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VATTENFALL

Norfolk Vanguard Offshore Wind Farm

Applicant's comments on Written Representations

Applicant: Norfolk Vanguard Limited

Document Reference: ExA; WRR: 10.D2.2

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Photo: Kentish Flats Offshore Wind Farm

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Glossary

AC	Alternating Current
AEoI	Adverse Effect on Integrity
ASI	Accompanied Site Inspection
BAP	Biodiversity Action Plan
BoR	Book of Reference
BPA	British Pipelines Agency
CfD	Contract for Difference
CIA	Cumulative Impact Assessment
CoCP	Code of Construction Practice
CRM	Collision Risk Model
cSAC	candidate Special Area of Conservation
DAS	Design and Access Statement
db	decibels
DC	Direct Current
DCO	Development Consent Order
dDCO	draft Development Consent Order
DML	Deemed Marine License
EIA	Environmental Impact Assessment
EMF	Electro-Magnetic Fields
EPP	Evidence Plan Process
ES	Environmental Statement
ESCA	European Subsea Cables Association
ETG	Expert Topic Group
ExA	Examining Authority
FLCP	Fisheries Liaison and Co-existence Plan
FLO	Fisheries Liaison Officer
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicles
HRA	Habitats Regulation Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IPMP	In Principle Monitoring Plan
JNCC	Joint Nature Conservation Committee
LiDAR	Light Detection and Ranging

MCA	Maritime and Coastguard Agency
MCZ	Marine Conservation Zone
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
N2RS	No 2 Relay Stations
NE	Natural England
NFFO	The National Federation of Fishermen's Organisations
NG	National Grid PLC
NGET	National Grid Electricity Transmission
NR	Network Rail
NSAG	Necton Substation Action Group
OASIS	Online Access to the Index of archaeological investigations
OLEMS	Outline Landscape and Environmental Management Strategy
OPC	Oulton Parish Council
OTMP	Outline Traffic Management Plan
OWF	Offshore Windfarm
OWSI	Outline Written Scheme of investigation
PBR	Potential Biological Removal
PC	Parish Council
PIER	Preliminary Environmental Impact Report
PVA	Population Viability Analysis
RAF	Royal Air Force
RDAF	Royal Danish Air Force
RoC	Review of Consents
RSPB	Royal Society for the Protection of Birds
RYA	Royal Yachting Association
SAC	Special Area of Conservation
SCI	Site of Community Importance
SIP	Site Integrity Plan
SMP	Soil Management Plan
SoCG	Statement of Common Ground
SPA	Special Protection Area
SuDS	Sustainable Drainage Systems
SWDP	Surface Water Drainage Plan
TH	Trinity House
TMP	Traffic Management Plan

TWT	The Wildlife Trusts
UXO	Unexploded Ordnance
VMS	Vessel Monitoring System
WDC	Whale and Dolphin Conservation
WSI	Written Scheme of Investigation

1 INTRODUCTION

1. This document contains the Applicant's response to all Written Representations submitted by Interested Parties at Deadline 1 of the Norfolk Vanguard Examination.

2 APPLICANT'S COMMENTS ON WRITTEN REPRESENTATIONS

2.1 Whale and Dolphin Conservation (WDC) (REP 13)

Summary of Written Representation	Applicant's Response
Recommendations • Pile driving is not used at all during construction • If the recommendation of no pile driving is disregarded, strict limits be placed on noise levels during construction, including cumulative noise. • Only proven mitigation measures (such as a bubble curtain) are in place around the source to mitigate the impacts of radiated noise levels • That WDC is included as a consultee on the design of the MMMPs and SIP • That the monitoring strategy is appropriate to consider the cumulative impacts of all developments in the region • An assessment report be publicly available within a reasonable timeframe of construction completion • Further assessments are made on alternative foundations to fully understand the potential impacts on marine mammals and prey species. • Visual and acoustic monitoring should be ongoing throughout construction • Activities should be halted when marine mammals approach within a specified distance of operations (mitigation zone) • Collected data are made available to all stakeholders, and that acceptable levels of impact(s) are clearly identified through the Marine Mammal Mitigation Plan and that an adaptive approach is applied, where development is halted should significant impacts be observed.	• The inclusion of piled foundations is important to the commercial viability of the project as stated in the Applicant's response to the First Written Questions (Q4.3) (ExA; WQ; 10.D1.3). • The In-Principle Site Integrity Plan (SIP) (document reference 8.17) includes noise reduction as a potential mitigation option. The Site Integrity Plan, required under DCO Schedules 9 and 10 Part 4 Condition 14(m) and Schedules 11 and 12 Part 4 Condition 9(l), in accordance with the In-Principle SIP, provides the framework for agreeing mitigation measures with the Marine Management Organisation (MMO) prior to construction. The SIP will be based on the best available information and guidance at that time. • As above, noise reduction measures e.g. bubble curtains are included in the In Principle SIP as a potential mitigation option. • The Applicant has taken a consistent approach to the commitment for pre-construction engagement with WDC as that of other projects, e.g. East Anglia THREE, having committed to consult with WDC in the initial review of the Site Integrity Plan and to provide the updated plan to WDC when it is submitted to the MMO and Natural England for review and approval. At that stage, it is at the MMO's discretion which stakeholders to consult. Likewise, the Marine Mammal Mitigation Protocol (MMMP) will be submitted to the MMO for approval and it is at the MMO's discretion which stakeholders to consult. • The In Principle Monitoring Plan (IPMP) (document 8.12) provides the framework to agree monitoring requirements with the MMO prior to construction. Section 4.5.2 of the IPMP acknowledges that there may be little purpose or advantage in site specific monitoring and a strategic approach may be more appropriate in providing answers to specific questions where significant environmental impacts have been identified at a cumulative/in-combination level. • Reporting of monitoring results will be submitted to the MMO at a timeframe agreed through the Construction Programme and Monitoring Plan (as required under DCO Schedules 9 and 10 Part 4 Condition 14(1)(b) and Schedules 11 and 12 Part 4 Condition 9(1)(b).

Summary of Written Representation	Applicant's Response
	• The full range of potential impacts from all foundation types within the design envelope has been assessed. The worst case scenario for seabed impacts is associated with gravity anchors for floating foundations which has been assessed in ES Chapter 10 Benthic Ecology and Chapter 11 Fish and Shellfish Ecology. The conclusions of this chapter informed the assessment of the impact of changes to prey resource on marine mammals assessed in Chapter 12 Marine Mammals. • As stated above, the IPMP (document 8.12) provides the framework to agree monitoring requirements with the MMO prior to construction. • The current JNCC guidance for minimising the risk of injury to marine mammals from piling noise (2010) states: "*When piling at full power, there is no requirement to cease piling or reduce the power if a marine mammal is detected in the mitigation zone.*" The MMMP, required under DCO Schedules 9 and 10 Part 4 Condition 14(f) and Schedules 11 and 12 Part 4 Condition 9(f), in accordance with the draft MMMP (document reference 8.13) provides the framework to identify appropriate marine mammal mitigation based on the best available information and guidance prior to construction. • Monitoring results will be submitted to the MMO in accordance with the procedure to be agreed through the Construction Programme and Monitoring Plan (as required under DCO Schedules 9 and 10 Part 4 Condition 14(1)(b) and Schedules 11 and 12 Part 4 Condition 9(1)(b). The MMMP, required under DCO, Schedules 9 and 10 Part 4 Condition 14(f) and Schedules 11 and 12 Part 4 Condition 9(f), in accordance with the draft MMMP (document reference 8.13) will be completed prior to construction, based on the best available information and guidance prior to construction.

2.2 CPRE Norfolk (REP 23)

Summary of Written Representation	Applicant's Response
CPRE Norfolk requests reassurances that Vattenfall's application for Norfolk Vanguard cannot be changed to a HVAC system if consent is given for this application, as this would materially change many aspects of the project. In particular, the harmful impacts on landscape, environment and ecology would be much greater due to the need for a wider cabling corridor and its associated	It would not be physically possible to construct a high voltage alternating current (HVAC) export system within the submitted Order Limits. An HVAC transmission system would require a much wider cable corridor for the additional cables required and would entail the compulsory acquisition of additional land or additional rights over land. The description of the authorised development contained in Part 1 Schedule 1 of the draft Development Consent Order (dDCO) does not refer to, or consent the construction of the

Summary of Written Representation	Applicant's Response
construction works, and for a cable -relay station on a greenfield site.	additional infrastructure which would be required for an HVAC export system such as a cable relay station and the additional number of cables which would be required. Any change to an HVAC export system would require a material amendment to the DCO. The Applicant has also commented on the deliverability of high voltage direct current (HVDC) and that that dDCO does not stipulate HVDC in response to Q1.5 and Q20.1 submitted at Deadline 1 (ExA; WQ; 10.D1.3).
The possibility of radioactive and other contamination resulting from the crash of the Royal Danish Air Force F-16 on 11th December 1996 has been raised relating to the area between Ivy Todd Road and Necton Wood. When CPRE Norfolk raised this with Vattenfall by email and at a drop-in consultation event, assurances were made that protocols for the scheme will be included for dealing with unexpected contamination with Local Planning Authorities before the relevant stage of the project commences. Given the potential harms to health in particular, we expect more to be done to establish the nature and extent of any risk from this crash site by the relevant authorities before permission is granted for works to commence	The Applicant has provided a detailed response to this in response to Q12.9 submitted at Deadline 1 (ExA; WQ; 10.D1.3). In summary, the Applicant has committed to producing a Contaminated Land and Groundwater Plan for dealing with contamination post-consent. The plan will follow the Model Procedures for the Management of Land Contamination (CLR11) (Environment Agency, 2004) for evaluating the risk of contamination. Any site investigations would be designed to take into account available desk-based information and would be undertaken by appropriately qualified specialists. The written scheme for the management of contamination of any land and groundwater will be submitted and approved by the local authority in consultation with the Environment Agency. This is secured through Requirement 20 of the dDCO which requires a Code of Construction Practice (CoCP) to be approved by the local planning authority ahead of each phase of the onshore construction works. This approach has been agreed within a Statement of Common Ground between the Applicant and the Environment Agency submitted at Deadline 1 (REP1 – SOCG – 6.1).

2.3 Julian Pearson (REP 27)

Summary of Written Representation	Applicant's Response
The submission of Julian Person relates closely to his previous submission (relevant representation Rep 27) and appended images extracted from 3-D modelling undertaken by Julian Pearson. These images seek to illustrate the visual and landscape impacts associated with the proposed onshore project substation and the National Grid substation extension, and in particular the positive effect that	The visualisations provided by Julian Pearson are noted. **Landscape and visual impacts on Necton – HVDC visualisations and mitigation** The Applicant has provided a detailed response to this topic in the Schedule of Responses to the Relevant Representations (doc. Ref. ExA; RR; 10.D1.1) submitted at Deadline 1, specifically under Section 1.24 of that document. The Applicant will work to

Summary of Written Representation	Applicant's Response
colourisation of the proposed infrastructure may have on reducing said landscape and visual impacts. In the Written Representation, a number of suggestions are made with respect to locations to be visited during the ExA's visit, in addition to any sites within the boundaries of Holme Hale Village itself.	ensure that mitigation proposed is proportional to the scale of the substation infrastructure, and that it mitigates the impact on the local area. The key mitigation in relation to landscape and visual impacts of the onshore project substation is its location; the proposed onshore project substation footprint makes effective use of topographic undulations and natural screening. This includes: • Additional mitigation planting to enhance the screening effect of existing hedgerows and woodland blocks in the local area. The location of this planting and photomontages/visualisations are provided in ES Chapter 29 Appendix 29.2 (document reference 6.2.29.2). • Bunds, or earth mounds, will be constructed where possible to increase the base height and maximise the effectiveness of mitigation planting as screening. • Mitigation planting will comprise faster growing 'nurse' species and slower growing 'core' species. Core species with an average growth rate of 250mm per annum will provide 5m to 7m of growth after 20 years which will characterise the woodland structure over the long term. Nurse species would be faster growing (350mm per annum) to provide 7m to 8m of screening after 20 years. • Where advanced planting can be achieved (in areas not affected by the construction works), this would commence in 2020 (based on the indicative programme outlined in ES Chapter 5 Project Description (DCO document 6.1.5)) which will provide a minimum 3 years of growth prior to commencement of operation which equates to approximately 1.2m of additional growth. The Applicant continues to seek dialogue opportunities with representatives of the Necton area, via a Statement of Common Ground (SoCG) with Necton Parish Council, which is likely to cover mitigation of visual impacts. A draft of the SoCG was issued to Necton Parish Council in December 2018 in order to progress discussions on outstanding matters, including landscape and visual impacts. As detailed in the Design and Access Statement (DAS) (doc. Ref. 8.3) under paragraph 42, the final appearance of the onshore project substation is subject to detailed design post consent. For the purposes of the DAS, indicative maximum parameters (as set out in DCO Requirement 16) have been provided with reference to a Rochdale Envelope

Summary of Written Representation	Applicant's Response
	approach in terms of realistic worst case design parameters. Furthermore, in the Applicant's Responses to the Examining Authority (ExA)'s First Written Questions (doc. Ref. ExA; WQ;10.D1.3), in response to Q14.1 the Applicant states that appropriate design is an ongoing process and a further level of design will be undertaken through preparation of the detailed plans for the construction of the project and implementation of associated landscape works. These will cover issues such as the colour selection for structural components and plant species and mixes for the structural landscaping. These decisions will be captured in a Landscaping Management Scheme secured through DCO Requirements 18 and 19. **Locations suggested for Accompanied Site Inspections (ASI)** The Applicant's suggestions for ASI include the two Holme Hale viewpoints as illustrated in photomontages featured in ES Chapter 29. With respect to the additional, specific locations put forward for ASI in the Relevant Representation, the Applicant notes their distance from the proposed infrastructure and also the existing blocks of established woodland providing natural screening between the mapped points and the proposed onshore infrastructure.

2.4 National Federation of Fishermen's Organisations (NFFO) and VisNed (REP 51)

Summary of Written Representation	Applicant's Response
The worst case scenario has not been adequately defined in order to properly inform the assessment as it does not define for a given depth how far anchor lines will extend beyond the floating platforms. The NFFO and VisNed estimate a theoretical fishable clearance of 500m between turbines based on the worst case scenario of 200 x 9MW turbines on tension leg platforms with 12 anchor lines (of 20m in length) and mooring up to 30 degrees. NFFO and VisNed consider that it is highly unlikely that under these estimates any existing commercial fishing activities would take place within the array area.	The minimum spacing between turbines under the worst case scenario (200 x 9 MW turbines) is 680 m. As advised during the meeting held between the Applicant and NFFO on the 25th January 2019, following the submission of the Norfolk Vanguard Offshore Wind Farm Environmental Statement in June 2018, the design options for the Project have been further refined and the Applicant has advanced its foundations procurement process. Following this process, floating foundations have now been removed from the Project Design Envelope. The potential minimum "fishable" distance between turbines is therefore no longer affected by the presence of anchor lines and moorings associated with floating foundations.
With respect to potential for gear snagging safety risks, NFFO and VisNed consider that it is not clear	As noted in Chapter 14 Commercial Fisheries of the Environmental Statement (ES), in order to minimise

Summary of Written Representation	Applicant's Response
on which basis the conclusion that under the current worst case scenario (based on the use of floating foundations), safety issues for fishing vessels would be within acceptable limits has been determined. In addition, NFFO/VisNed note that ES Chapter 14, Commercial Fisheries, does not specify how either statutory or non-statutory advisory safety zones would be applied to the infrastructure associated with floating foundations and question whether in both, the shipping and navigation and commercial fisheries assessments, the appropriate application of safety zones has been applied.	potential safety risks to fishing vessels, Norfolk Vanguard Limited will ensure that the required level of information distribution is undertaken through the channels of the Kingfisher Information Service, Notice to Mariners, as well as direct liaison with fishermen and their representatives. The primary purpose of this would be to ensure the required level of awareness of potential risks amongst fishing vessel owners and crews and as required under DCO Schedules 9 and 10 Part 4 Condition 9 and Schedules 11 and 12 Part 4 Conditions 4. With this in mind and considering the embedded mitigation measures outlined in section 14.7.1 (e.g. commitment to burying cables where possible and therefore reducing the need for cable protection, appointment of a Fisheries Liaison Officer (FLO) , development of a Fisheries Liaison and Co-existence Plan (FLCP), undertaking of post-lay and burial inspection surveys, etc) the assessment presented in Chapter 14 concluded that through on-going liaison with fishermen and information distribution as discussed above, with the required compliance from fishermen, safety issues for fishing vessels should remain within acceptable limits. It should be noted that as stated above, following submission the project design envelope has been reviewed and the floating foundation option is no longer required. Safety issues associated with the presence of anchor lines and moorings associated with floating foundations are therefore no longer relevant. With regards to safety zones, the Applicant would like to clarify that it is not proposing to apply for operational safety zones for any of the wind turbine foundation types. As stated in Section 4.6 of the ES Chapter 15 Shipping and Navigation, an application will be made for the standard safety zones (to be submitted post consent and as detailed in the Safety Zone Statement (document reference 7.2)) which may comprise the following: which may comprise the following: • A 500 metre radius around individual OREI and their foundations whilst work is being performed as indicated by the presence of construction vessels; • A 500 metre radius around all major maintenance works being undertaken around the wind turbines and their foundations, and • A 50 metre radius around individual OREI and associated foundation structures whether they be installed and operational, or

Summary of Written Representation	Applicant's Response
	complete or incomplete but awaiting commissioning. As stated in the SoCG with the Royal Yachting Association (RYA) (Rep1 – SOCG – 14.1), the Applicant may also include the provision within the safety zone application for 500 m operational safety zones around accommodation platforms. As per the SOCG, the RYA does not generally support operational safety zones, however they do not object to their use around permanently manned accommodation platforms. No other operational safety zones are being considered once the wind farm is operational.
NFFO and VisNed consider that the definitions used to define sensitivity criteria in the assessment methodology lack specificity and that it is unclear what the criteria are scaled to. They note that this reduces their confidence in the assessment findings, as it has potential, under the impact assessment matrix methodology, to determine whether or not an impact is found to be significant or not. NFFO and VisNed also note that the assessment has not been undertaken at individual businesses level but using nation and gear groupings and disagree that the significance of the impact should be classified as minor with respect of loss of grounds and displacement during the operation and maintenance phase under the worst case. In this context, they note the importance of the area of the project to commercial fisheries, particularly to the Dutch beam trawl fleet (including UK registered but Dutch owned and operated vessels). In addition, NFFO and VisNed consider that the assessment is not well suited to informing the most appropriate measures that will promote coexistence with no mitigation listed for commercial fisheries receptors at the end of the chapter (Table 14.41, p108) with the exception of inshore static gear vessels.	The assessment of impacts on commercial fisheries follows an impact significance matrix approach taking account of receptor sensitivity and impact magnitude. This is in line with standard environmental impact assessment (EIA) methodologies as detailed in Chapter 6, EIA Methodologies As outlined in Table 14.5 (Chapter 14, Commercial Fisheries), in defining the sensitivity of commercial fisheries receptors consideration has been given to aspects such as the operational range, ability to deploy multiple gears and availability of grounds to fishing vessels within each fleet. The identification of sensitivity levels using the above parameters was supported by analysis of fisheries data (i.e. Vessel Monitoring System(VMS)) and information gathered during consultation with fisheries stakeholders (e.g. location of fishing grounds, vessel/gear specifications). The rationale for assessment with regards to Dutch owned and operated beam trawlers (both Dutch and UK registered vessels) considers the fact that by virtue of their size (vessels up to 43m in length) and engine power (up to 2,000hp) vessels in this fleet have wide operational ranges and fishing opportunities, as well as the ability to operate in weather conditions which would prevent other fishing vessels from operating. These vessels are therefore considered of low sensitivity to loss of grounds and displacement. An indication of the extent of the grounds targeted by this fleet can be seen in Figure 14.04 and Figure 14.05 of the ES, which show annual VMS data (average 2012-2016) by value and effort, respectively for Dutch registered beam trawlers. As is apparent from these figures, Dutch beam trawlers exploit fishing grounds over a very large area of the Southern North Sea (ICES Division IVc) and activity occurs across this large area consistently at relatively high levels. Whilst at comparatively lower levels, significant fishing activity

Summary of Written Representation	Applicant's Response
	is also undertaken by Dutch beam trawlers in wide areas of the Central North Sea (ICES Division IVb). Notwithstanding this, Chapter 14 recognises that the offshore project area for Norfolk Vanguard sustains high levels of activity by Dutch beam trawlers and this is taken account of in the assessment. In order to identify the significance of the potential impact associated with loss of grounds and displacement, however, consideration also needs to be given to the extent of grounds exploited by the fleet and level of fishing activity that these sustain relative to the potential area which may be lost/fishing effort may be displaced from as a result of the project. It is with this in mind that the significance of the impact in relation to Dutch beam trawlers (both Dutch and UK registered vessels) was assessed to be of minor significance. It should be noted that for assessment of loss of grounds and displacement during operation, taking account of the concerns raised in relation to floating foundations by fisheries stakeholders, as a worst case scenario the assumption was made that towed gear skippers would elect not to operate their gears within the operational offshore wind farm (OWF) sites. Furthermore, as discussed above, the project design envelope has been reviewed and the floating foundation option is no longer required. With the removal of this foundation option it is expected that fishing activity could resume within the operational site. Therefore, the impact of loss of grounds during operation on towed gear fisheries (including beam trawling) would be lower than that identified in Chapter 14. As outlined in paragraph 107 of Chapter 14, it is recognised that the level and distribution of fishing activity and dependence on fishing grounds will vary between individual vessels within the same fleets. It is however beyond the scope of the assessment to assess impacts on individual vessels. With regards to mitigation, as outlined in section 14.7.1, a number of embedded mitigation measures of relevance to commercial fishing have been incorporated as part of the project design process (e.g. development of the FLCP, appointment of an FLO, burial of cables where possible). These are taken account of in the assessment of potential impacts presented in Chapter 14, and therefore are not noted in Table 14.41. In this table, under mitigation, it is only additional measures to those already embedded in the project design process which are included.

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NFFO and Visned consider that the assessment of cumulative impacts lacks transparent analysis to support its conclusions. NFFO and VisNed do not agree that existing plans and projects should not be factored into the assessment. In addition they consider that management measures for marine protected areas in the Southern North Sea are now sufficiently progressed to be included in the cumulative assessment. With the above in mind NFFO and VisNed consider that the cumulative impact of loss of grounds during the operational phase is of minor significance to Dutch registered beam trawls and seine net fisheries, UK registered beam trawls and local inshore vessels. NFFO and VisNed also note that they disagree that in the case of safety risks, the same factors and obligations would apply to other projects/activities. They consider that each project, irrespective of measures applied will incrementally increase risk to the fleet overall. NFFO and Visned have provided Vattenfall with shapefiles showing proposed fisheries management measures in the English Southern North Sea, Dutch and German North Sea areas with a view to the cumulative assessment being expanded and updated.	The methodology used for assessment of cumulative impacts on commercial fisheries is in line with that used for assessment of impacts as a result of the project alone. In line with standard EIA methodology, it follows a significance matrix approach, taking account of receptor sensitivity and impact magnitude. Consideration is given in the cumulative assessment to the increased number of plans and projects that may have an impact on the various commercial fisheries receptors, including the potential for restrictions to towed gear fishing to be implemented within marine protected areas. This is taken account of in defining the magnitude of the cumulative impact. Existing proposals and developments are considered to represent part of the existing environment within which commercial fishing activity currently occurs and to which commercial fishing interests have already adapted. Including existing projects in the assessment would therefore represent double counting of their effect. With this in mind, existing plans and projects have not been considered for assessment of potential impacts on commercial fisheries. With regards to safety risks in a cumulative context, as outlined in ES Chapter 14, it is considered that the same factors and obligations applied for the project would apply to other projects/activities. Safety risks in a cumulative context would therefore remain as assessed for the project alone (i.e. within acceptable limits). The Applicant is currently reviewing the information sent by NFFO and VisNed with regards to proposals for closed areas within marine protected areas and, has requested further detail in relation to the sources of the data provided and the current stage of these proposals.
The NFFO and VisNed consider that floating foundations in comparison to fixed foundations present a less safe operating environment and physically hinder co-existence with commercial fisheries activities. It is their view, that there is a very high likelihood that the use of floating platforms under the worst case scenario would result in the practical exclusion of commercial fishing activities. In light of the impacts generated, NFFO and VisNed object to floating wind technology being permitted as part of the project's design envelope.	As previously mentioned, following submission floating foundations have now been removed from the project's design envelope.
The NFFO and VisNed note that an outline Fisheries Liaison and Co-existence Plan will be developed pre-consent. In their view this should include, other	As requested by the NFFO and VisNed, and agreed in the SoCG (Rep1 - SOCG - 26.1), an outline FLCP has

Summary of Written Representation	Applicant's Response
operational management arrangements such as provisions for gear clearance and disruption settlements including loss of access, navigation corridors and protocols, gear snagging protocols and processes for attributable claims, and retrieval of displaced static gears from safety zones. In addition, NFFO and VisNed encourage: • The use of funding arrangements like the West of Morecombe Fisheries Fund as a mechanism to support fishing industry stakeholders affected by the project and provisioning of work opportunities (e.g. guard vessels or surveys for example) available to affected fisheries stakeholders as far as practically possible. • Supporting the adoption of the Fish Safe device by fishing vessels operating in the area – see http://www.fishsafe.eu/en/fishsafe-unit.aspx. This technology, which combined with other safety elements above, provides automated means of integrating safety information into the navigational systems on fishing vessels that in turn provide a real-time warning of safety hazards in the wheel house. This will greatly promote safe working regime around the vicinity of the project and minimise the likelihood of incidents occurring in an area where there exists high levels of fishing activity.	been drafted. This has been submitted as part of the Applicant's Deadline 2 submissions (Document 8.19). Regarding the additional proposals suggested by NFFO and VisNed, the Applicant would note that the potential for a community benefit fund is outwith the DCO consenting regime and therefore wider community benefits should not be taken into account when determining the Application. Notwithstanding this, the Applicant has and will continue to engage in relevant wider industry initiatives as appropriate. For example Vattenfall is a member of European Subsea Cables Association (ESCA).
NFFO and VisNed suggest that for safety reasons, an obligation to report exposed cables should be secured via the Deemed Marine Licence, under notification requirements.	As noted in the SoCG with NFFO and Visned (Rep1 - SOCG - 26.1), in the event that cables become unburied during the operational phase this would be resolved through the methods described and communicated to the fishing industry through the use of a dedicated FLO and appropriate channels such as the Kingfisher Information Service. This has been included in the outline FLCP and further detail will be provided within the final FLCP to be produced post-consent. As stated in Schedule 9 and 10, Part 4, Condition 14 (d) (v) and Schedule 11 and 12, Part 4, Condition (9) (d) (v) of the draft Deemed Marine Licence (DML), a FLCP must be submitted and approved by the MMO. The Applicant therefore considers that there is adequate commitment to communication of hazards in the draft DCO/DMLs.

2.5 George Freeman MP (REP 154)

Summary of Written Representation	Applicant's Response
George Freeman – MP for Mid-Norfolk opposes the project on the following grounds: • Siting of the onshore project substation and National Grid substation extension at Necton • Inadequacy of pre-application consultation • Landscape and visual impacts on Necton – HVDC visualisations and mitigation • Insufficient environmental assessment - historic F-16 plane crash • A47 substation access – roundabout (community benefits)	**Siting of the onshore project substation and National Grid substation extension at Necton** The Applicant has provided a detailed response to this in response to the Written Questions (Q2.1) submitted at Deadline 1. The onshore connection point was determined through a statutorily mandated process involving both the Applicant and National Grid, to identify a direct connection to the 400kV national transmission system. A report on the Strategic Approach to Selecting a Grid Connection Point for Norfolk Vanguard and Norfolk Boreas (Document Pre-ExA; OCP Report; 9.2, submitted to the Planning Inspectorate on 23 October 2018) provides a summary of the context and work carried out by National Grid and Vattenfall Wind Power Limited (parent company of the Applicant) to select an appropriate location to connect to the National Electricity Transmission System. Site selection in relation to the onshore project substation and National Grid substation extension, including the methodology adopted and proposed mitigation is also being discussed in SoCGs with the following stakeholders: • Norfolk County Council (Rep1-SOCG-15.1); • Breckland Council (Rep1-SOCG-2.1); and • Necton Parish Council (Rep1-SOCG-22.1). **Pre-application consultation** The Applicant has provided a detailed response to this in response to the Relevant Representations submitted at Deadline 1. Since 2016, the Applicant has followed a programme of extensive pre-application consultation with local communities and statutory and non-statutory consultees. This was recorded in the Norfolk Vanguard Consultation Report (document 5.1) which has been submitted as part of the application. The Applicant has responded to comments related to the adequacy of consultation and the consultation process in the Consultation Report (see for example Section 23.4 'Summary of responses received during the statutory consultation period', and Appendix 22.1 - Section 42 Responses). Issues related to the consultation process have been considered in part or in full in the following submission documents: • Chapter 1 of the Consultation Report – Executive Summary;

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	• Chapter 4 of the Consultation Report – Regulatory Context; • Chapter 17 of the Consultation Report – Overview of Non-Statutory Consultation and influence on the Project; • Chapter 23 of the Consultation Report – Responses received under Section 47 of the 2008 Act; • Appendix 3.2 of the Consultation Report – Hearing Your Views II (interim consultation report). Plus, also see Hearing Your Views II Summary Report https://corporate.vattenfall.co.uk/globalassets/uk/projects/norfolk- vanguard/summary-report.pdf; • Appendix 3.3 of the Consultation Report – Hearing Your Views III (interim consultation report); • Appendix 4.2 of the Consultation Report – FAQ Documents; • Appendix 12.4 of the Consultation Report – October 2016 Newsletter; • Appendix 12.7 of the Consultation Report – Phase I Non-Statutory Public Exhibition materials; • Appendix 12.8 of the Consultation Report – Phase II Non-Statutory Public Exhibition materials; • Appendix 13.2 of the Consultation Report- March 2017 Newsletter; • Appendix 14.1 of the Consultation Report – June 2017 Newsletter; • Appendix 14.8 of the Consultation Report – Necton Substation Workshop Presentation; • Appendix 14.4 of the Consultation Report – Cable Relay Station Workshop Presentation; • Appendix 20.9 of the Consultation Report – Consultation Summary Document; • Appendix 20.10 of the Consultation Report- Formal Consultation Public Exhibition Boards; • Appendix 20.14 of the Consultation Report – February 2018 Newsletter; and • Appendix 22.1 of the Consultation Report- Section 42 responses and regard had by the Applicant. The Applicant will continue to engage with representatives of the Necton area, including through the SoCG with Necton Parish Council. **Landscape and visual impacts on Necton – HVDC visualisations and mitigation** The Applicant has provided a detailed response to this in response to the Relevant Representations submitted at Deadline 1. The Applicant will work to ensure that mitigation proposed is proportional to the scale of the substation infrastructure, and that it

Summary of Written Representation	Applicant's Response
	mitigates the overall impact on the local area. The key mitigation in relation to landscape and visual impacts of the onshore project substation is its location; the proposed project substation footprint makes effective use of topographic undulations and natural screening. This includes: • Additional mitigation planting to enhance the screening effect of existing hedgerows and woodland blocks in the local area. The location of this planting and photomontages/visualisations are provided in ES Chapter 29 Appendix 29.2 (document reference 6.2.29.2). • Bunds, or earth mounds, will be constructed where possible to increase the base height and maximise the effectiveness of mitigation planting as screening. • Mitigation planting will comprise faster growing 'nurse' species and slower growing 'core' species. Core species with an average growth rate of 250mm per annum will provide 5m to 7m of growth after 20 years which will characterise the woodland structure over the long term. Nurse species would be faster growing (350mm per annum) to provide 7m to 8m of screening after 20 years. • Where advanced planting can be achieved (in areas not affected by the construction works), this would commence in 2020 (based on the indicative programme outlined in ES Chapter 5 Project Description (DCO document 6.1.5)) which will provide a minimum 3 years of growth prior to commencement of operation which equates to approximately 1.2m of additional growth. This information was also made available pre-examination in the information sheet – Onshore project Substation, accessible via the project website: https://corporate.vattenfall.co.uk/contentassets/bf0e5e31bbab467eaf02040c7b17513a/180- vattenfall-substation-info-sheet.pdf The Applicant will continue to engage with representatives of the Necton area, including through the SoCG with Necton Parish Council, which is likely to cover mitigation of visual impacts. **Historic F-16 plane crash** The Applicant has provided a detailed response to this in response to Q12.9 submitted at Deadline 1, and within the SoCG between Norfolk Vanguard Limited and the Environment Agency (Rep1 - SOCG - 6.1). The site of a military plane crash near Necton in 1996 has

Summary of Written Representation	Applicant's Response
	the potential for historic contamination including hydrazine, aviation fuel and carbon composite fibre deposits. A clean up of the site was completed within 5 weeks of the incident by the Royal Air Force (RAF) and the Royal Danish Airforce (RDAF), which included armament specialists and hydrazine safety experts. A potential risk of radioactive material was initially highlighted, however based on the site recovery reports produced by both the RAF and RDAF there is no evidence that radioactive materials were present. The Applicant understands that to date Breckland Council has not classified the land as having a risk of historic radioactive contamination. Breckland Council has a duty to inspect land but there must be reasonable grounds which are defined in the statutory guidance. The Applicant has committed to producing a Contaminated Land and Groundwater Plan for dealing with contamination post-consent. The plan will follow the Model Procedures for the Management of Land Contamination (CLR11) (Environment Agency, 2004) for evaluating the risk of contamination. Any site investigations would be designed to take into account available desk-based information and would be undertaken by appropriately qualified specialists. The written scheme for the management of contamination of any land and groundwater will be submitted and approved by the local authority in consultation with the Environment Agency. This is secured through Requirement 20 of the dDCO which requires a CoCP to be approved by the relevant planning authority ahead of each phase of the onshore construction works. The Applicant will continue to engage with representatives of the Necton area, including through the SoCG with Necton Parish Council, which is likely to cover the topic of the Historic F-16 plane crash. **Community benefits** The Applicant has provided a detailed response to this in response to the Written Questions (Q19.8) submitted at Deadline 1. The Applicant notes that only mitigation which addresses impacts directly associated with the Project should be considered in the planning and DCO process; wider community benefits should not be taken into account. The Applicant is and continues to address these wider benefits, however this will be undertaken separately and outside of the DCO process.

Summary of Written Representation	Applicant's Response
	To date preliminary discussions with the Chair (by telephone, mid-December 2018) and Vice-chair (in person, 16th November, 2018) of Necton Parish Council have taken place, outlining proposals for exploratory dialogue on local interests and needs. Representatives of Breckland Council and Norfolk County Council have also been approached in relation to forming an advisory panel who might guide a dialogue process, ensuring it is relevant and fit for purpose. The Applicant is also liaising with local organisations, who are working on green / cleantech futures for Norfolk who might provide inspiration and ideas to stimulate dialogue. The Applicant anticipates developing a plan for the dialogue through 2019, with an advisory panel and appointing an independent third party to design and facilitate the process.

2.6 The Corporation of Trinity House of Deptford Strond (REP 60)

Summary of Written Representation	Applicant's Response
Trinity House (**TH**) have submitted an Additional Submission (dated 15 January 2019) in relation to the dDCO on the following topics. • Aids to Navigation; and • Arbitration.	The Applicant is considering TH's submission on aids to navigation and the Applicant will address these comments in consultation with the MMO, Maritime and Coastguard Agency (MCA), and TH. In relation to Arbitration, the Applicant would refer TH to the Applicant's comments on TH's response to Q.8.7, which has been submitted as part of the Applicant's Deadline 2 submissions (Applicant's Comments on Responses to the ExA's First Written Questions (document reference: ExA; WQR; 10.D2.3)).

2.1 Cadent Gas Limited (REP 72)

Summary of Written Representation	Applicant's Response
Cadent Gas Limited (Cadent) objects to the Authorised Works being carried out in close proximity to their Apparatus. Cadent equally objects to any compulsory acquisition powers for land, rights or other related powers being invoked which would affected their Apparatus, or right to access and maintain their apparatus. This is unless and until suitable protective provisions and any necessary related amendments to the DCO have been agreed and included in the Order.	The Applicant acknowledges Cadent's objection to the authorised works, and notes that this is to be maintained until suitable protective provisions and any related agreements have been secured to Cadent's satisfaction. The Applicant continues to work with Cadent towards an agreed form of protective provisions for the Order which will govern the acquisition of interests near and over Cadent's apparatus.
Cadent provided background to the protective provisions it considers necessary. It wishes to ensure that its assets are kept safe, that it is protected from any undue costs, and that its property rights are insured to be maintained.	Regarding protective provisions, the Applicant acknowledges Cadent's wish for its assets to be kept safe during and following the Applicant's operations. The Applicant continues to work with Cadent towards a satisfactory agreed set of protective provisions for the Order, as well as Cadent's general points on the protective provisions made at paragraph 4.6 to 4.8.
Cadent contends that a cap on the indemnity of the Applicant is inconsistent with the principle of equivalence and is not appropriate.	The issue of an indemnity cap remains under discussion between the Applicant and Cadent. This is covered further in the SoCG with Cadent (document reference: Rep1 - SOCG - 10.1).
Cadent require their standard Insurance and Surety provisions to be included in the Protective Provisions as a way to secure the performance of the indemnity.	Insurance and Surety provisions remain under discussion between the Applicant and Cadent. This is covered further in the SoCG with Cadent (document reference: Rep1 - SOCG - 10.1).
Cadent intends to continue negotiating to resolve the remaining outstanding issues. Should this not be possible, and attendance at a Compulsory Acquisition Hearing or Issue Specific Hearing is necessary, then Cadent reserve the right to provide further written information in advance in support of any detailed issues remaining in dispute between the parties at that stage.	Noted.
Cadent summarised the safety implications of insufficient property rights. Cadent requires assurance in the form of protective provisions that existing land interests and rights of access will be retained during and post construction and also physically maintained.	Regarding the property issues raised at paragraph 5, the Applicant acknowledges the risks to Cadent of being afforded insufficient property rights. The Applicant will seek to ensure in the protective provisions that Cadent's existing land interests and rights of access will be retained during and post construction, and also physically maintained.
Cadent states that the requirement to enter into a Crossing Agreement/Deed of Consent will be secured within the protective provisions once an agreed version are included in the order.	The Applicant agrees that a requirement to enter into a Crossing Agreement/Deed of Consent will be secured and contained within the protective provisions, once agreed.

2.2 No 2 Relay Stations (N2RS) (REP 78)

Summary of Written Representation	Applicant's Response
N2RS has noted discussions during the DCO hearings for Hornsea Project Three, during which comments were made to the effect that Vattenfall might in the future decide to amend the consent for Norfolk Vanguard to accommodate a HVAC export solution. N2RS is therefore seeking reassurances that the Norfolk Vanguard consent does not allow for such an amendment to be made. N2RS notes that the choice of Happisburgh as the landfall location for Norfolk Vanguard was driven, at least in part, by the fact that alternative landfall locations would have required cables to cross the Marine Conservation Zone. N2RS questions why this consideration should have taken precedence over the needs of the community of Happisburgh, which it describes as 'a village under siege' from the effects of coastal erosion. N2RS notes that while landowners will be compensated, it is not clear how local residents and small businesses are to be compensated for disturbance to quality of life or devaluation of property. N2RS considers that such parties should not be 'disadvantaged'. Finally, N2RS notes that the key decisions that shape offshore wind projects tend to be made before the public are made aware of them. N2RS highlights the allocation of the onshore connection points for Norfolk Vanguard and Hornsea Project Three, which has resulted in the two onshore cable routes 'crossing' close to Reepham. To N2RS, this indicates that the allocation process is flawed.	The Applicant refers to the response to Q1.5 within the Applicant's Responses to the ExA's Written Questions (ExA; WQ; 10.D1.3). The Applicant is aware of the history of the DCO consent for East Anglia One; this was the primary reason that the initial project scoping proposals for Norfolk Vanguard included both HVAC and HVDC export options. However, the Applicant is currently working with a number of HVDC technology providers to evaluate a range of HVDC solutions for the export infrastructure for both Norfolk Vanguard and Norfolk Boreas. This activity has reinforced the Applicant's confidence in the capability of the supply chain for HVDC solutions, and in the deliverability of the HVDC export systems for these projects. Given the current 'state of the art', the Applicant is fully confident that a cost-effective export solution can be developed and built, using HVDC technology. It would not be physically possible to construct an HVAC export system within the Order limits, as defined by the work plans and land plans. An HVAC transmission system would require a much wider cable corridor to accommodate the additional cables and would entail the compulsory acquisition of additional land or additional rights over land. Similarly, the description of the authorised development contained in Part 1 Schedule 1 of the dDCO does not refer to, or consent the construction of the additional infrastructure which would be required for an HVAC export system such as a cable relay station and the additional number of cables which would be required. In addition, only the HVDC export infrastructure was assessed under the Environmental Statement, so an updated Environmental Statement would be required to assess a HVAC solution. It is recognised that the additional HVAC infrastructure would potentially affect local people and businesses and would potentially involve impacts such as visual amenity, impacts on the natural or historic environment and impacts arising from additional traffic. For all the above reasons there can be little doubt that any change to an HVAC export system would require a material amendment to the DCO. The Applicant refers to the response to Q2.2 within the Applicant's Responses to the ExA's Written Questions (ExA; WQ; 10.D1.3). With reference to Paragraph 57 of ES Chapter 4 Site Selection and Alternatives and with further detail provided in ES Appendix 4.6, Happisburgh South was selected as the

Summary of Written Representation	Applicant's Response
	preferred landfall location for the following key reasons: • Avoids the nationally designated Marine Conservation Zone (MCZ) (the Cromer Shoal Chalk Beds); - this was the only shortlisted landfall site to achieve this • Allows co-location of Norfolk Vanguard and Norfolk Boreas landfall and reduces total amount of area directly impacted; • Avoids populated areas as far as possible; • Avoids areas at risk of flooding as far as possible; • Provides opportunities associated with Happisburgh archaeology - consultation ongoing with Natural History Museum, British Museum, Queen Mary University of London and Norfolk County Council Historic Environment Service; and • Avoids technical engineering and feasibility risks associated with locating infrastructure in the brown field site within the Bacton Gas Terminal land. 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. Dialogue in relation to focused community benefit associated with permanent above ground onshore infrastructure will be undertaken independently of and without prejudice to the concurrent DCO process. Discussion on this process has already begun with Breckland Council and landowners. Please refer to the Applicant's response to Relevant Representations (ExA; RR; 10.D1.1) – 1.2 Site Selection and specifically responses to the topics of "Onshore Cable Route selection process" and "Approach with National Grid to selecting a grid connection point at Necton". Further reference can be made to the Applicant's Responses to the ExA's First Written Questions (document reference ExA; WQ; 10.D1.3), specifically response to Q2.1. As noted, the onshore connection point was determined through a statutorily mandated process involving both the Applicant and National Grid, to identify a direct connection to the 400kV national transmission system. The Applicant also refers to the report, Strategic Approach to Selecting a Grid Connection Point for Norfolk Vanguard and Norfolk Boreas (Document

Summary of Written Representation	Applicant's Response
	Pre-ExA; OCP Report; 9.2) which provides a summary of the context and work carried out by National Grid and Vattenfall Wind Power Limited (parent company of the Applicant) to select an appropriate location to connect to the National Electricity Transmission System.

2.3 Ray & Diane Pearce (REP 79)

2. The Written Representation submitted by Ray & Diane Pearce at Deadline 1 expresses "concerns for the future of [their] property, health and holiday letting business precipitated by the proposed plans for the project". The submission states that "questions relating to the crossing point of the Norfolk Vanguard and Norfolk Boreas cables with those for Ørsted are primary to [their] concerns" and also that the crossing point has been "inadequately addressed during the consultation, especially in the PEIR."

3. The submission describes further concerns about the use of nondisclosure agreements, suggesting it is the reason that "many issues will not be suitably discussed, not least, the environmental impact of the proposed cable crossing point".

4. The Applicant would refer to the Applicant's Comments on Relevant Representations submitted at Deadline 1 (ExA; RR; 10.D1.1), specifically in response to Rep 79. This provides commentary on the onshore cable route site selection process, Electromagnetic Fields/radiation, and disruption to local residents and businesses.

Summary of Written Representation	Applicant's Response
Cable Routeing The PEIR does not sufficiently explain why the connection points at Walpole and Norwich Main (Swardeston) were disregarded and the Public has been presented with a "fait accompli" regarding the allocated connection point, being at Necton. The later allocation of Norwich Main to the Hornsea Project Three is causal in the cables having to cross other projects' cables. The allocation of connection points under a historic licence, made by NG plc, are neither co-ordinated nor adequate for the future development of off-shore wind farms. Suggestions of either, a national co-ordinating body separate to the 'for profits' company currently responsible for NETS connections is established, or, the current licence issued to National Grid plc is urgently reviewed to	Please refer to the Applicant's response to Relevant Representations (document ExA; RR; 10.D1.1) – 1.2 Site Selection and specifically responses to the topics of "Onshore Cable Route selection process" and "Approach with National Grid to selecting a grid connection point at Necton" and the Applicant's Responses to the ExA's First Written Questions (document reference ExA; WQ; 10.D1.3). As noted, the onshore connection point was determined through a statutorily mandated process involving both the Applicant and National Grid, to identify a direct connection to the 400kV national transmission system. Furthermore, a report on the Strategic Approach to Selecting a Grid Connection Point for Norfolk Vanguard and Norfolk Boreas (Document Pre-ExA; OCP Report; 9.2) provides a summary of the context and work carried out by National Grid and Vattenfall Wind

Summary of Written Representation	Applicant's Response
reflect the current UK National requirements for renewable energy, especially when considering the consequential increase in NETS connection applications, are proposed.	Power Limited (parent company of the Applicant) to select an appropriate location to connect to the National Grid Electricity Transmission System.
National Grid (NG) for Profits NG plc has notified that 'National Grid Electricity Transmission (NGET)' will become a separate company within the National Grid Group in April 2019. We understand that NGET will be able to select and purchase assets for management and profit through the Offshore Transmission Owner (OFTO) project. Therefore, we contest that the NG Group has a conflict of interest regarding the allocation of connection points for developers, reinforcing the requirement for an independent, not for profit, organisation to co-ordinate and allocate future connection points from new projects to the NETS.	The Applicant notes the response but has no comment.
PEIR & Selected Connection Point (Necton) Concerns are raised that: • the Vanguard PEIR inadequately discusses the NG's connection offer. • the clearest and least environmentally detrimental connection point is at Walpole • the PEIR is flawed as, without discussion of the alternative connection points, the Public is unable to review the options available • the overriding aspect for the planning is cost • the allocation of Necton is the best and most commercially viable connection point for Norfolk Vanguard • Norwich Main is closer to the Vanguard landfall at Happisburgh and Necton is closer to the Hornsea Three landfall at Weybourne • connecting to the NETS at Necton, via a 60km trench, up to 60 metres wide and up to 1.5 metres deep across the Norfolk countryside cannot be less expensive than a marine cable to Walpole and cannot have less impact on the environment.	In addition to the points raised above in relation to the onshore connection point, on the topic of consultation the Applicant notes that this Written Representation makes reference to the PEIR. The Applicant would draw attention to the Environmental Statement submitted as part of the Application, which provides information on the final project design and which has been influenced by the Statutory Consultation process. Since 2016, the Applicant has followed a programme of extensive pre-application consultation with local communities and statutory and non-statutory consultees. This was recorded in the Norfolk Vanguard Consultation Report (document 5.1) which has been submitted as part of the application. The Applicant has responded to comments related to the adequacy of consultation and the consultation process in the Consultation Report (see for example Section 23.4 'Summary of responses received during the statutory consultation period', and Appendix 22.1 - Section 42 Responses)
Property Our property, is in a unique position with regards to the project as it is situated within 80m of the proposed cable route and, more importantly, adjacent to the position where the Hornsea Project Three cables cross the Norfolk Vanguard and Boreas cables. Unfortunately, our property was not included for assessment within the PEIR process. However, after	With reference to the Applicant's Responses to the ExA's First Written Questions (document ExA; WQ; 10.D1.3) the Applicant explains in response to Q.22.21 why it is not expected that there will be any claims for blight, with reference to the concept qualifying criteria. As set out in response to Q19.23 of the same document, the assessment criteria for tourism features was detailed within the Preliminary

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campaigning with the Vanguard Project Managers we were granted a survey by an Electro Magnetic Field (EMF) expert provided by NG. Regrettably, as documented in the record to date, the specific design, engineering and construction of the crossing point has yet to be planned. This plan should not be underestimated as having a permanent impact on our property and Furnished Holiday Let (FHL) business. Indeed, such is our anxiety, we have already moved to a rental property in Heydon whilst the planning and construction of these projects plays out; our home of 22 years is now, sadly, an FHL. We did not take this decision lightly and took the opportunity to move out before competition for rentals away from the cable construction sites takes hold. The Norfolk Vanguard project has already had a 'High Impact' on our property which has been 'blighted' by the proximity of the plans. Our holiday lettings business will suffer going forward by being disrupted with a prolonged and intrusive construction phase, especially when coupled with those for Norfolk Boreas and Hornsea Three. The Vanguard consultation makes no specific reference to our situation despite other residences and businesses being individually referenced. We are ordinary members of the Public but our lives have already been changed by these infrastructure plans.	Environmental Information Report (PEIR) consulted upon with all Section 42 and Section 47 stakeholders in November 2017. The rationale for defining holiday accommodation as a low sensitive receptor (because it is not a tourist attraction in and of itself) is consistent with other recent offshore wind farm DCO applications, and the assessment was undertaken on the basis of that sensitivity. As set out in response to Q19.14 of the same document, the Applicant will ensure effective and open communication with local residents and businesses that may be affected by the construction works as part of the development of the Construction Liaison Committee and the appointment of a Community Liaison Officer. This is set out within the outline CoCP (document reference 8.1) and secured through Requirement 20. Issues related to disruption to local residents and businesses have been considered in part or in full in the following submission documents: • ES Chapter 30 Tourism and Recreation • ES Chapter 31 Socio-Economics • Chapter 17 of the Consultation Report – Overview of Non-Statutory Consultation and influence on the Project • Chapter 23 of the Consultation Report – Responses received under Section 47 of the 2008 Act • Appendix 22.1 of the Consultation Report – Section 42 responses and regard had by the applicant. Issues related to dust, noise and disturbance on local residents have been considered in part or in full in the following submission documents: • ES Chapter 25 Noise and Vibration • ES Chapter 26 Air Quality • ES Chapter 27 Human Health • ES Chapter 30 Tourism and Recreation • ES Chapter 31 Socio-Economics
Construction Compounds The cumulative effects of the location of construction compounds on private residents and members of the Norfolk public has not been adequately considered. Both Ørsted and Vattenfall are planning their own compounds, additional roads and access points without any regard for each other or a co-ordinated plan. The disruption to our FHL business, with a planned construction compound from Hornsea Three within 100 meters and two developers trenching cables within 80 meters, will be untenable and could be for	Please refer to the Applicant's Responses to the ExA's First Written Questions (document ExA; WQ; 10.D1.3), specifically responses to Q.11.10, Q.11.12 and Q12.5. These set out the Applicant's approach to address potential cumulative impacts associated with the relative proximity of both the Norfolk Vanguard and Ørsted's Hornsea Project Three construction compounds. The Applicant is working closely with Ørsted to identify potential cumulative impacts with Hornsea Project Three. Further information is included within a SoCG

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a prolonged period. Clearly, there will also be an environmental impact on the location of construction compounds, not least on Oulton Airfield, for which the consultation, thus far, is woeful. The proposed construction compounds, in general, will have an impact on the appearance and character of the planned areas with implications in respect of tourism and visitors to Norfolk, especially during a prolonged construction phase, not evidenced in the Vanguard consultation. A prolonged period of disruption would ensue if the construction phase for the project is not time limited. More importantly, if the construction phase for Vanguard and Boreas is concurrent with the Hornsea Three project, without coordination, the Norfolk countryside and environment could be disrupted for over a decade which will definitely have a detrimental effect on Norfolk tourism, with a direct disruptive impact on our FHLs. Our Holiday Lettings Agents will not market our properties under such circumstance and we could be left with no income whatsoever.	between the Applicant and Hornsea Project Three (Rep1 – SOCG – 18.1) submitted at Deadline 1. The visual impact of mobilisation areas are considered within Chapter 29 Landscape and Visual Impact assessment of the ES. With reference to the Applicant's response to Q19.4, the Norfolk Vanguard indicative construction envelope of six years (see Table 5.36 of Chapter 5 Project Description) is reduced as far as practicable at this time through a number of commitments including: • The commitment to HVDC technology, which has reduced the onshore construction programme for Norfolk Vanguard by one year compared to a HVAC technology solution. • The ability to install Norfolk Boreas ducts at the same time as Norfolk Vanguard ducts, and in a sectionalised manner, which maximises the efficiency of the onshore cable route installation for Norfolk Vanguard and its sister project, Norfolk Boreas. The sectionalised approach to duct installation limits the area of works to approximately 150m lengths, with further details provided in the Applicant's response to Q14.13.
Cumulative Effects Assessment In summary, Ray and Diane Pearce raise the following points with respect to this topic: • Welcome the Norfolk Vanguard early decision to utilise HVDC as this will have a much lesser impact on the environment than HVAC • Need to address the cumulative environmental and local heating effects of 6GW of electrical energy at the crossing point between the Vanguard, Boreas and Hornsea Three cables including the inter-relationship electrically, thermally and physically • As a result of Hornsea Three retaining HVDC or HVAC technologies, neither the inter-relationships, nor cumulative impacts of the cable crossing point for HVDC & HVDC or HVDC & HVAC have been included in the consultation to date. • Informed that regular discussions between the Vanguard and Hornsea Three project teams regarding how the project teams intend to cross the cables, however this is subject to an NDA and is not disclosed for EIA or Public scrutiny • Requirement for there to be a co-ordinated plan which will affect the relative depth of either	With reference to the SoCG between the Applicant and Hornsea Project Three, (Rep1 – SOCG – 18.1), Norfolk Vanguard and Norfolk Boreas are in the advanced stages of agreeing a Co-operation Agreement with Hornsea Project Three. Whilst the terms of that agreement are confidential, those matters pertinent to construction management and implementation extend to: • The Parties agree to consult one another and keep each other reasonably appraised of key decisions and changes to programme, milestones and upcoming communication with any relevant regulatory body. Further, the Parties shall provide a rolling stakeholder engagement plan to ensure that each party is aware of ongoing engagement with the wider community. This will help ensure that all parties are aware of works ongoing in the area so as to assist with each project's own community liaison initiatives. • The Parties will share all survey works at the point of crossing and/or shared access areas –this will help reduce the number of surveys undertaken and ensure consistency in base survey data utilised by all Parties. • Both Parties will design the cable installation works so as to ensure that the other parties can still

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Vanguard and Boreas' cable trench or Hornsea Three's.	install their cables – for example, if the first project installs the cables by way of open cut trench, that section of trenching will include enhanced thermal conductivity backfill to reduce any potential future thermal interactions with the second project. • Parties will share design specifications when known to help facilitate the design of the other party's cables at the point of crossing. • The Parties will work together to share information and agree mitigation, such as traffic management measures and plans, with the collective aim of minimising the cumulative environmental impact of construction on the local road network, noise management and management of neighbouring Public Rights of Way. • Each Party will grant the other Party rights of access in an emergency. Chapter 33 Onshore Cumulative Impacts of the ES provides a summary of the cumulative impacts assessment and the projects and plans included within that assessment, including Hornsea Project Three. Sheet 21 of the Works Plan (document reference 2.4) illustrates a trenchless crossing zone which has been identified for the potential purposes of trenchless crossing underneath the Hornsea Project Three cables.
Non-Disclosure Agreement (NDA) In summary, the following points are raised with respect to this topic: • The imposition of an NDA is limiting the Vanguard Project managers from providing information on the design engineering of how the cables will cross and interact	The Applicant refers to the response provided under the topic 'Cumulative Effects Assessment' above, in response to this topic.
Electro-Magnetic Fields (EMFs) In summary, the following points are raised with respect to this topic: • Discussion of EMF issues with the Vanguard representatives and their selected specialists from National Grid plc, especially regarding the crossing point. However, still have reservations about the amount of exposure to the Extra Low Frequency (ELF) EMFs generated by the Hornsea Three Project cables if they opt for the HVAC option where they cross with the HVDC cables of Vanguard and Boreas. • There would be no public health issue whatsoever if Hornsea Three were to agree with Vanguard/Boreas and adopt the HVDC option • The DECC Code of Practice is a 'Voluntary Code of Practice' which means it holds no legal	Orsted and Vattenfall jointly commissioned an independent study and resulting report which explores the 'worst case' EMFs which may result where it is proposed the power cables from the offshore wind farm projects will cross. This report was submitted at Deadline 1 (document reference ExA; WQApp12.1;10.D1.3). These assessments represent the worst-case scenario for two crossing points, one where both transmission systems use HVAC technology and the other where both use HVDC technology. It should be noted that this worst case scenario was correct at the time of writing of the report, however Norfolk Vanguard and Norfolk Boreas have subsequently made the decision to deploy HVDC technology. The parameters modelled are conservative as maximum rating, minimum burial depth and most acute crossing angle (45°) were taken

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substance. Should a developer install a transmission system that 'theoretically' meets the "voluntary guidelines" but, in practice, the measured field strengths exceed them, how would we, as members of the public, be able to challenge the developer? • Now Vattenfall have elected to utilise HVDC, there are two further options which need to be modelled, that is: HVAC, 6 Circuits 'On Top' of HVDC 4 Circuits, and, HVAC 6 circuits 'On Bottom' of HVDC 4 Circuits. • The recent representation from Ørsted has claimed that HVDC fields do not interact with HVAC fields however, this is incorrect due to the potential for electric fields in the HVAC cables to be lifted and oscillate. • Where there is doubt, and importantly, lack of scientific evidence to support the argument, the Definitions of Precautionary Principle should be invoked.	and the most highly loaded circuits were located on top, which produced the highest magnetic fields. A summary of the cumulative impact of Hornsea Three, Norfolk Vanguard and Norfolk Boreas found: • For all projects utilising HVAC technology the maximum calculated alternating current (AC) magnetic fields were 50.7µT, which is 14% of the UK exposure limit values (360µT); • The maximum calculated direct current (DC) magnetic fields (if all projects utilised HVDC technology) were 60.8 µT, which is less than 1% of the UK exposure limit (40,000µT). • All of the cable crossing scenarios irrespective of whether DC or AC cable connections are used will be compliant with the UK exposure limits set to protect the health of members of the public against electric and magnetic field exposure. • As the magnetic field is mainly dependant on cable rating, burial depth and phase separation, all cable crossings with similar or less onerous design parameters will also be compliant. The study notes that underground cables, irrespective of frequency, have an earthed metallic shield, which prevents electric fields escaping from the cable. The study advises that if both cable routes that cross use the same power transmission technology, i.e. HVAC and HVAC or HVDC and HVDC, the fields can combine to add or subtract from one another, as has been conservatively studied. However, if different technologies are used, i.e. HVAC and HVDC, the magnetic fields do not interact with one another. In that scenario, the installations of the HVAC and HVDC cables can be considered separately.
Environmental Impact Assessment *"The EIA Directive states that Environmental Statements should include a description of* *"interrelationships" between environmental aspects likely to be significantly affected by a proposed* *development. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Paragraph 5) states that "the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant impacts of the proposed development on the following factors: a) population and human health; b) biodiversity.....; c) land, soil, water, air and climate; d) material assets, cultural heritage and the landscape; e) the interaction*	The Applicant notes that this written representation makes reference to the PEIR. The Applicant would draw attention to the Environmental Statement submitted as part of the Application, which provides information that has been influenced by the Statutory Consultation process. The Applicant refers to the response provided under the topic 'Cumulative Effects Assessment' above, in response to this topic.

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between the factors referred to in sub-paragraphs a) to d).” " By omitting the interrelationship of routing the Hornsea Three transmission cables across those of Vanguard and Boreas the conditions of EIA Directive have not been met during the consultation. We ask that the Planning Inspectorate seriously considers why the crossing point was omitted from the PEIR. Also, why are the discussions between Ørsted, Vattenfall and National Grid plc regarding a nationally significant UK infrastructure project, are not fully divulged for public scrutiny?	
Conclusion The Norfolk Vanguard consultation is incomplete and flawed. The allocation of the connection point for the developer to connect to the UK NETS is arbitrary and has been left to another 'for profit' company, namely National Grid plc, to make a nationally important decision which has far reaching consequences and dubious commercial intent. There is a lack of detail and discussion surrounding how and why it is necessary for two competing projects to cross their transmission systems. Most importantly, the Norfolk Vanguard Project consultation allows insufficient consideration for any cumulative effects, interrelated effects, or, more importantly, any environmental impact for the cable crossing point. We implore the Planning Inspectorate to reconsider and co-ordinate the routing of off-shore wind farm transmission cables before rural Norfolk is subjected to a prolonged, damaging and disruptive programme of cable laying by successive developers intent on profiteering from permissive legislation.	The Applicant refers to the responses provided under prior topics above.

2.4 Natural England (REP 106)

5. Natural England (NE) has submitted the following supporting documents with their Written Representation which the Applicant has reviewed

- Annex A: NE response to ExA WQs Final:
  - The Applicant has provided comments on Natural England's responses to ExA written questions (document reference ExA;WQR;10.D2.3).
- Annex B: Natural England detailed advice on offshore ornithology:

- The detailed advice from Natural England and the Applicant's response is summarised within the table below.

- Annex C: Natural England detailed comments on Benthic Ecology and Habitats Regulation Assessment for Haisborough Hammond and Winterton Special Area of Conservation (SAC):
  - The Applicant's response to Natural England's detailed comments on Benthic Ecology is provided in Appendix 1 (document reference ExA;WQRApp1;10.D2.3);
  - The Applicant held a meeting with NE on 22 January 2019 to discuss matters that are currently not agreed. The Applicant and Natural England will continue to engage to progress these matters.

- Annex D: Copies of Natural England's Discretionary Advice Service (DAS) response letters to the Applicant on various additional documents:
  - The Applicant's comments on Natural England's response to the Change Report is captured in the Applicant Responses to the ExA's Written Questions (document reference ExA; WQ; 10.D1.3) Q1.2 and Q23.47.
  - Natural England's Discretionary Advice on the following Appendices to the SoCG has informed the position within the SoCG and discussions are ongoing regarding outstanding matters:
    i. Appendix 1 Clarification Note – Coastal Erosion;
    ii. Appendix 2 Clarification Note - Water Dependant Designated Sites.

- Annex E: Summary of Natural England Relevant Representations:
  - Natural England's Relevant Representations informed the Statement of Common Ground (document reference Rep1-SOCG-13.1). In addition, the Applicant's response to Relevant Representations was provided at Deadline 1 (document reference ExA; RR; 10.D1.1).

- Annex F Norfolk Vanguard Natural England Comments on Other Parties Relevant Representations:
  - The Applicant has no response on Natural England's Comments on Other Parties Relevant Representations.

- Annex G: Summary of NE Written Representations:
  - The Applicant's response to Natural England's written representation and the associated summary is provided in the table below.

6. Conference calls were held between the Applicant and Natural England on the 22 January and 23 January 2019 to discuss onshore ecology, offshore ornithology and cable protection in the Haisborough, Hammond and Winterton SAC. Discussions will be ongoing throughout the Examination as both parties work to progress topics which are not currently agreed in the Statement of Common Ground.

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Evidence Natural England has some concerns with the standard of evidence provided in support of the application, primarily in relation to birds and Annex I Sandbank and/or Reef features. Consequently Natural England is unable to reach conclusions beyond reasonable scientific doubt in a number of areas.	The Applicant's response to Natural England's comments on offshore ornithology is provided below. Natural England provides detailed comments on Sandbanks and Reef in Annex C of their Deadline 1 submission which the Applicant has responded to in Appendix 1 (document reference ExA;WQRApp1;10.D2.3).
Habitats Regulation Assessment/ Report to Inform Appropriate Assessment NE is unable to agree with the conclusions set out in the HRA/RIAA due to the reasons set out within the Written Representations.	Discussions with Natural England regarding the potential for AEoI are ongoing and the position at Deadline 1 is documented in the SoCG with Natural England (document Rep1-SOCG-13.1). The SoCG will be updated and submitted at Deadline 4.
DCO and DML As stated in our Relevant Representation Natural England has fundamental concerns with several areas of the Development Consent Order (DCO) requirements and the Deemed Marine Licence (DML) licences, and require further suggested conditions based on the conditions set out in the Environmental Statement and the Habitats Regulations Assessment. These concerns were set out in detail in Appendix 5 of the Relevant Representation There has been no further engagement with the Applicant in relation to DCO or DML and therefore our concerns remain the same.	The Applicant has reviewed Natural England's Relevant Representation and where the Applicant is in agreement with Natural England, the DCO has been updated and is provided with the Deadline 2 submission. Discussions with Natural England are ongoing and the SoCG will be updated where applicable.
Offshore Ornithology Natural England was unable to advise beyond all reasonable scientific doubt that the project both alone and in-combination would not have an adverse effect on site integrity for the relevant SPAs.	Evidence in support of the Applicant's conclusions was presented in the ES and Information to support the Habitats Regulations Assessment (HRA). Further evidence on these matters was subsequently submitted (following NE's Written Representation) in support of the Applicant's position on these matters, and this includes the responses to the ExA's First Written Questions (document reference ExA; WQ; 10.D1.3) and supporting notes submitted for Deadline 1. (The Applicant acknowledges that this represents further information not previously seen by Natural England when this Written Representation was submitted). On this basis, the Applicant considers that adverse effects can be ruled out both for the project alone and in-combination.
Natural England was unable to advise with certainty that the project will not have a significant impact on a number of seabird species in an EIA context, namely red-throated diver, gannet, kittiwake, guillemot, razorbill, puffin, herring gull, lesser black-backed gull, and greater black-backed gull.	Evidence in support of the Applicant's conclusions was presented in the ES. Following receipt of Natural England's Written Representation further evidence has been provided in support of the Applicant's position, which includes the responses to the ExA's First Written Questions (ExA; WQ; 10.D1.3) and supporting notes submitted for Deadline 1. (The

Summary of Written Representation	Applicant's Response
	Applicant acknowledges that this represents further information not previously seen by Natural England when this Written Representation was submitted). On this basis, the Applicant considers that the project will not have a significant effect on these species either alone or cumulatively.
Natural England identified a number of methodological issues in relation to the offshore ornithological assessment, particularly the type of modelling used in displacement estimates. The key issues are: a. Seasonal definitions for lesser black-backed gull (LBBG) and gannet; b. Seasonal apportionment of impacts for HRA in non-breeding seasons to the relevant SPA colonies and in the breeding season for LBBG at the Alde-Ore Estuary SPA and kittiwake at the Flamborough and Filey Coast (FFC) SPA; c. Assessment of displacement impacts regarding consideration of uncertainty and variability and red-throated diver assessments;	The Applicant has either addressed Natural England's points in documents submitted at Deadline 1 or will be providing further supporting documentation for future deadlines as follows: a) Assessment for lesser black-backed gull in the Information to support the HRA considered both the migration free and extended breeding season, while the Applicant's response to WQ 23.36 considers the impact on gannet if the extended breeding season is used for assessment. Therefore, the Applicant considers both these aspects have now been addressed. b) Apportioning among Special Protection Area (SPA)'s during the breeding and nonbreeding seasons has been conducted using available evidence and follows the approaches used for previous offshore wind farm applications (e.g. East Anglia THREE). In some cases the population estimates in Furness (2015) have been superseded with more recent counts and, where these are considered reliable, these have been used in preference to the older estimates. Further work is underway to review kittiwake tracking data from the Flamborough and Filey Coast SPA, recently supplied by the RSPB, and this will be reported on and the assessment updated (if necessary) for future deadlines. c) An updated red-throated diver displacement assessment has been submitted as an appendix to the Applicant's responses to the ExA's written questions (Norfolk Vanguard Offshore Wind Farm Offshore Ornithology: Red-throated diver displacement Appendix 3.1, document reference ExA; WQApp3.1; 10.D1.3) which the Applicant considers will address Natural England's outstanding concerns on this matter.

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d. Collision risk modelling (CRM);	d) Additional seabird collision risk modelling assessment has been provided as an appendix to the Applicant's responses to the ExA's written questions (Norfolk Vanguard Offshore Wind Farm Offshore Ornithology: Collision Risk Modelling: update and clarification Appendix 3.2, document reference ExA; WQApp3.2; 10.D1.3) which the Applicant considers will address Natural England's outstanding concerns on this matter. This includes collision predictions using evidence based and Natural England advised rates of nocturnal activity. With respect to non-seabird collision risk, this will be addressed in additional assessment updates to be submitted for future deadlines.
e. Cumulative and in-combination assessments (displacement and CRM); and	e) The Applicant has updated the assessments of displacement in the following submissions for Deadline 1 (Norfolk Vanguard Offshore Wind Farm Offshore Ornithology: Red-throated diver displacement Appendix 3.1, document reference ExA; WQApp3.1; 10.D1.3 and Norfolk Vanguard Offshore Wind Farm Offshore Ornithology: Operational Auk and Gannet Displacement: update and clarification Appendix 3.3, document reference ExA; WQApp3.3; 10.D1.3). The Applicant considers these will address Natural England's outstanding concerns on these matters in relation to the auk displacement due to the project alone and cumulatively. The Applicant intends to provide additional project alone and cumulative/in-combination displacement assessment updates for other species for future deadlines. Updated cumulative collision risk tables were included in the Applicant's Section 51 response (Norfolk Vanguard Offshore Wind Farm The Applicant's Response to Section 51 Advice from the Planning Inspectorate, Document reference PB4476-008-001). The Applicant provided additional collision risk estimates in response to Natural England's comments in their relevant representation (Norfolk Vanguard Offshore Wind Farm Offshore Ornithology: Collision Risk Modelling: update and clarification Appendix 3.2, document reference ExA; WQApp3.2; 10.D1.3). This update and clarification note provided alternative model outputs (as requested by Natural England), however, since the Applicant considers the mortality predictions presented in the original assessment (ES) remain appropriate, the cumulative tables provided in the Applicant's response to section 51 advice (cited above) remain valid (although the estimates for other wind farms currently in planning may change).

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f. Population modelling approaches (Environmental Impact Assessment, EIA and Habitats Regulations Assessment, HRA).	f) The Applicant acknowledges the aspects of population modelling which Natural England has raised, and has provided responses on this matter for WQ 23.26.
Benthic ecology and protected sites Natural England is unable to agree with the conclusions within the Habitats Regulation Assessment that there will be no adverse effect on the integrity of Haisborough Hammond and Winterton SAC Annex I sandbanks and reef features both alone and in-combination. These concerns primarily relate to: • Impacts from sandwave levelling; • Scour prevention and cable protection; • Impacts on Sabellaria spinulosa reef; and • Boulder clearance.	Natural England provided detailed comments on Sandbanks and Reef in Annex C of their Deadline 1 submission which the Applicant has responded to in Appendix 1 (document reference ExA;WQRApp1;10.D2.3). The sections below are included in Natural England's Written Representation but are not raised in Annex C. It should be noted that Natural England's Annex C and the Written Representation make mention of *'sensitive' cable protection, beneficial effects of cable protection, routing through 'low' reef,* and *removal of cable protection at decommissioning* – these concepts **are not** included in the Applicant's documentation; the Applicant believes these provide a pre-emptive position from Natural England based on the Hornsea Project Three Application. Natural England advised in a conference call with the Applicant on 22 January 2019 that these comments were provided to be pre-emptive in nature.
Sandwave levelling *Comments discussed in detailed response to Annex C apart from:* • It is also unclear how single build vs. phased build both alone and / or in - combination with Norfolk Boreas has been assessed against the conservation objectives for the site. • Therefore, due to the limited amount of supporting evidence and uncertainty in the cumulative/in-combination assessment Natural England is still unable to advise beyond reasonable scientific doubt that there will be no adverse effect on site integrity of Haisborough Hammond and Winterton Annex I sandbanks.	Regardless of whether the project is installed in a single or two-phased scenario, the export cable installation will be undertaken for one cable pair at a time and therefore the main difference between the scenarios would be the duration between the installation of one HVDC cable pair and the next. The export cable corridor is in a dynamic environment. The scale of the sand movement through the cable corridor is of such large magnitude that the impact of the bed levelling operations during installation will be of comparatively minimal impact to the form and function of the sandwaves and sand bank feature regardless of the phasing scenario and therefore there would be no adverse effect on integrity (AEoI).
Boulder clearance *(not included in Annex C)* • The figure presented in table 10.12 only includes impacts on Haisborough Hammond and Winterton SAC from removal of boulder. This figure should also include the disturbance likely to occur in the location they are moved to	As noted in the Applicant's response to First Written Questions (Q5.22), given the low proportion of boulders in the area, it is likely that micrositing around boulders would be possible. However, as requested by Natural England and the MMO in their respective PEIR responses, the impact assessment includes the potential for boulder clearance in order to be conservative. A conservative allowance for clearing up to 75 boulders (53 in the offshore wind farm sites and 22 in the offshore cable corridor) of up to 5m in diameter has been included in the assessment.

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	The area of temporary disturbance as a result of boulder clearance in the offshore wind farm sites assessed in the ES based on these assumptions is 0.001km^2, which the Applicant deems to be conservative. The area vacated by the boulder is highly likely to become consistent with the wider area and that lost by the new boulder location and therefore there is no net change in habitat availability, resulting in a temporary effect. However, if this were to be 0.002km^2 as suggested by Natural England, to reflect the area vacated plus the area on which each boulder is placed, the total overall temporary disturbance footprint would be 16.120km^2 rather than 16.119km^2 (either way, rounded to 16.1km^2 as per ES Chapter 10 Benthic Ecology, Table 10.12 Impact 1A). Likewise, the area of boulder clearance in the offshore cable corridor assessed in the ES is 0.0004km^2. However, if this were to be 0.0008km^2 as suggested by Natural England, the total overall footprint in the offshore cable corridor would be 6.0729km^2 rather than 6.0724km^2 (either way, rounded to 6.1km2 as per ES Chapter 10 Benthic Ecology, Table 10.12 Impact 1B). There would therefore be no change to the conclusions of the assessment as the temporary effect associated with boulders is negligible. Pre-construction surveys required under dDCO Schedules 9 and 10 Part 4 Condition 20(2)(b) and Schedules 11 and 12 Part 4 Condition 13(2)(b) would identify any requirement for boulder clearance within the offshore project area.
Physical Processes	
Benthic and Physical processes *Comments discussed in detailed response to Annex C apart from:* • Natural England disagrees with some of the Sensitivity data presented in table 10.7.2, for example, coarse sediment has high sensitivity to habitat change as does subtidal sand.	The Applicant believes Natural England is referring to Table 10.17 of ES Chapter 10 Benthic Ecology. The Applicant would welcome confirmation of the information source/reference Natural England is referring to in its assertion that all coarse sediment and subtidal sand should be classified as having high sensitivity. Tillin & Tyler-Walters[1] (2013) provides a review of the sensitivities of UK subtidal sedimentary habitats to pressures associated with human activities on behalf of the JNCC. The review focusses on the sensitivity of the ecological groups of species associated with a habitat.

[1] Tillin, H, Tyler-Walters, H. 2013. Assessing the sensitivity of subtidal sedimentary habitats to pressures associated with marine activities. Phase 1 Report: Rationale and proposed ecological groupings for Level 5 biotopes against which sensitivity assessments would be best undertaken JNCC Report No. 512A

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	Example conclusions for the impact of habitat change on ecological groups that are of relevance to Norfolk Vanguard include:
	• Mobile epifauna, mobile predators and scavengers
	  ○ *"it is noted that Asterias rubens and Pagurus bernhardus are found on hard substratum including bedrock and boulders and would not be excluded by an increase artificial substratum"*
	  ○ The group is assessed as 'Not Sensitive'
	• Small- medium suspension and/or deposit feeding polychaetes:
	  ○ *This ecological group would be highly sensitive to a change to hard substratum as this would result in the loss of suitable habitat for this ecological group*
	• Small epifaunal species with robust, hard or protected bodies:
	  ○ *"it is noted that this ecological group is able to colonise artificial substratum"*
	  ○ The group is considered 'Not Sensitive'.
	The Applicant therefore maintains that coarse sediment (including the biotopes SS.SCS.CCS, SS.SCS.CCS.MedLumVen and SS.SCS.CCS.Pkef which were recorded in the Norfolk Vanguard offshore project area) are categorised as low to high sensitivity as shown in Table 10.17.

Coastal processes • At the Relevant Representation stage Natural England raised concerns regarding erosion rates at Happisburgh landfall site (paragraph 5.4.1 – 5.4.6). The Applicant provided a clarification note on 30 November 2018 (Appendix 1 – Coastal erosion Clarification). • Natural England has reviewed this document and is satisfied that the specific issues raised in previous correspondence relating to the assessment of coastal Erosion at Happisburgh have been resolved.	The Applicant welcomes Natural England's revised position.
Marine mammals	
At the Relevant Representations stage Natural England raised a number of issues regarding potential impacts to marine mammals. We have since had discussions with the Applicant regarding some of those points. Areas of agreement between Natural England and the Applicant are included in the draft SoCG provided by the Applicant. For any points not agreed in the SoCG, the submissions made in the Relevant Representations	• The dDCO (Schedules 9 and 10 Part 4 Condition 14(m) and Schedules 11 and 12 Part 4 Condition 9(l)) states: "*In the event that driven or part-driven pile foundations are proposed to be used, the licenced activities, or any phase of those activities must not commence until a site integrity plan which accords with the principles set out in the in principle Norfolk Vanguard Southern North Sea candidate Special Area of Conservation Site Integrity Plan has been submitted to the MMO and the MMO is satisfied*

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are still valid and should be considered as outstanding points of concern. These relate to: • The management of cumulative noise impacts on the Southern North Sea SCI from both piling and UXO activities; • Southern North Sea SCI HRA assessment in-combination with other plans or projects; • Effectiveness of UXO mitigation; particularly in relation to the largest UXOs.	*that the plan, provides such mitigation as is necessary to avoid adversely affecting the integrity (within the meaning of the 2017 Regulations) of a relevant site, to the extent that harbour porpoise are a protected feature of that site."* This provides the commitment that construction cannot commence until the MMO agrees there would be no AEoI on the Southern North Sea Site of Community Importance (SCI), and therefore allows the Information to Support HRA report to conclude that there would be no AEoI. • The Norfolk Vanguard in-combination assessment provided in the Information to Support HRA report includes the projects considered in the Review of Consents (RoC) and takes a more conservative approach to the in-combination scenarios. • Unexploded ordnance (UXO) clearance is not included within the DCO application. A Marine Licence application will be completed pre-construction following the UXO surveys and once the nature and extent of UXO clearance is known. A Marine Mammal Mitigation Protocol for the UXO clearance works will be submitted with the Marine Licence application.
Fish and Shellfish Ecology	
Natural England noted concerns in its Relevant Representation (paragraph 5.3.1) that no further monitoring or independent surveys are proposed regarding fish and shellfish ecology within the In Principle Monitoring Plan. These concerns primarily relate to fish assemblages which form a functional role in the food web for harbour porpoise within Southern North Sea SCI. Natural England's position remains the same as that presented in our Relevant Representation. However, we acknowledge that the Applicant will seek to address these concerns post consent.	The Applicant proposes that given the minor impacts of the project on fish and shellfish ecology, no monitoring would be undertaken. It is agreed with Natural England in the SoCG (document Rep1-SOCG-13.1) that the In Principle Monitoring Plan provides an appropriate framework to agree monitoring post consent.
Decommissioning	
Comments discussed in detailed response to Annex C apart from: NE acknowledges that a decommissioning programme will be required post consent and that this will be agreed at the relevant time under the provisions of the Energy Act 2004. The decommissioning plan should include an assessment on whether in-combination decommissioning impacts have been assessed fully and, if not, request additional information on the impact assessment. NE would welcome a discussion	In accordance with DCO Schedule 1 Part 3 Requirement 14 "*No offshore works may commence until a written decommissioning programme in compliance with any notice served upon the undertaker by the Secretary of State pursuant to section 105(2) of the 2004 Act has been submitted to the Secretary of State for approval."* It is standard practice for the decommissioning programme and associated impact assessments to be reviewed (and updated if necessary) prior to decommissioning occurring.

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with the Applicant on the potential for in-combination impacts at that time.	
Contract for Difference (CfD)	
In relation to discussions about Contract for Difference (CfD) potentially influencing how much of the consented project is built out and therefore influencing the electrical system used for the whole project or as two separate phases; Natural England requests that there is a requirement for all Applicants to formally and legally notify the regulators, and the SNCB, that all construction works have completed and no further phases of construction will commence. This is to ensure that monitoring plans and ongoing requirements for the development take proper account of future works and to ensure clarity on when operations and maintenance phase has begun to allow related conditions to be enforced. However, this will also have an additional benefit to the wider industry in that it will release any remaining Mega Watt capacity in order for the Habitats Regulations Assessments to be revised/use best available information allowing possible further headroom for other projects.	The DCO (Schedules 9 and 10 Part 4 Condition 14(1)(b) and Schedules 11 and 12 Part 4 Condition 9(1)(b)) requires a construction programme and monitoring plan to be submitted to and approved in writing by the MMO prior to construction. This must include an indicative written construction programme for (where relevant under the respective DML) all wind turbine generators, accommodation platforms, meteorological masts, measurement buoys, cables, offshore electrical platforms and cables. As part of the construction programme and monitoring plan the Applicant must include *"… (cc) at least four months prior to commissioning, detail of post-construction (and operational) monitoring."* In addition, Condition 8 of the Generation DML (Schedules 9 and 10) and Condition 3 of the Transmission DML requires that the undertaker must give notice to the MMO whether the authorised scheme will be constructed in a single phase or in two phases. As part of the notification, details must be provided in relation to the total number of wind turbine generators, accommodation platforms, meteorological masts, Light Detection and Ranging (LiDAR) measurement buoys and wave measurement buoys to be constructed in that phase. The Applicant therefore considers that the DMLs, as currently drafted, provide certainty over the construction and operational periods of the development and an amendment to the conditions of the DML is not necessary in this instance.
Onshore Ecology and Ornithology	
At the Relevant Representations stage Natural England raised a number of issues regarding potential impacts to onshore ecology and ornithology. We have since had discussions with the Applicant regarding some of those points. Areas of agreement between Natural England and the Applicant are included in the draft SoCG provided by the Applicant. For any points not agreed in the SoCG, the submissions made in the Relevant Representations are still valid and should be considered as outstanding points of concern.	The current position is set out within the SoCG with Natural England submitted at Deadline 1 (Rep1 - SOCG - 13.1). The Applicant held a meeting with NE on 22nd January 2019 to discuss matters that are currently not agreed. The Applicant is currently considering the advice provided by Natural England and will continue to engage to progress these matters.

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In-combination Natural England recommends that an in-combination assessment should be undertaken for Norfolk Valley Fens SAC with Hornsea Three OWF as this cable route passes about 360 m to east of Booton Common and construction periods may overlap.	The Applicant has received advice from Natural England in their review of *Appendix 2 Clarification Note: Norfolk Vanguard Water Dependent Designated Sites* (Appendix 2 to Statement of Common Ground: Rep1 - SOCG - 13.1). The Applicant and Natural England have also discussed aspects of this during a meeting on 22nd January 2019. The Applicant will provide Natural England with further clarification on the water supply mechanisms of Norfolk Valley Fens SAC.
Assessment of Adverse Effect on Integrity Natural England is not able to agree with the conclusion that there is no potential adverse effect on the integrity of the River Wensum SAC, Paston Great Barn SAC and Norfolk Valley Fens SAC in relation to the conservation objectives for the sites due to insufficient evidence.	Issues related to the River Wensum SAC remain under discussion. The current position is set out within the Statement of Common Ground submitted at Deadline 1 (Rep1 - SOCG - 13.1). The Applicant has received advice from Natural England in their review of *Appendix 3 Clarification Note: Norfolk Vanguard Bat Impact Assessment – Paston Great Barn Special Area of Conservation (SAC)* (Appendix 3 to Statement of Common Ground: Rep1 - SOCG - 13.1). The Applicant and Natural England have also discussed aspects of this during a meeting on 22nd January 2019. The Applicant will provide Natural England with further clarification on this issue. As noted above, the Applicant will provide Natural England with further clarification on the water supply mechanisms of Norfolk Valley Fens SAC.
Outline Code of Construction Practice (CoCP) and Outline Landscape and Environmental Management Strategy (OLEMS) There is insufficient detail in the CoCP measures to safeguard River Wensum SAC, Norfolk Valley Fens SAC and The Broads SAC and SSSI in relation to sediment control and reinstatement of all work areas.	Issues related to sediment control remain under discussion. The current position is set out within the Statement of Common Ground submitted at Deadline 1 (Rep1 - SOCG - 13.1). The Applicant and Natural England have also discussed aspects of this during a meeting on 22nd January 2019.
Wintering and Breeding Birds in Wider Countryside There appears to be no detailed noise assessment for disturbance to birds during construction. Sand martin are known to nest in Happisburgh Cliffs which may be affected by noise, vibration and 24hr working (i.e. works involving lighting). The stated distance between nest sites and landfall (130m), *Chapter 25 Onshore Noise and Vibration Table 25.17 Predicted distances at which vibration levels may occur* shows that some vibration may be felt at this distance. Therefore an assessment of potential vibration effects and the significance of this for birds should be evaluated. Natural England suggests that designated sites within 500 m of works are screened in for	Issues related to the noise and vibration effects remain under discussion. The current position is set out within the Statement of Common Ground submitted at Deadline 1 (Rep1 - SOCG - 13.1). Table 25.17 of Chapter 25 Onshore Noise and Vibration lists vibration inducing relevant activities which may lead to vibration and the corresponding distances at which vibration levels may be experienced. The only activity identified within Table 25.17 that is relevant to the works in proximity to Happisburgh Cliffs is vibratory compaction required for the introduction of the haul road for accessing the landfall. Whilst the landfall compound extends to within approximately 130m from the cliffs, the haul road accessing the landfall compound would be set much further back from the cliffs; approximately 300m+. Vibration

Summary of Written Representation	Applicant's Response
assessment of noise disturbance on birds, i.e. River Wensum SSSI, Dereham Rush Meadows SSSI and Dillington Carr, Gressenhall SSSI. Currently it would appear a distance of 300m has been selected as distance criteria for scoping out, but it is unclear where this distance has come from.	effects associated with steady state vibratory compaction would not be experienced beyond 102m based on the information set out in table 25.15 of ES Chapter 25 Noise and Vibration. Vibration effects when a vibratory compactor starts up would be briefly experienced up to 166m away. These effects would be experienced for a few seconds and would not be perceptible at distances beyond 166m. To account for potential noise disturbance a buffer of 300m from designated sites (where birds are qualifying features) was identified and potential noise impacts considered. This was agreed with Natural England in January 2017 (Onshore Wintering Bird Surveys Survey Methodology Approach Update). Beyond this no additional requirement was identified to assess potential disturbance effects.
Water Supply Mechanism Natural England note that there is no information provided on the water supply mechanism for The Broads and Norfolk Valley Fens SACs and how this may be affected by the installation of the cable route. There is also insufficient evidence to assess any impacts which may arise from changes in groundwater flow to component SSSIs of Norfolk Valley Fens SAC. The Applicant supplied a clarification note (Appendix 2 – Water Dependent Designates Sites) on 30 November 2018. Natural England has reviewed this document as part of our submission in this Written Representations, however, the information provided within this clarification note does not contain sufficient information or detail to ascertain potential effects on water dependant designated sites, and does not reference WETMECS as identified by the EA. Therefore Natural England's position remains the same as that presented in our Relevant Representation. Natural England also advises that further information is obtained from Environment Agency and used in a detailed appraisal of groundwater effects.	Issues related to water supply mechanisms remain under discussion. The current position is set out within the Statement of Common Ground submitted at Deadline 1 (Rep1 - SOCG - 13.1). The Applicant and Natural England have discussed aspects of this during a meeting on 22nd January 2019. The Applicant will provide Natural England with further clarification on the water supply mechanisms.
Barbastelle Bats 6.8.15. Natural England considers that there is likely to be an impact on the Paston Great Barn SAC due to loss and severance of foraging and commuting habitat over at least 7 years.	Issues related to barbastelle bats remain under discussion. The current position is set out within the Statement of Common Ground submitted at Deadline 1 (Rep1 - SOCG - 13.1).

Summary of Written Representation	Applicant's Response
6.8.16. To fully assess the impact Natural England would like more information about the 82 m of hedgerow to be removed within 5 km of Paston Great Barn, along with an accurate estimation of the timescale for recovery to previous (or better) condition following installation of the cable trench. The assessment should provide an indication of hedgerow quality for bats, as well as the potential long-term effects on quality with estimated timescales. 6.8.17. Natural England would also like to see an estimation of the importance to bats from Paston Great Barn SAC of the 11 ha of woodland that will be fragmented by the hedgerow removal. The Applicant supplied a clarification note (Appendix 3 – Bat Impact Assessment) on 30 November 2018. Natural England has been unable to review this as part of our submission in this Written Representation due to time constraints and therefore at this time our position remains the same as our Relevant Representation. However, Natural England will review this document for Deadline 2 and if its conclusion/s alter our position will provide an update.	The Applicant and Natural England have discussed this during a meeting on 22nd January 2019. The Applicant will provide Natural England with further clarification.
Use of Topsoil Natural England suggests that it isn't appropriate to treat topsoil from agricultural land as a single resource for stockpiling and reuse isn't appropriate as there are significant differences between topsoil in arable and grassland, valley bottom and valley sides and natural, semi natural and managed land. Therefore topsoil should be reinstated where it originated.	Issues related to topsoil reinstatement remain under discussion. The current position is set out within the Statement of Common Ground submitted at Deadline 1 (Rep1 - SOCG - 13.1). Topsoil would be stored adjacent to the excavated trench. Once the cable ducts have been installed, the section would be back filled and the top soil replaced before moving onto the next section.

2.5 Necton Parish Council (REP 113)

Summary of Written Representation	Applicant's Response
Suggested sites for an accompanied site visit provided as a separate document.	Noted
The Parish Council request an accompanied site visit to the closest field on Ivy Todd Farm to the proposed Necton substation development sites. From this point the topography allows a clear view of the Vanguard and Boreas sites. This will allow PINS representatives to see the context of the proposed development as well as give an idea of the size of the converter buildings with respect to the hedgerows and other potential screening relied on by Vattenfall. It will also show the full extent of the	The Applicant agrees that an accompanied site visit to the closest field on Ivy Todd Farm should be undertaken. The Applicant has proposed five possible locations at Ivy Todd for the accompanied site visit, which are set out in the Applicant's submission at Deadline 1 (document reference: ExA; ASI; 10.D1.5).

Summary of Written Representation	Applicant's Response
National Grid substations when a suitable, naturally screened alternative site is available The site of the plane crash is nearby and the extent of the contamination can also be assessed from this site visit.	
We also request an extension of the site visit to view Top Farm. Top Farm was offered to Vattenfall for sale and the Parish Council thought this location was discounted by Vattenfall without proper consideration or explanation. The PINS representatives will be able to assess the significant reduction of the environmental effects if Vattenfall had selected this site when it was offered to them for sale.	The Applicant has proposed a site in proximity to Top Farm for an accompanied site visit. This site has been suggested to consider potential visibility of the proposed above ground infrastructure. Chapter 4 Site Selection and Assessment of Alternatives of the ES (along with Appendices 4.1 to 4.9 of the ES) (document 6.1.4, and 6.2.4.1-6.2.4.9) provide detailed information on the process for identifying the preferred location for the onshore project substation. Top Farm is located within the substation study area for the site selection exercise. The final onshore project substation location was chosen on the basis that: • The site has good ground conditions, with comparatively low risk from flooding; • The site is deemed to have comparatively less potential impact associated with known buried archaeology; • It poses the lowest potential noise impacts; • It has good potential for the development of screening planting and other mitigation measures that will be provided to help to mitigate the impacts of the development; and • Existing mature hedge lines will be retained and used as natural screening.

2.6 Patricia Lockwood (REP 114)

Summary of Written Representation	Applicant's Response
Patricia Lockwood refers to the Horlock Rules, and how they have been cited throughout Vattenfall's Environmental Impact Assessment Scoping Report. The Written Representation questions whether the Applicant has prioritised the co-location of infrastructure in proximity to existing infrastructure at the expense of a requirement to avoid "sensitive land uses" and whether alternative sites, including Scarning and Top Farm were considered appropriately. She suggests the lives of people living in Necton, will be adversely affected and amenity and homes devalued. The impact which she singles out in particular is noise about which she says: "Dudgeon substation produces an "acceptable" level of	**Siting of the onshore project substation and National Grid substation extension at Necton** The Applicant notes that this Written Representation makes reference to the Scoping Report. The Applicant would draw attention to the ES submitted as part of the Application, and specifically Table 4.3 of Chapter 4 Site Selection and Assessment of Alternatives of the ES which presents how the Horlock Rules have been taken into consideration as part of the development of the onshore project substation. The Applicant would also refer to the response to Q2.1 within the Applicant's Responses to the ExA's Written Questions (doc. Ref. ExA; WQ; 10.D1.3) and Strategic Approach to Selecting a Grid Connection Point (doc. Ref. Pre-ExA; OCP Report; 9.2)

Summary of Written Representation	Applicant's Response
background noise but with additional larger substations it would be very difficult to remain within the legally required noise limit. Extra noise, both operational and during the years of construction is unacceptable". The Written Representation argues that flood risk needs to be given due consideration in relation to the siting of the proposed onshore project substation. A fear of terrorism and fire risk is noted in this Written Representation. The Written Representation highlights a historic F-16 jet crash, and the possibility that contamination remains, below depths disturbed by farming activities over the intervening years. Reference is made in relation to the Arhus Convention, and to the extent and quality of pre-application consultation. Necton, she describes as "a community of families and a large retired population who choose to live in a rural location". She questions how many local people will have the necessary skills to benefit from the type of employment that may be associated with the construction of a large infrastructure project and it's operation.	for further details on the process for identifying a grid connection point, the alternatives considered and the application of the Horlock Rules to refine the scoping area and identify the most appropriate location to site the onshore project substation. The Applicant's EIA process considered all locations within a 3km radius of the existing NG substation, including land pertaining to Top Farm. The information provided by the Applicant in relation to the site selection process describes the environmental and development constraints and opportunities pertinent to all sites within this search area. Regardless of whether or not a property is for sale, the EIA process is the process by which site selection is conducted. During pre-application consultation, members of Necton Substation Action Group (NSAG) expressed the view that they had identified a large, sparsely populated area of land to the east of Necton, close to the point where Vattenfall's proposed cable corridor crosses the 400kV Necton-Norwich overhead line circuits. This area appears to straddle the Parish boundary between Scarning and Bradenham Parish Council (PC)s, and has been referred to as the "Scarning site". The Vattenfall team agreed to consider this proposal, and provided a considered response to NSAG in September 2017.This included the Applicant's recognition of the value of public engagement and acknowledging NSAG members concerns about the potential impact of the projects on their neighbourhood, and welcoming this proposal as a positive and constructive contribution to the project development process. The response noted the alternative Scarning scheme would reduce or eliminate impacts in the immediate vicinity of Necton, however the primary result would be to move the impacts to a different location thereby affecting a different group of residents. The presence of residential properties, designated archaeological assets and potential landscape and visual impacts associated with lack of natural screening and the raised topography and landform of the area preclude the siting of the onshore project substation near Scarning. In conclusion, guided by the EIA process, the existing onshore project substation is the preferred site in terms of environmental and development constraints and opportunities. **Noise** The Applicant refers to the response to Q13.7 within the Applicant's Responses to the ExA's Written

Summary of Written Representation	Applicant's Response
	Questions (doc. Ref. ExA; WQ; 10.D1.3) with regard to noise emissions requirements for the onshore project substation (secured under Requirement 27 of the dDCO) and how noise modelling was used to determine a suitable noise buffer that could be applied to residential receptors to ensure that the noise requirements set out by Breckland Council would be achievable. The residential noise buffer is shown on Plate 1 within Appendix 4.9 of ES Chapter 4 Site Selection and Assessment of Alternatives. Further details regarding noise modelling of the onshore project substation can be found in ES Chapter 25 Noise and Vibration. The Applicant, in agreement with Breckland Council, has committed to operational noise levels associated with the onshore project substation that will not exceed the permitted noise levels of the existing Dudgeon substation, i.e. the cumulative operational noise of Dudgeon and Norfolk Vanguard at the nearest residential properties will not exceed the operational noise of Dudgeon alone. **Flood Risk** Reference can be made to the Applicant's response to Q16.18 within the Applicant's Responses to the ExA's Written Questions (doc. Ref. ExA; WQ; 10.D1.3) and ES Chapter 20 Water Resources and Flood Risk with respect to flood risk and drainage. **Terrorism and emergency response** When mitigating the risk of terrorism, the risk itself must be reasonably foreseeable. No terrorism attack has ever occurred to a substation on UK soil and, on this basis, it is reasonable to say that the risk of terrorism is low. Beyond this, the design and operation of substations are regulated and controlled to the highest health and safety standards; and operators are required to develop emergency response plans and crisis management procedures as part of that regulatory process. **Historic F-16 plane crash** The Applicant has provided a detailed response to this in response to Q12.9 submitted at Deadline 1, and within the SOCG between Norfolk Vanguard Limited and the Environment Agency. The site of a military plane crash near Necton in 1996 has the potential for historic contamination including hydrazine, aviation fuel and carbon composite fibre deposits. A clean up of the site was completed within 5 weeks of the incident by the RAF and the RDAF, which included armament specialists and hydrazine safety experts.

Summary of Written Representation	Applicant's Response
	A potential risk of radioactive material was initially highlighted, however based on the site recovery reports produced by both the RAF and RDAF there is no evidence that radioactive materials were present. The Applicant understands that to date Breckland Council has not classified the land as having a risk of historic radioactive contamination. Breckland Council has a duty to inspect land but there must be reasonable grounds which are defined in the statutory guidance. The Applicant has committed to producing a Contaminated Land and Groundwater Plan for dealing with contamination post-consent. The plan will follow the Model Procedures for the Management of Land Contamination (CLR11) (Environment Agency, 2004) for evaluating the risk of contamination. Any site investigations would be designed to take into account available desk-based information and would be undertaken by appropriately qualified specialists. The written scheme for the management of contamination of any land and groundwater will be submitted and approved by the local authority in consultation with the Environment Agency. This is secured through Requirement 20 of the dDCO which requires a CoCP to be approved by the local relevant planning authority ahead of each phase of the onshore construction works. **Arhus Convention** The Arhus Convention consists of three key "pillars": (a) public access to environmental information, (b) public participation in environmental decision-making and (c) access to justice in environmental matters. The Convention applies these pillars to "public authorities" such as government or national bodies, bodies performing administrative functions under national law or bodies carrying out public services in relation to the environment. In relation to Norfolk Vanguard, the relevant public authorities are the Planning Inspectorate and Secretary of State for Business, Energy & Industrial Strategy who are involved in the DCO application decision, rather than the Vattenfall project companies applying for the DCO. The UK's obligations in relation to public access and participation (pillars (a) and (b) above) are satisfied through provisions of the UK environmental and planning regulations, such as the Planning Act 2008 and Infrastructure Planning (Environment Impact Assessment) Regulations 2009. These stipulate that applicants for DCOs should, amongst other things,

Summary of Written Representation	Applicant's Response
	consult with the local community, publicise the proposed applications and take account of the public responses, consistent with the relevant provisions of the Convention. Vattenfall have consulted and engaged with the public throughout the development of Norfolk Vanguard in accordance with these UK requirements and will continue to do so. **Pre-application consultation** The Applicant has provided a detailed response to this in response to the Relevant Representations submitted at Deadline 1. Since 2016, the Applicant has followed a programme of extensive pre-application consultation with local communities and statutory and non-statutory consultees. This was recorded in the Norfolk Vanguard Consultation Report (document 5.1) which has been submitted as part of the application. The Applicant has responded to comments related to the adequacy of consultation and the consultation process in the Consultation Report (see for example Section 23.4 'Summary of responses received during the statutory consultation period', and Appendix 22.1 - Section 42 Responses). Issues related to the consultation process have been considered in part or in full in the following submission documents: • Chapter 1 of the Consultation Report – Executive Summary • Chapter 4 of the Consultation Report – Regulatory Context • Chapter 17 of the Consultation Report – Overview of Non-Statutory Consultation and influence on the Project • Chapter 23 of the Consultation Report – Responses received under Section 47 of the 2008 Act • Appendix 3.2 of the Consultation Report – Hearing Your Views II (interim consultation report). Plus, also see Hearing Your Views II Summary Report https://corporate.vattenfall.co.uk/globalassets/uk/projects/norfolk-vanguard/summary-report.pdf • Appendix 3.3 of the Consultation Report – Hearing Your Views III (interim consultation report) • Appendix 4.2 of the Consultation Report – FAQ Documents • Appendix 12.4 of the Consultation Report – October 2016 Newsletter • Appendix 12.7 of the Consultation Report – Phase I Non-Statutory Public Exhibition materials • Appendix 12.8 of the Consultation Report – Phase II Non-Statutory Public Exhibition materials

Summary of Written Representation	Applicant's Response
	• Appendix 13.2 of the Consultation Report- March 2017 Newsletter • Appendix 14.1 of the Consultation Report – June 2017 Newsletter • Appendix 14.8 of the Consultation Report – Necton Substation Workshop Presentation • Appendix 14.4 of the Consultation Report – Cable Relay Station Workshop Presentation • Appendix 20.9 of the Consultation Report – Consultation Summary Document • Appendix 20.10 of the Consultation Report- Formal Consultation Public Exhibition Boards • Appendix 20.14 of the Consultation Report – February 2018 Newsletter • Appendix 22.1 of the Consultation Report- Section 42 responses and regard had by the Applicant **Jobs and skills development** The Applicant has provided an outline of the types of economic impacts associated with the development in ES Chapter 31 – Socio-Economics. Further preliminary information with regards preparing the local workforce for direct and indirect (through supply chain development) jobs via engagement with relevant stakeholders and through early development of a Supply Chain Strategy and Skills Strategy can be found in the Applicant's Responses to the ExA's Written Questions Q19.21 and Appendix 19.1.

2.7 Environment Agency (REP 117)

Summary of Written Representation	Applicant's Response
We are pleased that substantial progress has been made on most of the issues that we raised, so that they are now recorded as 'agreed' or 'under discussion' in the Statement of Common Ground. However, the issue of storing spoil in the floodplain is not agreed and remains a concern for the Environment Agency.	The Applicant can confirm that substantial progress has been made and productive discussions have taken place with The Environment agency to move the majority of issues to 'agreed'. This is reflected in the Statement of Common Ground between the Applicant and the Environment Agency submitted at Deadline 1 (REP1 – SOCG – 6.1).
Storage of Spoil in the Floodplain The applicant has proposed that spoil can be stored in the floodplain in separate piles to enable floodwater to pass through the floodplain. This is referenced in the Outline CoCP at Section 3.2 'Construction Site Layout and Housekeeping' at paragraph 45.	The issue of topsoil storage within the functional floodplain remains under discussion. The current position is set out within the Statement of Common Ground between the Applicant and the Environment Agency (REP1 – SOCG – 6.1) submitted at Deadline 1.

Summary of Written Representation	Applicant's Response
This issue is a matter of concern to the Environment Agency because of its potential effects in relation to flood risk and the ecology of waterbodies.	
Flood Risk It is not our practice to permit any activity in the floodplain of a river that could reduce the capacity to store floodwater in a flood event. This is because a reduction in the capacity of the floodplain could cause flood water to extend further or increase flood depth. This could cause areas or properties that would not normally be subject to flooding to suffer flooding in a sufficiently significant flood event; or increase the depth of a flood.	The issue of topsoil storage within the functional floodplain remains under discussion. The current position is set out within the Statement of Common ground between the Applicant and the Environment Agency (REP1 – SOCG – 6.1) submitted at Deadline 1.
Water Quality and Ecology The storage of spoil in the floodplain is also unacceptable in respect of ecology and water quality, this is because in a flood event or periods of heavy rainfall sediment or soil could be mobilised. Norfolk is characterised by a concentration of chalk stream rivers representing 30% of the global quantity. Chalk river beds are important to the ecology of rivers because they provide gravels for spawning fish, without these, important fish species will be unable to reproduce. Mobilisation of soils or sediment in a flood event could cause gravels to be covered over which would damage this important feature. In some events it could cause turbidity of the waterbody. In addition, nutrients present in soils deposited in spoil piles could be released into the river in flood events with the potential to cause enrichment which could create ecological imbalance in the waterbody.	The issue of topsoil storage within the functional floodplain remains under discussion. The current position is set out within the Statement of Common ground between the Applicant and the Environment Agency (REP1 – SOCG – 6.1) submitted at Deadline 1.
Overcoming the Environment Agency's concerns To overcome our concerns, any proposal to store spoil in the floodplain would need to be assessed for each individual location. We will require an assessment to be undertaken for each site where it is proposed to store spoil in a floodplain to determine the impact of spoil piles on flood storage and flood flow; without this we will not permit. In addition, it will be necessary for the landscape and ecological management plan to include procedures to monitor and mitigate for effects during heavy rainfall events when runoff or mobilisation is likely to occur.	The Applicant welcomes the Environment Agency's assistance with progressing the issue regarding spoil storage in the functional floodplain. The Applicant will continue to discuss this with the Environment Agency with a view to moving to an agreed position. An updated Statement of Common Ground will be submitted at Deadline 4.

2.8 Colin King (REP 122)

Summary of Written Representation	Applicant's Response
Vattenfall did not mention respective cable distances of the two options (Norwich Main and Necton). I can only conclude they chose the easy, and longer option. Orsted's project then had no choice, but to route their cable to Norwich. They had to work solutions to all the difficulties that Vattenfall identified. This has resulted in both projects gaining unnecessary cable corridor distance, in the order of 10km total. When asked Vattenfall states, to avoid the sensitive Broads area, the corridor would be the same length as routing to Necton. When I looked at the situation, I used Orsted's route around the Broads and Norwich and came to the 10km conclusion. I think this situation needs qualified, independent investigation, as the cable corridor is no insignificant excavation.	Chapter 4 Site Selection and Assessment of Alternatives of the ES (along with Appendices 4.1 to 4.9 of the ES) (document 6.1.4, and 6.2.4.1-6.2.4.9) and the report titled Strategic Approach to Selecting a Grid Connection Point (document Pre-ExA; OCP Report; 9.2) provide detailed information on both the approach to identifying a grid connection point and the process for identifying, at the identified connection point, preferred locations for the onshore project substation and national grid extension. Further detail is provided in the Applicant's response to Q2.1 submitted at Deadline 1 (ExA; WQ; 10.D1.3).
The intention is to discharge substation runoff and drainage water into the River Wissey tributary, that runs through Ivy Todd. The intended site's land has very little natural drainage as the soil is predominantly clay, and to farm the land, it has all required under draining, which runs into the said stream. I have lived next to the stream for 48 years, and it is common knowledge that it floods. It floods Watery Lane, the Lodge Road regularly, and occasionally one of our fields, and in the early 1980s it flooded our house and buildings, and three other properties. This was before Dudgeon and National grid was built and started draining into it. The engineered mitigation for this is to construct water storage lagoons and discharge into the stream when stream levels are low. As the stream's capacity is critical already, this puts added importance and pressure on the system, which cannot malfunction.	The Applicant has committed to produce a Surface Water Drainage Plan (SWDP), which will be designed to meet the requirements of the National Planning Policy Framework and National Policy Statement EN-1. The drainage strategy will be developed according to the principles of the Sustainable Drainage Systems (SuDS) discharge hierarchy. The appropriate greenfield runoff rate will be agreed through consultation with the Lead Local Flood Authority and the Environment Agency during the detailed design stage. The Applicant has committed to the process outlined above to develop the SWDP, which will form part of the final CoCP and is secured through Requirement 20. No stage of the onshore transmission works may commence until for that stage a CoCP has been submitted to and approved by the relevant local planning authority, in consultation with the Environment Agency.
The visual mitigation to the SE of the national grid connection point and the south of the Vanguard substation seems inadequate. They intend to use native trees, and no earth bunds ("as they would look out of place"). With converter halls 110m long, 20m high and lighting conductors 25m high, this does not add up. Teared planting has been mentioned close to our property, to gain a perspective advantage, and I have a suspicion Vattenfall expects it to be acceptable to plant on our land. As we have only 80 acres to farm. I do not think it unreasonable to say, every meter is needed, and therefor unwilling to use land for this purpose.	Several sites were identified that had the potential to experience significant visual effects due to the construction and operation of the onshore project substation and the National Grid substation extension – walkers on Lodge Lane to the immediate south, and road-users on a very localised section of Ivy Todd Road to the south-west and a section of the A47 to the north. No significant effects were identified on the views of residents from Ivy Todd or Necton. Landscape planting will be implemented on the sites of the onshore project substation and the National Grid substation extension to mitigate localised effects to the south and south east where impacts are predicted.

Summary of Written Representation	Applicant's Response
The situation then arises, that if we refuse any offered tree planting on our land, would that let Vattenfall out of their mitigating obligations, or would they sort to find land between them and us?	Planting would comprise mostly woodland planting that would grow to screen or partially screen this infrastructure. None of the proposed planting will not encroach on Mr King's land. The DCO order limits do not include any land owned by Mr King.
The operating sound situation is unclear to me, with different db levels mentioned for different frequencies, and the distance from the compound that these levels are expected. Then the cumulative effect with Dudgeon, and the A47 road, and the weather conditions for the 24hour background noise monitoring. I have no idea what to expect, and what we are supposed to live with. It has been mentioned that it is acceptable to hear noise in our farm yard, and on our land 400m away from the site, as long as it is inaudible at the house. I could almost agree with this, if the land and yard was far from the house and remote, but as it all joins, and extends from the farm house, it would blight my working day, (every day) and the value of the whole property.	The Applicant, in agreement with Breckland Council, has committed to operational noise levels associated with the onshore project substation that will not exceed the permitted noise levels of the existing Dudgeon substation, i.e. the cumulative operational noise of Dudgeon and Norfolk Vanguard at the nearest residential properties will not exceed the operational noise of Dudgeon alone. It should be noted that the requested wording provided by Breckland Council also forms the basis of DCO Requirement 27 Control of noise during the operational phase.
Vattenfall's book of references 4.3 parts 1-5, lists my deceased father, Colin George King, uncle Paul John King, auntie Jacqueline Ann Claxton, and deceased Grandfather Robert Haydn King as: "persons enjoying easements or rights over land", "claimant under section 10 of the compulsory purchase act 1965", and as "category 2 owners" of and over, all the plots of land, intended for the construction of Vanguard and Boreas substations, the National Grid extension and connection point, the 400kv link cable from substation to the National Grid extension, new pylons, and any cable corridor inbound on Necton Farms Land. We have had no correspondence from Vattenfall specifically on this issue, and we have no idea of their intentions and methods of resolving this situation. I will say now my part of the family is unwilling to trade these rights.	The Applicant thanks Mr King for the clarification in relation to those family members that are deceased. The Applicant has removed these names from the updated Book of Reference (BoR) submitted at Deadline 2. To date there have been no discussions around the acquisition of the rights documented in the BoR as discussions are currently ongoing with the freehold owner of the land to acquire the required land. Upon further review of the conveyance dated 6th April 1981, the Applicant does not believe that the rights held across land owned by Mona Farm included in title NK372483 will be affected by the proposals and therefore there is no intention to interfere with or extinguish these rights.
I would like to mention my dread of disturbing the F16 plane crash site. We lived through the incident. It was on course for our farm, but very fortunately it grounded a few hundred meters before. Never the less, our farm was showered with burning debris, like little candles. Whatever contamination was spread, and buried deep in the crater 22 years ago, I would like to think has eroded, settled and diminished to a non hazardous situation, so we can put the experience behind us. My parents have	The Applicant has provided a detailed response to this in response to Q12.9 submitted at Deadline 1. In summary, the Applicant has committed to producing a Contaminated Land and Groundwater Plan for dealing with contamination post-consent. The plan will follow the Model Procedures for the Management of Land Contamination (CLR11) (Environment Agency, 2004) for evaluating the risk of contamination.

Summary of Written Representation	Applicant's Response
been severely affected by cancer, and it is unavoidable to wonder about a link. Therefore however rational, or not my thoughts are, I do have worries with regard to disturbing the crash site.	Any site investigations would be designed to take into account available desk-based information and would be undertaken by appropriately qualified specialists. The written scheme for the management of contamination of any land and groundwater will be submitted and approved by the local authority in consultation with the Environment Agency. This is secured through Requirement 20 of the dDCO which requires a CoCP to be approved by the local planning authority ahead of each phase of the onshore construction works.

2.9 Diana Lockwood (REP 128)

Summary of Written Representation	Applicant's Response
The Written Representation submitted by Diana Lockwood at Deadline 1 expresses distress and concern in relation to particular aspects of the project, which may be summarised as: • The large size of the proposed infrastructure, its scale in relation to the rural location of Necton, and the perception of associated "life-changing impacts"; • Inadequacy of pre-application consultation, including in relation to the site selection process for the onshore project substation, and alternative sites; • Whether the technology is viable and an effective solution to meeting UK energy needs, even within a ten year time-frame; • Electro-magnetic Frequency radiation; • Disturbance of any hazardous waste that may be associated with the historic F-16 plane crash • In relation to residents in Necton, it is hoped that there will be due consideration given to: "blight, inconvenience, distress, devaluation, the loss of the beautiful countryside", views, the threat of terrorism and flooding (particularly in relation to the stream in Ivy Todd); • In relation to the family's property, it is noted that mitigation planting has been offered by Vattenfall, but suggests it be placed beyond the property boundary, in order to avoid land-loss; and • Suggestion that the project impacts negatively on hopes to diversify the farm business to provide holiday lets.	Issues raised regarding the suitability of the Necton location for the onshore project substation include: site selection, landscape and visual impacts, flood risk, contaminated land and operational noise. The issues raised have been considered within the following submission documents: ES (document 6.1) and DCO documents : • ES Chapter 4 Site Selection and Alternatives; • ES Chapter 29 Landscape and Visual Impacts. Mitigation measures are detailed within the Outline Landscape and Ecological Management Plan (OLEMS; document 8.7); • ES Chapter 19 Ground Conditions and Contamination. Mitigation measures are detailed within the Outline Code of Construction Practice (CoCP; document 8.1); • ES Chapter 20 Water Resources and Flood Risk and Appendix 20.1 - Flood Risk Assessment. Mitigation measures are detailed within the Outline Code of Construction Practice (CoCP; document 8.1); and • Consultation Report (document 5.1). For further detail, please refer to the Applicant's Response to Relevant Representations submitted at Deadline 1: 1.2 Site Selection (ExA; RR; 10.D1.1). **Siting of the onshore project substation and National Grid substation extension at Necton** The Applicant has provided a detailed description of the process which led to site selection near Necton in response to the Written Questions (Q2.1) submitted at Deadline 1 (ExA; WQ; 10.D1.3). The onshore connection point was determined through a

Summary of Written Representation	Applicant's Response
	statutorily mandated process involving both the Applicant and National Grid, to identify a direct connection to the 400kV national transmission system. A report on the Strategic Approach to Selecting a Grid Connection Point for Norfolk Vanguard and Norfolk Boreas (Document Pre-ExA; OCP Report; 9.2, submitted to the Planning Inspectorate on 23 October 2018) provides a summary of the context and work carried out by National Grid and Vattenfall Wind Power Limited (parent company of the Applicant) to select an appropriate location to connect to the National Electricity Transmission System. Further constraints and opportunities for eliminating, reducing or mitigating potential impacts associated with the onshore project substation are being discussed in SoCGs with the following stakeholders: • Norfolk County Council (Rep1-SOCG-15.1); • Breckland Council (Rep1-SOCG-2.1); and • Necton Parish Council (Rep1-SOCG-22.1). **Pre-application consultation** The Applicant has provided a detailed response to this in response to the Relevant Representations submitted at Deadline 1. Since 2016, the Applicant has followed a programme of extensive pre-application consultation with local communities and statutory and non-statutory consultees. This was recorded in the Norfolk Vanguard Consultation Report (document 5.1) which has been submitted as part of the application. The Applicant has responded to comments related to the adequacy of consultation and the consultation process in the Consultation Report (see for example Section 23.4 'Summary of responses received during the statutory consultation period', and Appendix 22.1 - Section 42 Responses). Issues related to the consultation process have been considered in part or in full in the following submission documents: • Chapter 1 of the Consultation Report – Executive Summary; • Chapter 4 of the Consultation Report – Regulatory Context; • Chapter 17 of the Consultation Report – Overview of Non-Statutory Consultation and influence on the Project; • Chapter 23 of the Consultation Report – Responses received under Section 47 of the 2008 Act;

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	• Appendix 3.2 of the Consultation Report – Hearing Your Views II (interim consultation report). Plus, also see Hearing Your Views II Summary Report https://corporate.vattenfall.co.uk/globalassets/uk/projects/norfolk-vanguard/summary-report.pdf ; • Appendix 3.3 of the Consultation Report – Hearing Your Views III (interim consultation report); • Appendix 4.2 of the Consultation Report – FAQ Documents; • Appendix 12.4 of the Consultation Report – October 2016 Newsletter; • Appendix 12.7 of the Consultation Report – Phase I Non-Statutory Public Exhibition materials; • Appendix 12.8 of the Consultation Report – Phase II Non-Statutory Public Exhibition materials; • Appendix 13.2 of the Consultation Report- March 2017 Newsletter; • Appendix 14.1 of the Consultation Report – June 2017 Newsletter; • Appendix 14.8 of the Consultation Report – Necton Substation Workshop Presentation; • Appendix 14.4 of the Consultation Report – Cable Relay Station Workshop Presentation; • Appendix 20.9 of the Consultation Report – Consultation Summary Document; • Appendix 20.10 of the Consultation Report- Formal Consultation Public Exhibition Boards; • Appendix 20.14 of the Consultation Report – February 2018 Newsletter; and • Appendix 22.1 of the Consultation Report- Section 42 responses and regard had by the Applicant. **Need for the project** ES Chapter 2 Need for the Project (DCO document 6.1) outlines the benefits of offshore wind as an energy source including the need for the Project in meeting United Kingdom commitments for renewable energy and wider policy objectives for UK energy security, decarbonisation and economic growth. **Electromagnetic Fields/Radiation** As noted in the Applicant's Responses to Relevant Representations section 1.22 Human Health, the Applicant has considered the potential impacts of EMF as a result of proposed project transmission infrastructure and at the point of connection to the National Grid. The decision to use HVDC technology to transmit power from the wind farm site to the national grid eliminates many potential impacts associated with EMF radiation. The available evidence

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	from studies of humans and animals has been reviewed by Public Health England and internationally by the World Health Organization and the International Agency for Research on Cancer. None of these expert bodies has identified any health risk for humans or animals exposed to DC magnetic fields. A Converter Station is proposed to convert DC to AC power so that it can connect to the National Grid. The DC Converter station requires some specialised equipment which could potentially exceed the exposure limits if located close to the perimeter fence. This will be considered in the detailed design to ensure that the design fully complies with the public exposure limits. In relation to the HVAC cables connecting the onshore project substation (converter hall) to the National Grid substation, Vattenfall's policy is only to design and install equipment that is compliant with the relevant exposure limits. To ensure this, all of the equipment for Norfolk Vanguard, capable of producing EMFs, has been assessed in accordance with the provisions of the Government's Code of Practice on Compliance. Issues related to EMF have been considered in part or in full in the following submission documents: • ES Chapter 27 Human Health (DCO document 6.1); • Information sheet produced by Vattenfall and Orsted relating to EMF, published on the project website: *https://corporate.vattenfall.co.uk/contentassets/bf0e5e31bbab467eaf02040c7b17513a/vattenfall-orsted-emf-information-sheet.pdf ;* and • Chapter 17 of the Consultation Report – Overview of Non-Statutory Consultation and Influence on the Project. **Historic F-16 plane crash** The Applicant has provided a detailed response to this in response to Q12.9 submitted at Deadline 1, and within the SOCG between Norfolk Vanguard Limited and the Environment Agency (Rep1 - SOCG - 6.1). The site of a military plane crash near Necton in 1996 has the potential for historic contamination including hydrazine, aviation fuel and carbon composite fibre deposits. A clean up of the site was completed within 5 weeks of the incident by the RAF and the RDAF, which included armament specialists and hydrazine safety experts. A potential risk of radioactive material was initially highlighted, however based on the site recovery

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	reports produced by both the RAF and RDAF there is no evidence that radioactive materials were present. The Applicant understands that to date Breckland Council has not classified the land as having a risk of historic radioactive contamination. Breckland Council has a duty to inspect land but there must be reasonable grounds which are defined in the statutory guidance. The Applicant has committed to producing a Contaminated Land and Groundwater Plan for dealing with contamination post-consent. The plan will follow the Model Procedures for the Management of Land Contamination (CLR11) (Environment Agency, 2004) for evaluating the risk of contamination. Any site investigations would be designed to take into account available desk-based information and would be undertaken by appropriately qualified specialists. The written scheme for the management of contamination of any land and groundwater will be submitted and approved by the local authority in consultation with the Environment Agency. This is secured through Requirement 20 of the dDCO which requires a CoCP to be approved by the local planning authority ahead of each phase of the onshore construction works. The Applicant continues to seek dialogue opportunities with representatives of the Necton area, via the SoCG with Necton Parish Council (Rep1 - SOCG - 22.1), which is likely to cover the topic of the Historic F-16 plane crash. **Terrorism** When mitigating the risk of terrorism, the risk itself must be reasonably foreseeable. No terrorism attack has ever occurred to a substation on UK soil and, on this basis, it is reasonable to say that the risk of terrorism is low. Beyond this, the design and operation of substations are regulated and controlled to the highest health and safety standards; and operators are required to develop emergency response plans and crisis management procedures as part of that regulatory process. **Flood Risk (in area around onshore project substation)** As noted in the Applicant's Responses to Relevant Representations section 1.15, the Applicant's design of flood risk mitigation at the onshore project substation site will ensure that there will be no negative impact on existing flood risk to the site, or surrounding areas. The onshore project substation

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	and National Grid substation extension drainage strategy will be guided by the principle of Sustainable Drainage Systems (SuDS). The strategy will limit development site surface water run-off to the existing greenfield rate, with sufficient attenuation for rainfall events up to 1 in 100-year probability plus allowance for climate change over the lifetime of the project. Further information can be found in the following submission documents: • ES Chapter 20 Water Resources and Flood Risk (DCO document 6.1); • Chapter 9 of the Consultation Report – The Evidence Plan Process and Phase 0 Early Non-Statutory Technical Consultation; • Chapter 17 of the Consultation Report – Overview of Non-Statutory Consultation and influence on the Project; • Chapter 23 of the Consultation Report – Summary of Responses under Section 47 of the 2008 Act; • Appendix 4.2 of the Consultation Report – FAQ Documents; • Appendix 12.08 of the Consultation Report - Phase II Non-Statutory Exhibition Materials; and • Appendix 22.1 of the Consultation Report – Section 42 Responses and regard had by the Applicant . **Landscape and visual impacts on Necton – HVDC visualisations and mitigation** The Applicant has provided a detailed response to this in response to the Relevant Representations submitted at Deadline 1. The Applicant will work to ensure that mitigation proposed is proportional to the scale of the onshore project substation infrastructure, and that it mitigates the impact on the local area. The key mitigation in relation to landscape and visual impacts of the onshore project substation is its location; the proposed project substation footprint makes effective use of topographic undulations and natural screening. This includes: • Additional mitigation planting to enhance the screening effect of existing hedgerows and woodland blocks in the local area. The location of this planting and photomontages/visualisations are provided in ES Chapter 29 Appendix 29.2 (document reference 6.2.29.2);

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	• Bunds, or earth mounds, will be constructed where possible to increase the base height and maximise the effectiveness of mitigation planting as screening; • Mitigation planting will comprise faster growing 'nurse' species and slower growing 'core' species. Core species with an average growth rate of 250mm per annum will provide 5m to 7m of growth after 20 years which will characterise the woodland structure over the long term. Nurse species would be faster growing (350mm per annum) to provide 7m to 8m of screening after 20 years; and • Where advanced planting can be achieved (in areas not affected by the construction works), this would commence in 2020 (based on the indicative programme outlined in ES Chapter 5 Project Description (DCO document 6.1.5)) which will provide a minimum 3 years of growth prior to commencement of operation which equates to approximately 1.2m of additional growth. This information was also made available pre-examination in the information sheet – Onshore project Substation, accessible via the project website: https://corporate.vattenfall.co.uk/contentassets/bf0e5e31bbab467eaf02040c7b17513a/180- vattenfall-substation-info-sheet.pdf The Applicant continues to seek dialogue opportunities with representatives of the Necton area, via the SoCG with Necton Parish Council, which is likely to cover mitigation of visual impacts. **Blight / devaluation of property and potential future plans for diversification** As noted in the Applicant's Response to the Relevant Representations submitted at Deadline 1, 1.25 – Socio-economics, Tourism & Recreation, 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. **Mitigation planting at land boundary** At Diana Lockwood and family's invitation in early 2018, the Applicant visited the property to discuss additional "layered" planting. The Applicant agreed

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	that layered planting in this instance could offer additional mitigation for potential visual impact at the boundary. A 3m width would be sufficient to establish a hedgerow with hedgetrees or shelterbelt. Should the landowner wish to plant on their land accordingly, the Applicant is willing to consider this further.

2.10 Tony Smedley (REP 132)

Summary of Written Representation	Applicant's Response
The results of the 'Bat Survey' carried out on Vattenfalls behalf were not made public during the consultation period and therefore not open to public scrutiny and/or comment. Appendix 22.4 Bat Survey Activity Report was not published until 31-1-18, and it shows that only one survey was carried out at Necton (30-7-17). This is contrary to the method statement detailing how many such surveys would be carried out. At Necton it was programmed that eight (8) surveys would be carried out. Other locations had typically 5,6,7 or 10 surveys done. Two locations were used for the Necton Bat Survey. These were identified as BACT 35 (OS grid ref TF917102 Necton Wood) and BACT20 (TF904104 Necton). The results were as follows: • BACT35 showed five (5) different species of bat; • BACT20 showed ten (10) different species of bat. Of these ten the following are described as being 'rare'. These species are the Barbastelle, the Serotine and the Nathusius Pipistrelle. In addition the Myotis SP could be rare; and • BACT20 is described as being of a 'High Habitat Suitability'. BACT35 is described as being of a 'Medium Habitat Suitability'. Refer to Vattenfall documents Appendix 22.4 Bat Activity Survey Report version 1 June 2018, and Appendix 9.3 Bat Activity Survey version 1 June 2018.	Bat surveys were undertaken throughout the onshore project area, where access was permitted and where features with potential to support roosting and foraging bats was identified. The bat survey methodology was discussed and agreed with the Onshore Ecology Expert Topic Group, this is detailed within Chapter 22 Onshore Ecology of the ES (document reference 6.1.22). Necton Wood was identified as a feature with good potential to support roosting and foraging bats, and a site survey was undertaken in 2016. The survey identified two bat species in the area: Barbastelle bats (recognised as rare); and Nathusius Pipistrelle bats (an uncommon species). Bat activity surveys were completed on 30th October 2017. However, these weren't completed in time to be fully included as part of Section 42 consultation which began on 27th October 2017. The survey findings up to approximately September 2017 were reported on within the Preliminary Environmental Information. The assessment presented within Chapter 22 Onshore Ecology was based on a precautionary approach: i.e. where survey access was not possible the assessment assumes that relevant receptors were present – that is that the area is important for all bat species.
Vattenfall Peir Documents state that 1km of hedging will need to be removed at the construction site of the Onshore Substation at Necton. Mitigation planting will not replace the environmental loss of the existing mature hedges and will make a significant impact on the local animal life.	Construction of the onshore project substation will 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 the further temporary loss of approximately 400m of hedgerow (of which 130m is species-rich hedgerow with trees, and 270m species-rich hedgerow). The National Grid substation extension will result in a potential temporary loss of approximately 210m of species-poor hedgerow (100m of which is with trees).

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	This is set out in section 22.7.6.1.3 of ES Chapter 22 Onshore Ecology. In total there would be 390m of permanently lost hedgerow and 610m of temporarily lost hedgerow (which will be reinstated in the same location it was removed from) at the onshore project substation and National Grid Extension. The proposed planting is shown on Figures 29.9a and 29.10b of ES Chapter 29 Landscape and Visual Impact. This shows the extent of new hedgerow and woodland planting. These are typically corridors of hedgerow and woodland planting and represent approximately 1,500m of new woodland / hedgerow corridors. A suite of mitigation measures for hedgerow loss is presented within the OLEMS – document reference 8.7 (DCO Requirement 24). This includes committing to undertaking surveys in any areas where access was previously denied; hedgerow management before, during and after construction to minimise impacts on commuting bats; avoiding mature tree in hedgerows; reinstating all hedgerows affected along the cable route; and ensuring that mitigation planting is designed to replace and improve all ecological connections currently located within the onshore project substation footprint.

2.11 Chris Allhusen (REP 134)

Summary of Written Representation	Applicant's Response
It is noted in the Examination Timetable that ASIs will be undertaken on 25th and 26th March 2019. The sites to be inspected are yet to be identified/published. Our client is keen that these inspections should include the site selected for the substation and converter station to be able to fully understand the impact on the area. If helpfully he would be more than happy to accommodate access to the site. It needs to be remembered that Norfolk Vanguard is one of two substations/ converters stations, the other being Norfolk Boreas, being proposed for the site. To that end I would be gratefully if you can confirm that this will be an ASI.	Noted. These sites are already included the Applicant's proposed ASI locations.

2.12 Oulton Parish Council (REP 141)

Summary of Written Representation	Applicant's Response
To date, no cumulative impact assessments have been published for the proposed shared access route **B1149/The Street** to be used by Vattenfall and by Orsted Hornsea Three to their Main Construction Compound. The development and use of Orsted's compound will have a significant impact on the Vattenfall project - especially as Orsted will be using their main construction compound at Oulton throughout the entire life of their project - potentially 2 x 4 years. OPC has concerns that traffic generated by various agricultural activities that use this route consistently, throughout multiple prolonged harvest periods, have not been adequately taken into account.	The data necessary for the Applicant to undertake a cumulative assessment of traffic impacts taking into account Hornsea Project Three construction traffic was not publicly available at the time the Norfolk Vanguard DCO application was submitted. The Applicant is working closely with Ørsted to identify potential cumulative impacts with Hornsea Project Three. Should additional mitigation measures be required these will be discussed and agreed with the relevant planning authorities. As outputs from this exercise become available, the Applicant will provide an update to the examination. Any traffic mitigation measures identified along shared road links would be secured through each project's final Traffic Management Plans to be developed post-consent, as secured through Requirement 21 and in line with the Outline Traffic Management Plan (OTMP). The current position on these matters is also included within Statements of Common Ground submitted at Deadline 1 with Norfolk County Council (Rep1 -SOCG - 15.1) and Oulton Parish Council (Rep1 - SOCG - 23.1).
OPC has recently met with Norfolk County Council Highways (NCC). NCC have concerns the cable drum sizes initially intended will not be able to be transported along the rural road network. As a result, Orsted have proposed using smaller cable drums. OPC must assume smaller drums will hold less cable and therefore have the effect of increasing the number of HGV deliveries to maintain the volume of cable needed for the project. It is unclear if the empty cable drums are to be returned to the Compound prior to return to port, creating additional abnormal load movements	The dimensions of the cable drums that Hornsea Project Three intend to use is outside of the control of the Applicant.
Vattenfall are proposing to send most of their cable drums directly to the cable routes and only occasionally store cable at the Cable Logistic Area but cable drums will nevertheless go down the LINK 68 /cable route. Will cable drum deliveries also be classed as abnormal loads? Do the traffic numbers include returning empty cable drums? What analysis of current traffic using this route has been done?	Cables drums required for the Norfolk Vanguard cable pull will be transported to site on standard low loaders, i.e. similar dimensions to other heavy good vehicles. No cable drums are proposed to be delivered to site by larger vehicles that would classify as abnormal loads. A detailed assessment of construction traffic numbers using Link 68 (The Street) has been provided within the application. The construction traffic numbers reported on Link 68, include both traffic for the duct installation works and the cable pulling phase (including use of the cable logistics area for full and empty drums) and represent a robust basis for the assessment of potential impacts on Link 68. Peak traffic demand for both the duct installation and cable pulling phases is

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How has the significant, seasonal, and crop-dependent agricultural traffic been assessed? The knock-on effect of significant highway dysfunction could be that existing local traffic and agricultural vehicles re-route through the residential settlement of Oulton Street to avoid the southern part of The Street to the B1149 junction. This would impact severely on residential properties that front directly onto the road, with no footpaths. It must be understood that residents of the settlement of Oulton Street have already almost reached breaking point in their ability to absorb the existing levels of continuous agricultural HGVs passing their homes, and any increase in such traffic would be intolerable.	presented within Appendix 24.7 of ES Chapter 24 Traffic and Transport (DCO document 6.2). The Applicant is aware of the seasonal fluctuations in the baseline traffic numbers related to agricultural activities. The assessment was based on the worst - case scenario. The programming of deliveries will take seasonal fluctuations into account in the final traffic management plan (TMP). The Applicant is working closely with Ørsted to identify potential cumulative impacts with Hornsea Project Three on Link 68. Should additional mitigation measures be required these will be discussed and agreed with the relevant planning authorities. As outputs from this exercise become available, the Applicant will provide an update to the examination. Any traffic mitigation measures identified along shared road links would be secured through each project's final Traffic Management Plans to be developed post-consent, as secured through Requirement 21 and in line with the OTMP.
OPC understand that Vattenfall are proposing a 'pilot vehicle' system for HGVs in and out of their site and are not proposing any modifications to The Street, to enable it to accommodate large vehicles along the access route, in particular low loaders / HGVs. This proposal would have significant implications for existing traffic (especially agricultural). For this to operate along a 1km length, OPC anticipate that significant 'held' traffic would queue back on to the B1149 junction, a clear highway safety issue. • Has this proposal been discussed and agreed with NCC Highways? • Has a safety audit been done on the B1149 junction with reference to the accident record? OPC would point out that a number of accidents have occurred at this point (most recent November 2018).	The Outline Traffic Management Plan (OTMP) (document reference 8.8) Section 1.7.1, sets out the general principles for managing heavy goods vehicles (HGV) movements and sets out a strategy of mobile traffic management (pilot vehicles) to control low HGV demand on lightly trafficked narrow roads. Table 1.6 (Proposed traffic management measures) identifies highway link 68, The Street/Heydon Road as a pilot vehicle route and details the peak hour HGV demand for Stage 2 duct installation works (10 movements) and Stage 3 cable pull, joint and commission (4 movements). Paragraph 76 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 acknowledgement that localised highway improvements may be required to facilitate the use of pilot vehicles. The Applicant is working closely with Orsted to identify potential cumulative impacts with Hornsea Project Three and notes the mitigation scheme currently being promoted by Orsted (Option 1: Passing Places at the Main Construction Compound). The Applicant is reviewing the Option 1 scheme, to ascertain if the scheme or elements of the scheme could be utilised in context of the scale and duration of the Norfolk Vanguard construction traffic demand in isolation. As

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	outputs from this exercise become available the Applicant will engage with Norfolk County Council. ES Chapter 24 Traffic and Transport (document reference 6.1.24), Section 24.6.4, Road Safety sets out the scale and scope of the road safety assessment for the project's traffic and transport study area (which includes the B1149 and the Street). All collision clusters within the study area were identified and assessed to evaluate if Norfolk Vanguard may exacerbate evidenced road safety trends. Collision clusters are defined by Norfolk County Council as "five personal injury collisions occurring within a three-year period in a 50 metre radius for built up areas and a 100 metre radius in non-built up areas". No collision cluster matching these criteria was identified for the B1149.
The residents of 'The Old Railway Gatehouse' (already affected by the cumulative traffic impacts of both projects) would be 'locked in' to a management system around them. • What mitigation proposals do Vattenfall have in respect of this property and in respect of the road hump outside this property that could prevent the use of low loaders delivering to their cable storage site?	The Old Railway Gatehouse is located on The Street at Oulton and the hump refers to the location of an old level crossing. The Applicant is working closely with Orsted to identify potential cumulative impacts with Hornsea Project Three, and notes Orsted's mitigation scheme currently being promoted (Option 1: Passing Places at the Main Construction Compound). The Applicant is reviewing the Option 1 scheme, to ascertain if the scheme, or elements of the scheme, could be utilised in the context of the scale and duration of the Norfolk Vanguard construction traffic demand in isolation. As outputs from this exercise become available the Applicant will engage with Norfolk County Council.
What, if any, analysis has been carried out by Vattenfall on the planning history of the area, and in particular the Appeal Decision in respect of an Anaerobic Digester on the airfield site. (APP/K2610/A/14/2212257)? The use of the southern end of The Street for large numbers of agricultural/HGV traffic and potential highway dysfunction was the key consideration in rejecting that application. This was despite plans for improvements to the informal passing places – which are not in the Vattenfall proposal.	The Applicant has reviewed the planning appeal decision cited by Oulton Parish Council. This is an area that is currently in discussion between the Applicant and Norfolk County Council as Highways Authority. The current position of both parties is set out in a Statement of Common Ground submitted at deadline 1 (Rep1 - SOCG - 15.1). In summary, the operational traffic for the proposed anaerobic digester was 112 daily HGV movements during the peak harvest season (based on a 14-hour working day) and would occur throughout the operational life of that development (assumed to be approximately 25+ years). In comparison, the proposed construction traffic for Norfolk Vanguard along Link 68 during duct installation would be 96 daily HGV movements, during a 16 week period in 2022. And a further 6 weeks at 88 daily HGV movements also in 2022.

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	During the cable pull phase 64 daily HGV movements would be required for approximately 20 weeks during 2024. These traffic movements are for construction only and would not occur throughout the operational life of the development.
OPC still doubt the effectiveness of how Vattenfall will manage their traffic and whether the modifications proposed by **Orsted** for The Street are being relied upon by Vattenfall, and are in fact a key part – though undeclared - of their mitigation plans.	Cumulative impacts with Hornsea Project Three and related mitigation are addressed above. The Applicant has set out their approach to traffic management within section 1.7 of the Outline Traffic Management Plan (DCO document 8.8). Management measures (such as the use of pilot vehicles) are preferred where possible to minimise disruption.
Due to other commitments, OPC have only recently been able to arrange a meeting in early February 2019 with Vattenfall representatives to discuss traffic and cumulative impacts as part of a working group. OPC did meet with Vattenfall's traffic and construction engineers as part of the Boreas consultation, but work on a Statement of Common Ground has not been progressed. OPC are however supportive of the use of ducting for the projects and the commitment to HVDC technology.	The Applicant welcomes the opportunity to discuss these issues with Oulton Parish Council, and will reflect these discussions in an updated Statement of Common Ground to be submitted at Deadline 4.

2.13 National Grid Electricity Transmission PLC and National Grid Gas PLC (REP 167)

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National Grid objects to the Authorised Works being carried out in close proximity to their extensive Apparatus in the area. National Grid equally objects to any compulsory acquisition powers for land, rights or other related powers being invoked which would affected their Apparatus, or right to access and maintain their apparatus. This is unless and until suitable protective provisions and any necessary related amendments to the DCO have been agreed and included in the Order.	The Applicant acknowledges the written representation submitted on behalf of National Grid PLC (NG). The Applicant acknowledges NG's objection to the authorised works, and that this is to be maintained until suitable protective provisions and any related agreements have been secured. As is documented in the SoCG (document reference: Rep1 - SOCG - 9.1), the Applicant is committed to continue to work with NG towards an agreed set of protective provisions.
National Grid contends that the proposed Order does not yet contain fully agreed protective provisions expressed to be for the protection of National Grid, and that it is essential that such provisions are addressed to its satisfaction to ensure adequate protection for its assets and statutory undertaking.	In respect of protective provisions, the Applicant is committed to continue to work with NG towards an agreed set of protective provisions that is satisfactory to NG under the terms described in paragraph 6 of the written representation. The Applicant is confident that agreement will be reached before the close of the Examination.

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National Grid shall continue negotiating to resolve the remaining outstanding issues. Should this not be possible, and attendance at a Compulsory Acquisition Hearing or Issue Specific Hearing is necessary, then Cadent reserve the right to provide further written information in advance in support of any detailed issues remaining in dispute between the parties at that stage.	Noted.
National Grid have also commented on the Change Report through the document titled "*Response to Promoters Change Report on behalf of National Grid Electricity Transmission Plc*", in particular against paragraph 89 NG state that they have requested that the promoter seeks permanent rights for the overhead lines to be extended for the full extent of the affected land ownership.	The Applicant is considering this request and is discussing the matter with the affected landowners.

2.14 Peter Soldan (REP 169)

Summary of Written Representation	Applicant's Response
The vast majority of roads between North Walsham and the land fall site at Happisburgh are too narrow and 'soft at the edges' for regular two way HGV traffic. The Happisburgh Road is not suited to two way HGV traffic and moving Mobilisation Area 11 closer to the B1159 will significantly reduce the impact on the local and farm traffic that use this road on a regular basis. Purely from a transport viewpoint the best location for MA11 is adjacent to the B1159, however, this would place it close to houses along that road and create a problem for those residents. A compromise would be to move MA11 300 metres east (from its current position) with the access opposite Back Lane (now called Reed Way). The road is wider between the B1159 and Reed Way; from Reed Way west the road steadily narrows until it enters Ridlington. Also, reducing the distance from the B1159 to MA from 700metres to 400metres would significantly reduce the probability of two way HGV traffic. It would also reduce the time to construct the running road from MA11 to the B1159 and this could then be used for access to the MA; this would remove all construction HGV traffic from the Happisburgh Road.	The OTMP (document reference 8.8) Section 1.7.1, 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 76 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 acknowledgement that localised highway improvements may be required to facilitate the use of pilot vehicles.
I would also wish to re-iterate my support for both renewable energy and the Vattenfall decision to adopt the HVDC solution. Adoption of HVDC has removed the major concerns associated with the project for me and my neighbours. My neighbours	The Applicant welcomes the support for both renewable energy and the project's commitment to HVDC technology.

Summary of Written Representation	Applicant's Response
who live closest to the MA site feel that Vattenfall, having made the HVDC decision should now "be allowed to get on and do it". Opposition to this project would have been significantly greater from the Ridlington/Witton area without the HVDC decision.	

2.15 The Wildlife Trusts (TWT) (REP 172)

Summary of Written Representation	Applicant's Response
Impacts on the Southern North Sea SCI: • TWT does not agree with the SNCB proposed approach to underwater noise management and therefore cannot agree with the results of the assessment, especially for in-combination impacts; and • We are pleased that the applicant has committed to develop an in-principle Site Integrity Plan to ensure that mitigation will be delivered. However, this document requires more detail.	• The Applicant notes that TWT do not agree with the SNCB advice with regards to the management of the Southern North Sea candidate Special Area of Conservation (cSAC)/ Site of Community Importance (SCI). • The In-Principle Site Integrity Plan (SIP) (document reference 8.17) includes a range of mitigation options, such as noise reduction. The In Principle SIP provides a framework for agreeing appropriate mitigation measures and this will be updated with additional details prior to construction, taking into account the final build scenario and best available scientific understanding and guidance at the time The dDCO (Schedules 9 and 10 Part 4 Condition 14(m) and Schedules 11 and 12 Part 4 Condition 9(l)) states: *In the event that driven or part-driven pile foundations are proposed to be used, the licenced activities, or any phase of those activities must not commence until a site integrity plan which accords with the principles set out in the in principle Norfolk Vanguard Southern North Sea candidate Special Area of Conservation Site Integrity Plan has been submitted to the MMO and the MMO is satisfied that the plan, provides such mitigation as is necessary to avoid adversely affecting the integrity (within the meaning of the 2017 Regulations) of a relevant site, to the extent that harbour porpoise are a protected feature of that site.* • This provides the commitment that construction cannot commence until the MMO agrees there would be no AEoI, and therefore allows the Information to Support HRA report to conclude that there would be no AEoI. • The level of information provided in the In Principle Site Integrity Plan and the dDCO conditions (Schedules 9 and 10 Part 4 Condition 14(m) and Schedules 11 and 12 Part 4 Condition 9(l)) are consistent with the approach taken for the consented East Anglia THREE project.

Summary of Written Representation	Applicant's Response
Marine mammal monitoring: • TWT advocates a strategic approach to marine mammal monitoring and is pleased that the applicant is supportive of this approach. However, a mechanism to deliver this is lacking. • TWT advocates the introduction of a conditioned underwater noise levy.	• The IPMP (document 8.12) provides the framework to agree monitoring requirements with the MMO prior to construction. As noted by TWT, Section 4.5.2 of the IPMP acknowledges that there may be little purpose or advantage in site specific monitoring and a strategic approach may be more appropriate. • The Applicant notes TWT's proposed levy however, there is currently no mechanism for a levy to deliver strategic mitigation. This recent draft proposal has not yet been fully consulted on with the Industry, Regulators or Statutory Nature Conservation Bodies.
Inclusion of fishing in in-combination assessments: • Fishing has not been included in incombination assessments. Fishing is a licenced activity that can have an impact on the marine environment. To meet Article 6(3) of the Habitats Directive, fishing must be included in the in-combination assessments.	• By-catch by commercial fisheries is recognised as a long-standing cause of harbour porpoise mortality and is therefore a factor in the existing population. It is therefore considered that it would be 'double counting' to assess commercial fisheries as an additional impact within the CIA while it is also assessed as a feature of the baseline environment. It is acknowledged that the RoC (BEIS, 2018) has attempted to screen in commercial fisheries to the incombination assessments but then concluded that a quantitative assessment is not possible on the basis that there have been no quantified assessments undertaken on the extent of impacts from commercial fishing and therefore information is not available to inform the assessment. The RoC does however note that commercial fishing has occurred within the cSAC/SCI for many years and has had, and will continue to have, direct and indirect impacts on harbour porpoise and that there are no known plans to suggest that the level of fishing within the cSAC/SCI will significantly increase beyond those in the baseline.
Post-consent engagement with the applicant: • TWT is in ongoing discussions with the applicant on post-consent engagement. TWT has built a good relationship with the applicant during the evidence plan process and we wish for this to continue post-consent. However, based on the currently level of proposed engagement by the applicant, we are concerned that post-consent engagement with TWT will not be adequate.	• The Applicant has committed to consulting with TWT in the initial review of the Site Integrity Plan and to provide the updated plan to TWT when it is submitted to the MMO and Natural England for review and approval. At that stage, it is at the MMO's discretion which stakeholders to consult.

2.16 Historic England (REP 183)

Summary of Written Representation	Applicant's Response
Offshore	
Draft Development Consent Order • Address needs updated • Propose that the archaeological written scheme of investigation (offshore) should be submitted at least six months prior to commencement • Amendment requested in text from "statutory historic body" to "Historic Buildings and Monuments Commission for England (Historic England)"	The Applicant has reviewed the requested changes and where the Applicant is in agreement with Historic England, the DCO has been updated and is provided with the Deadline 2 submission. The Applicant believes that the four month time frame conditioned within the DMLs is appropriate and proportionate to allow the MMO, in consultation with stakeholders where relevant, sufficient time for stakeholder consultation and the provision of comments, whilst ensuring no unnecessary delay to the commencement of development. This four month time period is contained on a number of other offshore wind farm DCOs (including The East Anglia Three Offshore Wind Farm Order 2017 and Hornsea Two Offshore Wind Farm Order 2016); it is established as an appropriate time frame and one that ensures the expedient discharge of the relevant conditions attached to the DML. In any event, the Applicant will endeavour to submit plans, programmes, protocols, schemes and/or statements to the MMO in good time and in advance of the four month minimum period. It should also be noted that Condition 15(2) (Generation DMLs) and Condition 10(2) (Transmission DMLs) allows for the determination period to be extended if agreed between the parties.
Draft Development Consent Order Historic England (HE) have also included an Additional Submission dated 17 January 2019 in relation to the definition of 'Commence' within Article 2(1) of the dDCO. • HE disagrees with the definition of '*Commence*' and request that the term is amended to include pre-construction monitoring surveys and site preparation works in order to ensure that the production, agreement and implementation of the WSI occurs prior to initiation of project-related activities.	The Applicant would refer Historic England to the following Conditions and Requirement within the dDCO: • Condition 14(2) of the Generation DMLs (Schedule 9-10) and Condition 9(2) of the Transmission DMLs (Schedule 11-12) stipulate that pre-construction archaeological investigations and pre-commencement material operations which involve intrusive seabed works must only take place in accordance with a specific written scheme of investigation, which is itself in accordance with the details set out in the outline offshore Written Scheme of Investigation (WSI), and which has been submitted to and approved by the MMO; and • Equally, in an onshore context, Requirement 23(5) states that any pre-commencement archaeological investigations must only take place in accordance with a specific WSI which is in accordance with the details set out in the outline written scheme of investigation (onshore), and which has been

Summary of Written Representation	Applicant's Response
	submitted to and approved by the relevant local authority. It is for these reasons that the Applicant considers that the currently definition of *'commence'* is suitable and does not require amendment.
Outline Written Scheme of Investigation (Onshore). Section 5.1, paragraphs 42 and 45 summarises the geophysical survey work that has been carried out to date, and will be carried out in the future to support the proposed development. It would be useful if these sections named the techniques that were utilised. It is stated in Appendix 6 of this document that magnetometry will be used, but it would be useful to include this information in the main text of this outline WSI for clarity.	The Applicant acknowledges Historic England's comment and suggests that this point of clarity can be captured within the subsequent WSIs to be produced post-consent. The pre-application geophysical survey WSI was produced to agree the priority programme, including methodology, of archaeological geophysical survey (magnetometer - gradiometer) undertaken in the pre-application stage. This will form the basis of the methodology to be implemented for additional geophysical survey to be undertaken post-consent.
Section 5.4, paragraph 52 – we agree with the strategy used to position trial trenches, focusing on the anomalies identified through the geophysical survey as well as blank areas.	Noted.
Section 5.4, paragraph 54 – provision should be made for the watching briefs to be extended into an excavation if significant remains are discovered. The time permitted between stripping an area and the excavation taking place should also be stated clearly to ensure that sites are not left open to the elements, as this can result in damage to vulnerable archaeological remains. This point is raised again in Appendix 2 of this document, in Section 1.3, paragraph 17, such that any areas in which sub-surface archaeological remains are identified as being present are not subject to prolonged periods of exposure. We welcome this statement, but a specific time limit will need to be decided upon, building in flexibility to take into any account issues that may increase the rate of damage to a site, such as from poor weather conditions discussed in Appendix 2 of this document (Appendix 2, Section 1.17, paragraph 116).	Noted. The Applicant acknowledges Historic England's comment and suggests that this level of detail will form part of the subsequent WSIs to be produced post-consent.
Section 6.1, paragraph 66 – it is stated that following the completion of fieldwork, a post-excavation assessment would be carried out in accordance with Historic England guidance. We would ask that timings for the work are included in subsequent WSIs in terms of when artefacts will be cleaned and stabilised, and when bulk environmental samples will be processed. A clear timetable is needed to ensure that remains are not left in sample bags/buckets for long periods of time as this can lead to the degradation and loss of	Noted. The Applicant acknowledges Historic England's comment and suggests that setting out a timetable for processing finds and samples etc. will form part of the subsequent WSIs to be produced post-consent.

Summary of Written Representation	Applicant's Response
materials/information that could be obtained from the archaeological remains	
Section 6.4 discussed the strategy to preserve archaeological remains when key remains are identified. We agree with this approach but recommend that the principles and stages presented in the Historic Environment document Preserving Archaeological Remains (2016) are taken into account.	Noted. The Applicant acknowledges Historic England's recommendation and suggests that this will be taken into account (and relevant sections of the document specifically referenced) during the production of the subsequent WSIs to be produced post-consent.
Outline WSI (Onshore), Appendix 2, Section 1.4 discusses the strategy for Hand Excavation of Archaeological Features, including the percentage of different features types that will be excavated. This section discusses how structures will be dealt with (paragraph 25), but does not specify how floor surfaces will be dealt with if found. Floor surfaces need to be approached in a specific way to ensure that remains and features are recorded and sampled in an appropriate manner. This may include the use of micromorphology or chemical techniques.	Noted. The Applicant acknowledges Historic England's comment on approaches to floor surfaces (if found) and suggests that this level of detail will form part of the subsequent WSIs to be produced post-consent.
Paragraph 26 discusses the excavation of human remains. We would stress that the advice given in the APABE/Historic England document 'Guidance for the Best Practice for the Treatment of Human Remains' (2017) should be followed where possible to ensure that spatially distinct samples are collected from the floor of a grave once the human remains have been removed, from the head, torso and leg/foot area of the grave (APABE/HE 2017 Annex S3, paragraph 225).	The Applicant acknowledges Historic England's comment and recommendation with respect to following existing guidance on 'Best Practice Treatment of Human Remains' and suggests that this will form part of the subsequent WSIs to be produced post-consent.
Section 1.6, paragraph 50 states that all finds and environmental samples will be processed as appropriate, but it should be noted that not all remains should be cleaned. For example, organic residues adhering to a pottery shard would be damaged if the pottery was washed. If residues are identified then a specialist should be contacted and the procedures outlined in the Historic England document Organic Residue Analysis and Archaeology (2017) should be followed.	The Applicant acknowledges Historic England's comment and recommendation and suggests that this will be taken into account during the production of the subsequent WSIs to be produced post-consent.
We do welcome the commitment in paragraph 50 to process the assemblage following its removal from the ground but repeat the need to specify a timetable for when this will happen and at what stage of the project	The Applicant acknowledges Historic England's comment and suggests that setting out a timetable for processing finds and samples etc. will form part of the subsequent WSIs to be produced post-consent.
Section 1.7 discusses the Environmental sampling strategy in terms of the contexts that will be sampled and the involvement of specialists on site where necessary. However, the range of	The Applicant acknowledges Historic England's comment and agrees that this level of detail will be

Summary of Written Representation	Applicant's Response
environmental samples that may be taken are not discussed in detail and we would need to see this in subsequent WSIs.	included in the subsequent WSIs to be produced post-consent.
Outline WSI (onshore), Appendix 6 (Priority Archaeological Geophysical Survey) – It is stated in Section 5.1 (page 13) that magnetometry will be carried out across the footprint of the onshore project area, but will provisions be made for the use of additional techniques where necessary? It is also stated on page 14 that surface conditions will be recorded, but we would recommend that weather conditions for each day of survey should also be recorded, as noted in the EAC document Guidance for the use of Geophysics in Archaeology (Schmidt et al. 2016, Section 3.2, page 30). Details of the weather should also be included in the list of information required in the final report that is cited in Section 5.4.	The Applicant acknowledges Historic England's comments and suggests that these points of clarity can be captured within the subsequent WSIs to be produced post-consent. The pre-application geophysical survey WSI was produced to agree the priority programme, including methodology, of archaeological geophysical survey (magnetometer - gradiometer) undertaken in the pre-application stage. This was reviewed and accepted by Norfolk County Council Historic Environment Service and Historic England, prior to survey commencement. This existing WSI will form the basis of the methodology to be implemented for additional geophysical survey to be undertaken post-consent. Where appropriate and proportionate alternative techniques will be considered at targeted locations post-consent, e.g. to supplement and/or provide clarity (where required) on existing data and indications of potential.
Outline Written Scheme of Investigation (Offshore). • The outline offshore WSI provides an overview, but additional information is required in the subsequent detailed WSIs. The strategy outlined in Section 1.7.1 (paragraph 26) is sensible, but much more detail will be required in any WSI produced post-consent. We welcome archaeological contractors involvement in planning future geophysical survey work and suggest the recommended line spacings in this document are utilised in future work. • We are pleased that an archaeological contractor will be involved in future data review and that second archaeology cores are being considered. Additional detail is required specifically about the proposed palaeoenvironmental and dating work. • Section 1.9.6 discusses the use of Divers and/or ROVs to investigate "A2" anomalies in more detail, but it is not clear how the features will be selected for study. We look forward to receiving the detailed method statement to support this work. • The Marine Geophysical Investigations are summarised in Section 1.9.4, but there is no mention of the resolution of information	As noted by Historic England, the need for additional information would be addressed post-consent. The DCO (Schedules 9 and 10 Part 4 Condition 14(1)(h) and Schedules 11 and 12 Part 4 Condition 9(1)(h)) require that an archaeological WSI is provided, to include: *(i) details of responsibilities of the undertaker, archaeological consultant and contractor;* *(ii) a methodology for further site investigation including any specifications for geophysical, geotechnical and diver or remotely operated vehicle investigations;* *(iii) archaeological analysis of survey data, and timetable for reporting, which is to be submitted to the MMO within four months of any survey being completed;* *(iv) delivery of any mitigation including, where necessary, identification and modification of archaeological exclusion zones;* *(v) monitoring of archaeological exclusion zones during and post construction;* *(vi) a requirement for the undertaker to ensure that a copy of any agreed archaeological report is deposited with the National Record of the Historic Environment, by submitting a Historic England OASIS (Online Access to the Index of archaeological investigations) form with a digital copy of the report within six months of*

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obtained from the existing surveys, and if it is suitable to identify features of archaeological interest.	*completion of construction of the authorised scheme, and to notify the MMO that the OASIS form has been submitted to the National Record of the Historic Environment within two weeks of submission;* *(vii) a reporting and recording protocol, including reporting of any wreck or wreck material during construction, operation and decommissioning of the authorised scheme; and* *(viii) a timetable for all further site investigations, which must allow sufficient opportunity to establish a full understanding of the historic environment within the offshore Order Limits and the approval of any necessary mitigation required as a result of the further site investigations prior to commencement of licensed activities.* Information on the resolution of existing surveys is provided in Table 17.8 of ES Chapter 17 Offshore Archaeology and Cultural Heritage and can be added to the final WSI, if required.
In Principle Monitoring Plan. Any offshore IPMP submitted for approval by the MMO should conduct consultation with "relevant statutory bodies" including Historic England so that confirmation can be provided that *"…proposed pre-construction surveys, including methodologies and timings, and a proposed format and content for a pre-construction baseline report;*" are in accordance with an archaeological WSI prepared in consultation with Historic England and agreed with the MMO.	Section 4.10.2 of the IPMP states: *"The principal mechanism for delivery of monitoring is through agreement on the offshore Written Scheme of Investigation (WSI) (as required under [condition 14(h)] of the Generation DML and [condition 9 (h)] of the Transmission DML) and will be agreed with the MMO in consultation with Historic England.."*
ES Chapter 8 Marine Geology, Oceanography and Physical Processes • We note from Table 8.8 (data sources) that the use of terms such as "High" associated with (data) "confidence" is undefined given the disparate nature of the data sources described. • Section 8.6.2 (geology) provides a summary of geological conditions which includes formations which might have potential for geoarchaeological analysis. We will expand on these matters in the comments we offer in reference to the offshore archaeology. We note that the description provided of a "geological sinkhole" (Chapter 17, paragraph 158) does not appear to be included within this chapter. • The Applicant must determine what high-resolution and seabed penetrating survey techniques should be employed to determine whether or not presently unknown (i.e. partially buried or buried) archaeological materials	• In terms of characterising the marine geology and physical process of the Norfolk Vanguard offshore project area, the datasets listed provide high confidence as they provide good spatial and temporal coverage. The quality of this data to inform characterisation of the archaeology of the area is discussed in Chapter 17 Offshore and Intertidal Archaeology and Cultural Heritage; • Paragraph 158 of Chapter 17 refers to an intertidal sinkhole. This is not relevant to Chapter 8 on the basis that "*Norfolk Vanguard Limited has committed to using long Horizontal Directional Drilling 37.(HDD) from an onshore location to the subtidal zone (at least -5.5m LAT). Therefore, there will be no impacts on the intertidal zone*" (Paragraph 37 of Chapter 8); and • As stated above, the monitoring outlined in the IPMP would be delivered through the offshore WSI, to be agreed with the MMO in consultation with Historic England prior to construction in accordance with the DCO (Schedules 9 and 10 Part

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might be present within NV East, NV West or the proposed cable corridor. A revised IPMP would facilitate a survey data acquisition programme through a linked timetable for delivery.	4 Condition 14(1)(h) and Schedules 11 and 12 Part 4 Condition 9(1)(h)).
Chapter 17 – Offshore and Intertidal Archaeology and Cultural Heritage • Historic England ask what are the Terms of Reference for the Evidence Plan Process at this stage of the NSIP cycle?	The Applicant welcomes ongoing engagement with Historic England, however the Evidence Plan Process was established to provide a framework for EIA consultation up to submission of the DCO Application and is therefore complete. The Applicant is committed to continuing consultation with Historic England throughout the Examination, including in the progression of the SoCG (Rep1 - SOCG - 8.1); and in the discharging of relevant DCO consent conditions.
Chapter 17 – Offshore and Intertidal Archaeology and Cultural Heritage • Sub-section 17.4.1.2 (Sensitivity) should have given particular attention to Historic England's Conservation Principles (published 2008). • The wreck just outside the study area should be avoided (Ref: 71480; UKHO ID 79542) • "Long HDD" depth of clearance to avoid jeopardising any archaeological materials. • We do not concur with the assessment of historic seascape character to accommodate change in reference to: "aquaculture"; inshore fisheries"; and "offshore fishing grounds" • Interpretation of the importance of "intertidal assets" / "Findspots" and "potential derived intertidal finds" / "Isolated artefacts and findspots". • With regards to "A2" and "A3" anomalies: o What is the margin of error with "micrositing" that might inadvertently compromise these anomalies? o When avoidance is not possible, commitment that investigation as per the methodological approaches set out in any post-consent WSI will be enacted. • Paragraph 145 provides a partial interpretation of how any Protocol for Archaeological Discoveries should be employed. The protocol is equally applicable to situations in which "chance finds" might be indicative of a wider debris field. • The matter in question is whether or not harm to the significance of the heritage asset has occurred given the design and position of the proposed development in what is considered to be its setting, see Appendix 17.01 (section 3.5 – Assessment of Setting) which explains this point.	The Applicant proposes to address these comments through the SoCG with Historic England (Rep1 - SOCG - 8.1) and would welcome further engagement, initial responses are provided below: • The definitions have been set to be consistent across onshore and offshore assessments for Norfolk Vanguard; • Mitigation, including Archaeological Exclusion Zones would be covered by the offshore WSI to be provided post consent; • The depth of HDD would be determined post-consent based on a range of factors; • The assessment acknowledges that there will be a change in historic seascape character. However, the assessment concludes that the character has the capacity to accommodate change; • This information is taken from ES Appendix 17.1: o "Findspots" - these artefacts have been removed from the area and therefore will not be affected by the development, and as such, these records have no archaeological value; and o Derived artefacts are likely to be of limited archaeological value as individual discoveries. However, the occurrence of a number of seemingly isolated objects within a particular area has the potential to indicate hitherto unknown sites – specifically with regard to the prehistoric finds. *In situ* material would be considered of high importance, although the potential for encountering this during construction is very low. • With regards to "A2" and "A3" anomalies: o The margin of error for micrositing would be considered on a case by case basis following pre-construction surveys, for any anomalies in proximity to construction areas; and o A commitment to investigate any anomalies which cannot be avoided is set out in the

Summary of Written Representation	Applicant's Response
• The approach adopted appears to identify matters that might "*…affect not only the heritage assets themselves but also their settings and the perceptual values associated with the historic seascape character*." In reference to the advice we have provided to you here (see above), it is important to appreciate that the relative significance of a heritage asset may be due to its setting. Furthermore, it is not a matter of "perceptual values", but a perception of historic character as might be associated with a spatially identifiable location. • Table 17.22 should also include East Anglia One North and Two (pre-application) and Hornsea Project Two (post-consent).	draft WSI (document 8.6) and will be confirmed post-consent. • The Protocol for Archaeological Discoveries will apply to any discoveries of archaeological material whether isolated finds or a cluster of finds indicative of a wider debris field; • It was agreed through the Evidence Plan Process (EPP) that the 'setting' of marine heritage assets should be considered more in terms of historic character and group value, than in the traditional sense of impacts to the setting of a heritage asset (i.e. in terms of visual disturbance and the effects of noise, duct etc during construction). Ultimately, only one set of assets was found to have a 'setting' in this sense, with military wrecks in the part of a 20th century wartime setting within the study area, and East Coast region as a whole. The effect to this setting has been described and it is concluded that the construction and operation of Norfolk Vanguard will result in no notable harm to the significance of these assets, which are not clustered in any one location and all are located within the offshore cable corridor. There will be a change to that setting in terms of the presence of the export cable but this will not harm the significance of those wrecks; • The Applicant queries Historic England's distinction between "*perceptual values*" versus "*a perception of historic character as might be associated with a spatially identifiable location*" drawn from disparate interests and therefore different and real "values"; and • It is acknowledged that these projects are part of the wider scale of development in the East Coast region. The conclusions of the cumulative impact assessment are, however, the same with consideration of these two projects.
10. Environmental Statement, Volume 1, Chapter 28 – Onshore Archaeology and Cultural Heritage In general the mitigation strategy that has been proposed appears sensible, but we note that the majority of the work will be carried out post-consent. This may result in some issues that need to be taken into account. For example, previously unknown archaeological remains can be discovered even after an area has been evaluated as the evaluation process only focuses on a small percentage of the overall area. Carrying out investigative works post-consent, but pre-construction will require flexibility to be built into the proposed timetables of work to allow the time needed for previously unknown remains to be	The Applicant welcomes Historic England's advice and appreciates that evaluation (initial informative stages of mitigation) and subsequent mitigation (where required) undertaken pre-construction needs to have adequate time built into the programme. The Applicant also acknowledges that this is the case for any mitigation undertaken at construction.

Summary of Written Representation	Applicant's Response
properly assessed. It is noted that avoidance, micrositing and route refinement will form the backbone of the mitigation strategy, which is good to see, but in some cases avoidance may not be possible. We therefore recommend that the potential of identifying previously unknown archaeological remains of significance are discussed with the Local Authority in terms of the risks that this may pose to the timely completion of the proposed project.	
In section 28.7.6.4 we note that the impact of the development on geoarchaeology/palaeoenvironmental remains and the hydrology of and area are discussed as well as how identified impacts may be mitigated. We were also pleased to see a discussion regarding the potential impact of HDD bentonite slurry outbreak (Section 28.7.6.5) and the impact of heat loss from the installed cables (Section 28.7.7.2). In general the strategies and approaches that will be utilised appear sensible; our detailed comments for the method statements are associated with the relevant appendices and will not be duplicated here.	The Applicant welcomes Historic England's comments.
Environmental Statement: Volume 3, Appendix 17.02: Stage 1 Geoarchaeological Review (offshore) • Amend 'English Heritage' to Historic England. • It is stated in Table 1 that radiocarbon dating will be considered to place the remains into context, but it should be noted that the limit to detection is approximately 50,000yrs BP; deposits expected to be older than this would need to be dated using alternative techniques, such as OSL or amino acid racemisation dating. These techniques have not been discussed in Table 1, but OSL has been mentioned in the subsequent stages of the geoarchaeological work published in the ES (Appendices 17.03 and 17.04).	Comments are noted however the ES and its Appendices are now final. Comments will be incorporated in the Stage 4 Geoarchaeological Review (offshore) reporting where applicable.
Environmental Statement: Volume 3, Appendix 17.03: Stage 2 Geoarchaeological Review (offshore) • 12.1 The stages of the geoarchaeological assessment and recording presented in Table 1 have been updated. We are pleased that OSL is being considered, but note that samples will be collected at Stage 3. We are concerned about this approach as the cores will have previously been split and exposed to light, which deviates from the approach presented in the Historic	Comments are noted however the ES and its Appendices are now final. Comments will be incorporated in the Stage 4 Geoarchaeological Review (offshore) reporting where applicable.

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England document Luminescence Dating (2008). The approach presented here may result in questions being asked about whether the exposure of the split cores to light resulted in the luminescence signal being partially reset (bleached). If this was the case, the dated event may not relate to the archaeological event of interest. • 12.2 If additional cores are collected in the future that require dating using techniques such as OSL, we would recommend that cores are collected and stored in safe-light conditions. By making minor changes to the order in which the different phases of analyses are currently carried out, it will limit the addition of layers of uncertainty to the luminescence chronology and increase the confidence in the resulting dates. • It is stated in Section 4.2.2 that large distances exist between vibrocores. A comment should be included about the reliability of the resulting deposit model and if there are recommendations for additional boreholes to be collected to resolve some of the gaps in our understanding. • Recommendations made in Section 7 are clearly set out with a good explanation of why certain work is needed. We feel that the work proposed for Stage 3 is sensible and appropriate, but refer to our concerns about the use of OSL dating on cores that have been exposed to light.	
Environmental Statement: Volume 3, Appendix 17.04: Stage 3 Geoarchaeological Review (offshore) • The results of the dating programme are summarised and in general we are pleased to see the results of this work as well as a discussion of the limitations. It would be useful to include an additional figure to highlight the position of the OSL and radiocarbon samples selected for dating on the deposit models as this would allow us to see how the dated deposits relate to each other across the sampled boreholes. • Section 4.2 summarises the radiocarbon dating programme, with the results presented in Table 3. The radiocarbon dating certificates should be included in an appendix, and that the delta-13C (δ13C) values should be included in Table 3 as standard as it provides valuable information about whether fractionation or marine	Comments are noted however the ES and its Appendices are now final. Comments will be incorporated in the Stage 4 Geoarchaeological Review (offshore) reporting where applicable.

Summary of Written Representation	Applicant's Response
reservoir corrections should be taken into account. Table 3 needs to be updated to include this information. We would also caution the use of Potamogeton sp. seeds for radiocarbon dating, as the resulting dates may suffer from a hardwater effect that could affect the accuracy of the dates produced. Sample UB-36847 incorporated one Potamogeton sp. seed into the material selected for dating, and so the effects are probably only minimal in this case, but sample UB-36849 exclusively sampled Potamogeton sp. seeds. This should be discussed more in the report in terms of the effect that this may have on the resulting dates, and therefore the interpretations made regarding the chronology. • It is stated in Section 4.3.1 that the cores sampled for OSL dating were previously exposed to light. We refer to our previous comments above on this issue. The full OSL results report (Appendix 2, this document) does not elaborate on this issue, or mention that the sampled cores had been split and exposed to light prior to being sampled for OSL dating. This approach differs from that presented in the Historic England Luminescence Dating (ibid.) guidance document. It would be useful to include a non-technical summary of the results presented in the figures/graphs (either in the full OSL report (Appendix 2) or in the main text of the Stage 3 Geoarchaeological report) as there is a question about how accessible the results presented in the figures are to a non-specialist. • We broadly agree with the recommendations made for further work presented in Table 15 but additional detail is required in terms of what samples will be specifically looked at. We appreciate that a summary has been provided in Table 16 in terms of the number of dates proposed for the Stage 4 palaeoenvironmental analysis, but further details are needed. It would also be good to justify the number of dates recommended at the next phase and whether two OSL dates, for example, is enough considering the issues identified following the initial phase of work.	

2.17 Marine Management Organisation (REP 186)

7. No written representation was submitted by the Marine Management Organisation (MMO), however the following documents were provided which the Applicant has reviewed:

- Response to Change Document and Errata:
  - The Applicant's comments on the MMO's response to the Change Report and Errata is captured in the Applicant Responses to the ExA's First Written Questions (document reference ExA; WQ; 10.D1.3) Q1.2 and Q23.47.
- Summary of Relevant Representation:
  - The MMO's Relevant Representation informed the Statement of Common Ground (document reference Rep1-SOCG-11.1). In addition, the Applicant's response to Relevant Representations was provided at Deadline 1 (document reference ExA; RR; 10.D1.1).
- Response to ExA's Written Questions:
  - The Applicant has provided comments on the MMO's responses to ExA written questions (document reference ExA;WQR;10.D2.3).
- Rule 8 Covering Letter:
  - The Applicant has no response on the MMO's Covering letter

2.18 Addleshaw Goddard LLP on behalf of Network Rail Infrastructure Limited (REP 192)

Summary of Written Representation	Applicant's Response
Network Rail (**NR**) do not agree to compulsory powers being granted or executed in relation to its operational railway land but NR is willing to enter into agreements with the Applicant and protective provisions for the benefit of Network Rail to enable the Proposed Development to be carried out. NR have provided an amended version of the protective provisions for inclusion in Schedule 16. If NR and the Applicant are able to agree the Protective Provisions and the property agreements referred to in the Written Representation then NR will be able to withdraw its objection to the DCO.	The Applicant acknowledges Network Rail (NR)'s position and, as is outlined in the SoCG with NR (document reference: Rep1 - SOCG - 12.1), the Applicant is in discussions with NR to reach agreement on the protective provisions and related property agreement in order to adequately protect NR's apparatus. The Applicant is confident that agreement will be reached before the close of Examination.

2.19 Royal Society for the Protection of Birds (RSPB) (REP 197)

Summary of Written Representation	Applicant's Response
The RSPB's primary concerns about the Norfolk Vanguard proposal result from a number of methodological concerns about the assessment of	The concerns raised by the RSPB relate primarily to the methods used for assessment and the consequent results obtained. As such, the focus of the Applicant's

Summary of Written Representation	Applicant's Response
various impacts and the implications those concerns have for the overall conclusions about the impacts of the Norfolk Vanguard proposal. Our concerns focus on the following aspects: • The impact of collision mortality on the kittiwake population of the Flamborough and Filey Coast SPA alone and in-combination with other plans and projects; • The impact of collision mortality on the gannet population of the Flamborough and Filey Coast SPA alone and in-combination with other plans and projects; and • The impact of collision mortality on the lesser black-backed gull population of the Alde-Ore Estuary SPA alone and in-combination with other projects. • Cumulative collision mortality to North Sea populations of kittiwake and great black-backed gull; and • Cumulative operational displacement to North Sea populations of red-throated diver, guillemot and razorbill. Our key methodological concerns are listed below:	work to address these has been on the methods themselves rather than the specific species and impacts listed here. The RSPB's methodological concerns are summarised in the following rows of this table and a summary of the Applicant's response to each provided.
• Use of Potential Biological Removal in assessment of impacts on SPA populations;	The Applicant acknowledges the RSPB's position with regards the suitability of Potential Biological Removal (PBR) for assessing seabird impacts. The Applicant has not relied on the results of PBR in the assessments, and has only made reference to previous results. In this context, the Applicant considers that PBR outputs can provide a useful indication of the relative scale of impacts and that this forms part of an informative background.
• Reductions in wind farm capacity post-consent;	The Applicant welcomes the RSPB's acknowledgement that reductions in wind farm capacity should be incorporated into cumulative collision assessments and acknowledges the RSPB's point that until the DCO has been amended for a wind farm there may exist a legal possibility that the worst case collision predictions could still be realised. This will depend on the approach to implementing development and whether, for example, additional capacity could be realised through further phases of development. For many wind farms, the Applicant considers that this will not be technically possible within the terms of the consent granted. This 'locked-in' headroom presents an unnecessary roadblock to future wind farm consents.

Summary of Written Representation	Applicant's Response
• Use of an unverified stochastic Collision Risk Model (CRM) which underestimates collision mortality;	The Applicant has provided further validation of the collision risk modelling (CRM) used in the assessment for Deadline 1 (Norfolk Vanguard Offshore Wind Farm Offshore Ornithology: Collision Risk Modelling: update and clarification Appendix 3.2, document reference ExA; WQApp3.2; 10.D1.3) which the Applicant believes will provide the validation the RSPB requires.
• Use of median bird densities within the deterministic CRM;	The CRM note provided for Deadline 1 (Norfolk Vanguard Offshore Wind Farm Offshore Ornithology: Collision Risk Modelling: update and clarification Appendix 3.2, document reference ExA; WQApp3.2; 10.D1.3) includes additional explanation and justification for use of median seabird densities in place of means.
• Use of revised Nocturnal Activity Rates;	There is growing evidence that nocturnal activity rates used in CRM are over precautionary (e.g. for gannet see Furness et al. 2018, Appendix 3.7 to the Applicant's response to first written questions). The RSPB is also part of a group undertaking a similar analysis for kittiwake and this work has already indicated that similar reductions are appropriate for this species as seen for gannet. Detailed analysis has not yet been undertaken for the large gull species (lesser black-backed gull, herring gull and great black-backed gull), however a preliminary review submitted as part of the East Anglia THREE application (MacArthur Green, 2015. Appendix 7 - Sensitivity analysis of collision mortality in relation to nocturnal activity factors and wind farm latitude. Available at: https://infrastructure.planninginspectorate.gov.uk/projects/eastern/east-anglia-three-offshore-wind-farm/?ipcsection=docs) has also found evidence that these species are much less active at night than the rate currently recommended for use in CRM (a point now apparently accepted by Natural England since they are advising applicants to undertake CRM with at both the original and lower rates for gannet, kittiwake, herring gull, lesser black-backed gull and great black-backed gull).
• Use of migration-free breeding season;	Assessment for lesser black-backed gull in the Information to support the HRA (Norfolk Vanguard Offshore Wind Farm Information for the Habitat Regulations Assessment, document reference 5.3) considered both the migration free and extended breeding season, while the Applicant's response to WQ 23.36 considers the impact on gannet if the extended breeding season is used for assessment. Therefore, the Applicant considers that this aspect has been addressed.

Summary of Written Representation	Applicant's Response
• Approach to apportioning of mortality to SPAs for kittiwake and lesser black-backed gull;	Apportioning among SPAs during the breeding and nonbreeding seasons has been conducted using available evidence and follows the approaches used for previous offshore wind farm applications (e.g. East Anglia THREE). Further work is underway to review kittiwake tracking data from the Flamborough and Filey Coast SPA, recently supplied by the RSPB, and this will be reported on and the assessment updated (if necessary) at a subsequent deadline.
• Breeding season gannet avoidance rate of 98.9%;	The Applicant acknowledges the RSPB's position on gannet collision avoidance rates, but note that the SNCBs 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). 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.
• Inclusion of unjustified criticisms of kittiwake tracking data; and	The Applicant's concerns about the kittiwake tracking data were based on the experience of the Applicant's ornithological consultants and reviews of tagging effects on this and similar species. These concerns are therefore not unjustified and should be taken into account when interpreting the tracking data. The Applicant will continue to work with the RSPB to resolve this disagreement and also welcomes the RSPB's provision of kittiwake tracking data collected during 2017. These data will be used to inform the estimates of connectivity between the Flamborough and Filey Coast SPA and Norfolk Vanguard and will be used to update the HRA as necessary.
• Proposal for mitigation of impacts on the Alde-Ore Estuary SPA.	The Applicant has provided further evidence in relation to the efficacy of predator control at the Alde-Ore Estuary in response to the Examiner's first written questions (WQ 3.3(m); Norfolk Vanguard Offshore Wind Farm Applicant's Responses to the ExA's First Written Questions document reference ExA; WQ; 10.D1.3). The information about predator control has been presented in order to illustrate that the estimated impacts from collision mortality at Norfolk Vanguard and other wind farms with potential connectivity to the SPA should be considered in relation to the other sources of mortality acting on the population. However, it is important to note that the assessment for Norfolk Vanguard has demonstrated that the wind farm will not have a significant effect on the lesser black-backed gull population, and therefore

Summary of Written Representation	Applicant's Response
	there is no requirement for the Applicant to commit to any mitigation measures.
• The RSPB disagrees with the applicant's arguments for use of PVA incorporating compensatory density dependence;	The RSPB also considers that there is insufficient evidence to enable density dependence to be included in population models (although the RSPB accepts that density dependence exists). However, this position fails to acknowledge that the Population Viability Analysis (PVA) reports submitted for previous applications (to which the Norfolk Vanguard assessment makes reference) explicitly investigated alternative strengths for its inclusion and used a form that was recommended to the population modeller by the RSPB. In support of their rejection of density dependence, the RSPB make reference to research which has found that density dependence can be depensatory. However, the RSPB fails to add that this form of density dependence was consistently attributed to increased predation pressure acting on small populations. Thus, this argument does not apply to the PVA models for the Flamborough and Filey Coast (FFC) SPA populations of kittiwake (>40,000 pairs) and gannet (>14,000 pairs) and the North Sea population of great black-backed gull (>90,000 individual). It should also be noted that the lesser black-backed gull PVA to which reference was made in the applicant's assessment was only presented as density independent therefore this criticism does not apply to that species.
• The RSPB considers that rates of displacement, displacement induced mortality and buffer widths used in the displacement assessment are insufficiently precautionary;	The Applicant presented evidence in support of the methods used in the displacement assessment (ES and HRA) drawn from the published literature. Further review of the evidence has been conducted since the ES was submitted and this is presented in the following appendices to the Applicant's responses to the first written questions (Norfolk Vanguard Offshore Wind Farm Offshore Ornithology: Red-throated diver displacement Appendix 3.1, document reference ExA; WQApp3.1; 10.D1.3 and Norfolk Vanguard Offshore Wind Farm Offshore Ornithology: Operational Auk Displacement: update and clarification Appendix 3.3, document reference ExA; WQApp3.3; 10.D1.3). These reviews present evidence in support of more realistic (but still precautionary) rates of displacement and consequent mortality and buffer widths.
We therefore do not agree that there is sufficient robust evidence available to support a conclusion of no adverse effect on the integrity of the Flamborough and Filey Coast SPA or the Alde-Ore Estuary SPA, or to rule out significant effects on North Sea populations of kittiwake, great black-	The Applicant acknowledges the RSPB's disagreement on these matters which are addressed individually above and in the Applicant's responses to the Examiners first written questions (Norfolk Vanguard Offshore Wind Farm Applicant's Responses to the ExA's First Written Questions document reference ExA; WQ; 10.D1.3).

Summary of Written Representation	Applicant's Response
backed gull, red-throated diver, guillemot and razorbill.	
The RSPB is concerned that the In Principle Monitoring Plan (IPMP) does not include provision for project level monitoring for offshore ornithology.	The Applicant agrees with the RSPB that studies for offshore wind farm effects on seabirds would assist to reduce uncertainties and precaution in assessments. The Applicant also agrees that in many instances these will need to be conducted at a strategic rather than project level. The IPMP allows for both strategic and project level monitoring (although these need to be considered in relation to the relative magnitude of individual project scale impacts). Monitoring options will be agreed with the MMO in consultation with relevant stakeholders in accordance with Condition 14(1)(l) of the generation DMLs (Schedule 9 and 10) which refer to the Ornithological Monitoring Plan.

2.20 The National Trust (REP 202)

Summary of Written Representation	Applicant's Response
The Trust does not object to the principle of the Vanguard Offshore Windfarm and the accompanying infrastructure. But the Trust has three principal concerns: 1.2.1. the impact of the proposals on the little understood archaeology of the Blickling Estate; 1.2.2. the impact of disturbance to the highway network and the consequent effect on the Trust's visitor based business during the construction period; 1.2.3. the possibility of compulsory acquisition of the Trust's interests in its inalienable land.	Noted
Archaeology	
Paragraph 85 Outline Written Scheme of investigation (WRSI) says "A comprehensive programme of post-consent archaeological survey work (in-line with proportionate and appropriate approaches to be adopted elsewhere across the June 2018 Norfolk Vanguard Offshore Wind Farm onshore project area) is also anticipated to take place across the relevant parts of the wider National Trust Blickling Estate, associated with the onshore project area and onshore works, in consultation with the Trust and NCC HES, due to the subsurface archaeological interests potentially associated with this landscape." There has been little by way of discussion with Vattenfall about the Trust's concerns about archaeology. There has been no formal proposal	Within the Outline Written Scheme of investigation (OWSI) (document reference 8.5) the Applicant has committed to consult with the National Trust in developing the programme of post-consent archaeology survey work anticipated to take place across relevant parts of the Blickling Estate. The OWSI is secured through Requirement 23 of the dDCO which requires that a final WSI be submitted and approved by the relevant planning authority in consultation with Historic England and Norfolk County Council. The Applicant welcomes collaborative working with the National Trust's Archaeologist in this regard to ensure positive outcomes for both parties, in line with the Trust's aims/objectives, duty of care etc. It is envisaged that more detailed discussions will take

Summary of Written Representation	Applicant's Response
agreed as to how that will be manifested in practice, or how the developers will be required to understand that the Trust have a duty of care to protect any remains, designated or undesignated, and to ensure that they are not knowingly destroyed without the care and attention they deserve.	place in the post-consent stages of the project once additional detail is known.
Paragraph 95 of the OWRSI should be altered so that it requires the National Trust to be notified as well as the County Council, if archaeological remains are encountered or suspected during works within the Blickling Estate. Paragraph 81 of the OWRSI should be amended so that the National Trust is added to the consultees on any 'necessary next steps' in the event of a discovery of archaeological remains and on any proposed mitigation (in so far as it is relevant to the Trust's land at Blickling).	The Applicant acknowledges the National Trust's position as a conservation organisation. Whilst all landowners will be notified in a timely manner of findings of an archaeologically significant nature on their land, it is not considered appropriate for the relevant planning authority to consult with landowners on the technical detail of proposed mitigation in the event of archaeological discoveries or as part of the establishment of required archaeological mitigation scopes of work feeding into the post-consent WSIs. The National Trust's Archaeologist will be notified if archaeological remains are encountered or suspected during works within the Blickling Estate. The Trust's Archaeologist would also be included in discussions with respect to required next steps, as secured in the OWSI.
The Trust seek an acknowledgement from Vattenfall that the Trust is in a special position as a conservation organisation and that it would not be the Trust's normal protocol to destroy any buried remains. The Trust wants to work alongside necessary development as appropriate and especially where the development has significant public and environmental benefits. In order to protect its heritage assets, the Trust would ask that the section through the Estate be treated with particular care, given its history. In order to do right by the archaeology, Vattenfall must ensure that objects of historic value are properly excavated and understood prior to their destruction and that information is made available in an engaging way (as well as the standard technical reports which accompany archaeological works).	The Applicant acknowledges the National Trust's position as a conservation organisation as well as landowner in the case of Blickling Estate and will consult with the National Trust in developing the programme of post-consent archaeology survey work anticipated to take place across relevant parts of the Blickling Estate, as secured in the OWSI. Opportunities for public engagement and involvement (where appropriate) can also be discussed with the Trust in developing the programme of post-consent archaeology survey work anticipated to take place across relevant parts of the Blickling Estate. This level of detail would be agreed and included in the subsequent WSIs to be produced post-consent. As well as the comprehensive programme of post-consent archaeological survey work, sensitive backfilling and reinstatement will be undertaken following construction, and field boundaries and hedgerows returned as close as possible to their pre-construction condition.
The National Trust would also like to secure a method (and funding for it) to ensure that recorded information is made available to visitors and the community in a way that enriches their experience and understanding of the Estate. This could be achieved by disseminating information through public engagement such as open days, site tours or local talks held at Blickling or elsewhere,	The OWSI acknowledges the requirement for developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and impact, and to make this evidence (and any archive generated) publicly accessible. The current outline proposals are to deposit the site archive with the Norfolk Museums and Archaeology

Summary of Written Representation	Applicant's Response
opportunities for volunteering with digging or processing. It could include funding for exhibiting archaeological artefacts discovered and for information panels to be displayed, and material to be distributed on social media outlets and other media forums where appropriate.	Services upon completion of all archaeological fieldwork and reporting associated with the project. It will then become publicly accessible. Opportunities for public engagement and involvement (where appropriate) can also be discussed with the Trust in developing the programme of post-consent archaeology survey work anticipated to take place across relevant parts of the Blickling Estate. This level of detail would be agreed and included in the subsequent WSIs to be produced post-consent.
Highway Closures	
Ideally, there should be no temporary closures of Blickling Road or Ingworth Road, but if that is not achievable, the Trust requests that: • Vattenfall should undertake that any temporary closures of Blickling Road or Ingworth Road will be as short as possible in order to meet its requirements for the carrying out of the works; • The undertaker should be required to avoid the temporary closure of Blickling Road or Ingworth Road on weekends and on the days when special events, including concerts, shows and Christmas events take place at the Estate and of which the Trust has given reasonable notice to the undertaker. The Trust suggests a minimum notice period of 6 months (but would in most cases be able to provide 12 months' notice for major events); and • The National Trust should be consulted at the same time as the highway authority about any temporary closure of Blickling Road or Ingworth Road.	Blickling Road and Ingworth Road will both be crossed using open cut trenching. For these two roads traffic management would be employed to allow construction activities to continue safely. Where appropriate, single lane operation of roads would be utilised during installation with signal controls to allow traffic movements to continue. Where the width of the road does not permit single lane operation, alternative methods such as temporary road closure or diversion could be required. To minimise the impact of closures or diversions, night working could be employed. This is detailed within section 5.5.3.3 of ES Chapter 5 Project Description. An OTMP (document reference 8.8) has been submitted as part of the application which captures the transport related mitigation principles for the construction phase of the project. This is secured through Requirement 21(a) of the dDCO which requires that a final TMP be submitted and approved by the relevant planning authority in consultation with the Highways Authority. The OTMP sets out the Applicant's commitments to engaging with affected landowners to consult on the timings and nature of works affecting their land. Section 1.9.2 of the OTMP (document reference 8.8) sets out the strategy for Local Community Liaison as follows: *Norfolk Vanguard Limited will ensure effective and open communication with local residents and businesses that may be affected by noise or other amenity aspects caused by the construction works. Communications will be co-ordinated on site by a designated member of the construction management team. A proactive public relations campaign will be maintained, keeping local residents informed of the type and timing of works involved, the transport routes associated with the works, the hours of likely construction traffic movements and key traffic management measures that would be provided.*

Summary of Written Representation	Applicant's Response
Compulsory Acquisition	
In 1942, the majority of the Estate (including the proposed easement route) was declared "inalienable". This status enables the Trust to live up to its core charitable objective of preserving places of historic interest and natural beauty for the nation, forever.	Noted.
In paragraph 8 of its Statement of Reasons [document 4.01], Vattenfall says that the Trust's interests are excluded from compulsory acquisition in the Book of Reference, and that the Applicant is not seeking to acquire any National Trust land compulsorily. The Trust notes this but as mentioned below, considers that changes should be made to the DCO and the book of reference and undertakings given to make the position clear	The Applicant has removed the exclusion for National Trust's interests in the version of the BoR submitted at Deadline 2. Whilst the Applicant is confident that agreement can be reached with the National Trust it is considered appropriate to amend the BoR given that agreement has not yet been reached.
There have been limited discussions with Vattenfall about granting the necessary rights, thus avoiding the need for the exercise of powers under the DCO. However these discussions remain at an early stage.	Preliminary discussions have been ongoing between the Applicant's legal team and National Trust's legal team regarding the draft Heads of Terms and Option Agreement.
In the absence of an agreement with Vattenfall over the granting of the necessary rights and an undertaking that no compulsory acquisition of inalienable land (including rights over that land) will take place, the Trust objects to the acquisition of its inalienable land.	Noted.
Article 18 of the DCO says "The undertaker may acquire compulsorily so much of the Order land as is required for the authorised project or to facilitate, or is incidental, to it." "Order land" is defined in the draft DCO as "the land shown on the land plan which is within the limits of land to be acquired and described in the book of reference." There appears to be no definition of "the limits of land to be acquired". This could be remedied by including a definition such as "the land shown coloured green, pink or yellow on the land plans".	The definition of Order Land refers to the "limits of land to be acquired and described in the Book of Reference". The BoR further defines the land to be acquired, referring to the Land Plans (document reference 2.2) at paragraph 1.3 and throughout. It also explains the relevance of the colour-coding on the Land Plans. The Applicant notes that the colouring on the Land Plans is not the determining factor in what interests are being sought in each plot. Rather, the whole of the dDCO Part 5, and Schedules 6, 7, and 8 of the dDCO must be read together. It is correct to refer to the BoR, and the Applicant's view is that the wording in Article 18 should stay as it is. The provision quoted is from Article 18(1). The Applicant notes that Article 18(2) states that Article 18 is subject to Article 20 (compulsory acquisition of rights) and Article 26 (temporary use of land for carrying out the authorised project). While Article 18 states that all the Order land (as defined) may be compulsorily acquired, Article 20 qualifies this, stating that where plots are referred to in Schedule 6, the Applicant's compulsory powers are

Summary of Written Representation	Applicant's Response
	limited to the new rights and restrictive covenants described in that schedule. Article 26 operates such that land listed in Schedule 8 (temporary possession) cannot also be compulsorily acquired, except for the acquisition of new rights, or of interests in the subsoil or airspace only of that land. This further limits the scope of Article 18. The interests of the National Trust are scheduled in Schedule 6 (Land in which only New Rights etc. may be acquired) of the Order. The Applicant seeks new rights over this land, being a combination of access rights and rights to install, operate and maintain (and so forth) electricity cables and associated apparatus.
In the "Description of Land" column of the Book of Reference, there are two errors in every case where the Trust is mentioned. First, "Excluding those held" should, presumably, say "Excluding those interests held". Secondly, "of Natural Beauty" should be "or Natural Beauty".	This comment is noted and accepted, however it will now not be relevant following the response above, noting the decision by the Applicant to remove the exclusion of the compulsory acquisition rights over the interests held by the National Trust. The updated BoR has been submitted at deadline 2.
Also in the "Description of Land" column, it does not appear to be necessary to include words like "New rights over" or "Temporary rights over" at the beginning of each description. Whilst those words might accurately describe the interest which is intended to be acquired, the purpose of the column is to describe the land generally. Restrictions on what interests can be acquired can be found in the Order itself.	Noted, however this initial wording has been added to the descriptions to provide further clarity to land interests (when reading the BoR in conjunction with the Land plans) on the land and rights being sought. This is also the approach that has been adopted over a number of previous DCO applications and is an approach that the Applicant considered best practice to follow.

2.21 James Sheringham (REP 209)

Summary of Written Representation	Applicant's Response
Vattenfall's proposal would impact the livelihoods and wellbeing of farmers who rely on the land to make their business profitable and make their living. Listed below are the specific impacts that this project will cause to a large number of farmers and to Norfolk residents: • Soil damage in the wide cable route areas. • Land drains will have to be cut to lay cables, leading to flooding in areas in and around the cable corridor. • Cables heating up the soil impacting on future crop production. • Junction bays have to be installed resulting in further loss of crop able land. • The cable corridor will prevent access to fields and segregate certain areas of fields leading to crop loss.	The Applicant has undertaken an impact assessment specific to land use and agriculture (ES Chapter 21 Land Use and Agriculture document reference 6.1.21). The assessment looks at impacts on drainage, taking agricultural land out of use, degradation of the soil resource, and sterilisation of land parcels. **Soil damage:** Mitigation measures are proposed to reduce any effects from loss of soil resource by erosion and include adherence to the MAFF (2000) Good Practice Guide for Handling Soils and Defra (2009) Construction code of practice for the Sustainable Use of Soils on Construction Sites. These recommend: • Only working in appropriate weather conditions where soil type dictates; • Appropriate soil storage;

Summary of Written Representation	Applicant's Response
• It will cause years of unnecessary mental and financial suffering to farmers and landowners. • Destruction of fully established trees and hedges. • It would force wildlife out of their habitats.	• Maintaining effective drainage systems during construction; and • Ensuring reinstatement of individual areas occurs as soon as practicable after construction. Planting vegetation shortly afterwards. These mitigation measures would be captured in a Soil Management Plan (SMP) that the contractor would be required to comply with, which will employ best practice techniques to protect the soil resource. The proposed burial depth and use of imported backfill will be designed to avoid heating losses. The SMP is captured within the outline CoCP (document reference 8.1) and secured through Requirement 20. **Drainage:** Proposed mitigation measures include maintaining/reinstating land drainage systems following construction, the provision of an Agricultural Liaison Officer and a local specialist drainage contractor (to undertake surveys and create drawings pre- and post-construction, to locate drains and ensure appropriate reinstatement) and the implementation of the final CoCP and SMP which would include provisions for a pre-construction Drainage Plan to minimise water within the trench and ensure ongoing drainage of surrounding land. The SMP would also include construction method statements for soil handling for agreement with the relevant regulator in advance of the works. This would be completed pre-construction once an earthworks contractor has been appointed and detailed earthworks phasing information is available. These measures would avoid any material change to the soil resource and reduce the magnitude of the effect to negligible. The contractor would be required to comply with the SMP, secured by the CoCP (DCO requirement 20). **Land take:** Land take has been minimised throughout the site selection process for the project (ES Chapter 4 Site Selection and Assessment of Alternatives document reference 6.1.4), through the selection of HVDC technology and through the construction strategy where only short sections (approximately 150m per week) of the onshore cable route would be worked at any one time, minimising time spent in each area. **Access and compensation:** Mitigation for land access includes consulting with potentially affected landowners and maintaining access for farm vehicles to land severed by the works wherever practical and subject to individual

Summary of Written Representation	Applicant's Response
	agreements with landowners and occupiers. Crossing points would be agreed pre-construction. Private agreements (or compensation in line with the compulsory purchase compensation code) will be sought between Norfolk Vanguard Limited and relevant landowners/occupiers regarding any measures required in relation to crop loss incurred as a direct consequence of the construction phase of the project. **Ecology:** The Applicant has undertaken an impact assessment specific to ecology (ES Chapter 22 Onshore Ecology document reference 6.1.22). The assessment looks at impacts to sensitive receptors including trees, hedgerows and protected species. Mitigation in relation to woodland and trees would include a pre-construction walkover survey to be undertaken by an appropriately experienced arboriculturalist. This survey will define specific mitigation measures to protect trees situated adjacent to the cable corridor working width, including defining root protection areas. The arboricultural report will be submitted to and agreed with the local authority prior to the commencement of any construction works. In addition, the following mitigation measures will also be undertaken: • The roots of retained trees along the edge of the working width will be protected from soil compaction by the enforcement of Root Protection Areas that will be fenced off from the construction (the extent of which will be calculated using guidance from BS5837: 2012); • Facilitation pruning may be recommended where tree crowns are at risk from impact by machinery or high sided vehicles; • Where possible, removal of vegetation will be timed to avoid the bird breeding season (March to October inclusive); and • If bat roosts are found in the trees then the measures set out in section 22.7.6.10 (bat mitigation) will be followed. In relation to hedgerows, the following mitigation is proposed: • Replanting will where possible follow in the first winter after construction of all except the 6m gap required for the running track. Replanting will follow guidance within the Norfolk hedgerow Biodiversity Action Plan (BAP) and will include appropriate species for north-east Norfolk (NBP, 2009), including ground flora planting designed

Summary of Written Representation	Applicant's Response
	to encourage insect biomass (BCT, 2012). Future hedgerow management to include allowing standard trees to develop to improve quality of the hedgerow as a foraging resource. Hedges will be double-planted with 2m grassland strips on both sides so there is always a leeward side to forage; and • The replanting measures described above are captured in the OLEMS (document reference 8.7). In addition to the above mitigation measures, during detailed project design, the project will seek to avoid mature trees within hedgerows through the micro-siting of individual cables, in order to retain as many mature trees as possible.
Alternative Solutions • A marine cable connection around the coast into Walpole would prevent the cable route coming 47km across the Norfolk countryside, and eliminating the need for new substations or any expansions. This would result in other wind farms having the ability to connect to it if required. • A connection could be made on any suitable pylon on the 400KV overhead existing cable lines, which would reduce the distance the cable would have to come inland and provide a larger search area for a suitable site away from houses or villages. Vattenfall could minimise the cable route and find a far more suitable site away from villages nearer the coast, or could not have it inland at all. The site they have proposed is clearly the cheapest option which disregards the welfare of villages, farmland and wildlife.	The Applicant has provided a detailed response to the process of identifying a grid connection point in response to Q2.1 submitted at Deadline 1.

2.22 Lucy Sheringham (REP 212)

Summary of Written Representation	Applicant's Response
Lucy Sheringham submitted a Written Representation to the Examining Authority prior to the start of the examination process. The points raised were considered in the Applicant's response to Relevant Representations (document reference ExA; RR; 10.D1.1), submitted for deadline. In this submission Lucy Sheringham restates her objection to the proposals, on the basis of two further points, which can be summarised as:	**Siting of the onshore project substation and National Grid substation extension near Necton** The onshore connection point was determined through a statutorily mandated process involving both the Applicant and National Grid, to identify a direct connection to the 400kV national transmission system. The Applicant has provided an explanation of the process in Applicant's response to the ExA's

Summary of Written Representation	Applicant's Response
• Flawed public consultation, in relation to the siting of the onshore project substation, and the National Grid substation extension • Lack of proper consideration of a "ring main model"	Written Questions (Q2.1) (document reference ExA WQ 10 D1.3) submitted at Deadline 1. A report on the Strategic Approach to Selecting a Grid Connection Point for Norfolk Vanguard and Norfolk Boreas (Document Pre-ExA; OCP Report; 9.2, submitted to the Planning Inspectorate on 23 October 2018) provides a summary of the context and work carried out by National Grid and Vattenfall Wind Power Limited (parent company of the Applicant) to select an appropriate location to connect to the National Electricity Transmission System. The suitability of the Necton location is also being discussed in SoCGs with the following stakeholders: • Norfolk County Council (Rep1-SOCG-15.1); • Breckland Council (Rep1-SOCG-2.1); and • Necton Parish Council (Rep1-SOCG-22.1). A ring-main approach was not an available option, to connect the project to the national transmission system, and therefore not considered in the process described above.

2.23 Anglian Water Services Ltd (REP 222)

Summary of Written Representation	Applicant's Response
There are a number of water and water recycling assets in Anglian Water's ownership located within the boundary of the onshore cable for the proposed offshore windfarm. These assets are critical to enable us to carry out Anglian Water's duty as a sewerage undertaker. In relation to the water and water recycling assets within the boundary of the Development Control Order, having laid the asset under statutory notice, Anglian Water would require the standard protected easement widths for these assets and for any requests for alteration or removal to be conducted in accordance with the Water Industry Act 1991 and the Protective Provisions sought by Anglian Water. Set out below is the standard easement width requirements; • Standard protected strips are the strip of land falling the following distances to either side of the medial line of any relevant pipe; ○ 2.25 metres where the diameter of the pipe is less than 150 millimetres,	The dDCO incudes protective provisions specifically for the benefit of Anglian Water (Schedule 16, Part 6), which captures this detail.

Summary of Written Representation	Applicant's Response
○ 3 metres where the diameter of the Pipe is between 150 and 450 millimetres ○ 4.5 metres where the diameter of the Pipe is between 450 and 750 millimetres, ○ 6 metres where the diameter of the Pipe exceeds 750 millimetres.	
If it is not possible to avoid any of Anglian Water's water recycling assets, then the asset may need to be diverted in accordance with Section 185 of the Water Industry Act 1991. Anglian Water is, pursuant to Section 185 under a duty to divert sewers if requested to do so unless it is unreasonable to do so. A formal application will need to be made to Anglian Water for a diversion to be considered. Diversionary works will be at the expense of the applicant. Anglian Water expects to have further discussion with the applicant regarding the proposed design of any required crossings of Anglian Water's existing assets within the onshore cable route.	The Applicant has not identified any requirement for the diversion of Anglian Water assets. The Applicant and Anglian Water are in discussion regarding the proposed design of any required crossings of Anglian Water's existing assets within the onshore cable route.
Groundwater sources There are existing boreholes for public water in the vicinity of the proposed cable route. It is essential to protect the aquifers identified in the Environmental Statement and Anglian Water's existing assets from contamination from any activities that might cause pollution. We would expect mitigation measures to be put in place to prevent any pollution of the chalk aquifers from surface activities. Anglian Water has had constructive discussion to date with the applicant regarding groundwater sources and the proposed mitigation measures.	The Applicant and Anglian Water have had constructive discussions on this matter and the current position is set out in the SoCG submitted at deadline 1 (Rep1-SOCG-1.1).
Connections to the water supply/ foul and surface water sewerage networks Anglian Water is not aware of any water supply or wastewater requirements made upon them for the development. Should a water supply or wastewater service be required and once agreement has been reached, there are a number of applications required to deliver the necessary infrastructure.	A Surface Water and Drainage Plan will be prepared by the Applicant post-consent. The plan will include the approach to surface water and foul water drainage, and water supply during construction and operation. The approach is set out in the outline CoCP (document reference 8.1) and secured through Requirement 20 (2)(i). The Applicant acknowledges Anglian Water's role and licensing processes should water supply or wastewater services be required.
Draft Development Consent Order Anglian Water has had constructive dialogue with the applicant regarding the wording of protective provisions specifically for the benefit of Anglian Water to be included in the Draft Development Consent Order (DCO). The DCO as currently drafted incudes protective provisions specifically for the	The Applicant acknowledges Anglian Water's support for the protective provisions as they are currently worded in the dDCO at Schedule 16, Part 6.

Summary of Written Representation	Applicant's Response
benefit of Anglian Water (Schedule 16, Part 6) as previously requested. Therefore we are supportive of the wording of the protective provisions included in the Draft DCO as submitted.	

2.24 Necton Substation Action Group

Summary of Written Representation	Applicant's Response

The spokesperson of the Necton Substation Action Group (NSAG) submitted two representations, one dated the 9th January and a second dated the 15th January.
 	
The first of these relates primarily to the assertion by NSAG that either of two alternative sites proposed by local individuals / NSAG members might present better locations for the onshore project substation than the site selected following the EIA process by the Applicant. The argument of NSAG can be summarised as follows:
 	
• The environmental impact would have been less had a farm, near Scarning, or Top Farm in Necton been chosen as locations "for the Onshore Project Substations (and even possibly National Grid extensions)".
• NSAG argue that either of the two alternative options suggested would be preferable as:
  ○ "curtailing and blighting" would affect one farm only (rather than three)
  ○ Avoid the need for two separate accesses to the Onshore Project Substation, and the NG extension
  ○ Avoid disruption of mitigation planting undertaken by the Dudgeon Wind Farm project, in some instances as early as 2014.
 	
Furthermore NSAG argue Top Farm is a better option because it is on low-lying land, and therefore would result in lower landscape and visual impacts.
 	
• The site selection of the Onshore project substation is at odds with "DM8 Design, local landscape and townscape character. Development will be permitted if it will not harm the conservation of, or prevent the enhancement of, key characteristics of its surroundings with regard to the character of the landscape and townscape, including consideration of its historic character and
	Siting of the onshore project substation and National Grid substation extension at Necton
	
	The Applicant has provided a detailed response to this in its response to the ExA's Written Questions (Q2.1) submitted at Deadline 1 (ExA; WQ; 10.D1.3). The onshore connection point was determined through a statutorily mandated process involving both the Applicant and National Grid, to identify a direct connection to the 400kV national transmission system.
	
	A report on the Strategic Approach to Selecting a Grid Connection Point for Norfolk Vanguard and Norfolk Boreas (Document Pre-ExA; OCP Report; 9.2, submitted to the Planning Inspectorate on 23 October 2018) provides a summary of the context and work carried out by National Grid and Vattenfall Wind Power Limited (parent company of the Applicant) to select an appropriate location to connect to the National Electricity Transmission System.
	
	Site selection is also discussed in SoCGs with the following stakeholders:
	
	• Norfolk County Council (Rep1-SOCG-15.1);
	• Breckland Council (Rep1-SOCG-2.1); and
	• Necton Parish Council (Rep1-SOCG-22.1).
	
	During pre-application consultation, members of NSAG expressed the view that they had identified a large, sparsely populated area of land to the east of Necton, close to the point where Vattenfall's proposed cable corridor crosses the 400kV Necton-Norwich overhead line circuits. This area appears to straddle the Parish boundary between Scarning and Bradenham PCs, and has been referred to as the "Scarning site".
	
	The Vattenfall team considered this proposal, and provided a considered response to NSAG in September 2017.This included the Applicant's recognition of the value of public engagement and acknowledging NSAG members concerns about the potential impact of the projects on their

Summary of Written Representation	Applicant's Response
settlement pattern, taking into account any appropriate mitigation measures." • Offshore wind is not an environmentally friendly technology The submission also discusses community benefit – and the wish to enter into dialogue with the Applicant in this respect. The second submission, dated January 15th relates to "new information from the MOD" which suggests the clean-up and monitoring of the Historic F-16 plane crash north of Necton village may not have occurred, and the concern is that Carbon Fibres remain in the soil below the depth subsequently disturbed by farming practices.	neighbourhood, and welcoming this proposal as a positive and constructive contribution to the project development process. The response noted the alternative Scarning scheme would reduce or eliminate impacts in the immediate vicinity of Necton, however the primary result would be to move the impacts to a different location thereby affecting a different group of residents. The presence of residential properties, designated archaeological assets and potential landscape and visual impacts associated with lack of natural screening and the raised topography and landform of the area preclude the siting of the onshore project substation near Scarning. In conclusion, guided by the EIA process, the existing onshore project substation is the preferred site in terms of environmental and development constraints and opportunities. **Dudgeon mitigation planting** The extent of Dudgeon mitigation planting removals required by Norfolk Vanguard are shown on Figure 29.10a of ES Chapter 29 Landscape and Visual Impact Assessment and Figure and on Figure 29.11a (an updated version of which was submitted at Deadline 1 as Appendix 14.1 to the Applicant's response to written questions (ExA;WQApp14.1;10.D1.3). This includes the permanent removal of an area of woodland planting along the A47 to accommodate the proposed new junction off the A47 at Spicer's Corner (approximately 150m^2), the permanent removal of 50m of hedgerow to accommodate new National Grid infrastructure, and the temporary removal of 40m of hedgerow to allow for the installation of cabling. The 40m of temporary hedgerow removal will be reinstated in its current location following the completion of cable installation works. The 50m of hedgerow and 150m^2 of woodland will be permanent losses. The effects associated with the removal of Dudgeon mitigation planting within the Order Limits have been considered in the visual assessment (presented in ES Chapter 29 Landscape and Visual Impact Assessment) considering the potential visual impacts of the onshore project substation, the National Grid substation extension and the existing Dudgeon substation. The Applicant has committed to introducing new and replacement woodland and hedgerow planting as mitigation for potential visual impacts. The proposed planting is shown on Figures 29.9a and 29.10b of ES Chapter 29 Landscape and Visual Impact. This shows the extent of new hedgerow and woodland planting

Summary of Written Representation	Applicant's Response
	and represent approximately 1,500m of new woodland / hedgerow corridors. These measures are captured in the OLEMS – document reference 8.7 and secured through DCO Requirements 18 and 19. **Landscape and visual impacts on Necton – HVDC visualisations and mitigation** The Applicant has provided a detailed response to this in response to the Relevant Representations submitted at Deadline 1 (ExA; RR; 10.D1.1). The Applicant will work to ensure that mitigation proposed is proportional to the scale of the substation infrastructure, and that it mitigates the impact on the local area. The key mitigation in relation to landscape and visual impacts of the onshore project substation is its location; the proposed project substation footprint makes effective use of topographic undulations and natural screening. This includes: • Additional mitigation planting to enhance the screening effect of existing hedgerows and woodland blocks in the local area. The location of this planting and photomontages/visualisations are provided in ES Chapter 29 Appendix 29.2 (document reference 6.2.29.2); • Bunds, or earth mounds, will be constructed where possible to increase the base height and maximise the effectiveness of mitigation planting as screening; • Mitigation planting will comprise faster growing 'nurse' species and slower growing 'core' species. Core species with an average growth rate of 250mm per annum will provide 5m to 7m of growth after 20 years which will characterise the woodland structure over the long term. Nurse species would be faster growing (350mm per annum) to provide 7m to 8m of screening after 20 years; and • Where advanced planting can be achieved (in areas not affected by the construction works), this would commence in 2020 (based on the indicative programme outlined in ES Chapter 5 Project Description (DCO document 6.1.5)) which will provide a minimum 3 years of growth prior to commencement of operation which equates to approximately 1.2m of additional growth. This information was also made available pre-examination in the information sheet – Onshore project Substation, accessible via the project website: https://corporate.vattenfall.co.uk/contentassets/bf0e5e31bbab467eaf02040c7b17513a/180- vattenfall-substation-info-sheet.pdf

Summary of Written Representation	Applicant's Response
	The Applicant continues to seek dialogue opportunities with representatives of the Necton area, via the SoCG with Necton Parish Council, which is likely to cover mitigation of visual impacts. **Efficacy of offshore wind / the need for the project** With regard to comments on the efficacy of offshore wind in reducing carbon emissions and limiting climate change, please refer to ES Chapter 2 "Need for the Project" (DCO document 6.1), which outlines the benefits of offshore wind as an energy source. This point was also responded to in the Applicant's submitted Examination Document Deadline 1 Submission – Responses to Relevant Representations. ES Chapter 2, paragraph 39 notes that European energy policy recognises that the use of renewable energy contributes significantly to limiting climate change, and plays a part in securing energy supply and creating employment. Further information on how the project complies with UK and European energy policies was recorded in ES Chapter 3 Policy and Legislative Context. In terms of the reduction in carbon emissions (as stated in ES Chapter 2, paragraph 42) Norfolk Vanguard and Norfolk Boreas together will have the potential, at today's level of UK carbon emissions from the power sector, to prevent more than 4,000,000 tCO_2 from entering the atmosphere. **Community benefits** The Applicant has provided a detailed response to this in response to the Written Questions (Q19.8) submitted at Deadline 1. The Applicant notes that only mitigation which addresses impacts directly associated with the Project should be considered in the planning and DCO process; wider community benefits should not be taken into account. The Applicant is and continues to address these wider benefits, however this will be undertaken separately and outside of the DCO process. **Historic F-16 plane crash** The Applicant has provided a detailed response to this in response to Q12.9 submitted at Deadline 1, and within the SoCG between Norfolk Vanguard Limited and the Environment Agency (Rep1 - SOCG - 6.1). The site of a military plane crash near Necton in 1996 has the potential for historic contamination including hydrazine, aviation fuel and carbon composite fibre deposits. A clean up of the site was completed within 5 weeks of the incident by the RAF and the RDAF,

Summary of Written Representation	Applicant's Response
	which included armament specialists and hydrazine safety experts. A potential risk of radioactive material was initially highlighted, however based on the site recovery reports produced by both the RAF and RDAF there is no evidence that radioactive materials were present. The Applicant understands that to date Breckland Council has not classified the land as having a risk of historic radioactive contamination. Breckland Council has a duty to inspect land but there must be reasonable grounds which are defined in the statutory guidance. The Applicant has committed to producing a Contaminated Land and Groundwater Plan for dealing with contamination post-consent. The plan will follow the Model Procedures for the Management of Land Contamination (CLR11) (Environment Agency, 2004) for evaluating the risk of contamination. Any site investigations would be designed to take into account available desk-based information and would be undertaken by appropriately qualified specialists. The written scheme for the management of contamination of any land and groundwater will be submitted and approved by the local authority in consultation with the Environment Agency. This is secured through Requirement 20 of the dDCO which requires a CoCP to be approved by the local planning authority ahead of each phase of the onshore construction works. The Applicant continues to seek dialogue opportunities with representatives of the Necton area, via the SoCG with Necton Parish Council, which is likely to cover the topic of the Historic F-16 plane crash.

2.25 Shell UK Limited

Summary of Written Representation	Applicant's Response
The proposed works cross Shell UK Ltd's ("Shell") high-pressure gas and gas condensate pipeline system which runs from Bacton to North Walsham and is operated by the British Pipelines Agency Ltd ("BPA") on Shell's behalf.	Noted
We would request that the before any work (including hand trial holes) starts on site, the developer must consult with the BPA. This can be done by calling Nicki Farenden on 01442 218911 to	The Applicant has been in ongoing dialogue with British Pipelines Agency Ltd (BPA) in relation to crossing agreement requirements.

Summary of Written Representation	Applicant's Response
arrange a site meeting with one of the BPA technicians. The BPA regularly monitors the pipeline route and the developer must observe the following procedures: • Before any work (including hand trial holes) starts in the vicinity, a BPA technician must locate and mark the pipeline on site. • The developer may not start works within 6m of the pipeline without the BPAs prior written approval and entry into a crossing agreement. The BPA may require (without limitation) that the developer supplies a detailed description of the proposed works, a plan of the work area, drawings and a method statement. • A BPA technician must supervise all works within 6m of the pipeline. The technician will determine whether a written method statement is necessary before any works proceed. The BPA require a minimum of 7 days' notice to arrange supervision (under normal circumstances). ¬ Heavy vehicle crossing points to be approved before use across the easement. ¬ Any works involving the exposure of the pipeline requires a continuous site presence until backfilled (this may mean a security arrangement out of hours). • The BPA may require proof of liability insurance depending on the proposed works.	The Applicant will ensure that any Health and Safety requirements will be adhered to and that BPA will be liaised with prior to commencing the works in the vicinity of the apparatus which they manage on behalf of Shell UK Limited.
Personal safety is paramount to Shell and BPA. In order to protect individuals from potential injury or death we ask that the above safety information is passed to the person(s) that will be carrying out the work	Noted.

2.26 Agence Française pour la Biodiversité

Summary of Written Representation	Applicant's Response
The consideration of the French Natura 2000 sites is necessary for the SPA's "Banc des Flandres" and "Caps Gris Nez", for which the species interact with the Norfolk wind project. The results of the impact assessment for the Norfolk project and the cumulative impacts with the 37 other wind projects in the North Sea are not very reassuring. Residual impacts of collision risk and avoidance risk, even if assessed as low or negligible, will increase the mortality rate of different species. Even if this increase is estimated for one species, for a given season, etc. it contributes to a deterioration of the conditions for the good status of conservation for this species. As reminder, for some of these species,	The main issues identified by Agence Française pour la Biodiversité were species associated with two SPAs (Banc des Flandres, 175 km from Norfolk Vanguard and Caps Griz Nez, 210 km from Norfolk Vanguard). Further consideration of the potential for impacts on the SPA species is provided in the Applicant's comments on Question Responses (ExA; WQR; 10.D2.3). In summary, given the distance of these SPAs from Norfolk Vanguard and the species for which they have been designated, the potential for connectivity, and hence impacts on the populations, is very small and likely significant effects can be ruled out.

Summary of Written Representation	Applicant's Response
their conservation status is "threatened" on a European scale. It is essential to implement reduction measures (e.g. turbine clamping in case of heavy flows) to limit residual impacts regarding collision risk on northern gannets, black-legged kittiwakes, lesser black-backed and great black-backed gulls, arctic and great skuas. These techniques exist and it is important to implement them, knowing that there is still no reduction technique for other impacts generated from wind farms (e.g. impacts related to the avoidance of the wind farm). It is also important to ensure that a program is going to be implemented to: • Monitor species frequentation; • Assess behaviours and trajectories within the wind farm; and • Evaluate precisely the risk of collision by camera and radar, the only technique currently relevant to comprehensively assess it.	Furthermore, the Applicant notes that the potential for cumulative impacts, as outlined by the respondent, has been thoroughly assessed in the original ES and HRA and, as part of the examination process, the Applicant is continuing to provide additional information for many of the potential impacts. The Applicant is also committed to undertaking appropriate monitoring of seabirds, the details of which will be discussed and agreed with Natural England and the MMO. It should be noted that DCO Schedule 9 and 10 Condition 18(2)(c) of the generation DMLs () deals with pre-construction monitoring. Condition 20(2)(c) of the generation DMLs (Schedule 9 and 10) deals with post construction monitoring. Condition 14(1)(l) of the generation DMLs (sch 9 and 10) refers to the Ornithological Monitoring Plan.