructed without the traffic passing along Link 34.	Noted. Please refer to the Applicant's comments on the response to Q14.0.6 which confirms NCC's acceptance of the highway intervention scheme for Oulton Street as appropriate mitigation and; The Applicant's Statement of Common Ground with Norfolk County Council, submitted at Deadline 2 (ExA.SoCG-19.D2.V1) confirms acceptance of the Cawston highway intervention scheme as appropriate mitigation of highway impacts, subject to satisfying the issues raised in the Road Safety Audit and updating the Cawston [basis of design] report.
Q14.0.8	Cawston Parish Council	**Construction traffic route through Cawston** 1. Were other construction traffic routes considered, that would eliminate the need for construction traffic to go through the settlements of Cawston and Oulton Street? 2. Explain why Link 34 was the preferred option for construction traffic movement. 3. Could or was a haul route within the cable corridor of the Proposed Development from the B1145 (north east of Reepham) to the B1149 (north east of Cawston) [APP-462, Map 5 of 9] considered? If not, why not?	In the Norfolk Vanguard Planning Inquiry Cawston Parish Council proposed the use of an upgraded haul road along Vattenfall's cable route between Oulton and the west of Cawston beyond Salle Beck bridge. This proposal was dismissed by the Applicant for reasons which could usefully be summarised as "but we don't want to change our construction plans" and "we don't think we need to change our construction plans". The Applicant's response was particularly unacceptable to the residents of Cawston when the construction materials for the haul road are planned to be hauled through Cawston during construction and again when the haul road is removed. Cawston Parish Council has also suggested to the Applicants that they amend their plans to incorporate a haul road constructed from interlocking metal roadway which would provide an alternative to construction traffic through Cawston for Boreas, Vanguard and possibly Orsted. Other benefits would be a reduction in haul road construction traffic by 80%, savings in construction and decommissioning time and also a greatly reduced carbon footprint for construction. To date the Applicant has disregarded Cawston Parish Council's proposals. In her recent letter to those involved in the Norfolk Vanguard Planning Inquiry, "Request for information and notification of the Secretary of State's decision to set a new date for determination of the application", the Secretary of State has raised a number of questions and observations relating to the management of construction traffic through Cawston. In particular we draw your attention to paragraph 15 - 15. The Secretary of State notes from the above submissions that the Applicant and Norfolk County Council believe there is a reasonable expectation that an appropriate mitigation scheme could be brought forward for traffic movements at Cawston. However, the Secretary of State considers that it is not apparent from exchanges during Examination that these will be sufficient to offset any potential harm from in-combination traffic effects arising from the proposed Norfolk Vanguard project and H3 in the event that both were granted development consent. Cawston Parish Council is also unconvinced that the potential harm from in-combination traffic effects can be sufficiently offset by the current proposals. The need for serious consideration of alternative routes for construction traffic to avoid the B1145 through Cawston is urgent	Please refer to the Applicant's response to Q14.0.8 in Applicant's response the ExA's First Written Questions (REP2-021) and the Applicant's comments on the response to Q1.2.3.

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q14.0.10	Norfolk County Council – Highways Authority	The RR from Norfolk County Council [RR-037] states that for Scenario 1, it has no comments other than those made on the Norfolk Vanguard application, and for Scenario 2, it has the same comments made for the Vanguard scheme. Submit all relevant comments and concerns for both Scenario 1 and Scenario 2 into this Examination.	This is covered within our responses to the ExA's questions set out above and will also be summarised within the statement of common ground to be submitted at deadline 2 on 10 December 2019.	The Applicant confirms the Statement of Common Ground with Norfolk County Council was submitted at Deadline 2 (document ExA.SoCG-19.D2.V1 , REP5-050).

15 Water Matters

15.0 Water Matters

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q15.0.1	The Applicant	**Crossings of watercourses within SPZs** The Applicant to clarify how crossings of watercourses within SPZs are secured in the dDCO [AS-019] other than those specified as requiring trenchless installation techniques for the purposes of passing under the River Wensum, King's Beck, Wendling Beck, the River Bure and North Walsham and Dilham Canal in Requirement 16.	The watercourses within Source Protection Zones which are not listed in Requirement 16 will be crossed using the open-cut trenching method. This is the standard method used across the onshore cable route and therefore no specific requirements need to be included in the dDCO. Requirement 25 of the dDCO does secure the commitment to develop a scheme and programme for all watercourse crossings and the OCoCP (REP1-019) secures the commitment that these will include site specific measures and controls. A schedule identifying the method of crossing for each watercourse is presented as ES Appendix 20.4 (APP-589).	

16 General and cross topic questions

16.0 General

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q16.0.1	The Applicant	**Guide to the Application** Provide updates of the Guide to the Application [APP-004] at Deadlines set out in the Examination timetable. The level of detail will necessarily need to be presented to the level of each document or drawing to ensure all updates and/ or superseding is accurately recorded. You may wish to note an example document of this type at https://infrastructure.planninginspectorate.gov.uk/application-process/exampledocuments/	The Applicant will provide an updated Guide to the Application [APP-004] at each Deadline as set out in the Examination timetable. The comments on level of detail required have been noted.	
Q16.0.2	The Applicant	**Response to points made at an Open Floor Meeting** Provide responses to points made by Interested Parties and others who spoke at the Open Floor Hearing on Wednesday 13 November 2019 at the Kings Centre in Norwich.	The Applicant has provided a response to points raised in the Open Floor Hearing in the 'Applicant's response to the Open Floor Hearing' (REP1-037) submitted at deadline 1.	
Q16.0.3	The Applicant	**Red line boundary of offshore generation area** Explain or signpost to an explanation of the small circular red line near the northern extremity of the Norfolk Boreas proposed offshore generation array that appears on the Land Plan (Offshore) [APP-007].	A meteorological mast (Met Mast) which is owned and operated by East Anglia Offshore Wind is located within this area. The Met Mast and an associated 250m buffer are not part of the Norfolk Boreas Area for Lease and therefore this is excluded from the Norfolk Boreas site. The mast supports various instruments for measuring meteorological conditions.	

16.1 Environmental Statement

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q16.1.1	The Applicant	**Significant adverse residual effects** In respect of the significant adverse residual effects identified in the ES, the Applicant to provide a robust justification as to why further mitigation has not been possible.	Within the offshore environment (Chapters 8 (APP-221) to 18 (APP-231) of the ES) no residual impacts of moderate or major adverse significance were identified due to the project alone. Residual moderate adverse impacts were identified due to the cumulative effect of the project with others. The moderate adverse impacts were identified for the Dutch and Anglo Dutch fishing fleets, however, It is important to note that the contribution of the Norfolk Boreas project to these cumulative impacts would be very small. As the residual impacts were cumulative and the contribution of the Norfolk Boreas project was very small it is not within the control of the Applicant to mitigate these impacts, to reduce them to a non-significant level. Within the onshore environment (ES Chapter 19 (APP-232) to ES Chapter 31 (APP-244)) significant adverse residual effects were identified with respect to landscape and visual impact (Chapter 26 APP-242) at three non-residential viewpoints under both scenarios. Significant effects would be experienced by walkers on Lodge Lane to the immediate south of the site, and by road-users on a very localised section of Ivy Todd Road to the south-west and a section of the A47 to the north. These effects would all occur within approximately 1.2km of the onshore project substation, making them localised. Mitigation planting will be introduced and has been designed with the aim of reducing these identified impacts. The planting includes areas of fast growing woodland species as this will provide the height required, as well as the density, to ensure effective screening. Mitigation planting would gradually reduce effects to not	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			significant over time. There would be no significant effects on the views of residents at Ivy Todd and Necton. Under Scenario 1 no further significant adverse residual effects have been identified. Under Scenario 2 significant adverse residual effects have also been identified for water resources and flood risk (ES Chapter 20, AP0-233), onshore ecology (ES Chapter 22, APP-235) and traffic and transport (ES Chapter 24, APP-237) and are detailed below. In ES Chapter 20 Water resources and flood risk (APP-233), potential moderate adverse residual impacts are identified on the River Bure catchment and River Wensum catchment as a worst case where permanent culverts are used, and due to increased sediment supply when assessed on a worse case sub-catchment basis. As such the assessment is based on the cumulative effect of multiple crossings within each sub-catchment, rather than the impacts associated with any single crossing. It is important to note that the moderate adverse residual impacts resulting from the proposed installation of multiple open cut crossings within the River Bure, King's Beck, Blackwater Drain, Wendling Beck and Penny Spot Beck sub-catchments reflect the worst case assumption that multiple permanent culverts could be constructed within each sub-catchment (which, in this case, are considered to have a greater potential to adversely impact on the hydrology and geomorphology of the surface watercourses than temporary disturbance during the installation of multiple temporary dams). However, permanent culverts will only be required where it may not be possible to use the temporary dam and divert technique for example for watercourse that are 1.5m or deeper. The measures outlined in ES Chapter 22 Table 20.22 would be highly effective in mitigating impacts on the geomorphology and hydrology of the watercourse at each crossing location because they would allow the free movement of water and sediment to continue with minimal interference. Furthermore, the installation of each trenched crossing is not considered to result in a significant effect when assessed individually. Whilst the worst case of permanent culverts are considered to result in some significant impacts when considered at a sub-catchment level, where permanent culverts can be avoided any changes that occur as a result of temporary crossings will be temporary and reversible and, with mitigation would not result in significant residual impacts. In ES Chapter 22 Onshore ecology (APP-235) potential moderate adverse residual impacts have been identified for bats and hedgerows. Mitigation measures are identified in section 22.7.5.5.2 of ES Chapter 22 (APP-235) which will ensure that the habitat which is temporarily lost is replaced by improved hedgerow habitat which meets the criteria set out in the Norfolk Hedgerow Biodiversity Action Plan. Therefore, in the long-term, there will be a beneficial effect upon this receptor. However, given the duration of these temporary effects before reaching this point (up to 11 years for restored hedgerows to be greater value than that lost during construction), the magnitude of effect will remain low on a high importance receptor, resulting in a residual impact of	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
			moderate adverse significant. However, these impacts will reduce over time as replacement of hedgerows mature. In un-surveyed areas potential moderate adverse residual impacts have been identified for bats. Mitigation measures are identified in section 22.7.5.1.2 of ES Chapter 22 (APP-235) following the implementation of which, the risk of killing or injuring bats will be reduced to a negligible level. Potential fragmentation effects will also be reduced, although fragmentation effects will remain while the mitigation planting matures. In the long-term, once planting matures, there will be a beneficial effect upon this receptor. However, as above given the duration of these temporary effects before reaching this point (up to 11 years for restored hedgerows to be of greater commuting / foraging value than that lost during construction), a residual impact of moderate adverse significance is expected but will reduce over time as replacement hedgerows mature. In ES Chapter 24 Traffic and transport (APP-237) moderate adverse effects on Link 69 – Little London Road from the B1145 Lyngate Road junction to an access point approximately 210m east. Mitigation measures are proposed (see section 24.7.6.1.1 of ES Chapter 24, APP-237) including reducing peak daily movements by elongating the construction programme and sequential planning of construction activities, and reducing traffic demand by placing the reception sides of the trenchless crossing to the areas Link 69 serves. As a result the mitigated traffic demand reduces to 48 daily HGV movements and the effect is considered to be of low magnitude. However, noting the high sensitivity of the receptor it is expected that the residual impact significance would be 'marginally' moderate adverse. However, the assessed impact is very localised (impacting on a small number of dwellings) and is for a relative short duration. It is considered community engagement to establish clear lines of communication to the appointed contractor would serve to identify periods that are particularly sensitive to HGV movements and that could further mitigate this impact. The Outline TMP (APP-699) contains a specific commitment to managing the HGV movements for Link 69 and notes the need for community engagement.	
Q16.1.2	The Applicant	Changes have been made to the dDCO on 4 November 2019 relating to worst case scenarios. There may therefore be discrepancies between the ES and the DCO. How can this be resolved in the Examination of the dDCO?	All changes made to the dDCO have been in response to Relevant Representations or further discussions with stakeholders. In all cases, where changes affect worst case scenarios, these have been made to reduce the magnitude of the impacts. Although the magnitude of impacts have been reduced by these changes, they have not been reduced sufficiently to change the category of magnitude used in the ES and therefore the conclusions of the ES remain current. Therefore, the Applicant does not consider it appropriate or necessary to update the ES.	
Q16.1.2	Natural England	Changes have been made to the dDCO on 4 November 2019 relating to worst case scenarios. There may therefore be discrepancies between the ES and the DCO. How can this be resolved in the Examination of the dDCO?	Natural England will be reviewing the latest draft DCO submitted at Deadline 1 and the updated reconciliation document and will advise on this issue further at Deadline 3.	The Applicant discussed this with Natural England on the 28th of November 2019. The Applicant will continue to engage with Natural England regarding this issue and has offered assistance to Natural England to resolve any concerns that Natural England may have. This will be discussed further at a meeting planned in early January 2020 between Natural England and the Applicant, with the aim of reaching agreement at this point.

16.2 Ground conditions, contaminated land and ground and surface water

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
Q16.2.1	The Applicant	**HDD trenchless crossings of rivers:** Assist understanding of concerns and further information required, related to possible HDD drilling mud breakouts, particularly in relation to the River Wensum SAC.	The Applicant has provided the 'Clarification Note Trenchless Crossings and Potential Effects of Breakout on the River Wensum' at deadline 1 (REP1-039) to provide further information and assessment.	
Q16.2.2	The Applicant	**Request for Ground investigation Report(s):** The Applicant's response [AS-024] to EA's [RR-095] states: *'A copy of the Terra Consult (2017) report were provided to the Environment Agency during the Norfolk Vanguard examination and appended to Norfolk Vanguard's Responses to the ExA's First Written Questions (Appendix 16.2 to- 16.7, Norfolk Vanguard reference REP1-023 to 028).'* The Applicant to submit a copy of the Terra Consult Ground Investigations report to the Norfolk Boreas Examination.	The Terra Consult Ground Investigations have been provided as separate documents at deadline 2 (ExA.AS-3.D2.V1) (Note the reports are submitted in parts due to their large file size).	
Q16.2.3	The Environment Agency	**Ground Conditions and Contamination issues in EA's RR** Section 2 of the Environment Agency's [RR-095] identified a number of issues in relation to Ground Conditions and Contamination which it considers have not been addressed to its satisfaction, relating to construction phase impacts on: 1. The quality of surface water fed by groundwater; with particular regard to its observation that the ES does not provide the locations of where groundwaters and surface waters are hydrologically connected in relation to where construction activities are anticipated to take place; 2. Unlicensed water supplies; 3. Land quality; 4. Impacts on groundwater quality in the principal aquifer from trenchless crossings and piling; 5. Impacts on shallow groundwater due to changes to hydraulic regime as a result of soil compaction; and 6. Data sources. The Environment Agency to comment on the Applicant's responses [AS-024] to theseconcerns submitted in response to the ExA's Rule 6 letter.	1. We welcome the commitment to addressing our concerns in the post consent period. We wish to review and comment on the refined conceptual site models and mitigation measures once post-consent ground investigations have been undertaken and prior to construction. 2. We acknowledge the Applicant's clarification. If any of the activities have the potential to derogate a groundwater abstraction, the Applicant will need to get the abstractor's formal consent to derogate, before works begin, irrespective of whether or not they have access to mains water. 3. We acknowledge the Applicant's PRA recommendation for Ground Investigations and further assessment in respect of Controlled Waters and Groundwater Risk Assessments. We wish to review and comment on the assessments prior to construction. 4. We note that this has been referenced within the updated OCoCP 5. The Applicant undertakes to investigate the presence of so far unknown private groundwater abstractors when they commence work. We request that the Applicant provides us with details of any groundwater abstractors identified along with a risk assessment for the works, along with a groundwater monitoring proposal if appropriate, or an evidence-based justification of the reasons why a risk assessment and monitoring are not required. 6. The Terra Consult reports have now been provided by the Applicant.	1. and 3. Noted and the Environment Agency will be consulted on the further investigations and refined Conceptual Site Model prior to construction, secured through Requirement 20 (2)d of the dDCO. 4. Noted 2. and 5. Noted and as detailed in the Applicant's Comments on Relevant Representations at Table 14, as secured through the OCoCP (REP1-018) the location of private water supplies within the construction area will be identified through discussions with affected landowners as part of the post-consent detailed design process. Suitable measures to mitigate impacts or compensate landowners will be identified at this stage in consultation with the Environment Agency. 6. The Terra Consult Ground Investigations where provided as separate documents at deadline 2 (REP2-014 to REP2-019).
Q16.2.4	The Applicant	**Ground conditions and contamination potential impacts addressed in Norfolk Vanguard case:** Provide an update of progress on agreeing common ground with the Environment Agency on EA "concerns that some issues concerning raised during the Norfolk Vanguard examination process have not been addressed in the Norfolk Boreas application ES Chapter 19.7 Potential Impacts".	The Environment Agency have updated their position and now consider that the Applicant has identified a methodology to address these concerns in the post consent period. As such this topic is now agreed in the Statement of Common Ground with the Environment Agency Version 2 submitted at Deadline 2 (ExA.SoCG-7.D2.V2).	
Q16.2.5	The Applicant	**Assessment of contamination pathways:** Provide an update of progress on agreeing common ground with the Environment Agency on procedure and timescales for:	The Environment Agency have updated their position and welcome the commitment to addressing these concerns in the post consent period. They wish to review and comment on the refined conceptual site models and mitigation measures once post-consent ground investigations have been	

PINS Question Number	Question Respondent:	Question:	Interested Parties' Response at Deadline 2:	Applicant's Comments:
		1. Identification of locations where the surface water and the groundwater systems are in hydraulic connection and cross-correlated with the extent of the construction works; 2. Identification of potential contaminants and their receptors and pathways; and 3. Local risk assessments to clarify the potential impacts on controlled waters and associated specific mitigation measures.	undertaken and prior to construction. As such this topic is now agreed in the Statement of Common Ground with the Environment Agency Version 2 submitted at Deadline 2 (ExA.SoCG-7.D2.V2).	
Q16.2.6	The Applicant	**Assessment of contamination sources at landfall location:** Provide an update of progress on agreeing common ground with the Environment Agency on: more detailed assessment of contamination sources, current status, extent of contamination, and potential receptor and transport (pathway) of the contaminants.	Both parties are in agreement that the written scheme for the management of contamination secured through DCO Requirement 20 represents appropriate control measures for the discovery of potential contamination. The Environment Agency welcome the commitment to addressing our concerns in the post consent period and wish to review and comment on the refined conceptual site models and mitigation measures once post-consent ground investigations have been undertaken and prior to construction. As such this topic is now in the Environment Agency Version 2 submitted at Deadline 2 (ExA.SoCG-7.D2.V2).	
Q16.2.7	The Applicant	**Development impact at shallow wells:** Provide an update of progress on agreeing common ground with Environment Agency on: 1. Potential for a significant impact at any shallow wells in close proximity to the excavations. 2. Assessment of abstractions within the study area to ensure that local water supplies are not compromised.	This topics is covered within the Statement of Common Ground with the Environment Agency Version 2 submitted at Deadline 2 (ExA.SoCG-7.D2.V2) and discussion are ongoing with the Environment Agency.	