From:	Dominika Phillips
To:	Hornsea Project Three; Kay Sully; KJ Johansson
Cc:	Andrew Guyton; Stuart Livesey
Subject:	Hornsea Project Three (UK) Ltd response to Deadline 4 (Part1)
Date:	15 January 2019 22:52:57
Attachments:	image001.png D4_HOW03_Add_Land.pdf D4_HOW03_BoR_Tracked.pdf D4_HOW03_Cover_Letter.pdf D4_HOW03_DCO_Clean.pdf D4_HOW03_DCO_Schedule of changes.pdf D4_HOW03_DCO_Tracked.pdf D4_HOW03_ExASecondWQ.pdf D4_HOW03_IP_WR.pdf HOW03 Guide to the application.pdf

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Dear Kay, K-J

We are pleased to enclose Ørsted Hornsea Project Three (UK) Ltd ("the Applicant") response to Deadline 4, Friday 15 Jan 2019. These documents have been prepared by the Applicant and have been produced in response to the Examining Authority's (ExA) letter of 9 October 2018 ("the Rule 8 letter") as well as the Hearings (03-07 December 2018). The documents are pursuant to Rules 10(1) and (2) of the Infrastructure Planning (Examination Procedure) Rules 2010 and are in connection with the Development Consent Order application for the proposed Hornsea Project Three Offshore Wind Farm (hereafter referred to as "Hornsea Three").

These documents are being issued over a series of emails, each email containing a pdf file or files. The **last** email to be issued by the Applicant will contain a supporting file tracking sheet – to help the ExA ensure that it has received each email transmission.

Please acknowledge safe receipt of these documents. If we can be of any assistance in that regard, please do not hesitate to contact myself or Andrew Guyton.

Best regards,
Dr Dominika Chalder PIEMA
Environment and Consent Manager

[redacted]

Environmental Management UK | Wind Power
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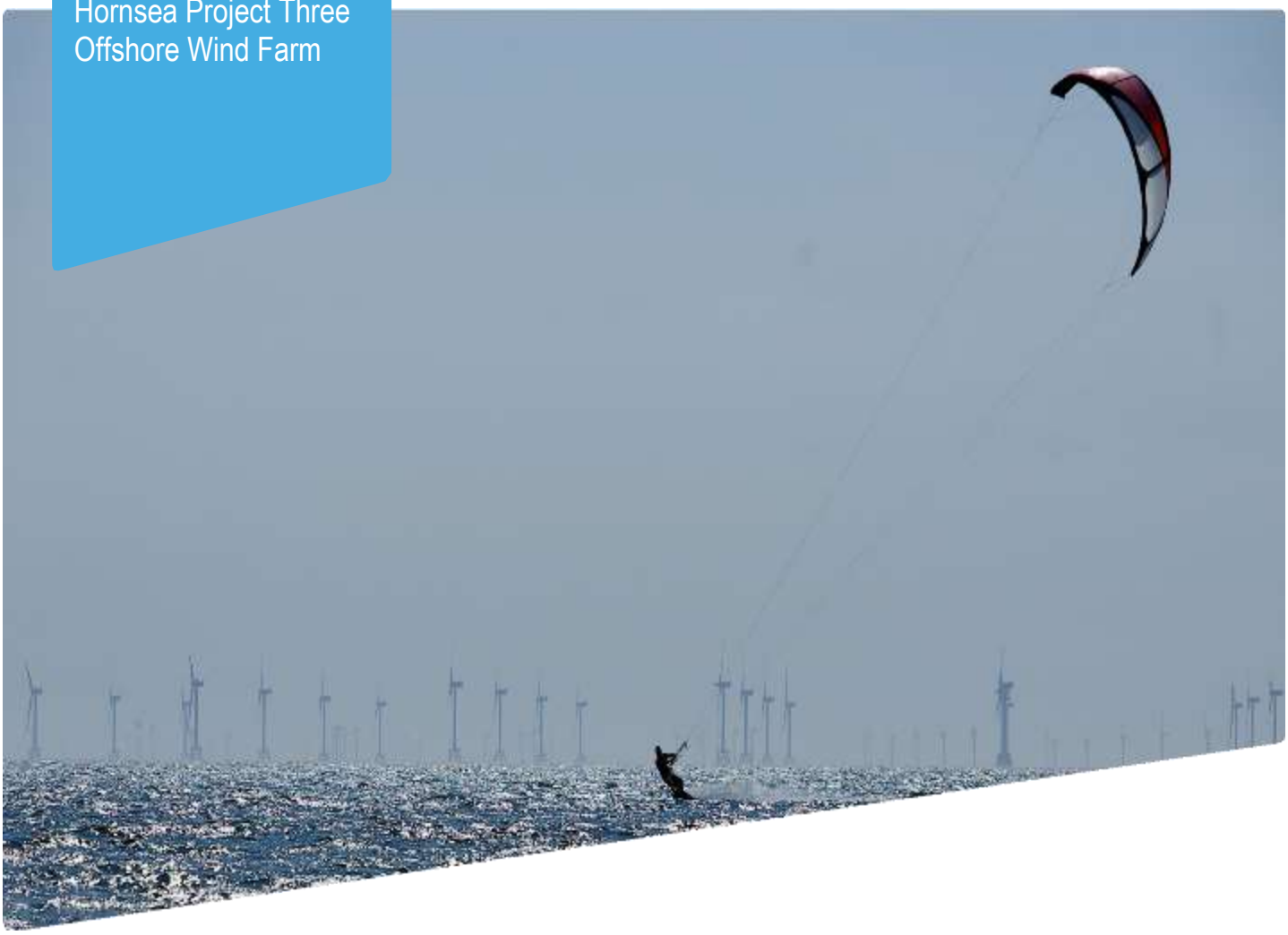
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Applicant's comments on Written Representations and Responses submitted by Interested Parties at Deadline 3

Date: 15th January 2019

Hornsea 3
Offshore Wind Farm

Ørsted

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Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2019.

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1. Introduction

1.1 Following further submissions of Written Representations by Interested Parties at Deadline 3, the Applicant has taken the opportunity to review each of the Written Representations received by the Planning Inspectorate. Details of the Applicant's responses to each of those representations are set out within this document in subsequent sections below.

2. Applicant's Comments on Written Representations

Spirit Energy Written Representation (REP3-030)

Relevant Representation Comment	Applicant's Response
EXECUTIVE SUMMARY 1. This is the Written Representation of Spirit Energy (**"SE"**) following the Issue Specific Hearing 1 (**"ISH 1"**) on 4th December 2018 (**"SE ISH 1 Submission"**) in the application for a Development Consent Order (**"DCO"**), known as the Hornsea Project 3 (**"HP3"**), by Orsted Limited. This Representation amplifies the Written Representation of SE dated 7th November 2018 and is to assist the Examining Authority (**"ExA"**) as requested by it at the ISH1. **[See SE ISH 1 Appendix ZA]** 2. In summary, SE exploits gas from the UK Continental Shelf (**"UKCS"**) of the North Sea near to the border with the Netherlands. Exploitation is undertaken through offshore infrastructure including but not limited to subsea wells, pipelines and platforms that together process and transport the gas to the EU mainland. The platforms include one that is permanently manned (**"J6A"**) situated in the Netherlands, and that controls others that are normally unmanned (Chiswick and Grove), and subsea wells (including the Grove G5 well). Pipes convey the exploited gas from below the sea bed, up and down each installation between a structural framework, and then to the mainland. **[See SE ISH 1 Appendices A & ZD, Figure 1]** 3. A number of the wells and platforms will have been decommissioned before construction of HP3 so the only existing infrastructure discussed in this Representation is that associated with: the J6A, Chiswick	1. Noted 2. Noted 3. Noted 4. The Applicant notes that 120 landings is in fact the maximum number of permitted flights due to a restriction on the number of helicopter landings on each of the Chiswick and Grove platforms (see the Applicants response to ExA Q 2.5.14 submitted at Deadline 4). The Applicant notes that Spirit Energy advises at paragraph 1.7 of Appendix ZG Technical note of the Spirit Energy Submission at Deadline 3 (APP-063), their safety case has been written for 60 visits a year (with a maximum of 120). The Applicant advises that the CAA does not approve operation manuals (OM) for aircraft, but notes them. In addition, the OM can be changed (as is frequently the case) to suit the required environment. The Applicant advises that 7.5 nm obstacle free space is not required to

Relevant Representation Comment	Applicant's Response
and Grove platforms, the G5 subsea well and their associated connections to one another and the mainland. **[See SE ISH 1 Appendix ZD, Figure 1]**	safely fly to the Chiswick and Grove platforms (see the Applicants response to Ex.A Q2.5.14 submitted at Deadline 4). It is only the Final Approach Fix that is required to be flown substantially into wind during an airborne radar approach (ARA). The Applicant advises that the limited restrictions on straight in ARA flights that result from Hornsea Three in certain wind directions are not significant due to both the limited time weather conditions require an ARA to be flown to the Chiswick and Grove platforms and the alternative flight options available. The Applicant notes that Spirit Energy have not considered the ability to conduct routine en route descents to their platforms and has not considered the ability to conduct in field shuttle flights from the J6A to the Chiswick and Grove platforms (see the Applicants response Ex.A 2.5.14 submitted at Deadline 4). The Applicant notes that the criteria applied by Spirit Energy when ARA flights are required to be flown (see paragraph 2.9 of Appendix ZG of Spirit Energy submission at Deadline 3) is more restrictive that the European Aviation Safety Agency (EASA) regulations and so has resulted in a greater (more excessive) number of days that flights are restricted to the Chiswick and Grove platforms.
4. Access to the SE subsea wells is by vessel and access to the platforms is by helicopter (type AW139). The helicopters travel about 730 times a year (twice daily) to J6A and about 120 times a year to each of Chiswick and Grove. The Civil Aviation Authority (**"CAA"**) approved Operational Manual (**"OM"**) for AW139 requires specified procedures to be executed by which safe flights are able to be undertaken. The procedures include requirements for a standard approach over a specified distance of 7.5 nautical miles (**"nm"**) to a platform mounted helideck during a landing reliant on instruments and a further clear airspace beyond the platform that allows the choice for undertaking a Missed Approach (**"MAP"**) in the event that a pilot cannot land. The MAP procedure enables a pilot to safely fly past the helideck and to climb back to the minimum safe altitude before circling around to repeat the standard approach so as to effect a safe landing. To allow operation irrespective of wind direction, these procedures require a 7.5nm radius of unobstructed space around each platform in which a helicopter can safely fly. Without the space for a stabilized approach and subsequent MAP, helicopters cannot safely fly in adherence to OM procedures. **[See SE ISH 1 Appendices ZJ and ZK].**	
5. The CAA's CAP 764, paragraph 3.32, recognises that obstacles within 9 NM of an offshore destination would potentially impact upon the feasibility to conduct some helicopter operations (namely, low visibility or missed approach procedures) at the associated site. Where emergency procedures are predicated on the use of helicopters to evacuate the installation, impaired safe flight has the potential to threaten the integrity of offshore platform or drilling unit safety cases. Authorisation of the DCO for HP3 for erection of turbines within a 7.5nm radius of Chiswick, Grove and J6A platforms would materially change the approved safety cases for those platforms but the Protective Provisions advanced by SE to preclude obstacles within such radii would negate such effects by enabling safe flights to be maintained and so enable the Secretary of State to grant the DCO in accordance with statutory guidance EN-3, paragraphs 2.6.183 – 186. The Provisions ensure successful co-existence whilst maximizing resource exploitation. **[See SE ISH 1 Appendices M & ZB].**	5. The Applicant advises that paragraph 3.30 of CAP 764 clearly states that the 9 nm consultation around platforms is a "trigger for consultation and not a prohibition on development". The Applicant and Spirit Energy have met and consulted during the pre-examination and examination phases (Applicants response to ExA Q2.5.17 at D4 and Hornsea Project Three Statement of Common Ground with Spirit Energy (REP1-007)). The Applicant maintains that safety of flights to those platforms whose
6. The introduction of wind turbines within the HP3 area would engender vessel displacement that is likely to increase the risk of vessel allusion with SE platforms Chiswick and Grove. A vessel allusion with a kinetic energy of greater than 5 mega joules with the structure of either platform would have potential catastrophic consequences for life and lost gas resource to the UK economy. Statutory guidance EN-3, paragraphs 2.6.163 and 2.6.183, together with MGN 543, Annex 2, paragraph 3(c)	

Relevant Representation Comment	Applicant's Response
require ALARP and recognise that this may be executed in stages as part of a Navigational Risk Assessment where actual proposed layout is not known. Authorisation of the DCO subject to the Protective Provisions requiring a 2nm diameter safety zone around each such platform, pending conclusion of an ALARP assessment to ensure sufficient sea room remains available around those platforms and platform allision risk can be ALARP would negate and reduce the effects on such offshore infrastructure so as to enable authorisation of the DCO in line accordance with EN-3, paragraph 2.6.186. 7. The Secretary of State has authorised two recent DCOs subject to potential exploration and exploitation of hydrocarbons in authorised fields. **[See SE ISH 1 Appendices Q & S]** Figure 1 of SE's Written Representations identifies C6 and C7 as exploration wells expected to be exploited by installation of subsea wellheads and associated subsea pipelines and equipment. **[See SE ISH 1 Appendix ZA]** Further exploitation of the Chiswick field was publicly announced in January. 2018 and is currently underway with the drilling of the C5 well. The C6 well was categorised by Spirit as contributing to its contingent resource base in December 2016. Authorisation of the DCO subject to the Protective Provisions would be in accordance with statutory guidance EN-3, paragraph 2.6.181, for successful co-existence of other users of the sea and also with the Secretary of State's Central Objective in his UK MER Strategy by which resource exploitation be maximized. **[See SE ISH 1 Appendix ZB]**	consultation zones overlap with Hornsea Three Agreement for Lease is maintained (see the Applicants response to Ex.A Q2.5.13 submitted at Deadline 4), and the effect on access to these platforms is not significant (see the Applicants response to Ex.A Q2.5.17 submitted at Deadline 4). The Applicant advises that the ability to conduct SAR to these platforms is not restricted (see the Applicants response to Ex.A Q2.5.13 submitted at Deadline 4). 6. The Applicant would direct the ExA to Applicants reponse to question Q2.5.13 submitted at Deadline 4. 7. Spirit Energy did not inform the Applicant until DL1 (7 November 2018) of the planned wellheads at C6 and C7. The Applicant has todate seen no evidence of Spirit Energy's plans for these wellheads or programme for achieving the requisite consents. The Applicant looks forward to seeing Spirit Energy's repsonse to WQ2.5.18 because that will hopefully provide some detail of its proposals. At this stage those proposals seem speculative at best. Even so, and without prejudice to the Applicant's case that it is not required to provide mitigation in respect of those proposed wellheads, the Applicant has offered to Spirit Energy that it might be able to accommodate a 1nm buffer around the precise coordinates of C6 and C7, i.e. no turbines within those buffer zones. This proposal was made in the spirit of coexistence and goodwill, and subject to management approval in Orsted. The Applicant has yet to receive a response from Spirit Energy.
THE WRITTEN REPRESENTATION OF SPIRIT ENERGY (7TH NOVEMBER 2018)	The Environmental Statement submitted by the applicant has been prepared in

Relevant Representation Comment	Applicant's Response
1. The Written Representation of SE was submitted in this process on 7 November 2018 This submission is "**SE ISH1 Submission**" and amplifies that Written Representation **[See SE ISH 1 Appendix ZA]** as requested by the Ex A on 4th December 2018 in light of the difference between SE and the Applicant that emerged starkly between the parties during that ISH 1. **[See SE ISH 1 Appendix ZO]** 2. In essence, the Applicant disagreed with the correct approach set out in the Written Representation by which the Applicant was required to undertake an environmental impact assessment and an ALARP of the potential affects of its proposed introduction of some 300 turbines in close proximity to the pre-existing offshore infrastructure for gas exploitation operated by SE. The Applicant contended in the ISH1 that the SE approach was equivalent to the introduction of "HSE-style" requirements to the DCO regime and that such matters should not see the "light of day". The Applicant's contention is in error (EN-3, paragraph 2.6.183 and 186). 3. In law, section 104(3) of the Planning Act 2008 requires the application to be determined in accordance with relevant national policy statements (**"NPSs"**). The relevant NPSs here are EN-1 and EN-3. EN-1 creates a presumption in favour of authorising a DCO in certain situations subject to EN-3. EN-3 requires the execution of ALARP by the Applicant in respect of potential affects of its development on offshore infrastructure and activities as an assessment discrete from environmental impact assessment. EN-3, paragraph 2.6.184 prevents the presumption engaging in circumstances applicable here. Paragraph 2.6.185 requires the likely affects on safety to be attributed substantial weight in decision making and paragraph 2.6.186 enables the IPC to grant consent only where effects on offshore infrastructure or activities have been negated, or reduced sufficiently. Here, the grant of the DCO subject to the Protective Provisions proposed by SE in its Written Representations would negate unacceptable risks to safety of helicopter flights integral to operational safety of offshore infrastructure and reduce to an acceptable level the increased risk of vessel allusion with offshore infrastructure. Thereby, the presence of the Protective Provisions in the draft DCO would enable a grant of the DCO in line with the subsequent engagement of the presumption in EN-1. 4. The current draft of the Protective Provisions accompanied the Written Representations and will be updated following consultation with the Marine Management Organisation and any Applicant	accordance with the requirements of EN-1 and EN-3 and has satisfied the requirements of 'As Low as Reasonably Possible' (ALARP) where this can be applied. No likely significant effect arises requiring mitigation. The SoS can comfortably determine the Application in accordance with s104(3) PA08 without imposition of the protective provisions suggested by SE. Points 1-5 are covered in the Applicant's response to ExA Q2.5.13 submitted at Deadline 4. It is factually incorrect that the Applicant contended in the Submission at Deadline 1 that the Spirit Energy approach was equivalent to the introduction of "HSE-style" requirements to the DCO regime and that such matters should not see the "light of day". The Applicant stated that both methodologies are relevant and applicable for the intended purpose (see the Applicants response to the Ex.A Q2.5.13 submitted at Deadline 4).

	Relevant Representation Comment	Applicant's Response
	comments. **[See SE ISH 1 Appendix ZB]**	
5.	The orthodox approach of SE aligns with that of: the Civil Aviation Authority's Guidance CAP 764, paragraphs 3.31 to 3.32 **[See SE ISH 1 Appendix M]**; the Maritime & Coastguard Agency's Guidance MGN 543 Annex 2, paragraph 3(c) **[See SE ISH 1 Appendix N]**; and the Secretary of State for Business, Energy & Industrial Strategy (**"SoSBEIS"**) guidance "The Maximising Economic Recovery Strategy for the UK", Central Obligation, under section 9G of the Petroleum Act 1998 (as amended by the Infrastructure Act 2015). **[See SE ISH 1 Appendix O]**	
1	**The existing offshore infrastructure installations and activities of Spirit Energy that would be affected by the proposed development**	Noted:
2	**Operation of the installations and access to the platforms and subsea wells**	2.1.Noted
2.1	The J6A manned installation platform is staffed by personnel who reside periodically on that platform. Access to J6A pilots and passengers is primarily by helicopter flights typically from the Netherlands occurring twice daily.	2.2 See comments at 2.6.
2.2	The normally unmanned installations of Chiswick and Grove are regularly visited by personnel who are transported, as passengers, usually from J6A to each installation by helicopter typically in the morning and are then collected from each of those platforms at the end of the day typically around 12 hours later. Between these times helicopters will return to shore. If the weather is forecast to close in such that flights may not be possible at the end of the planned shift, then a helicopter would be mobilised earlier to collect personnel from the Chiswick and Grove installations before the weather prevents flights.	2.3 Noted 2.4 Noted 2.5 Noted 2.6 The Applicant advises that this statement is in contradiction to the preceding statement made at 2.2 that the Chiswick and Grove platforms are regularly visited by personnel who are transported, as passengers, usually from J6A to each installation. The Applicant understands that flights are not flown daily from England to these installations, but that in a normal month there are around 10 infield round-trip flights from J6-A to Chiswick and a similar number to Grove (paragraph 6.6 of Spirit Energy Written Response at Deadline 1; REP1-041).
2.3	Unlike a permanently manned installation such as J6A the normally unmanned installations such as Chiswick and Grove have accommodation that is only intended to be used in exceptional circumstances, hence the importance of collecting personnel from the installation.	
2.4	The operator of the helicopters is currently CHC Scotia Limited.	

Relevant Representation Comment	Applicant's Response
2.5 There are no personnel at subsea well locations except when a vessel is used to conduct operations such as subsea inspection, repair and maintenance (carried out by remotely operated vehicle or divers) or drilling. 2.6 The normally unmanned installations of Chiswick and Grove platforms are staffed by personnel who are transported, as passengers, daily from England to each installation by helicopter and are subsequently collected from each of those platforms. If the weather is forecast to close in, then helicopters will collect personnel from Chiswick and Grove beforehand. 2.7 The subsea well is not ordinarily staffed. It is primarily attended by vessel. by which helicopters can fly. The safety of those who rely on offshore helicopter flights is the Civil Aviation Authority's (CAA) absolute priority. **[See SE ISH 1 Appendices I, L, M, P]** Offshore helicopter services provide a vital link to ensure the viability of the UK's oil and gas industry. They transfer the majority of the workforce to and from offshore installations in an open sea environment that is both challenging and hazardous. There were a total of 25 UK offshore helicopter accidents between 1992 and 2013, equating to 1.35 accidents per 100,000 flying hours; seven involved fatalities (see CAP 1145, Executive Summary). The conditions are set out in the terms of Flight Operational Manuals (**"Operational Manuals"**). Operational Manuals contain vital procedural and performance related information for a particular aircraft or aircraft Type. Manuals must be kept up to date - inaccurate information could compromise the safety of the aircraft. The CAA delegates to Appointed Officers in helicopter companies the CAA regulation of different helicopter types. A helicopter company develops a series of Operational Manuals by which each type of helicopter must be flown: **[See SE ISH 1 Appendix ZE]** 2.8 The Civil Aviation Authority (**"CAA"**) is the UK specialist regulator and it regulates the conditions by which helicopters can fly. The safety of those who rely on offshore helicopter flights is the Civil Aviation Authority's (CAA) absolute priority. **[See SE ISH 1 Appendices I, L, M, P]** Offshore helicopter services provide a vital link to ensure the viability of the UK's oil and gas industry. They transfer the majority of the workforce to and from offshore installations in an open sea environment that is both challenging and hazardous. There were a total of 25 UK offshore helicopter accidents between 1992 and 2013, equating to 1.35 accidents per 100,000 flying hours; seven involved fatalities (see CAP 1145, Executive Summary). The conditions are set	2.7 Noted 2.8 The Applicant notes that EASA is the Regulator for all European Commercial Air Transport operations. The CAA is the UK National Regulator but is subservient to EASA. The J6A platform is in the Dutch sector of the North Sea. As most of the flights to the J6A platform (and then onward to the Chiswick and Grove platforms) emanate from Den Helder, the Netherland CAA also has a role to play, but again under the aegis of EASA. The Applicant notes the reference to CAP 1145 provided by Spirit Energy and wishes to advise that most of the accidents presented in this review are not relevant to this case and that as a result most of the safety measures as an outcome of this Guidance are notapplicable. 2.9 The Applicant advises that it is the operator who is responsible for the Operations Manual (OM). The OM is effectively an amalgamation of the aircraft Flight Manual and the EASA Regulations. 2.10 Noted 2.11 The Applicant notes that the OM will include an offshore ARA. The Operations manual also includes the ability to fly other approaches as indicated on the flight plans presented in Appendix A (REP3-032) and Appendix Y (REP3-055) of Spirit Energy submission at Deadline 3. There are other manoeuvres including En route flight descent and shuttle flights that will be in the Operations Manual identified as being safe to fly. The Applicant notes that Spirit Energy did not consider the ability to do routine En

Relevant Representation Comment	Applicant's Response
out in the terms of Flight Operational Manuals (**"Operational Manuals"**). Operational Manuals contain vital procedural and performance related information for a particular aircraft or aircraft Type. Manuals must be kept up to date - inaccurate information could compromise the safety of the aircraft. The CAA delegates to Appointed Officers in helicopter companies the CAA regulation of different helicopter types. A helicopter company develops a series of Operational Manuals by which each type of helicopter must be flown: **[See SE ISH 1 Appendix ZE]** 2.8.1 Operation Manual A; 2.8.2 Operational Manual B; 2.8.3 Operational Manual C; and 2.8.4 Operations Manual D. 2.9 A particular type of helicopter is required to travel between points by the execution of a series of manoeuvres all of which are specified in the Operational Manual for that helicopter type. The type AW 139 currently serves the SE platforms of J-6A, Chiswick and Grove offshore infrastructure and also its drilling rigs. The operator of the helicopters serving the SE Assets is CHC Scotia Limited ("CHC"). It is the responsibility of the aircraft owner or operator to ensure that the correct Flight Manual standard is maintained at all times. 2.10 The Environmental Statement (**"ES"**), Volume 2, Chapter 8, Aviation (PINS Reference A6.2.8)(May 2018) explains the role of helicopters in the situation of flying towards SE's offshore infrastructure and exploitation activities: *8.7.4.1 Three UK helicopter companies, Bristow Helicopters Ltd; Bond Offshore Helicopters Ltd; and CHC Scotia Ltd, operate approximately 95 aircraft in support of the oil and gas industry around the UK. The main operating bases are: Aberdeen; Sumburgh; Scatsta; Norwich; Humberside; and Blackpool. Three other UK helicopter companies regularly operate to offshore locations on a much smaller scale in support of renewable energy projects and marine navigation facilities…* *8.7.4.2 A network of [Helicopter Main Routes] HMRs is established to support the transport of personnel and equipment to offshore oil and gas installations. The HMR system is shown in Figure 8.3 [of the ES]. The purpose of an HMR as detailed in CAP 764 is to provide a network of offshore*	Route descents in their aviation assessments submitted at Appendix Y and Appendix ZE (see the Applicants response to the Ex.A Q2.5.15 presented at deadline 4). The Applicant notes that Spirit Energy have dismissed the ability to do shuttle flights and by not taking this into consideration and that this approach is likely to be the preferred option (see the Applicants response to the Ex.A Q2.5.15 presented at deadline 4). The Applicant notes the information presented by Spirit Energy in paragraph 2.3 – 2.12 to the Appendix ZG is again inflexible in the ability to do any approaches other than a straight in ARA. The Applicant notes that the IFR criteria provided at paragraph 2.9 is for visibility of 5000 m and cloud base of 1000 ft. These criteria do not relate to EASA guidance for visual meteorological conditions (VMC) (Visibility greater than 4 km, flying clear of cloud (below a cloud base of not less than 600 ft) and in visual contact with the surface. CAT.OP.MPA.247) and so of course will provide a greater (excessive) number of restricted days, as asserted by Spirit Energy. As well as not considering the possibility of doing routine en route descents. no consideration is given to the lower limits of visibility of 2 km cloud base300 m required for shuttle flights (day) and so again Spirit Energy assert a greater (excessive) number of restricted days. 2.12 Noted 2.13 The Applicant notes that it is only the Final Approach Path (4 nm under EASA regs) of an ARA that is required to be flown substantially into wind. As shown in the EASA Guidance Material (EASA GM1 SPA.HOFO.125 (a)(3)). The Applicant notes that the angle of approach of an ARA is dependent on the wind strength and

Relevant Representation Comment	Applicant's Response
routes as used by civilian helicopters and to effectively provide an obstacle free zone for safe flight when VFR cannot be used. The HMR structure therefore provides both an identification of common flight paths and a safe means of flying to and from offshore locations outside the coverage of air traffic control… *8.7.4.3 HMRs have no lateral dimensions, with only the route centre-lines charted (CAA, 2016c[1]). CAP 764 states that there should be no obstacles within 2 nm either side of HMRs but where planned should be consulted upon with the helicopter operators and ANSP. This distance is based upon operational experience, the accuracy of navigation systems and practicality. The 2 nm distance provides time and space for helicopter pilots to descend safely to an operating height below the icing level should such conditions arise…* *8.7.4.6 Compliance with the HMR structure is not compulsory. In the general interests of flight safety, however, civil helicopter pilots are strongly encouraged to plan their flights using HMRs wherever possible (NATS 2017b). It should be noted however that the Offshore Renewables Aviation Guidance (ORAG) (RenewableUK, 2016) advises that the HMR routes in the southern North Sea are rarely followed* *8.7.4.7 Helicopters must avoid persons, vessels, vehicles and structures by a minimum distance of* *500 ft. In visual conditions, pilots may use HMRs or they may opt to fly direct to their destination in open air space. When operating within Instrument Flight Rules (IFR), helicopters require a Minimum Safe Altitude (MSA) of 1,000 ft. height clearance from obstacles within 5 nm of the aircraft. Whilst following an HMR the helicopters operate IFR under Anglia Radar service provision.* 2.11 As the helicopters fly closer to the SE offshore infrastructure and activities (such a drilling rig vessels) and are about to reach their respective helipads, different procedures are required to be adhered to. The Operations Manual specifies the manoeuvre required to be followed by a helicopter Type. The manoeuvres include an Offshore Airborne Radar Approach (**"ARA"**). **[See SE ISH 1 Appendices Y & ZE]** 2.12 The AviateQ International Limited Report (October 2018) **[See SE ISH 1 Appendix Y]** includes, in its	notes that in calm air the approach can be made from any direction. 2.14 The Applicant advises that on repeating the ARA, it is again only the Final Approach Path that is required to be flown substantially into wind. EASA GM1.SPA.HOFO.125 Airborne radar approach (ARA) to offshore locations. In constructing the procedure, the final approach track, which should be orientated so as to be substantially into the wind, should be identified first as it is the least flexible and most critical of all the segments. The figure of 7.5 nm is not supported by the EASA Guidance Material. 2.15 The Applicant advises that Spirit Energy are misinterpreting the figure 7.10 of Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement (APP-113). The figure does not show any information in regard to a helicopter type AW139, nor does it show the extent of ARA and MAP. The Figure 7.10 of Volume 5, Annexe 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement shows the constrained areas (green) over which a helicopter could not approach the platforms if conducting a straight in ARA during instrument meteorological conditions (IMC), and the corresponding wind segment (red) which would result in the flight being over that constrained area (green). The Applicant also notes that Spirit Energy have misinterpreted the aviation assessments in their statement at paragraph 1.1 of Appendix ZG of the Deadline 3 submission. Spirit Energy state that the Applicant's conclusion in paragraph 8.11.2.64 Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement (APP-068) is based on the asserted 5% of flights being

Relevant Representation Comment	Applicant's Response
Appendix 1, a diagram of the ARA Approach in relation on offshore platform. The diagram shows, in illustrative form, the terms of the requirements of the Operational Manual B. The diagram comprises two illustrations: a plan; and a section, and includes arrows specifying flight directions in degrees and distances in nautical miles (**"nm"**). Notations mirroring the requirements of the Manual also appear on the diagram. These include "Missed Approach: initiate a climbing turn of minimum 30o in the same direction as the offset and continue to climb to MSA". A further note states at (b) to "reference radar to ensure approach and missed approach avoid any radar identified obstacles by at least 1nm". The diagram includes a section specifying the heights of the ARA that mirrors the plan above. The notation "MAP" means "Missed Approach Point" and the diagram point "1" equates to the point by where the pilot must decide to execute a Missed Approach Procedure (**"MAP"**) or continue with the landing manoeuvre. A decision to execute MAP aborts the landing (or take off) onto the platform and results in the helicopter diverting to the left or right of the platform landing area and instead then climbing and turning through a specified series of manoeuvres to return to perform an ARA for a subsequent time by following the ARA procedure as shown in Appendix 1. 2.13 An ARA can only be commenced on a straight line towards the destination helipad on a heading that makes an angle of no more than 30o to a line directly downwind of the destination. The MAP would commence from this heading. Depending on the wind direction, a MAP may need to be executed from any plan direction in relation to each Platform. The wind in the vicinity of the Platforms is in illustrated in Figure 7.6 and paragraphs 7.4.4.2-3 on page 24 of ES Volume 5, Annex 8.1, Aviation (PINS Reference A6.5.8.1). 2.14 In order to adhere to the specification of the Operational Manual for the MAP, a helicopter requires an unobstructed notional column of air in which to both execute the required turns and to climb back up to the start point for the ARA shown in Appendix 1, being the required 7.5nm "Lead in" distance to the Final Approach Track (**"FAT"**). The ARA is then repeated and may (again) result in a MAP. See paragraph 10.4.3 of the AviateQ International Limited Report (October 2018) where the trajectories for a paths are shown diagrammatically. 2.15 CAA, CAP 764, paragraph 3.31(1) provides that a basic requirement is provision of an unobstructed volume of airspace in which to execute safely necessary helicopter certain manoeuvres. Paragraph 3.32 explains how the absence of that unobstructed airspace can have consequences that threaten safe operation of offshore infrastructure installations. **[See SE ISH 1**	undertaken under instrument flight rules (IFR). The Applicant has used the figure of 5% for IMC conditions which dictate a straight in ARA to be flown (see the Applicants response to the ExA Q2.5.14 presented at deadline 4). 2.16. The Applicant notes that most of the information being presented in regard to the safety of offshore helicopter operations is not relevant to this case. The CAA review of Norwegian incident reporting for example has no bearing on Hornsea Project Three. The Applicant notes that the CAP 1145 safety review discusses five accidents and a further three have occurred since those identified in the CAP. Three of the eight accidents are as a result of gearbox issues on the Super Puma/EC 225 series. The Sumburgh crash (mentioned by Spirit Energy) was during an onshore approach using onshore aids so again is not relevant here. The Cormorant Alpha accident was flying in 60 kt winds, turned downwind and lost airspeed and crashed into the sea. This would not occur again due to the new sea state limits that have been put in place in the UK and so is not relevant to this case. A Super Puma accident occurred when the helicopter was struck by lightning which is not relevant to the case. The E225 and AS365 accidents occurred during a visual approach at night using old deck lighting systems and so are not directly related to the case. Since these accidents, training and procedures have been improved and higher standards of deck lighting have been implemented, which is why the Chiswick helideck is not currently certified for night flying. The Applicant notes in regard to comments on collision risk provided by Spirit

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Appendix M] The result of the Operational Manual requirements for ARA including MAPs is to require a spatial column around each Platform of 7.5nm diameter. The plan, reference Figure 7.10 on page 33 of ES Volume 5, Annex 8.1, Aviation (PINS Reference A6.5.8.1) shows in relation to each platform the area of a vertical column of airspace unobstructed between sea level and 1,500 feet required for a helicopter type AW139 to execute a MAP following an ARA made in relation to the Platforms: Chiswick, Grove and ST-1 and J6/J6A-CT of SE. The red circles on that plan are shown as 7.0nm diameter (and not 7.5nm as required by the CAA Operational Manual in Appendix 1 to the AviateQ International Limited Report (October 2018)) and so can only be illustrative of the Operational Manual requirement. Within the circles are areas shaded red and green. The green area of each circle shows the westward extent of the MAP and this area correctly assumes an approach by a helicopter from the eastwards and towards each of the given platforms. 2.16 The Operational Manuals, and the physical distances that they engender, establish safe helicopter flying for pilots and passengers. Between 1976 and 2013, 73 helicopter accidents occurred in the UK's offshore sector. Thirteen of those accidents resulted in fatalities. In August 2013, a helicopter crashed into the sea while on approach to Sumburgh Airport on Shetland. Four passengers were killed. That was the fifth helicopter accident since 2009 involving the transfer of oil and gas industry personnel to and from offshore installations in the North Sea. The Sumburgh crash prompted the CAA to launch a wide-ranging review into offshore helicopter safety. In September 2013 the CAA initiated a review to examine the risks and hazards of offshore helicopter operations in the UK, which was conducted in conjunction with the European Aviation Safety Agency (EASA) and the Norwegian Civil Aviation Authority. The CAA review uncovered a worrying statistical trend that shows Norway reporting far more incidents which could endanger life than in the UK. See the Transport Committee's Second Report on Offshore Helicopter Safety (July 2014)) **[See SE ISH 1 Appendix K]**. 2.17 In February 2014, the CAA published its review of offshore helicopter safety, which made strong recommendations on safety governance, airworthiness and equipment. **[See SE ISH 1 Appendix l]** 2.18 A report was entitled CAP1145: Safety review of offshore public transport helicopter operations in support of oil and the exploitation of oil and gas and made strong recommendations on safety governance, airworthiness and equipment. The CAA published two further reports: 2.18.1 CAP1243 Safety review of offshore public transport helicopter operations in support of the exploitation of oil and gas - Progress report (January 2015); and **[See SE ISH 1**	Energy in paragraph 5.8 of Appendix ZE submitted by Spirit Energy at Deadline 3 (REP3-061), that wind turbines, as fixed obstacles, can be put into the Terrain Awareness Warning System database, which alerts crews to their proximity. The AW139 used by Spirit Energy is already fitted with this equipment. 2.17 The Applicant notes as discussed at 2.16 that the CAP11445 safety review refers to incidents which are not directly applicable to Hornsea Three and makes recommendations that are largely to do with post-accident survival. The recommendations have now been implemented in the UK and so are not relevant in this discussion (baseline flight requirements). The Applicant notes that the CAA Safety Directives relates to flights in the UK sector and so operators flying from Den Helder are actually not subject to the same Directives. 2.18 The Applicant advises that the recommendations from CAP 1145 safety review are not directly applicable to Hornsea Three. The progress reports on these recommendations are therefore not applicable. 2.19 The Applicant advises that the wind industry use the same helicopter operators as the oil and gas sector. The Applicant advises that they are therefore fully informed of offshore helicopter safety action group (OHSAG) and are fully informed of the involvement of the different parties in this group. 2.20 Noted 2.21 The Applicant notes that the Hornsea Three zone interacts with the 9 nm consultation zone around the Spirit Energy platforms, and that because of this

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Appendix L] 2.18.2 CAP1386 Safety review of offshore public transport helicopter operations in support of the exploitation of oil and gas - Progress report (September 2016). **[See SE ISH 1 Appendix P]** 2.19 An action from the review was to set up a CAA-led safety governance body for offshore operations, with representation from key organisations from across the industry, named the Offshore Helicopter Safety Action Group (OHSAG). **[See SE ISH 1 Appendix R]** 2.20 Membership of OHSAG includes CHC Scotia Limited. 2.21 The current situation is that helicopter access to the SE offshore infrastructure and activities can be undertaken in unobstructed airspace within a diameter of 7.5nm of each of the said infrastructure installations and activities of SE, together with a 5nm diameter unobstructed airspace volume for MAPs.	overlap the Applicant has progressed the assessments on Spirit Energy operated assets and is consulting with Spirit Energy in this regard.
3 Vessel activity near to the Platforms 3.1 In addition to helicopters, vessels traverse the vicinity of the Platforms and the subsea wells of SE. 3.2 Save for the Platforms, the only existing navigation feature near to the Platforms is the Off Botney Ground Traffic Separation Scheme (**"TSS"**) to their south and southeast. The TSS is aligned at a 45o angle to the Platforms. See Figure 10.1 of ES Volume 5, Annex 7.1, Navigational Risk Assessment (PINS Reference A6.5.7.1). The main routes for transiting appear in Figure 7.4 of ES Volume 2, Chapter 7, Shipping and Navigation (PINS Reference A6.2.7). Table 7.6 identifies the (average) daily traffic using the 16 routes (see page 18 of ES Volume 2, Chapter 7, Shipping and Navigation (PINS Reference A6.2.7)). Route 1 passes between Chiswick and ST1 Platforms and carries some 3 to 4 vessels daily. Route 10 traverses to the north of Chiswick Platform and carries about 1 vessel per day. 3.3 Figures 15.4 to 15.7, and 15.9 and 15.11 of ES Volume 5, Annex 7.1, Navigational Risk	Section 3 consists of a summary of Chapter 7: Shipping and Navigation of the application; the Applicant has no specific response to make on the summary aside from the following points: Figure 7.7 does show MAIB incidents that have occurred over a 9-year period within a ten nautical mile study area around the site. Incidents include three accidents to persons, one hazardous incident and one contact. It it noted that any civilian helicopter assistance in any future incidents would only be requested by the Maritime and Coastguard Agency. Commercial ferry routes are shown in Figure 15.14 of the NRA [APP-112], it is noted that these are roll on roll off cargo carriers carrying a maximum of 12 passengers.

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Assessment (PINS Reference A6.5.7.1) shows the types of vessel that transit in the vicinity of the Platforms. 3.4 These vessels currently comprise, essentially, two categories: 3.4.1 Third party vessels transiting along sea routes (see Figures 15.5 (Cargo), 15.6 (Tanker), 15.14 (Ferries), 15.15 (Recreational), and 15.16 (Fishing) of ES Volume 5, Annex 7.1, Navigational Risk Assessment (PINS Reference A6.5.7.1); and 3.4.2 SE vessels manned by third parties servicing the Platforms (Figure 15.7 of ES Volume5, Annex 7.1, Navigational Risk Assessment (PINS Reference A6.5.7.1). 3.5 Accidents occur in the area of sea around the Platforms. See Figure 7.7 and paragraphs 7.7.2.25, and 7.7.2.27-29 of ES Volume 2, Chapter 7, Shipping and Navigation (PINS Reference A6.2.7). Civil helicopters are required to assist in the event of a distress call and it is safe to do so. **Third Party Vessels** 3.6 The existing situation of vessels transiting near to the SE Platforms is shown in Figures 15.9 (page43) and 15.11 (page 45) of ES Volume 5, Annex 7.1, Navigational Risk Assessment. 3.7 Figures 15.14 and 15.15 show how currently commercial ferry vessels traverse from east to west between Immingham and Cuxhaven and recreational vessels reflect that east to west passage passing just between Chiswick and ST1/JT6A Platforms. In addition, Figure 7.11 of ES Volume 2, Chapter 7, Shipping and Navigation (PINS Reference A6.2.7) shows the adverse weather routes, standard routes and AIS tracks of DFDS Seaways that includes a route passing east to west between Chiswick and ST1 Platforms. 3.8 Figure 15.16 of ES Volume 5, Annex 7.1, Navigational Risk Assessment shows how currently	Figure 15.15 does show recreational vessels transiting through the array area however, as per paragraph 15.2.9, 45% of the recreational track shown were associated with the Noth Sea Race and occurred over two day in June 2016. This level of recreational traffic is considered to be an irregular occurrence. It is also noted that the North Sea Race route changes every year depending on weather and tidal conditions. If data within Figure 15.16 is interrogated further it can be seen that only 29% of vessels operate in an east or west direction, with a large portion of these vessels being actively engaged in fishing rather than transiting.

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fishing vessels pass from east to west and vice versa but transit between Grove and ST1/JT6A Platforms. **SE Vessels** 3.9 There is currently sufficient sea room around each of the SE offshore infrastructure installations forSE vessels to safely approach SE platforms.	
4 Legislation affecting the Assets 4.1 The operation of, and exploitation of gas by, each of the Assets is itself subject to obligations including under: **[See SE ISH 1 Appendix ZA]** 4.1.1 Sections 2 and 3 of the Health and Safety at Work Act 1974; 4.1.2 Section 21 of the Petroleum Act 1987; the "Maximising Economic Recovery Strategy for the UK (**"MER Strategy"**). The MER Strategy is published by the Secretary of State fir Business, Energy and Industrial Strategy (**"BEIS"**); and 4.1.3 Section 9A(2) of the Petroleum Act 1998, SE is subject to the Central Obligation (7) of 4.1.4 Regulation 17(1) of the Offshore Installations (Offshore Safety Directive) (Safety Case etc) Regulations 2015 (SI215/398, in force from 19th July 2015) (**"the OIR 2015"**). 4.2 A feature of these provisions is that they impose obligations on SE and not on a third party. 4.3 In particular, the OIR 2015 require the maintenance of a safety case that includes provisions requiring risks to be subject to the UK concept of "ALARP". A change in the basis of the safety	4.1: Noted 4.2. Noted 4.3. Noted 4.4. Noted 4.5 Noted 4.6 Noted 4.7 The "Maximising Economic Recovery Strategy for the UK" (MER Strategy, paragraph 23) as quoted by Spirit Energy requires that Spirit Energy ensure that new and emerging technologies are deployed to their optimum effect. The Applicant is aware of the growing use of walk to work vessels both in the offshore wind industry and within oil and gas. It was advised through pre-application consultation (Table 8.4 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement) that this method is becoming increasingly popular in the North Sea as it is cost effective. This effectively provides a floating hotel moored alongside a platform allowing workers to

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case provisions can result in the suspension of exploitation by the safety case holder and require inspection by the competent authority. **Petroleum Act 1998 and the MER Strategy** 4.4 The Secretary of State for Business, Energy and Infrastructure Strategy is the decision maker in relation to this Application for a development consent order under the Planning Act 2008. 4.5 By section 9A(2) of the Petroleum Act 1998, the SoSBEIS has published, by his delegate the Oil and Gas Authority, the terms of the Central Obligation which states: **[See SE ISH 1 Appendix O]** ***7. Relevant persons must, in the exercise of their relevant functions, take the steps necessary to secure that the maximum value of economically recoverable petroleum is recovered from the strata beneath relevant UK waters.*** 4.6 The MER Strategy defines terms including "relevant persons", "relevant functions", and "infrastructure". Infrastructure means "terminals and, upstream of a terminal, equipment, pipelines, platforms, production installations and subsea and subsurface facilities". 4.7 The MER Strategy also includes: **Development** *13. Relevant persons must plan, commission and construct infrastructure in a way that meets the optimum configuration[2] for maximising the value of economically recoverable petroleum that can be recovered from the region in which the infrastructure is to be located…* **Asset Stewardship** *15. The owners and operators of infrastructure must ensure that it is maintained in such a condition and operated in such a manner that it will achieve optimum levels of performance, including production efficiency3 and cost efficiency, for the expected duration of production, taking into consideration the stage of field and asset development, technology and geological constraints…*	effectively walk to work, and thereby removing the reliance on daily helicopter transfer. The advantage of this technology for a work-over at a Normally Unmanned Installation (NUI) is obvious as not only does it reduce helicopter use, it provides a comfortable place for people to sleep and reduces the reliance on the temporary refuge. The Applicant considers that Spirit Energy have not adequately considered walk to work vessels as an alternative means of access to a platform particularly for planned maintenance activities. Walk to work Industry guidance(Det Norske Veritas Ltd, 2015) makes the following statement in the very first paragraph: "The manning and transfer of personnel to and from offshore facilities by a marine vessel via a gangway system provides an alternative to other means, such as by helicopter...this approach can offer significant benefits including, improved manning flexibility, reduced lifecycle costs and improved safety". Spirit Energy have advised (Paragraph 4.4 of Technical Note, Appendix ZG of Spirit Energy submission at Deadline 3) that in summer months these vessels (walk to work) are in very short supply and it is likely that it would not be possible to secure such a vessel for unplanned work in the summer leading to extensive loss of production. The Applicant notes that this implies they can be used for planned maintenance on the platforms. The number of days of unplanned work at a NUI is considered to be considerably lower than the planned maintenance requirements. It is noted that Spirit Energy already use walk to work vessels on other operations within their portfolio. 4.9 – 4.11 No Comment

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Technology *18. Relevant persons must ensure that technologies, including new and emerging technologies, are deployed to their optimum effect, as set out in a plan produced under paragraph 23, in maximising the value of economically recoverable petroleum that can be recovered from relevant UK waters, including in relation to decommissioning…* **Decommissioning** *20. Before commencing the planning of decommissioning of any infrastructure in relevant UK waters, owners of such infrastructure must ensure that all viable options for their continued use have been suitably explored, including those which are not directly relevant to the recovery of petroleum such as the transport and storage of carbon dioxide.* *21. Relevant persons must decommission infrastructure located in relevant UK waters in the most cost effective way that does not prejudice the maximising of the recovery of economically recoverable petroleum from a region. This includes ensuring due regard is given to the obligations in paragraph 18 insofar as they apply to decommissioning.* 4.8 MER Strategy paragraphs 30 to 34 provide limited exceptions where the Central Obligation need not be met. Those exceptions do not apply in relation to the Application. **Safety and "Safety Case" (4.9 – 4.10)**	
5 Development consent orders concerned with safe operation of offshore installations 5.1 The Secretary of State has recently granted development consent orders that included protective provisions concerned with the "continuing safety and operational viability" of offshore situations. Two examples show his approach in line with the requirements of paragraphs 2.6.181	5.1 Noted 5.2 The Applicant notes that the protective provisions quoted in the Hornsea Two Offshore Windfarm Order refer to crossing / proximity to existing pipelines. The

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(successful co-existence), 2.6.183 (ALARP), and 2.6.185 (safety and viability) of EN-3 and in line with the guidance of the Marine Plan. **[See SE ISH 1 Appendices Q & S]** See below the relevant guidance. 5.2 In the Hornsea Two Offshore Wind Farm Order 2016, No. 0000, (in force from 7th September 2016), Article 6(1) authorises development of an offshore wind farm subject to protective provisions in Schedule 12: paragraphs 5(a) of each of Parts 8, 9 and 10, entitle the protected party to require reasonable requirements to ensure continuing safety and operational viability of a pre- existing pipeline. The terms of the paragraph reflect those of EN – 3, paragraph 2.6.185. 5.3 In the more recent East Anglia Three Offshore Wind Farm Order 2017, No. 826 (in force from 29th August 2017), Article 3(1) authorises development of an offshore wind farm subject to protective provisions in Schedule 8, Part 7, For the Protection for Oil and Gas Licences, paragraphs 75-87. The scope of those provisions encompasses, in paragraphs 76-77 provisions requiring a Proximity Agreement in relation to potential exploration, appraisal, development and/or decommissioning of hydrocarbon resources in "the Protected area". The latter area is defined as an area coloured green on a plan. Paragraph 82 address the potential for "realistic oil and gas resources". **[See SE ISH 1 Appendices Q & S]** The use of the phrase "successfully co-exist" in paragraph 86 reflects the same phrase in EN- 3, paragraph 2.6.181.	protective provisions do not refer to oil and gas platforms nor to speculative developments. Based on the Applicant's assessments within the Environmental Statement (Volume 2, Chapter 11: Infrastructure and Other Users of the Environmental Statement (APP-071), there is no significant impact to the continuing safety and operational viability of any existing infrastructure owned by Spirit Energy. It is standard industry practice to enter into proximity agreements owing to the reciprocal expectations of coexistence. Further to this, where obligations are placed upon a party other than the undertaker named in the DCO, a more appropriate mechanism is within a private contract between the parties rather than within protective provisions, because that agreement can include comittments negotiated bilaterally. There is a greater chance of agreeing a private contract if , and at a time when,plans are sufficiently progressed to allow the other party to assess the impacts of the proposed development. The protective provisions suggested by Spirit Energy amount to an exclusion of Hornsea Three from unnecessarily wide buffer zones around the relevant platforms, rather than coexistence.
6 Meetings between spirit energy and the Applicant 6.1 There have been a series of meetings between SE and the Applicant about the proposals envisaged for development of the area west of the Platforms for wind turbines. 6.2 On 16th September 2016, SE discussed the proximity of the proposal to Chiswick Platform and the associated impracticalities regarding helicopter access/egress to/from that Platform and any future exploration vessels". See Table 11.4 of ES Volume 2, Chapter 11, Infrastructure and Other Uses	6.1 and 6.2 The Applicant agrees that Spirit Energy have engaged in consultation with the Application during pre-examination phase and that a summary of the consultation is included in Table 11.4 of Volume 2, Chapter 11: Infrastructure and Other Users of the Environmental Statement (APP-071). The Applicant notes that the date of the consultation meeting Spirit Energy is referring to is not the 16

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(PINS Reference A6.2.11). 6.3 On 5th December 2016, SE discussed the recently acquired licence P2286 covering Blocks 49/3, 49/9d and 49/4d and that a drill or drop licence with a well was required to be drilled before September 2019. See Table 11.4 of ES Volume 2, Chapter 11, Infrastructure and Other Uses (PINS Reference A6.2.11). 6.4 On 12th December 2016, SE discussed the Radar Early Warning System (**"REWS"**) on the J6A platform. See Table 11.4 of ES Volume 2, Chapter 11, Infrastructure and Other Uses (PINS Reference A6.2.11). 6.5 On 20th September 2017, SE discussed: REWS and the impediment to "collision risk with platforms or attendant vessels"; Proximity and crossing of assets and the "potential need for exclusion zones"; "Risk assessment methodology: Discussion is needed on the approach and conclusions reached. [SE] concerns that what is considered intolerable from a safety perspective are incorrectly evaluated as not posing a significant impact"; Maximising Economic Recovery: steps are necessary to be taken to secure the maximum value of economically recoverable petroleum form the strata beneath UK waters. See Table 11.4 of ES Volume 2, Chapter 11, Infrastructure and Other Uses (PINS Reference A6.2.11). 6.6 In May 2018, the Applicant then undertook an ES. Paragraph 11.7.16.1 bullets 1 – 4 of ES Volume 2, Chapter 11, Infrastructure (PINS Reference A6.2.11) asserted that services associated with the oil and gas industry (helicopters for personnel transfer and emergency evacuation) and vessels for supply and support and REWS to prevent vessel collision, were properly addressed in ES Volume 2,. Chapters 8 and 11 6.7 The Applicant responded to the concerns above by asserting: collision risk had been assessed in the ES; REWS had been assessed and displaced shipping had been assessed in ES Volume 2, Chapter 7, Shipping and Navigation; safety has been assessed in ES Volume 2: Chapter 8, Aviation; and	September 2016 but the 19 September 2016. 6.3. The Applicant agrees that on the 5 December 2016 Spirit Energy discussed the recently acquired licence P2286 with the Applicant. The Applicant wishes to note that this licence has subsequently been surrendered by Spirit Energy. 6.4 The Applicant agrees that on the 12 December 2016 Spirit Energy discussed the Radar Early Warning System (REWS) that they advised was located on the J6A platform. The Applicant notes that this REWS was then assessed accordingly in Volume 5, Annex 11.1: Radar Early Warning System Technical Report of the Environmental Statement; (APP-119). The Applicant was then however advised by Spirit Energy (email of April 2018) that there was in fact no REWS on the J6A platform and that there was a RACON and AIS system on the platform. Further information was provided (July 2018) which included the specifications of the equipment on board the J6A platform and a document regarding ship collision. The equipment specifications only included the RACON system and no additional radar or ARPA definitions. The ship collision study advised that the J6A platform had an ARPA provided by DECCA, which is a display and data processing technology. No specifications of radar were provided however it stated that the ARPA alarm range was limited to 4 nm, and so not within the range of potential effect from Hornsea Three. The Applicant conducted an additional assessment on the RACON and AIS system which was submitted at Deadline 1 (REP1-117). The Applicant notes that Spirit Energy submitted new information at Deadline 3 (section 9.2 of Appendix ZG of Spirit Energy submission at Deadline 3) that indicates they have a radar on the

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Chapter 7, Shipping; and in Chapter 11, Infrastructure. 6.8 In fact: 6.8.1 Table 11.2 of the ES Volume 2, Chapter 11, Infrastructure and Other Uses (PINS Reference A6.2.11) set out a summary of EN-3, paragraphs 2.6.183-184 and 186-188 (but not paragraph 185) and directed the reader to other Chapters within the ES; 6.8.2 Table 11.2 of the ES Volume 2, Chapter 11, Infrastructure and Other Uses (PINS Reference A6.2.11) expressly refers to the EN-3, paragraph 2.6.183 statutory guidance test of "as low as reasonably practicable", the Table itself refers back to other Chapters in the ES and the ES itself contains no ALARP methodology nor any discrete ALARP assessment in relation to paragraph 2.6.183 matters despite the stated concern of SE on 20th September 2017; 6.8.3 ES Volume 2, Chapter 12, Inter-related Effects (PINS Reference A6.2.12) includes no ALARP assessment of the inter-related risk of vessel allusion with a Platform nor of helicopter and turbine conflicts. At its highest, the summary conclusions in Table 12.15 on page 34 go so far as to accept that "potential exists" for interactions comprising "disruption of vessel access to oil and gas platforms and disruption of helicopter access to oil and gas platforms", and that there is "potential for wind turbines to deviate vessels nearer the platforms" and that an "effect will" arise during operation in respect of the wind farm. But there is no ALARP assessment of that potential affect from vessel allusion with a platform or of the affect upon safe helicopter flights arising from the intervention of wind turbines near to the platforms; and 6.8.4 Table 11.2 of ES Volume 2, Chapter 11, Infrastructure and Other Uses (PINS Reference A6.2.11) refers alone to siting of "Hornsea Three" whereas a lawful EN-3 application of paragraph 2.6.184 requires evidence of and consideration of "site design" and not the siting of "Hornsea Three" area alone. There is currently no evidence of any secured micro-piling "site design" nor the situations of ay associated installations before the Examining Authority.	J6A platform which on initial consideration by the Applicant does appear to be a REWS system. The Applicant having requested and received additional information from Spirit Energy in this regard, is currently undertaking a comparison of this model and operational coverage with the REWSoriginally assessed in Volume 5, Annex 11.1: Radar Early Warning Technical Report of the Environmental Statement The Applicant disagees with the conclusions drawn by Spirit Energy in their response at section 9.6 of Appendix ZG of Spirit Energy submission at Deadline 3. Spirit Energy are confusing the conclusions made in the Volume 5 Annex 11.1: Radar Early Warning Technical Report of the Environmental Statement and in the Racon/AIS technical note submitted at Deadline 1) and are comparing the conclusions drawn with the new information provided at section 9.2 Appendix ZG of Spirit Energy submission at Deadline 3. The Applicant advises that until the new information has been considered by the Applicant and a further report on the effect of Hornsea Three on the radar, the statements so made at section 9.6 to 9.14 of Appendix ZG of Spirit Energy submission at Deadline 3 are not valid. 6.5 Noted 6.6 Noted 6.7 Noted 6.8.1 Noted 6.8.2 The Environmental Statement submitted by the Applicant has been prepared in accordance with the requirements of EN-1 and EN-3 as outlined in Table 11.1

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	and 11.2 of Volume 2, Chapter 11 Infrastructure and Other Users of the Environmental Statement. The Environmental Statement has satisfied the requirements of ALARP where this can be applied (see the Applicants response to ExA Q2.5.13 submitted at Deadline 4). 6.8.3 The inter-related effect type being referred to in Volume 2, Chapter 12: Inter-related effects (offshore) of the Environmental Statement (APP-072) considers the assessment of the scope for multiple effects to interact to create inter-related effects on a receptor. In the case of "disruption of helicopter access to oil and gas platforms, drilling rigs and operational vessels" interacting with "disruption of vessel access to oil and gas platforms and subsea infrastructure", the chapter acknowledges that "potential exists" for these interactions, and this is the reason that an assessment is then provided. The assessment concludes that the significance of these combined effects on oil and gas operators will not be of any greater significance than the effects when assessed in isolation (i.e. minor adverse). Each effect in isolation has been considered within the appropriate chapter (Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement and Volume 2, Chapter 8: Aviation military and communication of the Environmental Statement.). As noted, the Environmental Statement has satisfied the requirements of ALARP, where this can be applied (see the Applicants response to ExA Q2.5.13 submitted at Deadline 4). 6.8.4 The Applicant has included a full and comprehensive site design of Hornsea

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	Three (Volume 1, Chapter 3: Project Description of the Environmental Statement; APP-058) within the parameters of the Rochdale Envelope. The maximum design elements of relevance to the assessment of oil and gas are listed in Table 11.20 of Volume 2 Chapter 11 Infrastructure and Other users of the Environmental Statement.
7. The Application **The Application for a Development Consent Order under the Planning Act 2008** 7.1 The Applicant has been granted an agreement for licence by the Crown Estate from March 2016 (see paragraph 1.4.1.4 of the ES, Volume 1, Chapter 1, Introduction (PINS Reference A6.1.1)(May 2018)). 7.2 The Applicant proposes to interpose within this pre-existing situation an entitlement to erect up to 300 wind turbines in a diamond-shaped area immediately west of the Assets. 7.3 The publisher of the MER Strategy is the decision maker on the Application. **[See SE ISH 1 Appendix O]** 7.4 Pursuant to sections 14(1)(a) and 15(2) and (3) of the Planning Act 2008 (**"PA 2008"**), the Applicant has applied to the **SoSBEIS** for consent under sections 114 and 120 for a development[2] consent order (**"the dDCO"**) authorising the construction of a windfarm of a capacity of least 100MW within a circumscribed c.696km diamond shaped area of seabed of c. 696km identified in Offshore Order Limits and Grid Co-ordinates Plan, PINS Document Reference A2.2.1 (May 2018)) for "up to 300 turbines". Within that area, "Works No. 1" is identified and that is the particular area in which turbines are envisaged to be situated (**"the Application Area"**) (PINS Document Reference A2.4.1, Sheet 1). The easternmost edge of the Application Area comprises a straight line between the ETRS89 (Degree Minutes Seconds) co-ordinates at Development Area Node Points 66/61 and	7.7 As noted by Spirit Energy in the preceeding paragraph, the maximum height of the turbines is specified in the Draft DCO. Within Section 5 of the Application Form, as referred to by Spirit Energy, the Applicant makes reference to a maximum of 321 offshore *structures* (under a scenario which includes subsea HVAC booster substations). The 321 structure comprises 300 turbines and 21 substations / platforms (i.e. the additional 21 offshore structure do not comprise turbines). 7.9 The Applicant confers that "oil and gas operations" are included as a category in Volume 2, Chapter 11 Infrastructure and other users of the Environmental Statement. Table 11.20 of Volume 2, Chapter 11 Infrastructure and other users of the Environmental Statement lists the maximum design scenario of the project that was used to inform the assessments on oil and gas operations. The Applicant advises that the spatial programme being referred to is the construction programme as described in the preceding sentence. It should be noted construction will progress across the site over time to the full build out scenario presented. As the spatial programme is not known however the assessment considers the construction to start in any area that is applicable to the assessment as the maximum design scenario. This effectively means that as it is not known

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68/63 shown on that plan and the accompanying table in Document A2.4.1 (**"the Eastern Boundary of the Application Area"**/ **"the Eastern Boundary"**).	which part of the site will be built on first, the worst case is assumed by initiating construction in the area applicable to the assessment.
7.5 The Assets of SE lie immediately east of the Eastern Boundary. See the Table on pages 6-7 of the Written Representations. In particular, the proposed Eastern Boundary would lie: 7.5.1 1.5nm west of the Chiswick Platform; 7.5.2 2.4nm west of the Grove Platform; 7.5.3 6.9nm west of the Markham J6A Platform; and 7.5.4 1.5nm west of the subsea Grove G5 subsea well.	The Applicant advises that paragraph 11.9.2.6 to 11.9.2.9 of Volume 2, Chapter 11 Infrastructure and other users of the Environmental Statement are included to help the reader understand how the assessments on future oil and gas activity have been considered within the Environmental Statement. The Applicant advises that Table 11.27 of Volume 2, Chapter 11 Infrastructure and other users of the Environmental Statement outlines designed in measures that are mitigation measures that will be part of the Hornsea Three application irrespective of the assessment of effects (i.e. designed in). Other measures that are considered to be required are detailed for each assessment as applicable and appropriate to that assessment (see oil and gas assessments at paragraph 11.11.1.35 to 11.11.1.89, paragraph 11.11.2.17 to 11.11.2.102, paragraph 11.11.3.6 to 11.11.3.13, paragraph 11.13.2.45 to 11.13.2.104 and paragraph 11.13.3.30 to 11.13.3.77 of Volume 2, Chapter 11 Infrastructure and other users of the Environmental Statement).
7.6 The dDCO, Article 3(1) would authorise the Applicant to carry out within the Application Area Works No1., subject to the requirements. dDCO, Part 3, Requirements, provides for "Detailed offshore design parameters". Paragraph 2(1)(a)(i) caps the height of the turbines to 325m if there are less than 160 and paragraph 2(b)(i) caps the turbine height to 250m if 300 turbines are actually built. The terms of paragraph 2(1)(b) and (c) are not mutually exclusive. Therefore, there can be erected 160 turbines of 325m height and a further 140 of 250m in height up to 300 in total.	
7.7 No Works Plan section limits the height of the Application Area nor its depth below the sea bed. The Application Form, paragraph 5, refers to a maximum potential number of 321 turbines in the Application Area. No Design Parameter regulates turbine dimensions where the number erected exceeds 300. Therefore, there is no upper height cap on the 21 turbines explained by the Application Form to be proposed.	7.10 – 7.17 Noted.
7.8 Paragraph 2(1)(c) requires that there be a minimum of 1km, in all directions, between each of the authorised turbines. Therefore, this requirement engenders a minimum area of a notional grid layout (comprising a notional net of 1km squares with 1 turbine at each node) applied within the Application Area. Conversely, the 1km minimum distance could be expanded in any direction so as to enable the turbines to be actually sited across the whole extent of the Application Area.	7.18 The ExA will be aware that there is no requirement for an applicant for a DCO to make out a case for the need for the NSIP beyond that set out in the National Policy Statements. That is beyond doubt and for SE to suggest otherwise simply demonstrates a misunderstanding of the statutory and policy regime.

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7.9	ES, Volume 2, Chapter 11, Infrastructure (PINS Reference A6.2.11)(May 2018), paragraph 11.8.1.2 categories included "oil and gas operations". However, this was in the context that the "spatial programme is not yet known". See Table 11.20, (page 40 column 3, row 1) of ES Volume 2, Chapter 11, Infrastructure (PINS Reference A6.2.11). See also pages 43-44 and Table 11.20 (column 1). Further, paragraphs 11.9.2.6-9 did not consider the "potential impacts" on oil and gas activity. Table 11.27 includes certain measures concerning REWS and advisory distances. No other measures were included as part of the application proposals.	
7.10	Within the Application Area, the actual number beyond the minimum to supply the 100MW capacity applied for (i.e. about 11 turbines), and the siting of, turbines cannot be known in the Examination because the Applicant orally confirmed at ISH1 that the Application project scale remains contingent on a final funding decision by its Board yet to be made. The Examining Authority cannot be in a better position than the Applicant. The Applicant also accepts that the application for "up to 300" turbines assumes that less than that number may be erected. For example, constraints may inhibit the number actually able to be built.	
7.11	Understandably, therefore, the Applicant has adopted a "*Rochdale* Envelope" approach to its Application. Consistent with the current state of its affairs, the Applicant is unable to provide Design Parameters fixing numbers or micro-siting and, instead, has provided a variety of pictorial illustrations envisaging siting (**"Indicative Plans"**) for the Application Area whist understanding that its pictures are no more than that. Advice Notes provide the appropriate approach to ensure that the potentially understandable desire for flexibility is not abused. For example, where the need for protective provisions cannot be addressed by counter-veiling objective justification.	
7.12	The Environmental Statement, Chapter 3, Project Description (PINS Reference A6.1.3)(May 2018), Figure 3.9 shows the "Indicative Layout" envisaged as one example of how dDCO, Part 3, paragraph 2(1)(b) might be laid out (**"Layout A"**). Layout A shows 300 'points' on the plan following a notional regular grid and with a continuous line of turbines along the boundary of the Application Area set at an apparently closer distance to each other. Applying the scale on that Figure, the boundary turbines appear to be at 1km intervals in line with paragraph 2(3) of Part 3,	

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whereas the turbines shown within the Application Area are shown apart at a distance greater than the minimum required by that paragraph. That is, Layout A shows an area tolerance, or actual capacity, in which the spacings between the turbines illustrated can be contracted to the minimum required by paragraph 2(3) so that not all of the Application Area can be required for either the minimum 100MW capacity sought nor the area for the capacity generated by "up to 300" turbines. Figure 3.10 shows a "Layout B" ("**Layout B**") to similar effect but with 160 turbines. There is no evidence of a layout for either 160 or up to 300 turbines applying the minimum requirement of dDCO, Part 3, Requirements paragraph 2(1)(c) nor evidence of a seabed constraint precluding a more contracted layout than illustrated in the ES Layouts A and B.	
7.13 Paragraph 2(5) of the dDCO, Part 3, "Detailed offshore design parameters" describes the maximum area of the seabed that can be occupied by all of the turbine foundations.	
7.14 The Environmental Statement, Chapter 3, Project Description, Figure 3.10, describes the foundations of each turbine and Table 3.6 provides parameters.	
Construction of the Turbines	
7.15 Construction of 300 turbines would require the presence of 3,200 vessels. See Table 3.8 of ES Chapter 3, Project Description (PINS Reference A6.1.3). Each turbine would be attached to a foundation and have associated structures including 12 offshore substations. See Tables 3.9-3.15 and 3.39 of ES Chapter 3, Project Description (PINS Reference A6.1.3).	
Application for a Deemed Marine Licence	
7.16 The Applicant has also sought consent of a Marine Licence. See dDCO Schedule 11. Paragraph 2(1) and 3 describe the activities of construction, maintenance and operation of Works No.1 on the sea	

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bed of "up to 300" turbines fixed to the sea bed, and also any "necessary or expedient" associated development, within the Application Area also described in paragraph 5 by grid co- ordinates. Part 2 of the proposed Marine Licence, paragraphs 1(1) and (5), mirror paragraphs 2(1) and (5) of the terms of the dDCO, Part 3, "Detailed offshore design parameters". **Timing of the Application Development** 7.17 The dDCO, Article 3(1) would authorise the Applicant to carry out within the Application Area Works No1., subject to the requirements. dDCO, Part 3, Requirements, provides for "Detailed offshore design parameters", and paragraph 1 requires the authorised project to be *commenced* no later than the expiry of 7 years from the date on which the dDCO would come into force. Assuming the order was confirmed in late 2019, that would require commencement (not completion) by a date in late 2026. The Environmental Statement, Chapter 3, Project Description, paragraph 3.6.3.10 explains that installation would take about 30 months. Therefore, once commenced and assuming all 300 turbines were chosen to be erected, completion may take another 2 ½ years. **Need for the Application** 7.18 There is no evidence of the need for the particular extent of the development (between about 11 turbines with a capacity of at least 100mw and "up to 300" turbines) that the Application would permit beyond reliance by the Applicant on paragraphs 3.1.3-3.1.4 of EN-1. It relies on general need.	
8 Domestic legal framework 8.1 The Application must be determined by the application of section 104 of the PA 2008. The Application comprises two applications:	8 The Applicant advises that the Planning Statement (APP-177) confirms the legislation and policy context for Hornsea Three as considered appropriate to the determination of the application. This includes the guidance set out in National Policy Statements and other matters of policy such as Marine Policy doucments and Marine Plans. In addition, the Applicant has provided a detailed response to the ExA at Q2.5.23 submitted at Deadline 4, with regard to the Application according with policies

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8.1.1 an application for a DCO; and 8.1.2 an application for a Marine Licence. The first is subject to section 104. The second is subject to section 104(2)(aa) and section 120(3). 8.2 Section 104 (2) requires the Secretary of State (**"SoS"**) to have regard to: 8.2.1 Any NPS that has effect in relation the Application; 8.2.2 The appropriate marine policy documents pursuant to section 59 of the Marine andCoastal Access Act 2009 (**"MACA 2009"**); and 8.2.3 Any other matters which the SoS thinks are "both important and relevant" to his decision. 8.3 Section 104(3) requires the SoS to decide the application in accordance with any relevant NPS, except to the extent that subsections (4) to (8) apply. **The Marine Policy Documents** 8.4 Section 104(2)(aa) of the PA 2008 requires that regard be had to the appropriate marine policy documents. Those documents derive from the Marine Policy Statement and reflect its approach. 8.5 The Government published the Marine Policy Statement in 2001. It includes: (Emphasis added) **[See SE ISH 1 Appendix E]** *2.3.1.5 Marine Plans should reflect and address, so far as possible, the range of activities*	within the East Inshore and East Offshore Marine Plans.

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occurring in, and placing demands on, the plan area. The Marine Plan should identify areas of constraint and locations where a range of activities may be accommodated. This will reduce real and potential conflict, maximise compatibility between marine activities and encourage co-existence of multiple uses. In addition the involvement of stakeholders and local communities in the marine planning process will help to maximise adherence to plan-led proposals, identify opportunities for compatible uses and minimise potential conflicts. Should conflicts arise, the marine plan authority in reaching a decision must integrate economic, social and environmental considerations in conformity with the MPS and draw on other considerations, evidence or supplementary guidance where appropriate. This process will be aided by the sustainability appraisal for a Marine Plan, as it will examine the degree to which conflicts are being addressed through mitigating actions… *2.3.1.2 Marine Plans will be based on a sound evidence base, as far as possible. This will identify issues to be addressed in the plan and inform plan development. The evidence base will be developed from a wide range of sources including existing plans[28], the plan area community, science advisors, statutory and other advisors, industry and other marine users. Where evidence is inconclusive, decision makers should make reasonable efforts to fill evidence gaps but will also need to apply precaution within an overall risk-based approach[29], in accordance with the sustainable development policies of the UK Administrations. This will apply equally to the protection of the natural marine environment, impacts on society and impacts on economic prosperity.* *2.3.2.1 Enforcement or authorisation decisions that affect or might affect the UK marine area must be made in accordance with the relevant marine policy documents30 unless relevant considerations, such as advances in scientific knowledge and technology for example, indicate otherwise. This means that decisions on activities in the UK marine area will be plan led once Marine Plans are in place…* *2.3.2.2 There are a number of principles that should also be taken into account, specifically that decisions should:* • *Be conducted in a way that takes into account all of the relevant UK Administrations' policy*	

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objectives affecting the marine area; … • *Be taken using a risk-based approach that allows for uncertainty, recognising the need to use sound science responsibly, as set out in the high level objectives; …* • *Look to avoid and then mitigate negative impacts where possible at various stages of development, including appropriate conditions in line with legal obligations, in a manner that is proportionate to the potential impacts of the proposal under consideration. …* **The Marine Plan** 8.6 Pursuant to section 59 of MACA 2009, the East Inshore and East Offshore Marine Plan (April 2014) (**"the Marine Plan"**) comprises the appropriate marine policy documents. Figure 1 shows Area 4: East Offshore. The Application Area falls within Area 4. Paragraph 33 summarises Area 4 and that it contains 39% of the oil and gas licence blocks in England which are anticipated to continue into the foreseeable future, together with exploration for new oil and gas reserves. It also contains "high levels of shipping traffic passing through the offshore area" and also coming into busy ports on the Humber, Felixstowe and other smaller ports. **[See SE ISH 1 Appendix J]** 8.7 The Marine Plan was formulated in light of the Marine Policy Statement (2011) (**"the Marine Policy Statement"**). **[See SE ISH 1 Appendix E]** The Marine Policy Statement states that the Government's vision for the marine area is for: "clean, healthy, safe, productive and biologically diverse oceans and sea" and the Marine Plan plays a part in delivering that high level vision and by 20234 there will be new infrastructure developments and improved co-ordination of existing activities in the East Plan areas "as a result of an integrated approach that respects other sectors and interests". See paragraphs 50-51 of the Marine Plan. 8.8 The Marine Plan is required to be read as a whole. See paragraph 49, 56, 60, 79, and 492.	

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8.9 Chapter 4 address Implementation of the Marine Plan. This includes: paragraphs: 494, In implementing the plans, the relevant public authorities, including the Marine Management Organisation, will need to apply precaution within an overall risk-based approach[276] (see below for Footnote 276). In accordance with the sustainable development policies of the United Kingdom Administrations277 (see below for Footnote 277). This will apply equally to the protection of the natural marine environment, impacts on society and impacts on economic prosperity. 8.10 Paragraph 495 states: When decisions are made under the precautionary principle in situations of uncertainty, the uncertainty that is being responded to should be made explicit, as should the precautionary measures that are being taken. This will ensure transparency, and also provide a clear basis for monitoring and feedback to future decision-making and management. 8.11 Paragraph 496 states: The precautionary principle covers those specific circumstances where: scientific evidence is insufficient, inconclusive or uncertain, and there are indications through preliminary objective scientific evaluation that there are reasonable grounds for concern that potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the requirements of protection. Ultimately, the precautionary principle requires a balancing exercise in which the risks of an activity, in the light of imperfect evidence, must be balanced against the need for sustainable development. In having recourse to the precautionary principle, the aim is to identify (and where possible quantify) the plausible risks, reduce uncertainty (to the extent possible) and then employ management measures that are proportionate to the activity in question and the level of plausible risk. 8.12 Footnote 276 states: This means that if the risks from an activity are uncertain preventative measures may be required if there is concern that human activities may harm human health, living resources and marine ecosystems or interfere with other legitimate uses of the sea or have other social and economic impacts. This would need to be considered based on risk. 8.13 Footnote 277 cross refers to paragraph 2.3.1.2 of the Marine Policy Statement:	

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Marine Plans will be based on a sound evidence base, as far as possible. This will identify issues to be addressed in the plan and inform plan development. The evidence base will be developed from a wide range of sources including existing plans28, the plan area community, science advisors, statutory and other advisors, industry and other marine users. Where evidence is inconclusive, decision makers should make reasonable efforts to fill evidence gaps but will also need to apply precaution within an overall risk-based approach29, in accordance with the sustainable development policies of the UK Administrations. This will apply equally to the protection of the natural marine environment, impacts on society and impacts on economic prosperity. **The Objectives of the Marine Plan** 8.14 The Application Planning Statement appears to rely exclusively on Objective 3 and WIND 2 of the Marine Plan. See Planning Statement (PINS Reference A8.3(May 2018), page 8, paragraphs 3.4.4.7 and 3.4.4.8 and has failed to have regard to other relevant Marine Plan Objectives and Policies notwithstanding the requirement of section 104(2)(aa) of the PA 2008. The Application documentation appears to be silent on the express consideration and application of relevant Marine Plan policies and Objectives. This is a gap. 8.15 Objective 1 is to promote the sustainable development of economically productive activities, taking account of spatial requirements of other activities of importance to Area 4. 8.16 Objective 2 is to support activities that create employment at all skill levels, taking account of the spatial and other requirements of activities in Area 4. Paragraph 68 amplifies this Objective by explaining that it relates to "the need to ensure that local people can access the jobs being created in" Area 4. 8.17 O bjective 11 is to continue to develop the marine evidence base to support implementation, monitoring	

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and review of the East marine plans. Paragraphs 77-80 amplify this Objective by explaining that I is critical that marine plans are based on the best available evidence in accordance with the Marine Policy Statement and the Objective highlights the importance of continuing to develop the evidence base beyond the marine plans publication. **Relevant Marine Policy** 8.18 In addition to WIND 2, other Marine Plan Policies are relevant but not addressed by the Applicant's evidence. These are: 8.18.1 GOV2 8.18.2 GOV3; 8.18.3 OG1; and 8.18.4 WIND 2. [See SE ISH 1 Appendix J GOV 8.19 GOV2 states: ***Opportunities for co-existence should be maximized wherever possible.*** 8.20 The reasoned justification in paragraphs 264-268 amplifies what this policy means. GOV2 has been drawn up "to ensure co-existence is put into practice" and because Area 4 is "extremely busy and may become more so in the future". Co-existence (including activities in the same area, but vertically or laterally separated, and co-location in the same space) "is particularly pertinent to the busy East marine plan areas including Area 4. GOV2 is required to be implemented by the SoS "when assessing new development and other activities" and there is a need to better understand the positive and negative, direct and indirect, permanent and temporary effects, "and the mechanism for enabling co-existence to happen" (see Objective 11 also). 8.21 The Government recognises that "co-existence is already considered to some degree" (and therefore, not exclusively) for development subject to EIA. However, "Proposals should demonstrate the extent to which they will co-exist with other existing or authorised (but yet to be implemented) activities and how this will be achieved". Paragraph 268 explains that "technical feasibility/opportunities and constraints analysis help to identify co-existence opportunities and provide a mechanism for informing decision-taking". It gives an example of a pipeline "in close	

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proximity" to each other in relation to an under seabed storage facility to reduce impact on other marine users. That is, the contraction of infrastructure into a smaller space enables successful co-existence by others. 8.22 The Applicant has not addressed this policy in its application for a Marine Licence. The evidence of Spirit Energy shows that, subject to the proposed Protective Provisions of Spirit Energy in the draft DCO, then Policy Gov 2 can be satisfied because the Application seeks authorisation for "up to 300" turbines and the ultimate scale of that degree of turbines cannot at this time be known. *GOV3* 8.23 GOV3 states that: Proposals should demonstrate in order of preference: 8.23.1 That they will avoid displacement of other existing or authorised (but yet to be implemented) activities; 8.23.2 How, if there are adverse impacts resulting from displacement by the proposal, they will minimize them; 8.23.3 How, if the adverse impacts resulting from displacement by the proposal cannot be minimized, they will be mitigated against; or 8.23.4 The case for proceeding with the proposal if it is not possible to minimize or mitigate the adverse impacts of displacement. 8.24 "Displacement" is a defined term in the Marine Plan Glossary and means: "The action of causing the moving of a development, or activity from its current place or position, eg shipping traffic can no longer occur in an area due to the placement of built infrastructure". 8.25 The reasoned justification in paragraphs 269-273 amplifies what this policy means. Marine planning seeks to manage competing demands, reduce conflict and promote compatibility in the marine area. The converse of co-existence is displacement. The need to promote co-existence (GOV2) "is essential in minimising or mitigating the negative impacts of displacement". The East marine plan promotes consideration of the impacts of displacement in individual proposals to ensure that impacts are minimized, conflicts reduced and "compatibility is maximized". 8.26 The Applicant has not addressed this policy in its application for a Marine Licence. The evidence of Spirit	

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Energy shows that, subject to the proposed Protective Provisions of Spirit Energy in the draft DCO, then Policy Gov 3 can be satisfied because the Application seeks authorisation for "up to 300" turbines and the ultimate scale of the degree of turbines (between c. 11 and up to 300) cannot at this time be known. **OG1** **8.27 OG1 states** *Proposals within areas with existing oil and gas production should not be authorised except where compatibility with oil and gas production and infrastructure can be satisfactorily demonstrated.* 8.28 The reasoned justification in paragraphs 290-294 amplifies what this policy means. Figure 14 identifies the Spirit Energy fields and infrastructure. The justification includes: *290. Oil and gas production in the East marine plan areas is currently the largest sector in terms of economic output. The spatial footprint of individual developments is relatively small, but there is exclusivity over the area occupied by the infrastructure, including statutory safety zones of 500 metres around platforms and certain subsea infrastructure, (eg subsea manifolds) and consultation requirements for areas up to nine nautical miles170 around a platform for any activities that may interfere with helicopter approaches (such as wind turbines). The safety zones are in place for the protection of personnel, the infrastructure and other users of the sea. For existing infrastructure the impact of these exclusions is known and accommodated, for example it is factored into windfarm developments through discussion between licence applicants, oil and gas operators and the relevant regulators. For a map of current infrastructure relating to oil and gas, see figure 14 …* *291. Plan policy OG1 clarifies that, where existing oil and gas production and infrastructure are in place, the areas should be protected for the activities authorised under the production licence consent until the licence is surrendered, (including completion of any relevant decommissioning activity), or where agreement over co-located use can be negotiated. The policy will be implemented by the public authorities responsible for authorising the oil and gas activities and all other developments, including co-located activities…* *293. This policy adds value to existing policy as it gives clarity on how national policy is applied where other activities may want to use the same space. It builds upon national policy, for example, the Marine*	

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Policy Statement (3.3.4): 'The United Kingdom's policy objective to maximise economic development of the United Kingdom's oil and gas resources' and 'Maximising the economic recovery of United Kingdom oil and gas resource sustainably is therefore a priority in the United Kingdom's energy supply and energy security strategies' (3.3.8). This policy is more specific, as it takes account of the relative importance of gas production in the East marine plan areas to the United Kingdom, reflecting national policy and current practice. *294. The responsibility for implementing policy OG1 will lie with relevant public authorities, including the Marine Management Organisation, working in conjunction with the Department for Energy and Climate Change.* 8.29 The Applicant has not addressed this policy in its application for a Marine Licence. The evidence of Spirit Energy shows that, subject to the proposed Protective Provisions of Spirit Energy in the draft DCO, then Policy OG1 can be satisfied because the Application seeks authorisation for "up to 300" turbines and the ultimate scale of that degree of turbines cannot at this time be known. **OG2** 8.30 OG2 states: *Proposals for new oil and gas activity should be supported over proposals for other development.* 8.31 The reasoned justification in paragraphs 295-299 amplifies what this policy means. This includes: *295. All oil and gas activity is spatially restricted to the areas where the resource is found, or likely to be found. Although some of these are known, the total extent and recoverability of the reserves is not, therefore exploration and appraisal activity is ongoing. This creates uncertainty as to the future location and spatial extent of exploration and potential production activity. Future oil and gas activity has the potential to require access to the same area of seabed as other activities. In most cases, the consequence of this will be insignificant due to the small footprint of oil and gas production infrastructure. In some cases this may not be the case, such as where another user of the sea bed has a lease in place. Where a lease has been agreed for a co-located activity, there may be a requirement for negotiation between parties involved. Where a lease has been agreed for a co-located activity, there may be a requirement for negotiation between parties involved. More detail on how such issues may be resolved between offshore wind and oil and gas can be found elsewhere, for example in the written ministerial statement made by the Secretary of State for Energy and*	

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Climate Change to Parliament on the 12th July 2011. 296. In situations where there is potential conflict between alternative development opportunities, the relevant public authority considering the proposals would be expected to consider any impact on existing proposals or developments in its decision. Public authorities will need to look at the full range of impacts and benefits when making decisions which could affect oil and gas developments, or when considering oil and gas activities that could affect other developments. *297. Oil and gas operators can apply for seaward exploration licences to undertake seismic activity in areas of the United Kingdom Continental Shelf not covered by a seaward production licence and these can be awarded outside of Licensing Rounds…* *298. This policy adds value by clarifying the role of public authorities and oil and gas applicants when dealing with potential future conflicts with other users of the marine area.* 8.32 The Applicant has not addressed this policy in its application for a Marine Licence. The evidence of Spirit Energy shows that, subject to the proposed Protective Provisions of Spirit Energy in the draft DCO, then Policy OG2 can be satisfied because the Application seeks authorisation for "up to 300" turbines and the ultimate scale of that degree of turbines cannot at this time be known. **WIND 2** 8.33 Wind 2 is preceded by a Context that includes paragraph 303. That paragraph provides that EN-1 and EN-3 provide the primary basis for decision-making in relation to section 15(1)(a) PA 2008. **Offshore Windfarms**. 8.34 WIND2 states: ***Proposals for Offshore Windfarms inside Round 3 zones, including relevant supporting projects***	

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and infrastructure, should be supported. 8.35 The reasoned justification in paragraphs 310-314 amplifies what this policy means. This includes: *311… Proposals should draw on the findings [of the Zone Appraisal Planning Process] of these assessments and should demonstrate how other activities and the environment have been taken account of in proposals as well as taking into account GOV2.* *313. Other policies should be taken into account when applying the support outlined in WIND2. This includes where OG2 is applicable which would take precedence over WIND2. Once an agreement for lease has been granted by The Crown Estate then these areas will be covered by WIND1. This policy enables development of offshore wind in Round 3 wind farm zones in preference to other conflicting activities but does not preclude co-location of Offshore Wind Farms with other activities in accordance with GOV3. The policy will be applied by public authorities determining proposals for non- Offshore Wind Farm developments or activities within Round 3 wind farm zones as well as public authorities that license Offshore Wind Farm and supporting projects brought forward from Round 3 wind farm zones. These authorities should work in conjunction with the offshore wind farm developer, the Department for Energy and Climate Change's Secretary of State (who will determine Offshore Wind Farm proposals over the 100Megawatts threshold)[181] and/or the National Infrastructure Directorate.* 8.36 The Applicant has not addressed this policy in its application for a Marine Licence. The evidence of Spirit Energy shows that, subject to the proposed Protective Provisions of Spirit Energy in the draft DCO, then Policy WIND2 can be satisfied because the Application seeks authorisation for "up to 300" turbines and the ultimate scale of that degree of turbines cannot at this time be known	

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9 National Planning Statements 9.1 EN-1 and EN-3 are the relevant NPS in this Application. Section 104(3) requires that SoSBEIS decide the Application in accordance with any relevant NPS. Here, the relevant NPS's are EN-1 and EN-3. **EN-1** 9.2 EN-1 was approved by Parliament in July 2011 and, therefore, recognised the Government's Marine Policy Statement of March 2011 (see above). EN-1 is cast in general terms. Part 3, Section 3.3 provides for the need for new NSIPs, including, under Section 3.4 the role of renewable electricity generation as part of the energy mix. Part 4, Section 4.11, provides for Safety. 9.3 Paragraph 3.1 provides for IPC decision making: *3.1.3. The IPC should therefore assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the Government has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need is as described for each of them in this Part.* *3.1.4 The IPC should give substantial weight to the contribution which projects would make towards satisfying this need when considering applications for development consent under the Planning Act 2008*[16]. 9.4 The Application is for "up to 300" turbines and so attracts "substantial weight" in relation to all of that capacity, or any degree above about 10 turbines (providing at least) up to the total as a contribution by the Application project towards satisfying the scale and urgent of the need identified by the Government. The Application documents do not evidence any additional particular need engendered by the Application as opposed to a reliance on a generalized need to contribute to future targets.	The Environmental Statement submitted by the applicant has been prepared in accordance with the requirements of EN-1 and EN-3 and has satisfied the requirements of 'As Low as Reasonably Possible' (ALARP) where this can be applied. No likely significant effect arises requiring mitigation. The SoS can comfortably determine the Application in accordance with s104(3) PA08 without imposition of the protective provisions suggested by SE. The points in this section are covered in the Applicant's response to ExA Q2.5.13 submitted at Deadline 4.

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9.5 Paragraphs 4.1.2 to 4.1.3 and 4.1.7 then provide: *4.1.2. Given the level and urgency of need for infrastructure of the types covered by the energy NPSs set out in Part 3 of this NPS, the IPC should start with a presumption in favour of granting consent to applications for energy NSIPs. That presumption applies unless any more specific and relevant policies set out in the relevant NPSs clearly indicate that consent should be refused. The presumption is also subject to the provisions of the Planning Act 2008 referred to at paragraph* **1.1.2 of this NPS.** *4.1.3 In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the IPC should take into account:* ● *its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and* ● *its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.* *4.1.7 The IPC should only impose requirements72 in relation to a development consent that are necessary, relevant to planning, relevant to the development to be consented, enforceable, precise, and reasonable in all other respects.* 9.6 In this Application, of particular importance, is Section 4.2, Environmental Statements. Paragraph 4.2.3 adverts to the contingent coverage of Section 4.2. Paragraph 4.2.11 states: *4.2.11. In this NPS and the technology-specific NPSs, the terms 'effects', 'impacts' or 'benefits' should be understood to mean likely significant effects, impacts or benefits.* 9.7 The scope of paragraph 4.2.11, therefore, applies alone to the terms: effects, impacts, and benefits, and not to any other terms.	

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9.8 Part 4, Section 4.11, Safety, requires in paragraph 4.11.1 the Applicant to consult with the HSE "on matters relating to safety". 9.9 For offshore oil and gas infrastructure, the relevant part of the HSE is its Energy Division. There is no apparent response from that Division in relation to the potential affects on SE's offshore infrastructure arising from the Application development. ***EN-3*** 9.10 EN-3 provides nationally policy approved by Parliament in relation to Renewable Energy Infrastructure. It was approved also in July 2011 after its presentation on 2nd. It too, thereby, recognised the Government's Marine Policy Statement (March 2011). 9.11 EN-3, paragraph 1.3.2 states that it is "specific to the energy infrastructure covered" by it. Paragraph 1.5.1 applies EN-3 to the territorial sea of England and so to the Application Area and to the areas of the Assets of Spirit Energy. Paragraph 2.1.2 requires the IPC to consider EN-1 and EN-3 "together". In particular, this results in the direct application of EN-1 paragraph 4.2.11 to the terms of the statutory guidance of EN-3. 9.12 Section 2.6 applies to Offshore Wind. Paragraph 2.6.2 provides that offshore wind structures can be built in UK territorial waters or in a "Renewable Energy Zone" declared under the Energy Act the EA 2004. However, that SI was repealed under SI 2013/3161 on 31st March 2014 and it established instead the "UK Economic Zone". **[See SE ISH 1 Appendices F & G]** By section 42(1)(b) of MACA 2009, the area of sea within the UK Exclusive Economic Zone is in the "UK Marine Area" and that area includes the bed and subsoil of the sea. 9.13 Paragraphs 2.6.42 to 2.6.45 address "Flexibility in the project details" and "Micrositing". The Applicant has applied for a DCO over the Application Area within which it cannot yet know the micrositing of the proposed authorised turbines. Therefore, the EIA is required to assess a "maximum adverse case scenario as far as reasonably possible" and to ensure that the project as it may be constructed has been properly assessed (**"the Rochdale Envelope"** approach). Guidance on the use of the Rochdale Envelope is given in Advice Notes Nine and updated in Advice Note Twelve. **[See**	

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SE ISH 1 Appendices D & V] 9.14 EN-3 then provides a series of sections concerning particular situations. These include: a) Offshore Wind Farm Impacts – Navigation and shipping; and b) Offshore Wind Farm Impacts – Oil, gas and other offshore infrastructure and activities. 9.15 As set out in the SE Written Representation 7th November 2018, paragraph 1.7, **[See SE ISH 1** **Appendix ZA]** the Application does not accord with EN-3, paragraph 2.6.181 because it has failed to provide for successful co-existence with SE's existing offshore infrastructure and activities, and its subsisting entitlement to search and get petroleum, and also it has failed to assessment accepted potential affects on that infrastructure and activities ALARP, being in breach of EN-3, paragraphs 2.6.163 and 2.6.183. These breaches of EN - 3 remain because, on a plain reading of EN-3, pages 53-54 and 55-56, it is self-evident that the approach approved by Parliament introduces, in addition to assessment by an EIA methodology, the additional domestic concept of "as low as reasonably practicable" (**"ALARP"**), and additional assessment by application of that additional concept to, the potential situation created by the introduction of the turbines and related infrastructure of an offshore wind farm to a pre-existing situation where oil and gas infrastructure are present. That is so here. 9.16 For navigation, the relevant test in in paragraph 2.6.163: *2.6.163. Where a proposed offshore windfarm is likely to affect less strategically important shipping routes, a pragmatic approach should be employed by the IPC. For example, vessels usually tend to transit point to point routes between ports… Many of these routes are important to the shipping and ports industry as it their contribution to the UK economy. In such circumstances the IPC should expect the applicant to minimize negative **impacts to** as low as reasonably practicable (ALARP) …* 9.17 Therefore, in paragraph 2.6.163, an ALARP assessment is applied an extension of the EIA process.#	

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9.18 For safety of offshore installations, the relevant and different test is in paragraph 2.6.183 (and is cast on Parliament's approval) in different terms to 2.6.163): *2.6.183. Where a proposed offshore wind farm potentially affects other offshore infrastructure of activity, a pragmatic approach should be employed by the IPC. Much of this infrastructure is important to other offshore industries as is its contribution to the UK economy. In such circumstances the IPC should expect the applicant to minimise negative impacts and reduce risks to as low as reasonably practicable.* 9.19 By contrast with application of the ALARP concept in paragraph 2.6.163, within paragraph 2.6.183 ALARP is applied a discrete assessment separate from and in addition to an EIA assessment process. In this respect, this is because applying the EN-1 amplified meaning in paragraph 4.2.11 of "impacts" to the term "impacts" in 2.6.183, the phrase: *"the IPC should expect the applicant to minimise negative impacts"* reads *"the IPC should expect the applicant to minimise likely significant negative impacts*". However, the prior phrase "potentially affects" and the subsequent phrase "reduce risks" cannot be amplified by paragraph 4.2.11 because they are terms not covered by that paragraph. In particular, paragraph 4.2.11 attaches to "effects" and not to "affects". Similarly, paragraph 4.2.11 makes no reference to "risks". The absence of "affects" and "risks" from the scope of interpretative paragraph 4.2.11 connotes that "affect" and "risks" are freestanding criteria. 9.20 The use of 'ALARP' in the same guidance (EN-3) in different ways (paragraphs 2.6.163 and in 2.6.183 also recognises two different situations in which the ALARP test is engaged: it is engaged in 2.6.163 where there is a "likely significant negative impacts" which are required to be reduced by ALARP; whereas ALARP is engaged in 2.6.183 where there proposed offshore wind farm "potentially affects" other offshore infrastructure. Thus, the reach of ALARP in 2.6.163 is an extension of the prior test and so assumes an EIA methodology; whereas the reach of ALARP in 2.6.183 is free-standing and encompasses "affects" that are then required to be subject to ALARP.	

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9.21 The 2.6.163 test is triggered where the threshold of a "likely significant adverse impact" is satisfied. 9.22 The 2.6.183 has a lower threshold, being where the proposed wind farm "potential affects other offshore infrastructure or activity". Further, 2.6.183 includes the term "and" (not "to") which shows that that paragraph expressly provides an additional test consisting of ALARP. 9.23 In either 2.6.163 or 2.6.183, "the IPC expects the Applicant": a) (under 2.6.163) to minimize likely significant negative impacts to as low as reasonably practicable (i.e. to apply ALARP pursuant to an EIA assessment); and b) (under 2.6.183) to reduce potential affect risks to ALARP. Consequently, where, as here, there is or are potential affects, EN-3, paragraph 2.6.183 creates and casts the ALARP obligation onto the Applicant to assess and to discharge and in respect of related paragraphs. 9.24 Here, the ES, Chapter Vol 1, Chapter 5 – Environmental Impact Assessment Methodology, includes Figure 5.1 that illustrates the application of an EIA methodology. A word search of Chapter 5 discloses no use of the phrase "ALARP" anywhere in the Applicant's methodology. The term "practicable" appears in isolation in two paragraphs 5.3.4.2 and 5.4.3.26 in the context of EIA methodology. Paragraph 5.3.5.5 identifies that the EIA process (excluding ALARP) was applied to Offshore Shipping and Navigation; Aviation; and Infrastructure and Other Uses. 9.25 A word search of ES Volume 2 for "ALARP": 9.25.1 In Chapter 7, Navigation and Shipping, discloses the use of the phrase "ALARP" in: line 2 of the Acronyms; Table 7.2, row 3, (referring to EN-3, paragraph 2.6.183); paragraphs 7.9.2.2; 7.11.1.20; 7.11.1.39; 7.11.1.50; 7.11.2.30; 7.11.2.34; 7.11.2.66; 7.11.2.77; 7.11.2.79; 7.11.3.15; 7.11.3.21; 7.13.2.41; 7.13.3.30; 7.13.4.7; 7.16.13 and 7.16.1.5; but, by contrast, 9.25.2 In Chapter 8, Aviation, discloses no use of the phrase "ALARP" in its assessment; and 9.25.3 In Chapter 11, Infrastructure, discloses no use of the phrase "ALARP" in its	

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assessment. 9.26 A word search of ES, Volume 5, Annex 8.1, Aviation (PINS Reference A6.5.8.1) for "ALARP" discloses no use of that phrase. It is also absent from the Acronyms on page iv. 9.27 It is apparent from the evidence before the Ex A that the Applicant has, to date (14 December 2018), addressed to an extent ALARP as an extension of the EIA methodology, under Navigation, cognisant of paragraph 2.6.163. However, on analysis of the evidence, the reach of the Shipping and Navigation Assessment falls short of an assessment of in-combination risks arising from collision of shipping with the Assets of SE. See below. 9.28 By contrast, the Applicant has failed to take any account of the discrete application of ALARP provided for under paragraph 2.6.183 of the two assessments required by that paragraph. 9.29 The Applicant has undertaken alone an assessment pursuant to an EIA methodology (which operates at a generic level) in relation to Aviation in contrast with the different and particular requirements of ALARP. 9.30 The Applicant has also failed to undertake an in-combination, or inter-related, assessment of the effect on the safe operation of the Assets as a result of the proposed introduction of its turbines having the effect of reducing available unobstructed space in which helicopters serving Assets may fly safely and so as to preclude the necessary availability of the Missed Approach Procedure (**"MAP"**) as part of the standard approach to an Asset platform by which the flight of the helicopter is made safe for human health of pilots and passengers. This has a consequence for the safety case that is accepted in paragraph 8.7.4.13 of ES Volume 2, Chapter 8, Aviation (PINS Reference A6.2.8)(May 2018).	
10 The Applicant's Approach to the Assessment of Potential Affects of its Development on Helicopters	10.1 The Applicant confers that the assessment on aviation military and communication follows the EIA methodology set out in the Volume 1,

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10.1 Section 8.9.2 Impact Assessment Criteria, ES, Volume 2, Chapter 8, Aviation (PINS Reference A6.2.8)(May 2018), states at paragraph 8.9.1.1 that: "The aviation, military and communication EIA has followed the methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology." Paragraph 8.9.2.1 states that: "At the present time, there is no recognised industry best practice with regard to the assessment of impact of offshore wind farms upon aviation operations." In fact, EN-3, paragraph 2.6.183 supplies the relevant test here. ES, Chapter 8, paragraph 8.9.2.2 further states that the Applicant instead used a combination of an EIA methodology and its own bespoke methodology that does not apply ALARP. However, EN-3, paragraph 2.6.183 does not admit of a subjective test. It requires a minimisation of negative likely significant impacts and in addition an ALARP test. There is a gap in the justification for the Application. 10.2 The ES, Volume 2, Chapter 8, Aviation (PINS Reference A6.2.8)(May 2018) explains the role of helicopters in the situation of SE's offshore infrastructure: *8.7.4.13 Wind turbines are considered to be physical obstructions and helicopter operators must observe the minimum obstacle clearance criteria of 1,000 ft. during IFR (when all helicopters must maintain a vertical separation of 1,000 ft. from any obstacle). Furthermore, during the approach to an installation, all radar contacts (including radar contacts that are turbines) have to be avoided laterally by at least 1 nm. The combined effects of maintaining the required distances from any obstacles within the 9 nm consultation zone of an offshore installation may impair the safety of instrument approaches and MAP to and from an offshore installation. This may result in a restriction on helicopter operations to an installation in certain weather conditions, which may have safety implications. Safety implications include a potential impact upon the integrity of offshore platform Safety Cases that are based on the use of helicopters to facilitate evacuation procedures.* 10.3 "For obvious safety reasons, a [Missed Approach Procedure] MAP involving a climb from the minimum descent height needs to be conducted in an area free of obstructions." (ES Volume 5, Annex 8.1, Aviation (PINS Reference: A6.5.7.1)(May 2018), paragraph 7.4.3.1). Further (see ES Volume 5, Annex 8.1, Aviation (PINS Reference: A6.5.7.1) : *7.4.3.1 In the event a helicopter may not be able to land at its destination platform, it would be*	Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement (APP-060). The Applicant confers that as there is no recognised industry best practise with regard to the assessment of wind farms on aviation operations. The Applicant advises that the Environmental Statement is therefore guided in each assessment by the most applicable aviation guidance as listed at paragraph 8.9.1.1 of Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement and has used the methodology previously used for Hornsea Project One and Hornsea Project Two refined through consultation with the applicable stakeholders. The Applicant wishes to advise that an aviation workshop was held during the pre-application phase for Hornsea Project One, chaired by The Crown Estate and attended by the helicopter operators and oil and gas operators to discuss and agree on the methodology to be used in the assessments on HMRs, cross zone transit and on airborne radar approaches (Table 9.3 of Volume 2, Chapter 9: Aviation, Military and Communications of the Environmental Statement for Hornsea Project One). The Applicant wishes to advise that an aviation workshop was held during the pre-application phase for Hornsea Three to discuss and agree on the methodology to be used in the assessments on cross zone transit (see table 8.4 of Volume 2, Chapter 8: Aviation military and communications of the Environmental Statement). The Applicant notes that EN-1 section 5 Civil and military aviation and

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required to execute a MAP. Should the airspace that is required to fly a MAP not be available due to the presence of turbines, then this would restrict helicopter operations. Upon initiating a MAP, the helicopter turns away from the destination structure by up to 45° laterally and climbs to the MSA; the anticipated rate of climb during the missed approach phase is based upon the one engine inoperative performance criteria and could be quite shallow. For obvious safety reasons, a MAP involving a climb from the minimum descent height needs to be conducted in an area free of obstructions. 10.4 In ES Volume 5, Annex 8.1, Aviation (PINS Reference: A6.5.7.1), the Applicant (applying its own EIA methodology) says this about helicopters approaching Offshore installations: (Emphasis added) *1.3.1.1 The effects of wind turbines on aviation interests have been widely publicised but the primary concern is one of safety. There are various subtleties in the effects but there are two dominant issues:* • *Physical obstruction – turbines under construction or decommissioning (and associated cranes) and operational turbines can present a physical obstruction at or close to aircraft airspace routings (e.g. HMRs or an aerodrome/helicopter offshore platform); …* *7.4.1.3 There are nine platforms with 9 nm of the Hornsea Three array area as shown in Table 7.2. The Cutter platform has no helideck and so no further assessment has been undertaken. 7.4.1.4 Wind turbines are considered as physical obstructions and infringe the minimum obstacle clearance criteria of 1,000 ft. Furthermore, during the approach to an installation, all radar contacts (including radar contacts that are turbines) must be avoided laterally by at least 1 nm. These combined effects within a 9 nm consultation zone of an offshore installation may impair the safety of air operations to that installation and affect the installation operators' regulatory requirements with regard to safety of operation.* *7.4.2.1 Instrument approach procedures are used as a low-visibility approach procedure to the platforms, and rely upon an on-board weather radar for obstacle detection and navigation. Helicopters which operate to and from offshore platforms are fitted with airborne weather radar which can be used to conduct an instrument approach in poor visibility. The radar is designed to display weather phenomena, such as rain, as well as obstacles such as oil or gas platforms, or wind turbines. In IMC*	defence interests is directly applicable to the assessment on civil aviation and there is no requirement to assess aviation to ALARP contained within this section. The Applicant notes that the Environmental Statement must be guided by the application of EN-3 in regard to the assessment on oil and gas operations (but not specific to aviation) and has satisfied the requirements of ALARP where this can be applied (see the Applicants response to ExA Q2.5.13 submitted at Deadline 4). 10.2 Noted 10.3 Noted 10.4 Noted 10.5 Noted 10.6 The Applicant notes Figure 7.10 of Volume 5 Annex 8.1: Aviation, Military and Communications technical report of the Environmental Statement does show the constrained areas for conducting an ARA to platforms within 9 nm of Hornsea Three. The Applicant notes that references provided at paragraph 7.4.1.4 and paragraph 8.7.4.13 of Volume 5, Annex 8.1: Aviation, Military and Communications technical report of the Environmental Statement refer to background information used to advise why an assessment on ARA is required as there is may be an effect on the ARA to platforms within 9 nm of Hornsea Three.

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and in certain wind conditions, which dictate the area of approach to the platform, a standard instrument approach procedure might not be possible due to the proximity of wind turbine structures to the flight approach path… *7.4.2.3 When the helicopter is operating below the MSA and conducting an instrument approach it must also maintain a horizontal separation of 1 nm from all radar contacts seen by the pilots, using the helicopter's on-board radar. If it is assumed that an acceptable rate of descent is a 3.5° glide path, then this means that the minimum distance that a 325 m high turbine can be constructed from the centre of a helicopter consultation zone is 8 nm before instrument approach procedures may become restricted. If it is assumed that an acceptable rate of descent is a 3.5° glide path, then this means that the minimum distance that a 325 m high turbine can be constructed from the centre of a helicopter consultation zone is 8 nm before instrument approach procedures may become restricted. An example approach profile for a 325 m turbine is shown in Figure 7.5. The helicopter descends from the MSA at 8.4 nm avoiding all radar contacts by 1 nm but flying in any wind direction, to the Fixed Approach Point at 7nm (the procedural value set by the helicopter operator and ranging typically from 5 to 7 nm). The helicopter then flies a straight line approach (up to 30 degrees out of wind in either direction) to a minimum descent height of 200 to 300 ft typically at 2 nm (CAA, 2016c). The helicopter then flies to the Missed Approach Point at 0.75 nm where a decision is made either to land or to fly past and conduct a Missed Approach Procedure….* *7.4.3.1 In the event a helicopter may not be able to land at its destination platform, it would be required to execute a MAP. Should the airspace that is required to fly a MAP not be available due to the presence of turbines, then this would restrict helicopter operations. Upon initiating a MAP, the helicopter turns away from the destination structure by up to 45° laterally and climbs to the MSA; the anticipated rate of climb during the missed approach phase is based upon the one engine inoperative performance criteria and could be quite shallow. For obvious safety reasons, a MAP involving a climb from the minimum descent height needs to be conducted in an area free of obstructions. When the surface wind is such that an instrument approach might be flown directly* *towards the Hornsea Three array area, utilising an approach path offset by up to 30^{O} should* *ensure that helicopters would have sufficient airspace to complete a MAP…*	The Applicant notes that paragraph 8.11.2.4 of Volume 2, Chapter 8: Aviation, Military and Communications of the Environmental Statement discusses potential flight paths across Hornsea Three. The Applicant notes that the Environmental Statement and the references so provided do not accept a potential effect on the infrastructure of Spirit Energy. The Applicant agrees that Figure 7.10 of Volume 5, Annex 8.1: Aviation, Military and Communications technical report of the Environmental Statement and the related assessment does accept a potential effect on the ARA approaches to Spirit Energy operated platforms. 10.7 Noted 10.8 Noted 10.9 The Applicant notes that CHC advised through post consultation email correspondence (21 November 2017) that they agree with the information used by Hornsea Three to inform the assessment which is also noted in the entry at 31 October 2017 Table 8.4 of Volume 2 of Chapter 8: Aviation, Military and Communications of the Environmental Statement. The applicant notes that the comment raised in regard to MAP was provided to the consultants and they checked that the assessments were robust in this regard see paragraph 7.4.3.1 of Volume 5 Annex 8.1: Aviation, Military and Communications technical report of the Environmental Statement. 10.10 Noted 10.11 The Environmental Statement submitted by the Applicant has been

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[On the Applicant's assumptions] 7.4.4.11 The results shown in Table 7.4 indicate that the impact of the Hornsea Three array area would be to prevent instrument approach procedures for the following calculated number of days per year to each of the platforms: … • *Chiswick platform: 3.49 days per year; …* • *J6/J6A-CT platform: 0.45 days per year; … [and]* • *Grove platform: 2.18 days per year; …* ***Chiswick Platform*** *[On the Applicant's assumptions] 7.4.4.14 The results shown in Table 7.6 indicate that the impact of the Hornsea Three array area would be to prevent instrument approaches to the Chiswick Platform on approximately 0.17 to 0.4 days per month (up to 3.49 days per year). The greatest impact is seen in the month of April when 1.35% of flights may be precluded. The least impact is seen in August when 0.56% of flights may be precluded…* ***J6/J6a-CT Platform*** *[On the Applicant's assumptions] 7.4.4.16 The results shown in Table 7.8 indicate that the impact of the Hornsea Three array area would be to prevent instrument approaches to the J6/J6a-CT Platform on approximately 0.01 to 0.06 days per month (up to 0.45 days per year). The greatest impact is seen in the month of April when 0.21% of flights may be precluded. The least impact is seen in August when 0.05% of flights may be precluded.* ***Grove Platform*** *[On the Applicant's assumptions] 7.4.4.17 The results shown in Table 7.9 indicate that the impact of*	prepared in accordance with the EIA regulations and in accordance with the requirements of EN-1 and EN-3 (see the Applicant's response to ExA Q2.5.13 submitted at Deadline 4). 10.12 The Applicant does not accept the assessments provided at Appendix W (REP3-053), Y, ZB (REP3-058), ZD (REP3-060) and ZE, have identified the real hazards and risks to safety and viability of Spirit Energy activities and operations. The Applicant submits that the scope of the flight evaluation report provided at Appendix Y of Spirit Energy's response at Deadline 3 is too narrow and is deficient, e.g. it fails to consider alternative standard, and within the regulations, means of approach to platforms and it fails to consider the operational requirements of the platforms. The report bases their assessments on IOGP AMG guidance which has no legal basis and at times does not comply with the EASA regulations (which do have legal basis in the UK and Dutch sector). The Applicant notes that the submission Appendix ZB is in regard to the request for Protective Provisions not in regard to the identification of hazards and risks to safety and viability of Spirit Energy operations and activities. The Applicant is surprised by the inflammatory manner that the technical addendum submitted at Appendix ZE has been written and submits that the addendum does not add any significant content to the report provided at Deadline 1 (Appendix Y submitted by Spirit Energy at Deadline 3). AviateQ continue to misquote the regulations (for example at paragraph 4.3 of Appendix Y submitted by Spirit Energy at Deadline 3 states the helicopter needs to be stabilised between 7 and 5 nm from the destination, the EASA regulations state a FAF at 5 nm and

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the Hornsea Three array area would be to prevent instrument approaches to the Grove Platform on approximately 0.12 to 0.25 days per month (up to 2.18 days per year). The greatest impact is seen in the month of April when 0.83% of flights may be precluded. The least impact is seen in August when 0.39% of flights may be precluded… 10.5 In ES Volume 5, Annex 8.1, Aviation (PINS Reference A6.5.8.1)(May 2018)), Figure 7.10 shows, on the Applicant's evidence, to scale and assuming a 7.0 nautical mile approach, the geographical extent of the "constrained approach areas" to the: Chiswick Platform; Grove Platform; and J6A/J6A-CT Platforms. 10.6 The Applicant's evidence, at Figure 7.10 of, and paragraph 7.4.1.4 of, ES Volume 5, Annex 8.1, Aviation (PINS Reference A6.5.8.1)(May 2018), and paragraphs 8.7.4.13 and 8.11.2.4 of ES Volume 2, Chapter 8, Aviation (PINS Reference A6.2.8)(May 2018), accepts that there is a potential affect on the offshore infrastructure ad activities of SE. 10.7 The Applicant has not itself assessed the "potential affect" of its Application development on offshore infrastructure and activities by application of discrete ALARP methodology. Instead, the Applicant has persisted in maintaining an EIA methodological approach. This is despite SE highlighting the matter, for example, on 20th September 2017 (see page 8, ES, Volume 2, Chapter 8, Aviation): (Emphasis added) *Helicopter operations to operational platforms within 5 km of the edge of Hornsea Three are identified in the PEIR as impacted, though the extent to which this would be a significant restriction needs to be thoroughly evaluated by helicopter operators.* *Evacuation protocols may be compromised without suitable mitigation due to helicopters being the primary method of transporting personnel in the event of an emergency.* *Chiswick and Grove platforms: not normally manned, helicopter transported maintenance*	the IMF at 2 nm beyond that), misinterprets information (En Route descents are not correctly described at section 6.2 of Appendix Y submitted by Spirit Energy at Deadline 3). The report also makes statements which are simply not correct, for example at paragraph 8.1 of Appendix Y submitted by Spirit Energy at Deadline 3 which states "Operations to the Chiswick and Grove platforms are permitted at night". This is not the case, it is only the Grove platform which has recently (November 2018) had night restrictions lifted, but this is not the case for the Chiswick platform (see the helicopter landing area certificate submitted at Appendix 57 to the Applicants Response to Deadline 4).

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interventions take place on each for over 40 days per year. *Risk assessment methodology: Discussion is needed on the approach and conclusions reached. Concerns that Centrica [SE] may consider intolerable from a safety perspective are incorrectly evaluated as not posing a significant impact.* 10.8 The response of the Applicant was to (see page 8, ES, Volume 2, Chapter 8, Aviation): *Helicopter access to the Spirit Energy operated platforms is assessed in paragraph 8.11.2.29 et seq Consultation was held on the methodology used to assess access requirements to Spirit Energy operated platforms with Centrica and CHC (the helicopter service provider to these platforms for Centrica) as detailed in this table below.* 10.9 On 31st October 2017, the helicopter operator is summarised as expressing the view that: *CHC noted that MAP may be an issue with Chiswick and Grove platforms.* 10.10 The response of the Applicant was to reiterate (see page 8, ES, Volume 2, Chapter 8, Aviation): *Helicopter access to the Spirit Energy operated platforms is assessed in paragraph 8.11.2.29 et seq.* *MAPs are discussed in the assessment to Spirit Energy operated platforms in paragraph 8.11.2.29 et seq.*	

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10.11 In the absence of the Applicant undertaking an ALARP based assessment, as the Ex A and SoS "should expect the Applicant to" have done, the Applicant has not itself assessed the risk (the "potential affect" of its proposed turbines on other offshore infrastructure or activity). 10.12 Instead, SE has itself identified the real hazards and risks to safety and viability of SE operations and activities that would be engendered by the Application development. **[See SE ISH 1 Appendices W, Y, ZB, ZD, and ZE]**	
11 Section 104(3), PA 2008 and EN-3 paragraphs 2.6.163 and 2.6.183 requirements to reduce risks to as low as reasonably possible (ALARP) 11.1 **ALARP Principle** 11.1.1 The principle of As Low As Reasonably Practicable (**"ALARP"**) is a means of assessing tolerability of risk. The term embodies the key concept which is "reasonably practicable" a key part of the general duties of the Health and Safety at Work etc Act 1974 which apply to offshore installations and is incorporated within many offshore health and safety regulations. ALARP describes the level to which the relevant risk must be controlled. 11.1.2 In terms of the ALARP principle, a risk has to be weighed against the trouble, time and money needed to control it. Making sure a risk has been reduced to ALARP is about weighing the risk against the sacrifice needed to further reduce it. The decision is weighted in favour of health and safety because the presumption is that the dutyholder should implement the risk reduction measure. Not every control measure will require to be implemented however, for example if it can be shown by the dutyholder that implementing the measure would be grossly disproportionate to the risk reduction which would be achieved, i.e. if the cost of reducing a risk outweighs the benefit, and the severity of potential consequence is low enough to permit the activity/operation.	11.1 ALARP has been addressed in Applicants reponse to ExA question Q2.5.13

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11.1.3 Broadly the related risk assessment process involves three stages – 11.1.3.1 Hazard identification; 11.1.3.2 Risk assessment, and 11.1.3.3 Risk Control. 11.1.4 The risk assessment methodology applied should be efficient (cost-effective) and of sufficient detail to enable the ranking of risks in order, for subsequent consideration of risk reduction. 11.1.5 The level of detail of assessment should be proportionate to the complexity of the problem and the magnitude of risk, and may be either: 11.1.5.1 Qualitative – (frequency and severity are determined 11.1.5.2 Semi-Quantitative – (frequency and severity are approximately quantified within ranges); and 11.1.5.3 Quantitative Risk Assessment – (in which full quantification occurs). 11.1.6 The choice of approach needs to take account of: 11.1.6.1 The level of estimated risk (and its proximity to the limits of tolerability). 11.1.6.2 The complexity of the problem and/or difficulty in answering the question	

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of whether more needs to be done to reduce the risk. 11.1.7 HSE suggests that following levels of risk assessment would be proportionate to the magnitude of risk as follows (see HSE, Guidance on Risk Assessment for Offshore Installations (Offshore Information Sheet No. 3/2006, p3) : 11.1.7.1 Broadly acceptable risk level = qualitative assessment. 11.1.7.2 ALARP region = semi-quantitative assessment. 11.1.7.3 Intolerable = quantitative risk assessment. 11.1.8 This may be contrasted with a standard environmental impact assessment methodology which involves – 11.1.8.1 Defining the sensitivity of receptors; 11.1.8.2 Defining Magnitude of Change, and 11.1.8.3 Determining significance of effect. 11.2 **Relevance of ALARP to the Application** 11.2.1 As detailed above, the ALARP principle is embodied in National Planning Statement EN-3, paragraphs 2.6.163 and 2.6.183, thus placing a statutory national policy statement requirement on the Applicant to reduce navigational and safety risks to ALARP. **[See SE ISH 1 Appendices W, Y, ZB, ZD, and ZE]** 11.2.2 Separately, as detailed above, the UK safety case regime incorporates the ALARP principle. Where a duty holder, such as SE, carries out an activity which significantly increases the risk of a major accident, the duty holder must take steps to reduce the risk to ALARP. The relevant duties are contained within the Offshore Installations (Offshore Safety Directive) (Safety Case etc) Regulations 2015 (**"the Safety Case Regulations"**) which transpose Directive 2013/30/EU into UK law. As is set out above, SE as duty holder is subject to the obligations within the Safety Case Regulations.	

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11.2.3 In the absence of ALARP by the Applicant, the SE proposed Protective Provisions allow a grant of the DCO subject to those Provisions in lieu of discharge of the ALARP requirement by the Applicant.	
11.3 **Spirit Energy's Concerns** 11.3.1 As outlined within **SE ISH Appendix ZA**, and in **SE ISH 1 Appendices W, Y, ZB, ZD, and ZE]**, Spirit Energy's key concerns relate to – 11.3.1.1 Helicopter transportation – 11.3.1.1.1 Risk to life of pilots and personnel; 11.3.1.1.2 Risk to structural integrity of platforms, and 11.3.1.2 Vessel Allision – 11.3.1.2.1 Risk of Spirit Energy's vessels (NUC) 54lluding with the wind farm infrastructure; 11.3.1.2.2 Risk of the Applicant's vessels (NUC) 54lluding with Spirit Energy's infrastructure, and 11.3.1.2.3 Risk of displaced third party (commercial or fishing) vessels 54lluding with Spirit Energy's infrastructure. 11.3.2 "Helicopter transportation" and "ship collision" [allision] are classed as a major accident hazards within Spirit Energy's relevant safety cases (as referred to at **SE ISH Appendix ZC**.	11.3.1.1 The Applicant advises that Hornsea Three is not increasing the safety risk to helicopter transportation (see Applicants response to Ex.A 2.5.13 at Deadline 4). The Applicant reiterates that Hornsea Three has an effect on the operation at the Chiswick and Grove platform not the safety of flights to these platforms or the safety of pilots or personnel. The Applicant advise that Hornsea Three has no effect on the structural integrity of the platforms. 11.3.1.2 As per the methodology for assessing marine navigational risk, the Navigational Risk Assessment (NRA- APP11) and subsequent Environmental Statement is required to demonstrate that any change in risk is As Low As Reasonably Practicable. As part of the NRA process the Applicant considered what change in risk is associated with shipping and navigation receptors, oil and gas infrastructure and Hornsea Three. The only change in risk that was identified following consideration of the baseline conditions, future case and the development of Hornsea Three was associated with the Schooner Platform given that it is located to the North of the proposed development corridor. There is no evidence to suggest that the allision risk to Spirit Energy assets would increase due to these three factors in combination. In fact, Hornsea Three is predicted, based on experience, to have a shielding effect by displacing traffic around the

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11.4 **The Applicant's Assessment of Risk** 11.5 The following sections of this Submission consider the nature and extent of the assessment work carried out by the Applicant in support of the Application as contained within the Environment Statement (ES) with a view to determining whether the necessary ALARP based risk assessments have been carried out by the Applicant. **Navigational Risk Assessment ("NRA") (ES, Vol. 5, Annex 7.1, PINS Ref. A6.5.7.1)** 11.6 The NRA was conducted as part of the EIA process in terms of the EIA Directive, and (it is said) following Maritime and Coastguard Agency methodology. The NRA is said to present information on the "proposed development relative to the existing and future case navigational activity" (paragraph 1.1.1.1). 11.7 The NRA includes (paragraph 3.1.1.1) – 11.7.1 Overview of base case environment; 11.7.2 Marine traffic survey; 11.7.3 Implications of offshore wind farms including position of turbines; 11.7.4 Assessment of navigational risk pre and post development of Hornsea Three; 11.7.5 Formal Safety Assessment (FSA); 11.7.6 Implications for marine navigation and communication equipment; 11.7.7 Identification of mitigation measures; 11.7.8 Emergency response; and 11.7.9 Any required monitoring. 11.8 The formal safety assessment process adopted within the NRA, described at section 3 of the	wind farm and increasing the average distance at which third party vessels will pass the Spirit Energy assets. It is not a requirement under EIA regulations for Hornsea Three and its Navigational Risk Assessment to assess impacts associated with existing vessel traffic and Spirit Energy Assets unless there a clear pathway to Hornsea Three being a contributing cumulative factor; as noted above this is not the case given the shielding effect provided by the proposed Hornsea Three array as well as Hornsea Project One and Hornsea Project Two. As paragraph 10.5.1.6, of the NRA states "There are not anticipated to be any impacts on shipping and navigation receptors associated with oil and gas platforms" noting that this reference is taken from section 10: Existing Environment and that the platforms are operating in a cumulative environment with the shipping and navigation receptors and therefore the risk is already assessed as ALARP. The NRA does then go on to discuss the impact of increased construction/operation traffic and 'additional vessel to structure allision risk' again noting that it is not the purpose of the NRA and the Environmental Statement to assess allision risk that is already present within the study area. This would have been undertaken when any oil and gas asset also sought consent to locate, as well as in Safety Case submissions. Spirit Energy states that 'vessel allision (whether by powered or NUC vessels, and whether commercial or fishing vessels) with Spirit Energy's infrastructure – in particular the Chiswick and Grove NUIs were not modelled or assessed'. However again the Applicant notes that traffic modelling based on experience, consultation and expert opinion does not indicate that Hornsea Three will increase traffic within

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NRA, is summarised as follows – 11.8.1 Step 1 – Identification of hazards (a list of all relevant accident scenarios with potential causes and outcomes); 11.8.2 Step 2 – Assessment of risks (evaluation of risk factors); 11.8.3 Step 3 – Risk control options (devising measures to control and reduce the identified risks); 11.8.4 Step 4 – Cost Benefit Analysis (CBA) (determining cost effectiveness of risk control measures); and 11.8.5 Step 5 – Recommendations for decision-making (information about the hazards, their associated risks and the cost effectiveness of alternative risk control measures). 11.9 On the face it, this would appear to be an exercise in keeping with the EIA/ALARP assessment required by EN-3, paragraph 2.6.163. 11.10 However, while the existence of oil and gas infrastructure and activity (including that of SE) is noted within the NRA (for example at sections 8.1 and 10.5), the NRA has not assessed the risks of vessel allision with SE infrastructure as noted above. 11.11 At paragraph 10.5.1.6, the NRA states – "There are not anticipated to be any impacts on shipping and navigation receptors associated with oil and gas platforms, however routeing to these installations is considered as part of the baseline within section 15 and as part of cumulative routeing in section 22.7." 11.12 Section 17 of the NRA deals with Future Case Marine Traffic. Paragraph 17.5.1.1 notes that during the construction period there may be as many as 10,774 return trips made by vessels	the vicinity of these platform (whether it is Hornsea Three vessels or third party) and therefore there is no direct or cumulative pathway requiring assessment of these platforms as part of this application or the Formal Safety Assessment that was undertaken[JB3] including consideration at the hazard workshop at which a Spirit Energy were an attendee. It is noted that as part of the hazard workshop process attendees were given two weeks to respond to both the minutes and the hazard log. 11.4 Noted 11.5 Noted 11.6 – 11.20 It is important to note that EN-3 paragraph 2.6.163 is written in relation to Offshore Wind Farms and Navigation and Shipping and does not relate to offshore oil and gas infrastructure. The Applicant has carefully followed and fully met NPS and MGN guidance to the satisfaction of the MCA (as noted within the SoCG agreed with the MCA and also Trinity House) and the assessment of potential effects on shipping and navigation has been considered appropriate by the MCA with no impacts from the construction, operation & maintenance and/or decommissioning of the Project assessed to be unacceptable as per the Formal Safety Assessment. This includes impacts on 'strategically important shipping routes' as noted in EN-3 paragraph 2.6.163. 11.21 Noted 11.22 Noted 11.23 Noted

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involved in the installation of the wind farm, and that during the operation and maintenance period there may be up to 2,433 CTV return trips per year, along with many return trips from supply vessels and other support vessels. 11.13 Paragraph 17.6.1.2 then notes that – "The potential increase in vessel activity levels would increase the probability of vessel to structure allisions (both powered and drifting)." 11.14 Section 18 deals with Collision and Allision Risk Modelling and Assessment. The assessments undertaken are said to include, amongst other things – 11.14.1 Additional vessel to structure allision risk; 11.14.2 Additional fishing vessel to structure allision risk; 11.14.3 Additional recreational craft (sailing/cruisers) allision risk, and 11.14.4 Additional risk associated with vessels Not Under Command (NUC). 11.15 However it appears from section 18 that the risk of vessel allision (whether by powered or NUC vessels, and whether commercial or fishing vessels) with SE's infrastructure – in particular the Chiswick and Grove NUIs and NMI J6A – were not modelled or assessed. 11.16 Section 21 of the NRA deals with Cumulative Overview. Paragraph 21.4.1.1 notes that there "are no oil or gas surface platforms located within the Hornsea Three array area or offshore cable corridor. However the Schooner A platform located to the north of the Hornsea Three array area has been screened into the CEA given its proximity to the Hornsea Three array area and its location to the north of the proposed navigational corridor. Cumulative impacts are then considered in section 22." 11.17 The risk of vessel allision with SE's infrastructure does not form part of that cumulative	11.24 Noted 11.25 The Applicant notes that the Environmental Statement has been prepared in accordance with the requirements of the EIA regulations. The Applicant has responded in regard to the application of ALARP at the response to Ex.A Q2.5.13 of this submission. The Applicant notes in regard to the structuring of the Environmental Statement that the assessment on potential effects on oil and gas operations has been organised over three chapters as stated in the preceding paragraphs quoted by Spirit Energy, Volume 2, Chapter 11: Infrastructure and Other Users of the Environmental Statement, Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement and Volume 2, Chapter 8: Aviation military and communication of the Environmental Statement. Due to the very different issues being assessed in each chapter and the different statutory bodies reviewing these issues, the Applicant was of the opinion that, as in the case of Hornsea Project One and Hornsea Project Two applications, this was the most appropriate way of organising the Environmental Statement. 11.26 Noted 11.27 Noted 11.28 Noted 11.29 Noted 11.30. The Applicant agrees that the information contained within Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental

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assessment. Instead it is stated that the impact to the oil and gas industry is assessed in volume 2, chapter 11: Infrastructure and Other Users. 11.18 As is noted below, the risk of vessel allision with SE's infrastructure does not form part of the Chapter 11 assessment either (see below). 11.19 Accordingly while the Applicant has carried out a formal safety assessment of shipping and navigation risks in the form of the NRA, it either is incomplete in that its consideration of vessel allision does not extend to vessel allision with SE infrastructure, or it is flawed in that the hazard of such allision has not been identified within stage 1 of the formal safety assessment process. To the extent that the failure to identify this hazard flows from the Applicant's assumptions in respect of vessel displacement, reference is made to **SE ISH Appendix ZD** which highlights the weaknesses in these assumptions. 11.20 On either analysis the requirement set out in EN-3 paragraph 2.6.163 is not met, or is not met in full. **Infrastructure and Other Users Chapter (ES, Vol. 2, Chapter 11, PINS Ref. A6.2.11)** 11.21 An assessment of impacts on infrastructure and other users was carried out as part of the ***EIA*** 11.22 The receptors considered include – 11.22.1 Oil and gas operations (including pipelines) (paragraph 11.1.1.2), and 11.22.2 REWS and Closest Point of Approach (CPA) alarms.	Statement provides the modelling required to input into the aviation assessments contained within the Environmental Statement (Volume 2 Chapter 8: Aviation military and communication of the Environmental Statement). The Applicant submits that the Environmental Statement has been prepared in accordance with the requirements of EN-1 and EN-3 and has satisfied the requirements of ALARP where this can be applied (see the Applicant's response to ExA Q2.5.13 submitted at Deadline 4). The Applicant notes that in regard to the assessments of ARA approaches to Spirit Energy operated platforms the assessment does not consider the tolerability of risk because the applicant is not changing the safety risk. The Applicant provides an assessment that simply put says you can or you cannot perform an action. 11.31 Noted 11.32 Noted 11.33 Noted 11.34 See response 11.3.1.2 11.35 The Applicant submits that Hornsea Three is not changing the safety risk to the helicopter transportation to and from Spirit Energy's platforms and therefore an ALARP based assessment is not required for this assessment in consideration of inter related effects (Volume 2, Chapter 12: Inter-related effects (offshore) of the Environmental Statement; APP-072). 11.36 The Applicant advises that the safety Case of the Spirit operated assets is the responsibility of the Duty Holder, Spirit Energy. The Applicant advises that the

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11.23 In terms of the scope of the assessment, paragraph 11.1.1.4 states – "Many of the potential impacts upon infrastructure and other users are related to navigational safety and collision risk. To avoid duplication, navigational safety and risk to all vessel types from Hornsea Three is considered in volume 2, chapter 7: Shipping and Navigation. Therefore the following assessment only considers impacts that will potentially affect the undertaking of a marine activity or the operational effectiveness of marine infrastructure in the relevant infrastructure and other users study area. " 11.24 It continues at paragraph 11.1.1.6 – "Impacts upon oil and gas activities may also arise from modifications to helicopter routes or helicopter access to platforms, and interference with microwave communication links. These impacts are assessed in volume 2, Chapter 8: Aviation, Military and Communication." 11.25 Accordingly it is clear from this scope that Chapter 11 does not contain an ALARP safety assessment of the risks constituting major accident hazards which concern Spirit, being helicopter transportation and vessel allision. 11.26 Moreover, the methodology set out in section 11.9 of Chapter 11 is clearly an EIA methodology as described above. Paragraph 11.9.2.1 states – "The criteria for determining the significance of effects is a two stage process that involves defining the sensitivity of the receptors and the magnitude of the impacts. This section describes the criteria applied in this chapter to assign values to the sensitivity of receptors and the magnitude of potential impacts. The terms used to define sensitivity and magnitude are based on those used in the DMRB methodology, which is described in further detail in volume 1, chapter 5: Environmental Impact Assessment Methodology". 11.27 Paragraph 11.9.2.4 states –	management of the safety case requires operational and commercial information which is not available to the Applicant and is outside the scope of the Environmental Statement (see Applicants response to the ExA Q5.2.13 at deadline 4). 11.37 The Applicant contests that in the event of emergency evacuation helicopter flights will not be adversely affected (and contests the statement made at section 1.2 of Appendix ZG of the Applicants submission at Deadline 3). SAR helicopters are able to access platforms in weather limits below CAT limits. SAR helicopters, such as Coast Guard Helicopters, are frequently used to support oil and gas operations (see Applicants response to Ex.A Q2.5.13 at deadline 4). In addition, in the event of any fire or gas leak on the platform's, helicopters would not be allowed to approach the platforms for safety reasons. The Applicant has requested the Safety Case to better understand this concern, but this has not been provided by Spirit Energy. 11.3.8.2 As stated at 11.37 helicopter transportation as a means of evacuation would not be affected by Hornsea Three. 11.39 Noted 11.40 The Applicant advises that the Hornsea Three turbines will be fitted with the required aviation lighting (see Table 8.13 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement). The Applicant advises that the Hornsea Three turbines can be put into the Terrain Awareness Warning System database. The Applicant advises that flights are not essential 24/7/365 to

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"The significance of the effect upon infrastructure and other users is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method employed for this assessment is presented in Table 11.26. Where a range of significance of effect is presented in Table 11.26, the final assessment for each effect is based upon expert judgement." **Aviation, Military and Communication Technical Report ("AMC Technical Report") (ES, Annex 8.1, PINS Ref. A6.5.8.1)** 11.28 As is stated at paragraph 1.2.1.1 of the AMC Technical Report, it provides the technical information and modelling results relating to the EIA set out within Volume 2, Chapter 8 of the ES. 11.29 It considers baseline aviation activity within 9nm of the proposed wind farm; includes radar line of sight analysis of relevant radar installations, and assesses operational impacts on Helicopter Main Routes and offshore operations, including at Chiswick and Grove NUIs and J6A NMI. 11.30 The AMC Technical Report does not comprise an ALARP based risk assessment in line with the methodology described above. For example there is no consideration of tolerability of risk. Rather, the AMC Technical Report simply supports and informs the aviation element of the EIA assessment contained within Volume 2, Chapter 8 and carried out on the basis of standard EIA methodology as set set out at section 8.9. **Inter-related Effects (ES, Vol. 2, Chapter 12, PINS Ref. A6.2.12)** 11.31 An assessment of the inter-related effects of the offshore elements of the wind farm was carried out as part of the EIA. Paragraph 12.1.1.1 of the Chapter states that it considers "the potential impacts of Hornsea Three seaward of Mean High Water Springs (MHWS) during its construction, operation and maintenance, and decommissioning phases." Paragraph 12.1.1.2 states that –	the Chiswick and Grove platforms. The Applicant advises that Instrument flight procedures can continue to be flown to the Chiswick and Grove platforms in good visibility and low visibility conditions, but for low visibility conditions, and in certain wind directions, flights will be restricted. The Applicant also notes that there are already restrictions on flights to these platforms for example. Chiswick platform is day flights only. Other restrictions include weather restrictions which may include low visibility criteria. 11.41 See response 11.3.1.2 11.42 The Applicant notes that the maintenance and revision of the platform's safety cases is the responsibility of the Duty Holder Spirit Energy.

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	"The detailed technical information which underpins the impact assessments presented in this chapter is contained within volume 1, chapter 3: Project Description, volume 2, chapters 1 to 11 and their supporting annexes in volume 5. "	
11.32	Paragraph 12.2.1.4 states that –	
	"The impact assessment presented within this chapter has taken into account other relevant impact assessments and their associated annexes in this Environmental Statement including: Volume 2, chapter 1: Marine Processes; Volume 2, chapter 2: Benthic Ecology; Volume 2, chapter 3: Fish and Shellfish Ecology; Volume 2, chapter 4: Marine Mammals; Volume 2, chapter 5: Offshore Ornithology; Volume 2, chapter 6: Commercial Fisheries; Volume 2, chapter 7: Shipping and Navigation; Volume 2, chapter 8: Aviation, Military and Communication; Volume 2, chapter 9: Marine Archaeology; Volume 2, chapter 10: Seascape and Visual Resources; and Volume 2, chapter 11: Infrastructure and Other Users."	
11.33	Therefore it is clear that the assessment of inter-related effects focusses on the interplay of effects which have been identified and assessed within other topic chapters of the ES.	
11.34	As the relevant topic chapters do not contain any ALARP based risk assessment of vessel allision with Spirit Energy's infrastructure, then it follows that Chapter 12 also does not contain such an assessment.	

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11.35 Similarly, as Annex 8.1 of Volume 8 of the ES does not contain any ALARP based risk assessment of loss of life to pilots and Spirit Energy personnel in consequence of impacts on helicopter transportation to and from Spirit Energy's platforms (specifically the Chiswick and Grove NUIs and J6A NMI), then it follows that Chapter 12 also does not contain such an ALARP based assessment. <u>Safety case</u> 11.36 This gap in the Applicant's assessment process is significant because the risks which have not been assessed are categorised as major accident hazards within the Applicant's safety cases for the Chiswick and Grove NUIs, and the J6A NMI. Reference is made to **SE ISH Appendix ZC.** 11.37 Helicopter transportation is a primary means of evacuation from the platforms. Moreover helicopter transportation is a mitigant relied upon in reducing other major accident hazards identified within the safety cases to ALARP. Any material reduction in the availability of that mitigant (namely, helicopter transportation) in consequence of the wind farm will necessitate a revisal of the safety case. Reference is made to **SE ISH Appendix ZG.** 11.38 Separately, changes to – 11.38.1 the anticipated frequency and consequent risk of vessel allision, and 11.38.2 helicopter transportation hazards would constitute changes to the underlying basis of the relevant risk assessments.	

Relevant Representation Comment	Applicant's Response
Implications 11.39 Aviation and Marine experts appointed by SE have considered the risks arising to SE's personnel and pilots (loss of life) and infrastructure in consequence of the windfarm. Their respective conclusions are set out within the AviateQ International Limited Flight Evaluation Report (November 2018) and **SE ISH Appendix ZE**, and the Noble Denton Marine Services – Hornsea 3 Wind Farm Review of Marine Hazards (November 2018) and **SE ISH Appendix ZD.** 11.40 The aviation evidence concludes that the windfarm will introduce obstructions to the available airspace that impact on the ability to safely conduct essential instrument flight procedures by helicopter to these facilities in low visibility conditions. 11.41 The marine evidence concludes that the wind farm will increase the risk of vessel allision with Spirit Energy's infrastructure. 11.42 Accordingly it is considered that revisal of the relevant safety cases and the approval of the Competent Authority of those revisals would be required.	
12 Decision-making under Section 104(3), Planning Act 2008 12.1 In light of EN-1, paragraph 4.1.2 requiring the IPC to "start" with a presumption in favour of granting consent "unless any more specific and relevant policies" "clearly indicate that consent should be refused", and in circumstances where paragraph 3.1.4 applies at most "substantial weight" to the Application proposals for increased generation capacity at one end of that presumption, the following is evident. EN-3, paragraph 2.6.184 proceeds from an assumption that the Applicant has assessed "potential affects" and applied ALARP. Here, the Applicant has not undertaken the expected assessment expected from its acceptance that there is a potential affect.	12.1 The Applicant has submitted an Environmental Statement in compliance with the EIA regulations and in accordance with the EN-1 and EN-3. The Application of the EIA regulations are described in Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement) and is evident through the assessments conducted through the Environmental Statement. The Application of EN-1 and EN-3 has been applied as required for each assessment.

Relevant Representation Comment	Applicant's Response
12.2 Paragraph 2.6.184 continues from 2.6.184 and, thereby, assumes the prior paragraph assessments (plural). In this regard, 2.6.184 requires two matters to be addressed by the IPC: 1) it should be satisfied about aspects of site selection and design and their purpose. Here, however, the design is in outline and subject only to parameters in paragraph 2(2) of Part 3, Requirements, in the dDCO. Absent a conclusion on funding of the project, the purpose of the design of the layout cannot yet be known. Therefore, the IPC cannot at this time be satisfied about the purpose of "site design"; 2) the IPC "should not consent applications which pose unacceptable risks to safety after mitigation measures have been considered". 12.3 In this context, paragraph 2.6.185 categorises a "likely affect" upon "safety of an existing or approved/licensed offshore infrastructure or activity" as "adverse significant effects" ("these"). Applying EN-2, paragraph 4.2.11, to paragraph 2.6.185, results in it reading as "Where a proposed development is likely to affect the future … safety of an existing or approved/licensed offshore infrastructure or activity, then the IPC should give these likely significant adverse effects substantial weight in its decision-making". 12.4 The outcome of paragraphs 2.6.183-2.6.185 is that the presumption of consenting the Application is removed by the clear words of paragraph 2.6.184 and the resulting balanced approach to the decision (as opposed to a presumption in favour of grant) includes: a) the "substantial weight" attributed by EN-1 paragraph 3.1.4 to the *whole* of the Application capacity; versus b) the "substantial weight" required to be attributed to the "likely significant adverse effect" on future safety of the proposed offshore wind farm on other offshore infrastructure or activity. 12.5 Paragraph 2.6.186 raises a bar ("to enable consent") whereby "mitigation measures" may make it "possible" to "negate or reduce effects "on other offshore infrastructure or operations" to a level sufficient to enable the IPC to grant consent. That is, paragraph 2.6.186 appears to raise a high bar to prevent the IPC granting consent unless and until relevant risks in paragraph 2.6.185 (here, safety) have been either negated or reduced. And if they are not so, then paragraph 2.6.186 clearly indicates that the IPC is 'unable' to grant consent absent such mitigation measures.	Each chapter provides a table of how the relevant guidance has been applied. Table 7.1 of Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement (APP-067) provides a summary of NPS -EN-3 provisions relevant to shipping and navigation, and Table 7.2 of Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement provides a summary of NPS EN-3 policy on decision making relevant to shipping and navigation. Table 8.1 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement provides a summary of NPS EN-1 provisions relevant to aviation, military and communication and Table 8.2 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement provides a summary of NPS EN-1 policy on decision making relevant to aviation, military and communication. Table 11.1 of Volume 2, Chapter 11: Infrastructure and Other Users of the Environmental Statement provides a summary of NPS -EN-3 provisions relevant to infrastructure and other marine users, and Table 11.2 of Volume 2, Chapter 11: Infrastructure and Other Users of the Environmental Statement provides a summary of NPS EN-3 policy on decision making relevant to infrastructure and other marine users. The Applicant has consulted extensively with all the applicable oil and gas, aviation and marine stakeholders (see the summary of consultation at 7.3 of Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement, table 8.4 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement ; and table 11.4 of Volume 2 of Chapter 11, Infrastructure and Other Users of the Environmental Statement). The Applicant has held an aviation workshop with the aviation industry and has

Relevant Representation Comment	Applicant's Response
	provided their methodology to the helicopter operators CHC for review and input (see Table 8.4 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement). The Applicant advises that in regard to the requirement at paragraph 2.6.184 of EN-3 Hornsea Three has been sited to minimise conflicts with other users, where possible (see also Volume 1, Chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement). In cases where conflict has been identified, Hornsea Three has, where appropriate and feasible, proposed mitigation measures to reduce or negate impacts (see section 7.11 of Volume 2, Chapter 7 : Shipping and Navigation of the Environmental Statement , section 8.11 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement and section 11.11 of Volume 2, Chapter 11: Infrastructure and Other Users of the Environmental Statement). Designed in mitigation measures are also included at Table 7.14 of Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement, Table 8.13 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement and Table 11.27 of Volume 2 chapter 11: Infrastructure and Other Users of the Environmental Statement. 12.2 &12.4 The Applicant has submitted the design of the project (Volume 1, Chapter 3: Project Description of the Environmental Statement), from which a maximum design scenario for all the assessments has been drawn (as detailed in table 7.8 of Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement; table 8.8 of Volume 2, Chapter 8: Aviation, Military and Communication of the Environmental Statement, table 11.20 of Volume 2, Chapter 11:

Relevant Representation Comment	Applicant's Response
	Infrastructure and Other Users of the Environmental Statement). The applicant has presented an Environmental Statement which clearly demonstrates that the application does not pose an unacceptable safety risk after mitigation measures have been considered, as summarised in the conclusions of each chapter at section 7.16 of Volume 2 of Chapter 7: Shipping and Navigation of the Environmental Statement, section 8.16 of Volume 2,Chapter 8: Aviation, Military and Communication of the Environmental and section 11.16 of Volume 2, Chapter 11: Infrastructure and Other Users of the Environmental Statement.. Therefore, in relation to each of these concerns raised by Spirit Energy, the Applicant has applied and met the relevant and specific policy tests. Moreover, the Application clearly sets out the nature, purpose, design and funding of the energy NSIP proposed, the urgent need and presumption in favour of which is established in the National Policy Statements – there is no requirement on the Applicant to make out or amplify that need in relation to this NSIP. Consequently, the Secretary of State may comfortably determine the Application in accordance with section 104(3) of the Planning Act 2008. 12.3 The Applicant has presented an Environmental Statement which clearly demonstrates that the proposed development is not likely to have a significant impact on the future of an existing or approved oil and gas activity (see the conclusions of each chapter at section 7.16 of Volume 2, chapter 7: Shipping and Navigation of the Environmental Statement, 8.16 of volume 2,Chapter 8: Aviation, Military and Communication of the Environmental and 11.16 of Volume 2, Chapter

Relevant Representation Comment	Applicant's Response
	11: Infrastructure and Other Users of the Environmental Statement. 12.5 The Applicant has, where appropriate and feasible, proposed mitigation measures to reduce or negate impacts which are clearly laid out in the Environmental Statement (see section 7.11 of Volume 2, Chapter 7 of the ES, section 8.11 of volume 2, chapter 8 of the ES and section 11.11 of Volume 2, Chapter 11 of the ES). Designed in mitigation measures are also included at Table 7.14 of volume 2 of Chapter 7: Shipping and Navigation of the Environmental Statement, Table 8.13 of Volume 2,Chapter 8: Aviation, Military and Communication of the Environmental and Table 11.27 of Volume 2, chapter 11: Infrastructure and Other Users of the Environmental Statement.

Natural England Written Representation (REP3-072, REP3-073, REP3-074, REP3-075, REP3-076, REP3-077, REP3-078, REP3-079)

Summary

Natural England's Deadline 3 submission included the following:

- Hornsea Project Three Hidef method statement for ornithological surveys (REP3-073)
- Post hearing submissions including written submissions of oral cases - Issue Specific Hearing 1 (REP3-074)
- Post hearing submissions including written submissions of oral cases – Issue Specific Hearing 2 Part 1 – Ornithology (REP3-075)
- Post hearing submissions including written submissions of oral cases - Issue Specific Hearing 2 Part 2 – Benthic (REP3-076)
- Post hearing submissions including written submissions of oral cases – Issue Specific Hearing 2 Part 2 – Benthic: Annex 2.2A Review of Applicant's response to Interested Parties response to ExA Questions (not in HOW03 Examination Library).

- Post hearing submissions including written submissions of oral cases – Issue Specific Hearing 2 Part 2 – Benthic: Annex 2.2B Natural England and JNCC responses to Applicant's responses to Natural England WR in relation to Benthic Ecology (REP3-077)
- Post hearing submissions including written submissions of oral cases – Issue Specific Hearing 3 (REP3-078)
- Post hearing submissions including written submissions of oral cases – Issue Specific Hearing 4 (REP3-079)

Response

The Applicant has responded to Natural England's hearing summaries submitted at Deadline 3 in the tables below where appropriate and where new feedback was submitted by Natural England. As the Applicant had not previously received feedback on their proposals relating to Pink-footed Geese mitigation and the Norfolk Coast AoNB, the hearing notes corresponding to these topics have been responded to in detail (see ISH1 and ISH4). Similarly, the Applicant has also provided a full response to Natural England's comments on the Population Viability Anayslis provided to them at Deadline 1 (REP1-135), now that feedback has been received.

To address comments made regarding the adequacy of characterisation for the North Norfolk Sandbanks and Saturn Reef SAC, the Applicant has prepared a note submitted at Appendix 78 to the Applicant's response to Deadline 4 to provide clarity and transparency on the benthic characterisation for the North Norfolk Sandbanks and Saturn Reef SAC.

Response ISH1 REP3-074

NE ISH1 Comment	Applicant's Response
Onshore Ecology Agenda item 4a	
Natural England is awaiting a revised Mitigation Plan from the Applicant as set out in the Statement of Common Ground (SoCG). Natural England notes that it is the intension of the Applicant to supply said document twelve months prior to commencement of the works.	Natural England's understanding is correct at the time of ISH1. Following the request of the Examining Authority (Q2.4.2), a draft outline of the Pink-footeed Goose Management Plan has been submitted as an annex to the Outline Code of Construction Practice submitted for Deadline 4.
In answer to the Examiner's questioned in relation to how they could rule out 'no likely significant effect' as the farmland is functionally linked, the Applicant noted that due to the huge food resource (sugar-beet), Pink-Footed Geese population wintering on the N. Norfolk coast is increasing dramatically. Their range is also increasing; with roosts having moved further eastwards in recent years. Moreover, Pink-Footed Geese are not constrained or suffering from a thinning population. In short, the applicant does not believe there will be an issue. However, Natural England remains concerned about the numbers of PFGs using the cable corridor and believes it to be a preferred area in relation to those closer to roost locations.	Post-harveted sugar beet is a high-quality food from which the geese are not disturbed by farmers from whilst feeding because of its limited commercial value. The combination of these two factors is the most likely cause of the dramatic increase since the early 1980's in the numbers of geese occurring in Norfolk. This increase is considered to have occurred by means of cultural learning of the benefits of feeding on sugar beet with no evidence found for (1) wintering birds being forced into Norfolk from elsewhere with the increasing national population, (2) degradation of sites elsewhere or (3) an increase in food availability in Norfolk (Gill *et al*.,1997). In addition to the increase in the North Norfolk Coast SPA population to over 47,000 birds, and predicted to continue at c.2% per annum (Natural England commissioned report; WWT 2016), an expansion eastwards in foraging range beyond the North Norfolk Coast SPA has occurred within the past decade, with flocks now regularly using coastal fields around Weybourne (Ørsted 2018a). This eastward movement has led to the establishment of a nocturnal roost at Cley Marshes where initially a few birds roosted in 2007/08, with up to 4,500 roosting

NE ISH1 Comment	Applicant's Response
	between November and January by winter 2014/15 (Acheson 2016). Within the area surveyed by Applicant's onshore ornithological baseline surveys for Pink-footed Geese and 10.4 km of Cley Marshes, approximately 50% of the available post-harvest sugar beet was not recorded as having yet been utilized by the birds at any one time. Overall, the two winters of observations (2016/17, 2017/18) would suggest the availability of post-harvest sugar beet within the core range from roost (as defined by SNH 2013 at 20 km), exceeded the demands of the increasing population of pink-footed geese during November – January. There is no evidence known to the Applicant to infer or substantiate Natural England's asseration that the cable corridor is a preferred area in relation to those closer to roost locations. Indeed, amongst the flocks feeding in the cable corridor, individually identifiable neck collared birds and GPS satellite tagged birds were followed that confirmed together with flight line observations of the flock, that these geese were also foraging extensively in fields to the west and less than half the distance away from the roost (R.M.Ward pers obs.). Consideration of the above observations, diminishes the significance to Pink-footed Geese of the food resource in the cable corridor, when available as post-harvest foraging, in the context of the wider availability within the species' core range. *Gill, J.A., Watkinson, A.R. and Sutherland, W.J. (1997) Causes of the redistribution of Pink-footed Geese Anser brachyrhynchus in Britain. Ibis, 139, 497–503.* *WWT Consulting (2015). Pink-footed Goose anthropogenic mortality review: Population model. Natural England Commissioned Report, NECR198.*

NE ISH1 Comment	Applicant's Response
	Acheson, N. (2016) Great bird reserves: Cley Marshes. British Birds 109, 706-723. *Scottish Natural Heritage (2013) Guidance. Assessing Connectivity with Special Protection Areas (SPAs). July 2013.*

NE ISH1 Comment	Applicant's Response
The applicant stated that the RSPB are in agreement with their current mitigation plan. However, Natural England has not been included in the discussions re the mitigation plan and are therefore concerned because the requirement to sign off any mitigation plan in relation to Annex I Special Protection Area (SPA) species is the remit of Natural England. Therefore we reiterate the need for the in principle Mitigation Plan for PFGs to be provided as part of the consenting process so that all parties are aware.	The Applicant has sought to gather feedback relevant to PFG from Natural England through the SoCG discussions. In similar disucssions, the RSPB provided feedback and suggestions were incorporated into proposed amendments to the Outline CoCP. The Applicant has since incorporated Natural England's feedback into the draft outline of the Pink-footeed Goose Management Plan, submitted as Appendix F of the Outline CoCP.
Natural England also highlights that while November to January remains the peak period for Pink-Footed Geese in North Norfolk, they could arrive sooner if their breeding season was unsuccessful and/or leave later depending on weather conditions. Therefore, Natural England has outstanding concerns in relation to the Mitigation Plan and believe it should have sufficient flexibility to take into account seasonal changes in presence, abundance and distribution.	There is no evidence known to the Applicant to substantiate Natural England's propositions that birds could arrive sooner if their breeding season was unsuccessful. Pink-footed Geese wintering in North Norfolk breed primarily in Iceland. Migration begins in early autumn to the wintering grounds. Peak numbers of pink-footed geese occur in the autumn (and again in spring) in northern Scotland, but peak numbers in England occur later in winter at sites in Lancashire and Norfolk after the birds have moved further south. The likelihood is that as birds stage in autumn in Scotland, this buffers any variability associated with departure from the breeding grounds between years from being reflected in the main arrival of birds in Norfolk. The first returning Pink-Footed Geese to North Norfolk typically arrive during September. During September and October, those fields of sugarbeet that are harvested are also invariably ploughed and the next crop sown to take advantage of the last days of the growing season. At this time Pink-Footed Geese forage on spilled grain in stubbles and graze on saltmarsh. The Applicant wishes to note that its onshore ornithological baseline surveys for Pink-footed Geese recorded no birds

NE ISH1 Comment	Applicant's Response
	during October 2017 and only 60 foraging on cereal stubble in October 2016. There is no evidence known to the Applicant to substantiate Natural England's proposition that birds could leave Norfolk later depending on weather conditions. Substantial numbers of Pink-Footed Geese leave North Norfolk in February by when no birds were recorded by the Applicant's onshore ornithological baseline surveys for Pink-footed Geese in 2017 and 2018, as there was limited/no availability of post-harvest sugarbeet on which to feed.
Natural England believes that it is unlikely, for there to be an Adverse Effect on Integrity (AEoI) of the North Norfolk SPA from the propose works, with the adoption of mitigation measures. However, without sight of the full Mitigation Plan it not possible for Natural England to rule out (AEoI) and consequently this remains an area of uncommon ground.	Noted
The applicant clarified that the foraging area of the geese was functionally linked habitat rather than the SPA itself. Natural England confirms this is correct, but PFG's are protected outside of designated sites and thus supporting habitats are important. Therefore the provision of additional refuges away from works, as per East Anglia 1 & 3 for Brent Geese on the Deben Estuary, as also important. Ultimately, Natural England requires assurance in relation to mitigation measures, which also consider refuges.	The Applicant fully acknowledges the functional importance of cropped habitat to pink-footed geese from the North Norfolk Coast SPA in the context of Natura 2000. As seasonal, spatial and economic (beet harvesting schedules) aspects affect the existence of useable foraging habitat within the onshore cable corridor, there is considerable uncertainty about whether an impact as a result of cable installation will occur, and then the scale of such an impact on pink-footed geese. The Pink-footeed Goose Management Plan will present a process designed to incorporate all relevant variables and milestones to inform appropriate mitigation that is both targeted and proportional If the process suggests that mitigation is likely to be needed, Hornsea Three's

NE ISH1 Comment	Applicant's Response
	ornithologists will consult with Natural England, addressing the actual rather than the maximum construction scenario assessed in the Environmental Statement. Should it be agreed that mitigation measures are necessary they will be designed to be proportionate to the predicted impact at the time of construction and will be approved by Natural England prior to implementation.
The Examiner asked whether conservation objectives will be hampered. Natural England believes there are likely significant effects in terms of the Habitats Regulation Assessment (HRA). Therefore, it is prudent to minimise the impacts as much and possible and mitigation measures agreed as soon as possible to ensure no adverse effect on integrity.	Noted
The applicant elaborated that the Pink Footed Geese in this area forage up to 10km away from their roosting site and are known to forage up to 20km away from their roosting site in other locations, to highlight their point that the population in question are not currently utilising their total available foraging area. Natural England supports the point raised by Mr Catchpole in relation to the higher energetic cost of foraging further than their current 10km range and question why the PFGs not using 50% of this foraging area. It is therefore our view that the cable corridor is a preferred area and further support the requirement for suitable mitigation measures.	The evidence supports a population that is in a state of growth numerically as its range continues to expand into existing but previously unexploited areas of food resource, post-harvest sugar beet, whilst in doing so also establishing new roosts within the North Norfolk Coast SPA. The population has yet to reach carrying capacity in respect to the numbers of birds that the food resource available across the functionally linked habitat can support whether it be defined as within 10.4 km of the recently established roost at Cley Marshes or 20 km i.e. the core range (as defined by SNH (2013) for the species), as evidenced by continued growth (at c.2% per annum (Natural England commissioned report; WWT 2016) into substantial areas of unexploited food resources. There is however no evidence known to the Applicant to infer or substantiate Natural England's asseration that the cable

NE ISH1 Comment	Applicant's Response
	corridor is a preferred area in relation to those closer to roost locations. *Scottish Natural Heritage (2013) Guidance. Assessing Connectivity with Special Protection Areas (SPAs). July 2013.* *WWT Consulting (2015). Pink-footed Goose anthropogenic mortality review: Population model. Natural England Commissioned Report, NECR198.*
Natural England is also concerned that if Pink-Footed Geese were not using alternative areas then a phased build in a preference area has further implications with the potential for further negative impacts of disturbance to the Pink Footed Goose over successive winters of development activity. Natural England advises that the adoption of mitigation measures is essential to ensure no negative impact to the pink footed goose and no delays to the construction of the project.	As discussed by the Applicant in preceeding responses, there is no evidence known to the Applicant to infer or substantiate Natural England's asseration that the cable corridor is a preferred area in relation to those closer to roost locations, or for that matter within the core range from roost (as defined by SNH 2013 at 20 km). *Scottish Natural Heritage (2013) Guidance. Assessing Connectivity with Special Protection Areas (SPAs). July 2013.*

Response ISH2 REP3-075 Ornithology

NE ISH4 Comment	Applicant's Response
Appendix 2: Natural England Comments on Appendix 9 to Deadline I submission – Population Viability Analysis.	A detailed response to each of the points raised by Natural England in Appendix 2 of its Deadline 3 submission is provided in Appendix 73 to the Applicant's response to Deadline 4.

Response ISH2 (not in Hornsea Three Examination Library) Benthic Annex 2a

NE ISH4 Comment	Applicant's Response
Review of Applicant's response to Interested Parties respons to ExA Questions on Benthic Ecology	As outlined in Natural England/JNCC's comments on the Applicant's response to Ex.A question Q1.2.15, Natural England and JNCC retain concerns regarding the benthic data

NE ISH4 Comment	Applicant's Response
	analysis and biotope allocation process that was undertaken to inform the benthic ecology characterisation presented in Volume 5, Chapter 5: Benthic Ecology of the Environmental Statement (APP-102) and Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062). The Applicant understands from the Natural England Deadline 3 response (REP3-077) that there is sufficient information for characterisation of the Wash and North Norfolk Coast Special Area of Conservation, but JNCC disagree that there is adequate characterisation for the North Norfolk Sandbanks and Saturn Reef SAC. Natural England have provided further comments on the Applicant's comments to the Ex.A's Written Questions to Interested Parties (REP2-005), in a document entitled *Benthic Annex 2.2A – Review of Applicant's response to IP response to ExA Questions – Benthic Ecology*. In response to these comments, the Applicant has prepared a note submitted at Appendix 78 to the Applicant response to Deadline 4 to provide clarity and transparency on the benthic characterisation for the North Norfolk Sandbanks and Saturn Reef SAC that underpins the assessment presented in and Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement and the Report to Inform Appropriate Assessment (RIAA; APP-052). The purpose of this document is to demonstrate that the characterisation of the SAC is robust and consistent with the results of previous surveys undertaken in the SAC by JNCC and Cefas in 2013 and therefore adequate for the purposes of the Environmental Impact Assessment and Report to Inform Appropriate Assessment.

Response ISH2 REP3-077 Benthic Annex 2b

NE ISH4 Comment	Applicant's Response
Natural England and JNCC responses to Applicant's responses to Natural England WR in relation to Benthic Ecology	The Applicant notes that Natural England/JNCC submitted responses at Deadline 3 (REP3-077) to the Applicant's comments in REP2-004 with respect to reef features and has provided information to support the use of the buffers around Annex I reefs as shown in Figure 2 of Annex D4 of the Natural England Deadline 2 response. In their response to the Second Written Questions submitted at Deadline 4 at Q2.2.54 the Applicant has provided

NE ISH4 Comment	Applicant's Response
	clarification on a number of points raised.

Response ISH4 REP3-079

NE ISH4 Comment	Applicant's Response
NE response to additional evidence contained in the Applicant's Appendix 23 to Deadline 1 submission – Impacts on the Qualities of the Natural Beauty of the Norfolk Coast AONB In respect of the likely adverse effects on special quality 'Exceptionally Important, Varied and Distinctive Biodiversity, based on Locally Distinctive Habitats' (number 4).	Noted
1. 1 We thank the applicant for the additional information provided within Appendix 23. This goes some way to answering Natural England's desire for further information about the impact of the cable corridor on the special qualities (expressed as Qualities of Natural Beauty [QNB] in the AONB Management Plan) of the Norfolk Coast AONB which we requested in our Relevant Representation, reproduced here: *It is Natural England's view that there is insufficient information in the application to determine impact from the onshore cable corridor on special qualities of the Norfolk Coast Area of Outstanding Natural Beauty (AONB). A key special quality of the Norfolk Coast AONB is 'Exceptionally Important, Varied and Distinctive Biodiversity, based on Locally Distinctive Habitats'. A key characteristic of the landscape character type Coastal Towns and Villages, CTV1: Weybourne to Sheringham within Norfolk Coast AONB is 'Small fields, hedgerows and woodland, which provide an enclosed structure for this intimately scaled rural landscape'. Natural England would expect to see a detailed analysis of the impacts on key landscape elements within the AONB which contribute to biodiversity and landscape character, such as hedgerows and woodland and other semi-natural habitats. At this present time the ES does not include information about where there will be a long term/persistent loss of key landscape features, such as veteran trees and important hedgerows*	Noted

NE ISH4 Comment	Applicant's Response
within the AONB, and there is no detail provided of the steps that have been taken to minimise the loss. 2. *In addition to the impact of the cable route, the construction impacts of any joint bays, link boxes, compounds etc. within the AONB should be assessed in full.*	
At the this time we advise that; Whilst the additional information in Appendix 23 is helpful Natural England is disappointed that there is little extra information about the duration of the construction effects, particularly as information was forthcoming in the Issue Specific Hearing session of Tuesday 4th and Friday 7th December 2018. The proposed 2 phase construction period (with a maximum of 3 years between phases) will significantly extend the duration of the construction effects and, as a consequence, the time needed for the phase 2 reinstatement planting to sufficiently mature will be extended.	The two phase construction period with a maximum of 3 years between phases is not new information and is given in Volume 1, Chapter 3: Project Description paragraph 3.8.1.7 [APP-058] and Volume 3, Chapter 4: Landscape and Visual Resources Table 4.6 [APP-076] of the Environmental Statement. The impact assessment presented in APP-076 is based on the maximum design scenario of the maximum length of time between phases and vegetation being removed to the full width of the onshore cable corridor at each phase.
3. Taking all of this new information into account and with reference to other information contained with the ES[1] which details the construction phase of the cable route Natural England considers that the effects associated with the construction phase will have a significant effect on the landscape fabric and visual amenity afforded by this part of the AONB. Therefore, impacts to the AONB remain an outstanding concern unless potential enhancement opportunities during construction can be addressed as set out below *1 Given the limited spatial extent of the onshore cable corridor in relation to these designated areas and the nature of potential effects (i.e. short-term construction activity followed by landscape reinstatement) it is unlikely that construction of the onshore cable corridor would undermine the special qualities or reasons for designation of these landscapes. Significant effects are therefore not anticipated (APP-076 paragraph 4.7.5.2)*	

NE ISH4 Comment	Applicant's Response
Our advice is based upon the following; Duration of the construction phase(s). We do not judge the effects of the construction phase(s) to be short term, but rather to be medium term at best (5 to 10 years) and potentially long term (10 years and beyond). The use of a two stage phased build programme, which will require the removal of the restoration planting from phase 1 in order to facilitate phase 2, will significantly extend the construction phase and hence the period of adverse effect. We note that other cabling schemes such as East Anglia One have factored in the need for the installation of additional cable capacity for East Anglia three at the initial construction phase in order to limit the damage to the natural environment, and disturbance to other receptors, and in the case of the former limit the period needed for reinstatement measures to fully establish. Natural England understands why the applicant is reluctant to take this approach for Hornsea Project Three, but it is our view that this approach is still viable mitigation and therefore should not be dismissed.	We note the disagreement where Natural England consider that the construction phase will result in a significant effect on the landscape fabric and visual amenity on this part of the AONB, whereas the Applicant's impact assessment presented Volume 3, Chapter 4: Landscape and Visual Resources [APP-076 paragraph 4.7.5.2] concludes that significant effects are not anticipated. The Applicant stands by this assessment in APP-076. However, even if effects due to construction of the onshore cable corridor were to be assessed as medium or long-term (as opposed to short term assessed in APP-076) they would not be significant due to the relatively small extent of hedgerows and trees that would be removed in relation to the retained vegetation within and alongside the cable corridor (this point is made in the Applicant's Appendix 23 to Deadline 1 submission [REP1-167], last paragraph on page 7), and because replacement planting would grow over time, lessening effects year on year. Although the Environmental Statement assessed effects if vegetation within the onshore cable corridor is removed for the full width of the corridor at each phase, in reality this is unlikely if Hornsea Three is

NE ISH4 Comment	Applicant's Response
	constructed in two phases. Figure 1 attached to this document illustrates the potential width of each phase across the cable corridor if approximately 50% of Hornsea Three was constructed at phase 1 and 50% at phase 2. The areas where cables could be laid and soils stored temporarily on the outside of the corridor at phase 1 are unlikely to need to be disturbed again to install phase 2, and therefore hedgerows re-instated within this area immediately after completion of phase 1 would remain in place when phase 2 was constructed. Only the part of the phase 1 area which is required to construct both phases (e.g. the haul road) would need to be disturbed in both phases. Therefore, the majority of hedges across the 80m wide cable corridor would only be removed and replaced once. This, and other measures, will be designed in detail post-consent to ensure that minimal harm is caused to existing hedges and trees within the onshore cable corridor, and to minimise the extent of hedgerows that need to be removed and replaced twice. The Applicant is not able to commit to installing additional capacity within the AONB in phase 1 to accommodate both phases for reasons given in the Written summary of Applicant's oral case put at Issue

NE ISH4 Comment	Applicant's Response
	Specific Hearing 1, paragraphs 3.57 to 3.65 [REP3-003].
The growth rate of vegetation used in hedgerow and hedgerow tree reinstatement planting. Norfolk County Council have advised us that due to the exposed nature of the landscape in north Norfolk the growth rate at which the hedgerow plants will take to reach a stage where their effectiveness as mitigation measures is achieved should be doubled from 5 to 10 years.	The Applicant is not aware of evidence submitted by Norfolk County Council (NCC) suggesting that, in north Norfolk, the growth rate at which the hedgerow plants will take to reach a stage where their effectiveness as mitigation measures should be doubled from 5 to 10 years. NCC has however agreed that they have no specific points to raise in respect to assessment conclusions given in Volume 3, Chapter 4: Landscape and Visual Resources of the Environmental Statement, and that the Outline LMP [APP-181] includes suitable measures to reduce the landscape and visual impacts, retain landscaping where possible and enhance and compliment landscape features going forward (Statement of Common Ground between Hornsea Project Three (UK) Ltd. and Norfolk County Council pages 31 and 32 [REP1-232]).
Following on from the above; Natural England is concerned about the loss of the initial reinstatement planting due to 2 nd construction phase. As stated during the issue specific hearing of Friday 7th December 2018 the reinstated planting would need to be removed for	As noted above this information on phasing was included in the application documents and factored into the impact assessment and mitigation proposals,

NE ISH4 Comment	Applicant's Response
phase 2 and replanted again afterwards. The effect of this would be to extend the duration of the adverse effects of the construction period from at least 6 years (1 years construction, 5 years awaiting the reinstated vegetation to mature) to potentially at least 9 years (4 and 5 years respectively).	and further information has been provided (and described above) to illustrate how the Applicant will further limit the extent of vegetation that will be removed within the AONB, and the extent of planting reinstated at phase 1 that will need to be removed and reinstated a second time at phase 2.
Whilst we accept that the reinstatement planting will help to moderate the effects associated with the operational phase of the proposal they do nothing to moderate the effects of the construction phase. We note that there is no difference between the reinstatement measures proposed for the landscape outside of the AONB and that within the AONB and would therefore like to see measures put in place which will provide a long term net environmental gain for the AONB.	The proposed planting measures will provide long term net environmental gain in relation to hedgerows by replacing species poor or defunct hedges with species rich mixes, and by potential hedgerow enhancement within the 100m wide corridor outside the 80m wide working corridor as noted in the Applicant's Appendix 23 to Deadline 1 submission [REP1-167]. Enhancements to these species poor and defunct hedges would not occur of they were retained by measures such as Horizontal Direct Drilling (HDD). The Applicant notes that The Wildlife Trusts and Norfolk Wildlife Trust agree that the enhancements proposed by Hornsea Three, comprising replanting all removed sections of hedgerows with a native species rich mix, are appropriate (Statement of Common Ground between Hornsea Project Three (UK) Ltd.,The Wildlife Trusts and Norfolk Wildlife Trust, pages 30, 31

NE ISH4 Comment	Applicant's Response
	and 33 [REP1-227]). The Applicant has carried out a specific detailed exercise within the AONB, to identify and commit to retaining as many hedges and trees as possible at this early stage of the design process, committing to only removing a small number, and retaining the majority of vegetation within the cable corridor, as set out in Appendix 23 to Deadline 1 submission (REP1-167 pages 6, 7 and 8).
4. Natural England welcomes the use of Horizontal Directional Drilling (HDD) under woodland blocks and selected hedgerows. However, there will still be an extensive loss of hedgerows and hedgerow features as a result of the cable laying. The reinstatement planting will address this loss, but in order to minimise the duration of this adverse effect the construction phase needs to be as short as possible.	The construction phase will be as short as possible and measures to minimise duration within the AONB will be discussed and agreed with Natural England should the DCO be granted, before construction commences.
5. The National Policy Statement for National Networks states at 5.151 (p.77) that 'the extent to which that (the detrimental effect) could be moderated' is consideration for the decision maker. Natural England advises that whereas the moderation measures for the operational phases of the scheme are adequate those for the construction phase(s) are not. We advise therefore that there is an opportunity to provide imaginative landscape enhancement, such as the strengthening of existing landscape features along the course of the route, which would compensate for the significant effects that the scheme will cause during the construction period and result in a net gain for the AONB. This would support the statutory purposes of the AONB, to conserve and enhance the natural beauty of the designation and is in accord with the	NE has given two examples of undergrounding schemes by National Grid where, they allege, "imaginative landscape enhancement" has been provided (the National Grid Viking Link scheme and the Wormington to Sapperton gas pipeline). The press article at the internet link provided by NE for the Wormington to Sapperton gas pipeline states that a £300,000 grant scheme has been made available for landowners, farmers and local communities in the

NE ISH4 Comment	Applicant's Response
objectives set out in Natural Environment White Paper and 25year Environment Plan. This would also be in line with other undergrounding schemes through designated landscapes such as the National Grid Viking Link scheme (currently awaiting final determination following a Public Inquiry) and the Wormington to Sapperton gas pipeline, another National Grid scheme[2] . [2]*http://news.bbc.co.uk/local/gloucestershire/hi/people_and_places/nature/newsid_8762000/8762307.stm*	Cotswolds AONB, with the aim of restoring dry-stone walls along a 5km (3 mile) corridor centred along the route of the gas pipeline currently being constructed by National Grid. We cannot comment on the detail as the Applicant has not been able to source any document which sets out the agreement for enhancement, and contacts within National Grid have not been able to provide any further details. Every case needs to be considered individually on its merits and the context for and nature of every scheme is different and thus it is of limited relevance in respect of Hornsea 3. The Viking Link scheme was granted consent on 12 December 2018 and LDA Design represented National Grid on landscape matters at the Public Inquiry and is therefore aware of the details in relation to "imaginative landscape enhancements" that were sought by the Lincolnshire Wolds Area of Outstanding Natural Beauty supported by Natural England. A list of enhancement projects with sums of money sought from National Grid for each were put forward by the Lincolnshire Wolds Area of Outstanding Natural Beauty. Many of the suggestions could not be, and were not, related to the scheme and its impacts. A

NE ISH4 Comment	Applicant's Response
	case was made that 2 items were related (chalk stream enhancements and hedgerow planting) and a financial offer was made however no agreement was reached. At the Public Inquiry held in November 2018 National Grid did not offer any of these, and the Inspector granted planning permission without identifying any need for them, concluding that "During construction, some harm would be caused to the landscape, including that of the Lincolnshire Wolds AONB, but this harm would be limited in duration, and no permanent or long-lasting damage would result." (Appeal Decision APP/D2510/W/18/3208088 paragraph 71) The Applicant considers that all reasonable efforts are being made to minimise effects on hedgerows and trees within the Norfolk Coast AONB, and to provide enhancements that will strengthen hedgerows as planting matures, contributing to the Qualities of Natural Beauty of the AONB.

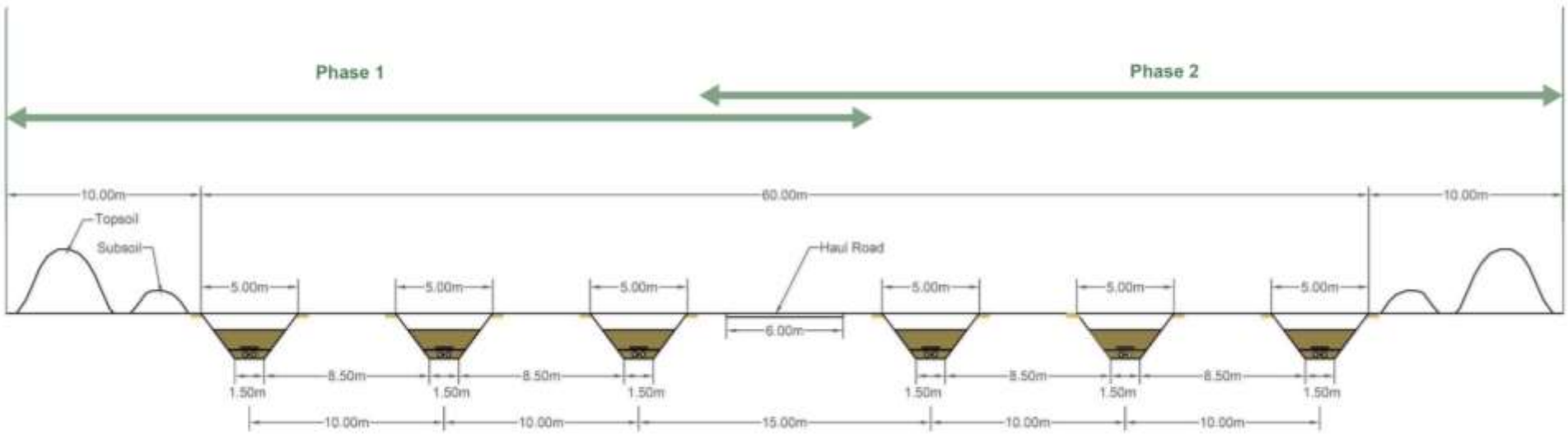

Figure 1- Indicative diagram showing the potential extent of works in the case of a 50/50 Phase 1/Phase 2 scenario. The overlap in the phase arrows demonstrates how in a two phase scenario, there would only be a small proportion of hedgerow replacement planting for Phase 1 removed for Phase 2. (LDA Design, 2019)

Norfolk County Council Written Representation (REP3-080 and REP3-081)

Interested Party Relevant Representation Comment	Applicant's Response
Norfolk County Council's Environment, Development and Transport Committee at its meeting on 6 July 2018 fully supported the principle of offshore wind energy, which is consistent with national policies on energy particularly in respect of: • Reducing greenhouses;	The Applicant would refer to the Statement of Common Ground between Hornsea Project Three and Norfolk County Council (updated and submitted at Deadline 4) which provides an update on all matters. The Applicant would also refer to the Applicant's

Interested Party Relevant Representation Comment	Applicant's Response
• Providing energy security; and • Maximising economic opportunities. 1.2. However, while the County Council supported the principle of this proposal, there were / are a number of issues directly affecting the Authority which need to be resolved as part of the DCO process. In particular there are: • Highway issues – specifically in respect of access to the proposed sites for a Booster Station and grid connection facility (Sub-station). There are also access issues in relation to the main works compound (NB these issues will be explored discussed at Hearing Sessions 3 and 4); • Flood Risk and drainage issues – the need for: infiltration testing, further design modelling; design drainage structures; and maintenance and management plan. These issues can be resolved through a planning requirements attached to the DCO. NB the emerging DCO is for the most part addressing these issues, and this will be discussed at Hearing Session 3); • Public Rights of Way issues – issues need to be resolved around the proposed temporary re-routeing of the North Norfolk Coast Path; • Archaeological issues – issues need to be resolved involving further investigative works. These issues can be addressed through a planning requirement attached to the DCO. This issue is for the most addressed through a draft requirement in the emerging DCO and will be discussed at Hearing Sessions 3 and 4. 1.3. In addition to the above issues, there are wider strategic matters which need to be addressed and explored through the DCO process in order to maximise the potential socio-economic benefits, including:	response to the ExA's second written questions, Q2.11.5 in respect to matters pertaining to traffic and transport.

Interested Party Relevant Representation Comment	Applicant's Response
(a) Wider consideration surrounding the possibility for secondary interconnection, which would allow for electricity generated from the offshore wind farm to be used within the local distribution networks along the cable route; (b) The potential to use HVDC to avoid the need for a Booster Station in North Norfolk; (c) Economic benefits – Commitment to the use of ports in Norfolk during construction and providing operation and maintenance support; and (d) Work-force – a commitment to developing/delivering apprenticeships; work experience; and internships as part of the construction and long-term operation of the wind farm. 1.4. The County Council continues to work with Orsted in order to resolve the above issues.	

Oulton Parish Council Written Representation (REP3-082 and REP3-083)

REP3-082 Response

REP3-082 Comment	Applicant's Response
Oulton Parish Council welcomes this opportunity to provide a brief summary of recent developments in relation to the Main Construction Compound. It was mentioned in Orsted's Appendix 20 at Deadline 1 that the model for the compound at Oulton is the Holton le Clay compound in Lincolnshire for Hornsea 1. OPC has studied the operation of the Hornsea 1 compound, through LPA documents and Holton PC Minutes, all of which have given rise to significant concerns as to the future management of the compound proposed here in Oulton. At Holton le Clay, residents have complained about persistent breaches of planning conditions, including construction traffic management measures, use of generators beyond a specified time period, and agreement on working hours - especially, early on Sunday mornings. Of similar concern is Orsted's application to vary a planning condition on the de-commissioning of that compound, and their decision to attempt to re-use the compound for their subsequent project – Hornsea Two. None of this behaviour fosters a feeling of confidence in Hornsea Three, on the part of the residents of Oulton. Since Deadline 2, OPC has met with the Lead Construction and Lead Traffic Engineers from Vattenfall, to discuss the likely cumulative impact of Vanguard's TWO compounds also being sited in our parish – and sharing the same access route to the Holt Road. Their vehicle movement numbers are only slightly lower than Orsted's. OPC is relieved to hear that these two major projects are finally working together on trying to evaluate their combined impact, but we are obliged to point out that Vattenfall have done little research of	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-082: • Information relating to the access strategy for the main construction compound, including cumulative considerations, impacts on residents and Option R, is contained within various documents submitted throughout the examination including: - Appendix 20 submitted at Deadline 1 (REP1-176); - The Applicant's response to the ExA's first written questions (REP1-122), Q1.11.8, Q1.11.9, Q1.11.10 and Q1.11.11. - Appendix 1 submitted at Deadline 3 (REP3-010); - The Applicant's response to the ExA's second written questions (submitted at Deadline 4), Q2.11.1 and Q2.11.5; - Appendix 32 and Appendix 33 submitted at Deadline 4; - Statement of Common Ground between Hornsea Three and Norfolk County Council submitted at Deadline 4; and - Statement of Common Ground between Hornsea Three and Broadland District Council submitted at Deadline 4. • Commentary on previous project experience is provided in the Applicant's

REP3-082 Comment	Applicant's Response
their own and are currently relying heavily on the assessments made by Orsted. Any omissions or mistakes made by Orsted at this stage will, therefore, simply be duplicated by the other project. Although we note that Orsted are attempting to improve the reality-checking of their vehicle movement figures, OPC maintain our concerns that the volumes of competing existing traffic of all kinds – especially agricultural and commuter traffic – are still being under-estimated. Whatever happens, the existence of Orsted's compound will have severe, adverse impacts on our parish – over 8-10 years - in terms of environmental degradation, highway dysfunction and loss of quality of life, through noise, light and emissions. For some residents, this loss will be extreme. The following is a short section from a statement given to us by the residents of The Old Railway Gatehouse: " *We apologise that we cannot attend this meeting… We are seriously concerned about the impact this is going to have on our lives. 8-10 years is a long time and our quality of life will be greatly marred. Constant traffic noise will put an end to us even being able to sit and enjoy our garden. We do not wish any of the construction traffic to pass our house, as it would be detrimental to our health and sanity!* " In an attempt to limit this and other damage, OPC is concentrating now on promoting the idea that Orsted should construct their own dedicated access route, directly off the Holt Road – as we described in Option R at Deadline 2. In a recent email, Orsted outlined to us the current status of their consideration of Option R. OPC is relieved that these avenues are being pursued, but notes also the applicant's clearly stated continuing commitment to Option 1 – Passing Places.	response to the ExA's second written questions submitted at Deadline 4 (Q.12.11). The Applicant would also refer to the Statement of Common Ground between Hornsea Three and Norfolk Vanguard and Boreas which demonstrates the ongoing collaboration, particularly in respect to traffic and transport matters, including at Oulton.

REP3-082 Comment	Applicant's Response
OPC feels obliged to express today to the Panel its concern that, given the advanced stage of these proceedings, there is a danger that Orsted's exploration of Option R might constitute little more than a PR exercise, and that the applicant may well seize upon any and every obstacle that emerges, as justification for abandoning it. Whatever the outcome, we believe that we need to keep arrangements for the Main Construction Compound WITHIN the DCO in order to maintain a rigorous control on its future management. The LPA simply has not got the resources to exercise such control appropriately. We therefore urge the Panel to encourage the applicant to use their best endeavours seriously to consider Option R, and work to overcome any obstacles in its way. For instance, as a result of the recently conducted Road Safety Audit, NCC Highways might feel that, with a few alterations to the plan, they have to withdraw their holding objection to Option 1 - but this does not in itself mean that Highways considers that Option 1 is the best solution for access. Finally, we think it not unreasonable to suggest to Orsted that they actively consider extending their collaboration with Vattenfall, such that these two projects might share the cost – and the use – of a SINGLE dedicated access route from the Holt Road, thus removing their construction traffic entirely from the public highway of Oulton Street.	

REP3-083 Response

REP3-083 Comment	Applicant's Response
Oulton Parish Council (OPC) has attended four of the five Hearings convened by the Examining Authority(ExA) during the week beginning 3rd December 2018 and has conducted one further meeting of the Orsted/OPC Working Group (WG) on 11th December. The comments that follow are based on information gathered at these meetings and from emails exchanged with the applicant. 1. Choice of Access route to the Main Construction Compound at Oulton: (a) Plans outlining the current status of the applicant's exploration of the alternative options for a dedicated access route, represented within Option "R", were only available to OPC at midnight on Wed. 5th December, i.e. midway through the week of Hearings. For the sake of clarity: Option R now contains 3 possible access options, as follows: --Option 'A': uses the existing junction between the southern end of Oulton Street and the Holt Road (B1149), but then creates a new access into a field to the west at a point approx. 190m up The Street. A dedicated access route directly to the compound would then be constructed across private land, following field boundaries and keeping well away from the Railway Gatehouse. -Option 'C1': creates a new access directly off the Holt Road approx. 2.4km northwest of the existing junction with The Street. A dedicated access route to the	In respect to the access strategy to the main construction compound, the Applicant would refer to the document referenced in response to REP3-083 above.

REP3-083 Comment	Applicant's Response
compound would then be constructed across private land. --Option 'C2': similarly, would create a new access approx. 1.9km to the northwest along the Holt Road, and then cross private land, involving quite a short distance. (b) It is clear from these plans, from the Hearings, and from the subsequent WG meeting that the applicant's discussions with all stakeholders about these options, within Option R, are still at a very incomplete stage. These stakeholders include: • -NCC Highways, • -Broadland DC, • -all relevant landowners and, • -equally importantly - Vattenfall. On 28 Nov 2018, the applicant emailed to the WG: "If NCC are supportive of Option R and if the landowners are amenable, we will try to get this package of information accepted into the Examination at a future Deadline. However, the project will maintain its position that it can make use of The Street." Further, in an email on 5th December, the applicant outlined to the WG that: "Three 'Option R' scenarios were tabled with NCC… along with the results of safety audits for each option. These audits indicate that the Option R scenarios can, with some minor amendments, meet NCC's highways design and safety requirements.	

REP3-083 Comment	Applicant's Response
NCC have taken the Option R document away to review and will provide feedback in due course." (our emphasis) NCC Highways has meanwhile indicated informally to OPC that, were the two Vattenfall windfarm projects (also locating 2 important construction compounds in the immediate vicinity), NOT considering sharing the same access route as this applicant, then Highways would prefer one of the routes suggested within Option R. It is only the danger of allowing, over time, the eventual emergence of a situation where there might be two significant HGV accesses onto the Holt Road, that is causing them to hesitate in what would otherwise be their promotion of Option R. Oulton PC is currently arranging a meeting with NCC early in the New Year, to discuss and clarify this precise point. (c) This situation highlights the enormous importance of accurately estimating the real cumulative impact of these two separate projects at this early stage. No sensible decisions about the access route can be made without such a process having been carried out. In the interests of furthering realistic discussion of this problem, OPC suggested to the applicant at the Working Group meeting on 11th Dec. that they introduce Vattenfall as soon as possible to the notion that Orsted and Vattenfall should consider joining forces on the issue of this cumulative impact, and commit to sharing a dedicated access route across private land. Such a joint commitment would solve many serious problems at a stroke, namely: • highway dysfunction and significant environmental degradation of trees	

REP3-083 Comment	Applicant's Response
and hedges on the southern end of The Street for many years, • serious loss of quality of life for residents of The Old Railway Gatehouse, • the prevention of an 'accidental' development over time of two HGV construction accesses along one short stretch of the Holt Road, and • the legacy dangers to the whole community of Oulton parish from the unintended consequences of those aspects of the plans in Option 1 (Passing Places) which NCC will insist on retaining permanently. (d) OPC would hope, and have reason to believe, that at least one of the routes suggested within Option R could be achieved by negotiation with relevant landowners. However, in case consented powers might be necessary, it is vital that decisions on the access route are kept within the bounds of the DCO and this Examination process. <u>Timing of the choice of Access Route</u> While much useful information has recently been exchanged, OPC is now seriously concerned about the issue of timing. At this week's meeting of the Working Group, the applicant referred to the fact that they would like to reach a decision on the access route "by Deadline 4" (15th January 2019). OPC considers that reaching a decision at that time would be highly premature. The stakeholders, referred to in the list above, who are still to be conferred with by the applicant, are also still in discussion with OPC. We are currently seeking a meeting date with NCC Highways in early January, and we would like to follow this	

REP3-083 Comment	Applicant's Response
up by meeting with Broadland DC and Vattenfall. As Christmas will inevitably now intervene, there is no way that these meetings can take place, and information arising out of them be digested and discussed in a meaningful way with the applicant, before Deadline 4. With respect, OPC would therefore like to suggest to the ExA that the applicant should be encouraged to defer their final choice on the access route (while actively exploring the feasibility of Option R) until, say, Deadline 6 (8th Feb. 2019). It is our belief that, as the details of the Main Construction Compound are a discrete piece of work within the project, we would hope that such a deferment would have no negative impact on the general progress of the examination of the application as a whole. Please advise us if this understanding is incorrect.	
Other remaining issues (a) Core working hours on the compound: OPC was disappointed by the applicant's verbal response at ISH4 on 7th Dec. to close questioning from the Panel about the necessity for a 7am start to construction activities – with a 6am "mobilisation period" to allow for vehicular arrivals at the compound. There is a similar issue at the end of a very long working day. The applicant's reply seemed to us to be inappropriately curt and dismissive of any residential amenity considerations – giving as its only justification for such long working hours a desire on the applicant's part to 'get the job done and get out'. Given the extremely long timescale of this project, by whatever measure (this	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-083: • Core working hours are discussed in the Applicant's response to the ExA's first written questions submitted at Deadline 1 (REP1-122), Q.1.11.16, 1.12.6 and Q1.7.11; as well as the Applicant's response to the ExA's second written questions submitted at Deadline 4 (Q2.12.6); • The use of generators is discussed in the Applicant's response to the ExA's second written questions submitted at Deadline 4 (Q2.12.8), with proposed changes then transposed into the Outline Code of Construction Practice, also submitted at Deadline 4;

REP3-083 Comment	Applicant's Response
seems to change unpredictably at a moment's notice), residents of this parish will have to pace themselves over a long period, to absorb the negative repercussions of highway dysfunction, traffic noise, generators and lights - and a long working day will unreasonably exacerbate the severity of these impacts. OPC hopes that our comments, and those of Broadland DC in regard to this issue, will be taken into account by the ExA in formulating core working hours, especially as the experience of residents close to the applicant's compound at Holton le Clay gives us little comfort as to the respect that may be shown for such conditions. (b) OPC are still concerned about the possible use of generators on the compound site, which would grossly inconvenience the closest residents to the northwest, and also the 22 households to the northeast, in the settlement of Oulton Street, depending on the wind direction. Similarly, the situation is still unclear to us as to the necessity for continuous security lighting on and/or around the site at night. OPC requests that such lighting should be movement-sensitive only, as the residents already have experience of the intrusive nature of security lighting, when used some years ago on the same site for a much shorter project. (c) Finally, OPC noted with concern at the Open Floor Hearing on 3rd Dec. the oral submission made by a resident of Salle, whose property lies within 80m of the crossover point of Orsted's cable corridor with Vattenfall's. This was the first knowledge we had of the existence of a Non-Disclosure Agreement between the two projects, covering the crossover point and possibly other elements of both projects. OPC is concerned about the issues that this raises, viz: --can the ExA properly scrutinise a controversial, unproven and potentially	• Electro-magnetic fields is discussed in the following documents: - Volume 4, Annex 3.3: Electro-Magnetic Fields (EMF) Compliance Statement of the Environmental Statement [APP-087]; - Appendix 19 to the Applicant's response to Deadline I: Vattenfall and Orsted Circuit crossing – EMF Information sheet (REP1-173); - Applicant's Comments on Relevant Representations (REP1-131), RR-017; and - Applicant Responses to the ExA's First Written Questions (REP1-122), Q1.12.10 The first two documents listed above present an assessment of 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, however Norfolk Vanguard/Norfolk Boreas have subsequently made the decision to deploy HVDC technology. The study provided as Appendix 19 to the Applicant's submission at Deadline 1 (REP1-173), which was prepared as an independent study by National Grid, advises that if both cable routes that cross use the same power transmission technology, i.e. AC and AC or DC and DC, the fields can combine to add or subtract from one another. However, if different technologies are used, i.e. AC and DC, the magnetic fields do not interact with one

REP3-083 Comment	Applicant's Response
dangerous component of a project, when it is not privy to the details? --is it appropriate for a private developer seeking access to public subsidy, as in this case, to be allowed to "hide" part of the plan from the public gaze? Can this be in the public interest? --since Vattenfall has already committed to HVDC, then the fact of the crossover point in itself dictates that Orsted must also opt for HVDC - in order to make the crossover safe with regard to the interaction of Electro-Magnetic Fields. OPC respectfully seeks reassurance on the matters above at 3(c).	another. In that scenario, the installations of the HVAC and HVDC cables can be considered separately and would not 'combine' as such. As such the assessments have considered and assessed a worst case. • Matters relating to the Non-disclosure agreement with Vattenfall are discussed in the Applicant's Comments on Relevant Representations (REP1-131), RR-019 and the Statement of Common Ground between Hornsea Project Three and Norfolk Vanguard and Norfolk Boreas (REP1-222).

Swardeston Parish Council Written Representation (REP3-085)

Interested Party Relevant Representation Comment	Applicant's Response
Dear Sirs We attended a number of the hearings held by the examining panel during the week 3-7 December and, while being mindful of the panel's injunction not simply to repeat issues that have previously been raised, we would like to draw the panel's attention to two distinct matters which we feel have so far been largely overlooked. **1 The operation of the A140/B1113 junction at Harford Bridges.** Ørsted's Traffic Plan suggests that the addition of up to 24 HGVs an hour will have little or no effect on traffic flow at this junction. It appears that the reason for this is that the 'accepted' methodology is to	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-085: • The operation of the A140/B1113 junction has been considered in Appendix 33 to the Applicant's submission at Deadline 1 (REP1-157). The Applicant has since received agreement from NCC that no significant effects are anticipated and that any impacts can be managed through measures to be developed within the detailed CTMP. This position is set out in the Applicant's response to the ExA's second written questions submitted at Deadline 4 (Q2.11.5), as well as in the Statement of Common Ground between Hornsea Three and NCC submitted

Interested Party Relevant Representation Comment	Applicant's Response
treat each HGV as a multiple of passenger car units (PCUs). This may be correct when the traffic under consideration is travelling in a straight line. However, we would suggest that this is badly flawed when the matter at issue is the (almost) 180 degree left turn at the A140/B1113 junction. A simple site survey, such as carried out by this parish council, would have revealed to Ørsted that whenever a long vehicle (be it an HGV or, for example, a bus) seeks to turn onto the B1113 from the A140, it has to cross over the central white line of the B1113 onto the opposite carriageway and since, during the rush hour in particular, this is usually impossible due to the stationary traffic queuing in the opposite direction, it has to stop and wait for such traffic to move off before it can move forward. This regularly and routinely causes extra congestion and gridlock at this junction even at present traffic volumes. One solution to this problem has already been put forward for consideration; construction traffic should be required to access the site from a new temporary slip road off the A47 and/or A140. **2 HVAC Substation/HVDC Converter Buildings.** Ørsted have repeatedly asserted that an HVDC Converter Station will need to be housed in buildings of 25 metres in height. We have to date neither seen nor heard any evidence to suggest that serious consideration has been given to ways of reconfiguring the plant and equipment within these buildings in order to reduce their height to a more acceptable level. The question needs to be asked as to whether it is technically possible for an HVDC Converter Station to be housed in buildings of lower height.	at Deadline 4. Confirmation from Highways England that a new slip road off of the A47 would not be acceptable is set out in the Statement of Common Ground between Hornsea Three and HE submitted at Deadline 4. • The height and design parameters for the onshore HVDC converter/HVAC substation are discussed in the Applicant's response to the ExA's second written questions submitted at Deadline 4 (Q2.8.3 and Q2.8.4) and Appendix 5 to the Applicant's submission at Deadline 4

Maritime & Coastguard Agency Written Representation (REP3-084)

Interested Party Relevant Representation Comment	Applicant's Response
Q1.5.1 Maritime and Coastguard Agency (MCA) *Section 18.2 of the Navigational Risk Assessment [APP-112] describes the collision risk modelling undertaken. The modelled vessel to vessel collision risk in the Hornsea Project Three array area is a major collision return period of 1 in 193 years. Following construction of the proposed array the risk would increase to 1 in 152 years. Paragraph* *7.11.2.39 of the ES [APP-067] characterises this as a negligible effect.* *Is the MCA in agreement with the approach to collision risk modelling and do you consider the outputs of the modelling to be realistic?* *The MCA has considered Orsted's feedback to this question and we have no further comments to make in addition to those previously submitted as per below. This includes our strong recommendation that at least two lines of orientation are included within the layout design* *The MCA is content with the approach to the collision risk modelling undertaken as part of the Navigation Risk Assessment for Hornsea Three. We note the 21.4% increase in collision frequency compared to the pre-windfarm result. We further note the cumulative effect assessment which incorporates Hornsea Projects One, Two and Three giving a major collision return period increase of 9.72%, an increase of one in* *116 years to one in 105 years.* *This increase in risk is only tolerable with the appropriate risk mitigation as*	The Applicant notes that MGN 543 states that although two lines of orientation is recommended a single line of orientation is permissible if the developer can clearly demonstrate that this is sufficient from a navigational safety perspective. In recent consultation the MCA have agreed that a single line of orientation would be permissible should the Applicant provide a demonstrable safety case alongside a final layout containing a single line of orientation. This position is will be reflected in the updated SoCG with the MCA planned to be submitted at Deadline 5.

Interested Party Relevant Representation Comment	Applicant's Response
detailed in the Navigation Risk Assessment, and a layout of wind turbine generators (and other associated windfarm infrastructure) which is in accordance with our Marine Guidance Note (MGN) 543. The layout is of significant concern for MCA going forward, and the design principles have not yet been agreed by MCA. Although we support the establishment of the design principles, we should not be held to account should we not have considered every possible future eventuality based on the information provided within the current design principles. *Therefore, the MCA requests the option and ability to consider any layout plans on a case by case basis in line with MGN 543. This includes our strong recommendation that at least two lines of orientation are included within the layout design. This is not only for search and rescue purposes; multiple lines of orientation provide alternative options for vessel passage planning. We know that by far the safest way to navigate through a windfarm is when the turbines are in straight lines, with multiple lines of orientation, which gives a clear line of sight of entry and exit. If a master/skipper decides to go through a windfarm, they tend to place themselves equidistant between the turbines on either side, and this helps counter the environmental effects on handling, and this is compromised with a random turbine layout.*	
1. *Q1.5.4 Maritime and Coastguard Agency (MCA)* 2. *The MCA [RR-060] considers that the 150m tolerance referred to in Principle 8 of the Layout Development Principles [APP-091] is excessive and would impede search and rescue (SAR) coverage.* 3. *What would the MCA regard as an acceptable tolerance?*	The Applicant refers to its response to ExA Questions Q2.5.2, Q2.5.3 and Q2.5.6 and adds that the MCA's calculation assumes that none of the sea area designated as a Development Lane is searchable and that only one SAR access lane is included between developments lanes. In reality there may be room for

Interested Party Relevant Representation Comment	Applicant's Response
4. *The Applicant notes that this question is directed at the MCA but points out that the MCA's relevant representation stated that a 300 m Development Lane (± 150 m of the centreline) would result in 23% of the array not being searchable. This was based on a simple calculation that 300m every 1300m (1000m spacing + 300m corridor) would result in 23%. In the Applicant's opinion the statement that a 300 m Development Lane (± 150 m of the centreline) would result in 23% of the array not being searchable is incorrect and takes neither account of the systems fitted to the MCA SAR helicopter The figure is largely based on visual searching though other forms of searches may be impacted, particularly when time is taken into consideration nor the widely spaced infrastructure Widely spaced infrastructure is irrelevant to the issue raised here regarding the 300m lane. A wider spacing would decrease the percentage, but not the area which is impeded by the development lane (spaced at least 1km apart) as required under condition 2(1)(c) of the dDCO [APP-027.* 5. *The Applicant's SAR specialist has provided information on the equipment available on SAR helicopters to allow a close approach and search of the area between the widely spaced turbines within the Development Lanes including:* 6. *Star SAFIRE HD- The MCA SAR Helicopters use an Electro-Optical System made by FLIR Systems, the Star SAFIRE HD. Unlike previous systems, this product can combine visual and IR imagery onto a single screen which optimises the search in difficult conditions. This would permit a search of the Development Lanes from the SAR Lanes in all but the poorest visibility. The IR cameras are degraded with any moisture (e.g. mist, rain, spray) so*	more than one SAR Access Lane. Given the wide spacing and the technology available to assist with searches the rationale adopted by the MCA is not realistic.

Interested Party Relevant Representation Comment	Applicant's Response
would be limited in far more than just "poorest visibility" and is almost useless in low cloud or fog. In addition, the cameras are generally only used when the aircraft is stationary, though not entirely. If an aircraft is moving while the cameras are searching, it can become disorientating. It may also not be possible to effectively search 'behind' turbines as the aircraft moves past. The systems are undoubtedly a huge benefit to searching, but do have limitations and do not wholly mitigate the lack of access within the development area. Searching with a helicopter inside the windfarm in reduced visibility is an option of last resort and is undertaken only when all other avenues are closed, therefore windfarms have to be able to cater for this occurrence when it may be required. The system can use Merlin software which cues the operator to possible survivors and so enhances the search capability. The system is not currently optimized and therefore not used by aircraft crew. 7. *Radar Honeywell Primus 701A - The S92 is equipped with the Primus 701 radar which has a minimum range of 137m (450 ft). This system enables ground/sea mapping and weather detection optimised for SAR operations. The Primus 701A has a variable pulse width that is automatically optimised for range and mode setting. The system also includes selectable sea clutter reduction and operator modified gain and tilt thereby allowing for optimum search capability. The radar is capable of discriminating between individual turbines and mapping an obstacle free track between turbines. This appears to be a very technical description which doesn't add value to the point in question. In any case, the radar*	

Interested Party Relevant Representation Comment	Applicant's Response
is rarely used for searching in a windfarm but is used for navigation. The aircraft are equipped with top spec radar and these are one of the primary navigation methods for the helicopter operating within a windfarm. While the helicopter crew will use the radar to assist in navigating down a SAR lane, they will not solely rely on this. Also, the radar would not always be used for searching, particularly for a non-electronic search e.g. Person in the Water or certain circumstances with a life raft. These would require a visual (or camera) search and therefore may be limited by the development lane. 8. *Automatic Identification System - The MCA SAR helicopters are equipped with AIS which will allow them to identify any equipped vessels or turbines fitted with AIS. Turbines are not marked with AIS and while Hornsea 3 are proposing some are fitted, it won't be many – if at all.* 9. *Navigation systems - The MCA SAR helicopters are equipped with integrated navigation and display systems which will show the crew all obstacles held in the database. As the turbines will be accurately mapped 'Will' is a dangerous assumption – they certainly should but already we have been out at current developments and found structures which are not included, hence why the mapping system is not a primary navigation tool, the system will provide a clear display of the obstacles. There is the ability to add the turbines to the EGPWS database giving approximately 20 seconds of warning before an obstacle, but this should be balanced against the frequency of nuisance alerts.*	

Interested Party Relevant Representation Comment	Applicant's Response
10. *Therefore our previous response as per below remains the same:* 11. *The MCA request that turbines are constructed in straight lines, with a minimum of two lines of orientation, to maintain the safety of navigation and our search and rescue obligations. Access to windfarms by helicopter and vessels during an emergency situation, and by vessels should they decide to transit through a windfarm, is a complex process, especially in poor weather conditions, and therefore mitigations are required to ensure it is as safe and feasible as possible.* 12. *Standard search patterns are linear to allow for an effective coverage of an area, and wind turbines will degrade the search capability by restricting search spacing and increasing crew workload - therefore reducing search effectiveness. Within Principle 8, the developer may build turbines in an irregular layout anywhere within that 300m corridor, which would significantly impact the ability to search and/or rescue.* *As a result, the MCA would be content with a tolerance of 50m with the understanding that the developer aims to construct turbines along the centreline and only deviating if conditions/seabed do not allow for a straight line.*	

Interested Party Relevant Representation Comment	Applicant's Response
Q1.5.5 Maritime and Coastguard Agency (MCA) *The MCA [RR-060] considers that, in the interests of SAR capability, an assessment should be made of the feasibility of providing a helicopter refuge area perpendicular to the turbine development corridors.* *A)What would be the advantages and disadvantages of incorporating a helicopter refuge area as suggested by the MCA?* *A) For arrays comprised of tightly spaced turbines, a dedicated helicopter refuge area may allow an area for the SAR helicopter to manoeuvre in poor weather or when faced with an emergency. It is noted that this is not the case for Hornsea Three or other current Round Three projects where turbine spacing is at least 1 km in all directions. Spacing in itself does not provide the required elements which a refuge area would. Turbines in HOW03 may well be 1km, but not necessarily aligned in straight lanes. SAR experts have assessed the refuge area requirement as being around 1nm in width to allow sufficient space to turn an aircraft, particularly in poor weather.* *The turbine spacing in Hornsea Three of at least 1km gives the helicopters sufficient space to manoeuvre within SAR lanes or between lanes. Not entirely, it depends on weather conditions, turbine position, visibility, safety margins and circumstances. In poorer conditions, or at night, flying within a windfarm is particularly disorientating and therefore predictable layouts with refuge areas are important. A poor weather turn is a threat because the aircraft can drift significantly in turn in higher winds as it adopts the new heading. It has been suggested to the MCA that the conspicuity of some turning points could be enhanced by installing AIS on key turbines as SAR helicopters are equipped with AIS. It is believed that the widely spaced turbines on Hornsea Three combined with the SAR helicopter equipment, which includes radar, AIS, moving maps, electro-optical sensors and a*	Technical and safety evidence (SAR report) suggests that SAR helicopters are able to make turns in less than 0.5nm and therefore there is limited need for a Helicopter Refuge Area with 1nm width. Following recent consultation with the MCA and TH, the Applicant has committed to Helicopter Refuge Areas of 1,000m (1km) in line with this technical evidence. The use of AIS on certain turbines would serve to reduce the degree of disorientation experienced by a SAR helicopter in poorer weather conditions. Annex 5 of MGN 543 states that the requirement for Helicopter Refuge Areas may be imposed where the size of the wind farm is around 10nm in any direction. This is in opposition to the MCA's statement – Annex 5 does not suggest that a single line of orientation invokes the need for a Helicopter Refuge Area.

Interested Party Relevant Representation Comment	Applicant's Response
Terrain (and obstacle) Awareness Warning System will allow the SAR helicopters to clearly identify obstacles without the need for a refuge area. AIS on certain turbines may provide a SAR helicopter with additional awareness of turbines but does not remove the requirement of a refuge area. Straight lines are still required to allow an aircraft to exit, or enter, a windfarm safely and just because turbines are marked by AIS, does not mean it would allow an aircraft to follow a 'path'. All the sensors/systems on the aircraft will be utilized to the best effect, however, the crew will still also reply on visual references where possible. *Critically, to be effective a helicopter refuge area would have to be located where the SAR operation was being conducted and/or where the emergency occurred, which is unlikely and not predictable. Ideally a layout would have two consistent lines of orientation and while a refuge area may still be required to provide a safe and sufficiently sized area to escape to, the multiple lines would give far more options to an aircraft in the first place. The refuge area is not there to account for a SAR operation – it may be used to improve access into an area which does not have a second line of orientation. If an emergency occurred, the aircraft would have to consider what options they had but making their way to a refuge area '1/2 way along' a lane is preferable than transiting the whole length. The SAR refuge area improves SAR Scene access time by reducing the need for super accurate navigation and thus allowing a relatively higher approach speed in poor conditions. Importantly, it also permits a more rapid exit from a large windfarm, allowing quicker critical care access for the patient. A refuge area may also allow a SAR helicopter to conduct relatively unimpeded hoist transfers to a vessel underway if a two-phase rescue has been made (Turbine to Vessel to Helo)*	

Interested Party Relevant Representation Comment	Applicant's Response
Although the MCA Guidance mentions refuge areas, this requirement does not appear to be necessary in the case of Hornsea Three due to the spacing of turbines. The spacing of the turbines at HOW03 is not sufficient for the purposes of a refuge area and in any case, the proposed layout does not have more than one line of orientation which is another reason for requesting the refuge area. *C) Given the shape of Hornsea One only two lanes are near this 10nm length and no additional mitigations were included (outside of those mentioned in MGN 543 i.e., turbine ID marking). Other projects are of no relevance to HOW03 as the MCA assess projects on a case-by-case basis, particularly as projects become large in size and technology advances. The MCA are very clear that decisions made for one project have no bearing on future projects.* *Therefore, there are no changes to make to our original response:* *As raised in response to Q1.5.4 access into windfarms is complex, and the MCA must maintain the capability to deliver an effective SAR service anywhere within the UK Search and Rescue Region. A SAR lane which is of significant length (c10nm) is a concern as it limits the manoeuvring options for a helicopter whilst in the lane, e.g. when the aircraft can either climb out of, or transit to the end of the lane before making* a turn and *continuing its search. For a lane of 10nm, it would take 12 minutes before the helicopter could change track at ~50kts, which is a significant amount of time during an emergency situation. For Hornsea Three, at least one of the proposed lanes was in excess of 20nm.*	

Interested Party Relevant Representation Comment	Applicant's Response
Generally, helicopters also have to enter a windfarm from low level and along a SAR lane, rather than dropping down from above, particularly through cloud, and a helicopter refuge area serves a number of key purposes; *1) it can allow additional routes into a windfarm improving the access options;* *2) it allows for an area in which the helicopter can turn along a search leg, so an aircraft doesn't necessarily have to climb out and go back to the start of the next lane; and* *3) it also allows for a 'safe' area for an aircraft to re-familiarise with the surroundings, re-orientate their position within the windfarm or during an aircraft emergency. This is a fundamental requirement when windfarms are over c10nm and is particularly important when there is less than two lines of orientation.* *Are there examples of offshore windfarms with turbine development corridors of a length comparable to this proposal?* *There is nothing currently constructed of this scale that has required a refuge area. However as more developments are constructed, refuge areas will continue to be requested where the lanes are sizeable, and they are assessed as being required by SAR and navigation safety specialists.* *If there are, what approach was taken to maintaining SAR capability in those examples?* *See above.*	

Interested Party Relevant Representation Comment	Applicant's Response
Q1.13.66 Applicant *Condition 11(1)(a) states that the approval of the MMO shall not be required where the proposed design is in accordance with the design principles. The MMO [RR-085] objects to that approach.* *The MCA agrees entirely with the MMO's objection to this aspect of the condition. We cannot rely solely on the design principles to deliver an acceptable layout in accordance with MGN 543. The design principles are a tool for the applicant, the layout must still be approved by the MCA, Trinity House and the MMO despite following the design principles.*	The Applicant notes that the Development Principles have been designed in accordance with the guidance contained within MGN 543. Whilst the MGN remains the primary guidance document the principles are a refinement of the guidance to specifically meet the requirements of Hornsea Three and its users. Following a recent consultation meeting the Development Principles will be used to agree a layout post consent with the MMO in consultation with the MCA and TH; however, the condition to agree the layout with the MMO (in consultation with the MCA and TH) remains. This position is reflected in the updated SoCG with the MCA.
Q1.13.67 Applicant *Condition 11(1)(a)(v) provides for the indicative layout of the WTGs to be approved.* Why would the layour only be indicative? At what stafe (if any) would the MMO approve the actual layout? *The actual layout should be approved by the MMO once the MCA and Trinity House have confirmed that they accept the layout in accordance with MGN 543.*	The Applicant has amended the draft DCO DMLs (Version 1, as submitted for Deadline 1 (REP1-127)) to remove this subcondition. Instead, condition 13(1)(a)(i) will be more specific.

Mulbarton Parish Council Written Representation (REP3-086)

Interested Party Relevant Representation Comment	Applicant's Response
Introduction These comments reflect information made available for this week's public hearing (3rd–7th December) in connection with the Hornsea Three project timescales, and the selection of AC or DC transmission. From these discussions, it seems quite likely that DC transmission may well be the preferred choice. It also appears that the project is now looking to the 2021 Contract for Difference round, rather than May 2019, and will therefore run a year or two later than was previously expected. This would seem to increase the likelihood of DC transmission being adopted; it also implies that time is still available to consider alternative sites for the onshore converter substation. Further, it is widely expected that more wind farm projects will come forward off the coast of Norfolk in the near future, and some of these projects may also require access at Norwich Main. It seems quite likely that an expansion of the Norwich Main site may be required in the foreseeable future.	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-086: • Transmission technology and design flexibility (including the approach to ducting) are discussed in the Written summary of Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraphs starting 3.1 and paragraph 3.68. • The site selection process for the onshore HVDC converter/HVAC substation is discussed in the Applicant's comments on relevant representations submitted at Deadline 1 (REP1-131), in response to RR-001 for the site itself and RR-019 for the grid connection. Information, including the selection criteria, was initially provided within Volume 1, Chapter 4: Site Selection and Consideration of Alternatives [APP-059].and its associated appendices (APP-092 – APP-095). • Visual effects of the onshore HVDC converter/HVAC substation are discussed in the Applicant's Comments on Relevant Representations (REP1-131, RR-01 and RR-052), furthermore visualisations of the infrastructure are provided in Volume 6, Annex 4.5: Photographic Panels, Wireframes and Photomontages of the Environmental Statement (APP-146). Details of the landscape planting proposed, including the commitment to planting sections of the landscaping at the commencement of construction works at the onshore HVDC converter/HVAC substation, is provided in the Applicant's Response to ExA First Written Questions (Q1.7.10). This commitment was provided in the newly created paragraphs 3.1.2.3 and 3.1.3.4 in the Outline CoCP (REP1-142, Version 2) and will be secured in the dDCO through Requirement 17. Further details of the species and planting mix, will be discussed and agreed with the relevant planning authority as part of the final Landscape Management plan during
Site selection criteria The use of DC transmission would lead to a larger structure for the onshore converter substation than for AC, with a building height of up to 25m. Effective mitigations are therefore even more important. The best mitigation is to choose the correct site. The site selection criteria for the converter substation should include:	

Interested Party Relevant Representation Comment	Applicant's Response
- close proximity to Norwich Main; - easy access from the trunk road network; - a brownfield site with minimum impact on crop yield, environment, and heritage. These criteria would not lead to the selection of the proposed site in Swardeston, which has ather the opposite characteristics, being a greenfield site; in agricultural use; on rising ground; and with access only from the B1113, as Highways England have ruled out any form of access from the nearby A47.	detailed design, prior to commencement of works. Discussion on the consideration of excavation at the onshore HVDC converter/HVAC substation site is provided in the Applicant's comments on relevant representations (REP1-131, • The permanent access to the onshore HVDC converter/HVAC substation is discussed in Appendix 29 Permanent Access note for the HVDC converter/HVAC substation submitted at Deadline 1, as well as in the Statement fo Common Ground between Hornsea Three and Norfolk County Council (updates and submitted at Deadline 4). In respect to hedgerow impacts, details of reinstatement under a phase scenario is set out in the updated Outline LMP submitted at Deadline 4. • Traffic matters associated with the A140/B1113 are discussed in Appendix 33 to the Applicant's response to Deadline 1. This demonstrates that the impact of the construction traffic is temporary and reversible, and it is considered that the residual impact and cumulative impact would not be severe. The detailed CTMP, to be prepared post-consent, will have site-specific measures to manage traffic at the onshore HVDC converter/HVAC substation, including approaches from A140/B1113 as appropriate. This approach has been agreed with NCC, as set out in the Statement of Common Ground between Hornsea Three and NCC (updated and submitted at Deadline 4).
3. Impact and mitigations If the visual impact of the converter substation is to be eliminated by tree planting, then this needs to be assessed against a building height of 25m, and must also take account of the rising ground level. The B1113 rises from a spot height of about 33m on leaving the village of Mulbarton, to about 37m at the A47 flyover at Swardeston. The proposed site is on rising ground approaching the 40m level. This adds an additional 3 to 5m to the effective building height as seen from surrounding areas. (In earlier public consultations, there was discussion of partial excavation of the site to reduce the effective height of the building, but this form of mitigation does not seem to appear in the present documentation.) Trees grow at an average rate of 0.5m per year, depending upon many factors. To add 25m of height to an initial 2m high planting could take 50	

Interested Party Relevant Representation Comment	Applicant's Response
years, depending upon species. Tree spacing is also a pertinent consideration. Crown space and root spread aspects suggest a spacing of 15m to 20m for trees of this size. Effective screening would therefore require much larger areas of planting than currently proposed. It has also become clear that road access into the converter substation site will need to allow for 28-axle low-loader vehicles, up to 93.5m long and up to 5.0m wide, necessitating the removal of 430 meters of well-established mature roadside hedgerow and a number of mature trees to provide safe access.1 It is difficult to see how full re-instatement of the roadside hedgerow can begin until construction of the converter substation has been completed, possibly eight to ten years after the start of work on site.	
Traffic flows Within the proposed period of construction of the HVDC/AC converter substation, traffic movements along the B1113 are likely to be affected by the construction of a new industrial estate at its junction with the A140, recently approved (planning ref. 2016/0764). There are also plans in progress for large numbers of additional houses within the local area. (See for example, the current GNLP Regulation 18 consultation). If only a small proportion of these housing proposals go ahead within the next ten years, Ttraffic volumes on the B1113 are likely to be higher than those so far identified in the documentation. Given that most of the heavy vehicle traffic for the construction of the substation is likely to be arriving from Felixstowe, it will of necessity use the A140 trunk road. Direct access from this road would	

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be an advantage, and would minimise the environmental impact and disruption to local communities; it is not obvious that there is any other viable route for the very large size of vehicle now identified.	
Alternative sites Within the timeframe now being proposed for Hornsea Three, other locations for the substation may be available, and preferable, and may require less extensive mitigations. One such site was identified in our representation, RR-0492. This is the location of a partly-worked-out gravel pit, close to Norwich Main, and with direct access from the trunk road network already in place to and from the A140. Local knowledge suggests that the gravel pit may wish to extend southward in the direction of Norwich Main, thus releasing a worked-out brownfield site for other purposes. Negotiations with the owners of the pit are presumably required in any event to secure the route of the buried cable access into Norwich Main. This suggests the possibility of a mutually beneficial outcome for all of the relevant parties. An alternative scenario is that the potential expansion of the Norwich Main site itself may allow for the incorporation of the HVDC/AC converter substation within its own site boundaries in this timeframe.	
Applicant's response The Examining Authority summarised the representation RR-049 in Question Q1.1.14. The Applicant's Response directs the reader to the answer to an	

Interested Party Relevant Representation Comment	Applicant's Response
unrelated question (RR-001), which does not respond to the above points, other than somewhat indirectly.3 In our view, the Applicant's response on this issue is insufficient, and alternative sites with direct access from the trunk road network should be explored as a matter of urgency.	

Cawston Parish Council Written Representation (REP3-087)

Interested Party Relevant Representation Comment	Applicant's Response
Orsted Hearing –Onshore Cable Route – 7th December 2018 James Livingstone . Cawston Parish Councillor We have grave concerns regarding the traffic impact through Cawston if the work goes ahead as proposed. The total number of daily HGV movements expected through Cawston is 240. The total number of other vehicles using the route is 394, therefore making a total number of movements of 634. For HGVs this is estimated as a 839.6% increase in daily movements and for other vehicles a 13.5% increase. Cawston already has serious traffic problems • There are pinch points caused by narrowing of the road and by parked vehicles -where grid locks already frequently occur. • There are listed and other historic buildings that already suffer from vibration damage. • There are old drains in the roads that have already flooded cellars • There is a narrow bridge which extra-large low loader type vehicles would struggle to cross • There are inadequate pavements and pedestrian routes so people need to walk in the road from place to place • There are many pedestrian road users in the High Street and Norwich Rd - including school children from Cawston Primary and those taking buses to and from Reepham High school	The Applicant would refer to the Applicant's response to the ExA's Second Written Questions submitted at Deadline 4 (Q2.11.3) which provides an update on the work being undertaken to inform the Outline CTMP development in respect to Cawston Village. The Applicant's response to the ExA's Second Written Questions submitted at Deadline 4 (Q2.12.9) also provides an update on the ongoing work in respect to the impacts on living conditions of the resdients of Cawston.

Interested Party Relevant Representation Comment	Applicant's Response
We recognize that the route may be a necessary one for construction traffic - and in principle support the project , but do not think that sufficient consideration has been given to the impact on residents. We therefore request that in the first instance other routes be considered for construction traffic. Ultimately, if it proves necessary to use the B1145 through Cawston, then the mitigation measures AND their impact on residents needs careful consideration . This consideration should include: • The effectiveness of the mitigation measures and their unintended effects. • Developing effective communication strategies with the community and particularly those directly affected by the works • Carrying out and agreeing condition surveys on buildings and infrastructure • Assessing the impact on local business and seeking to mitigate that. • Ensuring that road users and pedestrians are not endangered by the traffic increase	

CPRE Norfolk Written Representation (REP3-088)

Interested Party Relevant Representation Comment	Applicant's Response
CPRE Norfolk considers that Orsted are not complying with the spirit if not the legality of PINS Advice Note 9, upon which they base their case on the 'Rochdale envelope' approach. Why consider starting with a baseline which is essentially the worst-case scenario (HVAC), rather than use the option which provides the single most powerful mitigation measure (HVDC?) Further they are paying little attention to what the NPPF says in the Introduction and the relationship with NSIPs. This is most apparent in that in the huge amount of Orsted documentation there is virtually no mention of such a thing as an ecological network.	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-088: • Transmission technology and design flexibility are discussed in the Written summary of Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraphs starting 3.1 and paragraph 3.68. Further details on the communication of project details, including the choice of transmission technology are provided in the Applicant's response to ExA's First Written Questions (Q2.1.7 (c)) with proposed text changes incorporated into the Outline CoCP, updated and submitted at Deadline 4; • Impacts on the AONB are discussed in the Applicant's response to the ExA's Second Written Questions submitted at Deadline 4 (Q2.7.5), as well as in the Applicant's response to Natural England Written Representation at Deadline 3, which is submitted at Deadline 4; • The Applicant has fully considered the potential for impacts on white-clawed crayfish, farmland ponds and the River Glaven catchment, as detailed in its Deadline 1 response to points 3 to 6 of CPRE's relevant representation [REP1-131]. • Phasing is discussed in the Applicant's Response to the ExA's First Written Questions (REP1-122) in particular
We have a great concern that the cabling route runs north-south through the Norfolk Coast AONB and the centre of the whole Glaven catchment. It can affect a number of restored farmland ponds. It runs past Baconsthorpe Castle, which sits between two long running planning applications for single mast onshore wind turbines. The cabling is nearly all done by open-cut trenching with up to ten years before any restoration work can start. Moreover, we are very concerned by the possibility that trenching and cable-laying could take place in two phases, which we feel should be avoided. While we welcome the commitment to the use of HDD for crossing watercourses etc. we remain concerned about the impact of trenching and cable-laying on the Glaven catchment as a whole, given its environmentally and ecologically sensitive nature. We note that 17 of the 31 sites for evaluating the presence of the key native white-clawed crayfish were not	

Interested Party Relevant Representation Comment	Applicant's Response
accessible for survey, and therefore have concerns that their presence or otherwise has not been fully considered.	Q.1.1.10, Q1.9.7 and in the Written summary of the Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraph 3.57 – 3.67.
The most effective form of mitigation against the negative effects on the countryside and its communities would be to make the decision at this stage to use HVDC as the onshore transmission system. This is in particular due to the fact that a sole HVDC system (note not a HVDC system which also has a HVAC circuit included) would have approximately half of the land disturbance and take of a HVAC system, in addition to not requiring an onshore cable-relay station. Unlike Vattenfall with their two projects running east-west across the county, Orsted has not moved to only going forward with the HVDC power transmission system, as Orsted is persisting with the choice of HVAC as well as HVDC. Their decision on the two options will not be taken until construction work begins, and it should be noted giving short notice of which transmission they intend to employ, as this will be communicated by Newsletter. The first of these Newsletters will be issued at least 4 months in advance of the commencement of works, but the applicant doesn't commit to saying the choice of transmission system will be included in this first Newsletter, so there is no clear commitment as to when or how much notice will be given about this crucial decision, if the application is allowed to proceed on this basis. If this is the case, then we would urge for clear clarification to be given on this matter.	

Trinity House Written Representation (REP3-091)

Relevant Representation Comment	Applicant's Response
Trinity House is the General Lighthouse Authority for England, Wales, the Channel Islands and Gibraltar with powers principally derived from the Merchant Shipping Act 1995, as amended. The role of Trinity House as a General Lighthouse Authority (GLA) under the Act includes the superintendence and management of all lighthouses, buoys and beacons within its area of jurisdiction. Further to the Issue Specific Hearing (ISH) held on 6 December 2018 we wish to provide comments relating to the draft Development Consent Order:	
Schedule 11 {Generation Assets) **1. Article 8: Aids to Navigation** 1.1. As referenced during the ISH we would request that the wording in Schedule 11 included under Article 8(1) *'Trinity House in consultation with Defence Infrastructure Organisation Safeguarding may from time to time direct'* is amended to exclude the words 'in *consultation with Defence Infrastructure Organisation Safeguarding'*	Noted and Schedule 11 Article 8(1) has been updated as requested by Trinity House.

Relevant Representation Comment	Applicant's Response
1.2. We request that in Schedule 11 Article 8(6) relating to back-up power supplies etc. for wind turbine generators is deleted in its entirety. The purpose and scope of this provision appears to be unclear and would not appear to define the actual requirement - e.g. how long is 'sufficient back up power' and who will determine what is 'sufficient'? In addition, it does not appear clear as to what *'to aid navigation'* means in the context of this Article	The Applicant would prefer to retain Schedule 11 Article 8(6) at this time.
2. Article 13: Pre-construction plans and documentation We would request that the wording in Schedule 11 **Article 13(1),** is amended as follows:- 'The licenced activities or any phases of those activities must not commence until the following (insofar as relevant to that activity or phase of activity) has been submitted to and approved in writing by the MMO *following appropriate consultation with Trinity House and the* MCA'.	The Applicant would direct Trinity House to ExA Q2.13.17 to the Applicants response at deadline 4.
Schedule 12 (Transmission Assets) **3. Article 9: Aids to Navigation** 3.1 As referenced at the ISH, we would request that the wording in Schedule 12 included under **Article 9(1)** *'Trinity House in consultation with Defence Infrastructure Organisation Safeguarding may from time to time direct'* is amended to exclude the words *'in*	The Applicant has amended Schedule 12 Article 9(1) as requested by Trinity House.

Relevant Representation Comment	Applicant's Response
consultation with Defence Infrastructure Organisation Safeguarding'	
4. Article 14: Pre-construction plans and documentation 4.1 We would request that the wording in Schedule 12, **Article 14(1**), is amended as follows:- 'The licenced activities or any phases of those activities must not commence until the following (as relevant to that phase) have been submitted to and approved in writing by the MMO *following appropriate consultation with Trinity House and the MCA'.*	The Applicant would direct Trinity House to ExA Q2.13.17 of the Applicants response at deadline 4.
5. Article 20: Post Construction Monitoring 5.1 Having regard to Trinity House's powers and duties as a GLA, we would request that under Schedule 12 the requirement in **Article 20(2)(d)** for the undertaker to provide details of vessel traffic monitoring to the MMO and MCA is amended to provide for such details of vessel traffic monitoring to also be provided to Trinity House.	The Applicant has updated Schedule 12 Article 20(2)(d) as requested by Trinity House.

Marine Management Organisation Written Representations (REP3-092, REP3-093, REP3-094, REP3-095, REP3-096 and REP3-097)

Summary

The MMO's Deadline 3 submission included the following:

- Post hearing submission including written submission of oral cases and comments on the revised draft DCO
- Annex A – MMO guidance on MCZ assessment
- Annex B – MMO comments on In Principle Monitoring Plan
- Annex C – MMO comments on Herring Noise Contours
- Example MCZ screening document
- Example MCZ Stage 1 assessment

Response

Post hearing submission including written submission of oral cases and comments on the revised draft DCO

Following the Issue Specific hearings in December, the Applicant has had two telephone meetings with the MMO to discuss outstanding issues and in particular the MMO's comments on the revised draft DCO. The outcome of these discussions is reflected in the progress made in the Hornsea Three and MMO Statement of Common Ground which the Applicant has submitted for Deadline 4. An updated version of the DCO and DMLs has been submitted by the Applicant at Deadline 4. The Applicant will continue to discuss the outstanding draft DCO items with the MMO beyond Deadline 4 to reach further agreement where possible.

Annex B – MMO comments on In Principle Monitoring Plan

The table below sets out the Applicant's response to the comments received from the MMO (at Deadline 3) on V2.0 of the In-Principle Monitoring Plan. An updated In Principle Monitoring Plan has also been submitted at Appendix 47 to the Applicant's submission to Deadline 4 where the updates detailed in the below table can be found in tracked changes.

Interested Party Relevant Representation Comment	Applicant's Response
General Comments	
1.1. The MMO recommends that the post-construction monitoring timescales are set out clearly within the IPMP and explicitly include a requirement to carry out up to three years of post-construction monitoring with the duration specified for these surveys, unless otherwise agreed with the MMO following analysis of postconstruction monitoring data.	The Applicant had sought to adopt a pragmatic approach to the post construction monitoring within the IPMP in line with latest industry practice. For example, within the marine process post construction monitoring commitments the Applicant identified that "*The first survey will be undertaken within one year following completion of cable installation works. The need for any further monitoring surveys will be discussed with the MMO. Further monitoring of the sandwave recovery will be undertaken on a timescale and frequency to be agreed with the MMO, up to a maximum of two additional surveys.*" In adopting this approach was that if recovery was demonstrated within a year then no further monitoring would be required (subject to MMO approval), but if recovery could not be demonstrated at this juncture, then further monitoring would be undertaken over a timescale to be agreed with the MMO and its advisors at that juncture to ensure it was commensurate to the level of actual recovery progress. The Applicant believes that this approach affords the same level of monitoring commitment whilst enabling a more pragmatic approach that could lead to better monitoring to beingundertaken than the more fixed approach sought from the MMO.
1.2. The exact scope/extent/methodology for the proposed monitoring should be clearly set out in the IPMP and should not solely rely on the working of a provided link. Links can stop working overtime, and the MMO recommend therefore that more detail is provided in the IPMP.	The Applicant assumes that the MMO is referring to the geophysical and benthic sections of the IPMP where there are cross references to detail set out in Tables 4.1 and 4.2 respectively. The Applicant considers that such cross references are appropriate as they limit the level of repetitious text

Interested Party Relevant Representation Comment	Applicant's Response
	throughout the document and are self-explanatory in nature and therefore, unlikely to result in any future misinterpretation. Notwithstanding this, the Applicant has provided a little more detail in light of the MMO response.
Shellfish	
2.1. No site-specific monitoring has been proposed. Section 4.5.1.1 does state "Characterisation of the baseline environment through both survey data from the former Hornsea Zone and a desk-based literature review found the species assemblage of the Hornsea Three fish and shellfish study area to be typical for this region of the southern North Sea fish and shellfish study area", which the MMO believe to be adequate. The MMO is content with the proposal, therefore no further changes are required.	Noted.
Benthic Ecology	
3.1. The MMO does currently not believe that the proposed monitoring for benthic ecology is sufficient. The MMO recommend that the following changes are made: 3.2. The pre-construction benthic monitoring plan proposed comprises, and is restricted to, interpretation of information from geophysical surveys undertaken for engineering purposes within the array area and cable corridor to determine acoustic signatures synonymous with reef features and recovery of Annex I sandbanks. If reef signatures are identified these will be subject to further ground truthing in the form of remote and/or intrusive sampling to inform mitigation measures to avoid direct impacts.	The Applicant can confirm that it has now made it explicit within the IPMP that it will ensure pre-construction monitoring encompass areas of Annex I habitat that may be at risk of secondary effects.

Interested Party Relevant Representation Comment	Applicant's Response
The MMO also recommend monitoring areas of known reef which are adjacent to the proposed works as although they may be directly avoided, sandwave clearance operations may secondarily impact any reef present through the formation of new sandbanks.	
3.3. Where reefs are identified and are not mitigated for, post construction geophysical surveys will be undertaken to identify signatures with further ground truthing if signatures are confirmed. These surveys should be undertaken in areas where sandwave clearance activities may impact reef adjacent to the construction activities. 3.4. Post construction 'benthic' monitoring of Annex I sandbank recovery will be delivered through geophysical surveys within a representative number of locations within the North Norfolk Sandbanks and Saturn Reef and The Wash and North Norfolk Coast SACs and Cromer Shoals Chalk Beds MCZ. Whilst this provides information on the reformation of sandbank morphology, it will provide no information on the sediment composition and benthic communities. Whilst benthic communities associated with sandbanks may recover quickly, those more diverse communities associated with the troughs e.g. Sabellaria reef communities may not. Although avoidance of Annex I reef is considered, there is no consideration of monitoring potential smothering of reef adjacent to construction works due to reformation of sandbanks in these areas.	The Applicant has updated the post construction commitment within the IPMP to encompass monitoring for secondary effects on known reef features.
3.5. Post-construction survey of habitat loss, within designated areas, due to cable and scour protection is proposed using ROV to determine success of the cable protection and	Following final scheme design, the Applicant will be able predict the location cable protection material that is associated with the crossing of

Interested Party Relevant Representation Comment	Applicant's Response
recolonization/recovery of the benthic communities. This should be supplemented with a preconstruction survey of these habitats, so that a pre-/postconstruction comparison can be made.	existing assets and can confirm that the existing benthic monitoring commitments will encompass both pre-construction and post construction monitoring of these areas where they coincide with designated sites. The Applicant, for obvious reasons, will not be able to predict the location of remedial cable protection prior to construction and therefore, cannot explicitly state that it will undertake dedicated pre-construction surveys of these specific areas. However, the Applicant has committed to comprehensive pre-construction geophysical surveys of the areas within which construction activity will take place, and therefore, these will include areas where any remedial cable protection may be required. Accordingly a baseline will exist for future bespoke monitoring of these locations.
3.6. Several links to reference sources are missing which made it difficult for the MMO to review the information provided. The MMO recommend that this information is provided separately.	See response to MMO comment 1.2
Fisheries Ecology	
4.1. Section 4.5.1.4 states that no site-specific monitoring of fish resources is proposed, which was confirmed to be appropriate. Given the size of Hornsea Three array area however, and as the substrate is considered to be largely 'preferred' sandeel habitat, the MMO has requested that the Applicant undertakes Particle Size Analysis (PSA) data during the post construction benthic monitoring to allow the monitoring and assessment of sandeel habitat.	The IPMP has been updated as requested by the MMO to include monitoring of preferred sandeel habitats as identified in Hornsea Three baseline characterisation surveys (see Figure 3.23 of Volume 5, Annex 3.1: Fish and Shellfish Ecology Technical Report of the Environmental Statement; APP-105). As indicated in the Appliicant's previous response, sandwaves were selected as these represent the most suitable habitat for sandeels along the offshore cable corridor and would represent the

Interested Party Relevant Representation Comment	Applicant's Response
In response, the Applicant has highlighted that the IPMP includes pre- and post -construction monitoring of the seabed sediments within the Hornsea Three cable corridor to assess recovery rates following the cable installation activities such as sandwave clearance. The Applicant further highlighted that the monitoring in this area would be targeted at demonstrating recovery of the seabed, with sandwave clearance monitoring being of particular relevance to sandeels. The monitoring proposed would therefore achieve the same objective, and the Applicant is willing to include this in the IPMP. The MMO is currently not able to provide comments on the above proposal. Once the updated IPMP has been provided to the MMO, we would be content to review the methodologies included for the monitoring of the recoverability of sandwave clearance and provide further comments on the proposal above.	greatest impact (i.e. in terms of the width of disturbance) on sandeel habitats.
Coastal Processes	
5.1. In section 3.1.1.1, a request was made by MMO for inclusion of nearshore monitoring of bathymetry where cable protection is applied. This will be undertaken using the baseline and post activity geophysical surveys (table 4.2). The MMO was unable to identify the exact scope/extent/methodology for the proposed monitoring as the link was not accessible. The MMO recommend that the scope, extend and methodology is clearly set out in the IPMP and not provided via a link.	See response to MMO comment 1.2

Interested Party Relevant Representation Comment	Applicant's Response
Underwater Sound	
6.1. Table 4.4 on page 9 states that "the approach will be to undertake monitoring to validate the underwater noise modelling that underpins the impact assessment. Monitoring will only be undertaken if it is not possible to demonstrate that the existing evidence base does not provide appropriate validation at the time of drafting the plan". The MMO advise that recent noise monitoring for Hornsea Project One demonstrated that the modelling undertaken for that project had significantly under predicted noise levels.	The Applicant acknowledges the MMO's comment.

Annex C – MMO comments on Herring Noise Contours

In response to requests made by the MMO in Annex C to the MMO's submission at Deadline 3, the Applicant has written a Herring Spawning clarification note submitted at Appendix 34 to the Applicant's submission to Deadline 4. This was provided to the MMO ahead of Deadline 4.

Bidwells on behalf of Sir Edward Evans-Lombe Written Representation (REP3-099)

Interested Party Relevant Representation Comment	Applicant's Response
We write on behalf of Sir Edward Evans-Lombe of Park House, Great Melton, Norfolk, NR9 3BJ in reply to the Responses to the Examining Authority's Written Questions with reference to question 1.1.12 "Alternatives & design flexibility". This is not a matter of contract as between the generators or between them and the National Grid but rather a matter of planning policy. If the planners take the view that the existing intentions of the generators unnecessarily increase the cost and loss of amenity to the public, they should make the grant of a Development Consent Order conditional on the generators exchanging their ultimate objectives. We request that the alternative routes previously suggested be given further consideration within the examination process.	The Applicant would refer to the Applicant's Comments on Relevant Representation (REP1-131, RR-019) which relates to the grid connection location.

Royal Society for the Protection of Birds Written Representation (REP3-100)

Interested Party Relevant Representation Comment	Applicant's Response
Designation of the Flamborough and Filey Coast Special Protection Area (SPA): The Flamborough and Filey Coast SPA was formally designated on 23 November. The existing Flamborough Head and Bempton Cliffs SPA has been incorporated into the Flamborough and Filey Coast SPA. For the avoidance of doubt all references to the pSPA should be read as references to the SPA from the date of designation. References to the Flamborough Head and Bempton Cliffs SPA should now be read as references to the Flamborough and Filey Coast SPA. Due to the Government's policy of treating pSPAs in the same manner as designated sites the changes do not affect the RSPB's comments.	This is acknowledged by the Applicant.
Avoidance and mitigation measures for pink-footed geese: The RSPB continues to discuss the mechanisms by which the pink-footed geese population of the North Norfolk Coast SPA will be protected from construction of the onshore cable corridor. We will reserve comment until we have had the opportunity to review the revised Outline Code of Construction Practice that the Applicant intends to publish at Deadline 3.In essence the disagreement between the RSPB and the Applicant is around how best to ensure that the cable works do not impact on the pink-footed geese. The RSPB proposed controlling the location of sugar beet crops because that offered the Applicant the confidence that it was highly unlikely that significant pink-footed geese populations would be in the cable corridor in any winter that they wished to work and consequently that it would be unlikely that there would be any risk of disruption to the construction works. We are willing to accept commitments from the Applicant that it is willing to delay work instead.	The Applicant has updated the outline CoCP for Deadline 4 to include the text discussed through the RSPB SoCG process. In response to the Examination Authority's WQ 2.4.2, the Applicant has submitted a draft outline Pink-footed Goose Management Plan as Appendix F to the revised Outline CoCP, which is in line with the principles discussed with the RSPB.
Guillemot, Razorbill and Kittiwake Phenology at Bempton/Flamborough 2016-17: The RSPB encloses a phenology note in support of our and Natural England's position on the use of site-specific phenology data to inform the definition of seasons.	This is acknowledged by the Applicant and the information RSPB have submitted in relation to the presence of kittiwake, guillemot and razorbill at Bempton Cliffs has been addressed in the

Interested Party Relevant Representation Comment	Applicant's Response
	Applicant's response to the Second Written Questions at Q2.2.25.

North Norfolk District Council Written Representation (REP3-103)

Interested Party Relevant Representation Comment	Applicant's Response
These are North Norfolk District Council's written submissions following Issue Specific Hearings 1, 2 and 4. They do not cover in writing all the matters on which oral submissions were made, but expand or elucidate where required. As requested by the Examining Authority, the following material is provided with the submissions: • Material concerning the growth rates in North Norfolk which shows why the period in Requirement 9 of the DCO should be 10 years rather than 5 years, referred to by the Landscape Officer Cathy Batchelor; • The report by Royal HaskoningDHV entitled Sheringham Shoal, Cawston, Norfolk Substation Noise Assessment Summary (2015), referred to by Environmental Health Officer Carol Bye; • The report by Destination Research entitled Economic Impacts of Tourism 2017 Results, referred to by the Head of Economic and Community Development Rob Young.	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-103 regarding design flexibility: • Transmission technology and design flexibility (including the approach to ducting) are discussed in the Written summary of Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraphs starting 3.1 and paragraph 3.68. Further details on the communication of project details, including the choice of transmission technology are provided in the Applicant's response to ExA's First Written Questions (Q2.1.7 (c)) with proposed text changes incorporated into the Outline CoCP, updated and submitted at Deadline 4; • Funding is discussed in the Applicant's response to the ExA's First Written Questions (REP1-122), particularly Q1.14.7 - Q1.14.12. Furthermore, a Funding Statement was submitted as part of the Application (APP-029).
<u>Design Flexibility</u> The final chosen method of transmission of electricity to the onshore gird connection location will have a fundamental bearing on the overall impact of the project. Although other off-shore wind farm DCOs have included within the design envelope a choice of HVAC or HVDC transmission (see Table 2 in Appendix 22 to Appellant's Deadline 1 Submission - Transmission System	

Interested Party Relevant Representation Comment	Applicant's Response
Briefing Note), the Examining Authority has not previously been asked to consider the impacts of the transmission choice in the way that is necessary in this examination. The choice of transmission system is crucial to the following impacts in NNDC's area: • Reduction in number of cables; • Agricultural land take; • Installation time; • Duration of impact on tourism and duration of diversion of the Norfolk Coastal Path; and • Booster station within North Norfolk near to Edgefield/Corpusty, which requires significant mitigation. In each instance, the choice of HVDC will either reduce or remove entirely the relevant impacts. This is why, in its Local Impact Report, NNDC submitted that it would be positive for Ørsted to choose a HVDC transmission system, and negative to choose a HVAC transmission system. <u>HVDC Comparator Projects</u> In Issue Specific Hearing 1, the Appellant explained Table 2 in Appendix 22 and that none of the HVDC projects which have been consented have yet progressed to construction. It should be noted that both the Dogger Bank A and B developments and the Teeside A and former B projects are progressing, with	

Interested Party Relevant Representation Comment	Applicant's Response
recent applications made for non-material amendments. Any delay may be attributable to the fact that: • In relation to the Dogger Bank developments, which were originally one DCO, the development split into two (which was justified on the basis of advancements in technology, not on the basis that HVDC was causing any difficulty); and • In relation to the Teeside developments, the project consortium split and new owners took over. The recent non-material change application for Sofia Offshore Wind Farm relates improving the turbines. In terms of comparator projects, NNDC relies on the Norfolk Vanguard project currently undergoing examination, which has chosen HVDC transmission. The Appellant suggested that this project it is an anomaly in the industry. NNDC disagrees and submits that there is no better comparator than the Norfolk Vangaurd Project: • The 1,800MW Norfolk Vanguard (and sister 1,800MW Boreas) project would be the largest offshore wind farm in the world; the Applicant's scheme would be the second largest at 2,400MW. • Vanguard would be approximately 47km offshore whereas Hornsea Project Three would be approximately 121km offshore – a factor which would favour the use of HVDC transmission for Hornsea Project three • The projects are coming forward for examination at the same time and so are approaching the choice of HVAC or HVDC at the same time, with	

Interested Party Relevant Representation Comment	Applicant's Response
the same level of technological advancement available to them and with the same supply chain assessment available to them. • Both projects are promoted by experienced wind farm developers. <u>Policy Support for Design Flexibility</u> Flexibility in policy terms is supported in policy EN-3 paragraph 2.6.24 where "[o]wing to the complex nature of offshore wind farm development…details of a proposed scheme may be unknown to the applicant at the time of the application". The examples given, which are not exhaustive, include the precise location and configuration of the turbines; the foundation type (which is often dependent on seabed conditions and/or turbine type); exact turbine tip height; cable type and cable route; and exact locations of substations. While EN-3 does not provide any gloss on the word "unknown", the use of that word (rather than, for example, "uncertain", combined with the reference to the complex nature of offshore wind farms and the examples suggests paragraph 2.6.24 was contemplating situations of lack of knowledge rather than a wish for a commercial choice. Accordingly, the policy support for flexibility is weaker in the case of the commercial HVDC/HVAC flexibility sought by Ørsted than it is for other elements of the proposed development which are genuinely unknown (for example, Micrositing of the turbines). This is particularly so as the HVDC/HVAC choice is directly linked to the extent of onshore impacts of the development. In answers to the Examining Authority, it appeared that Ørsted has a preference for HVAC. From the perspective of NNDC, the starting point should be that the	

Interested Party Relevant Representation Comment	Applicant's Response
best and most efficient way to bring the energy onshore is HVDC, which is also the option with the least impact from noise (in a very tranquil area) and with the least disturbance of the pink-footed geese. If the design flexibility to chose HVDC or HVAC is given within the DCO, it is therefore important to NNDC that HVDC is fully investigated and considered such that it has a realistic prospect of being chosen for the project. It is open to the Examining Authority to give NNDC and the other local authorities a role in ensuring that this full consideration takes place, so that HVDC has a realistic prospect of being chosen for the project. To that end, NNDC suggested a Requirement could be imposed, which either gives the local authorities a determinative role in assessing the quality of the choice or ensures local authorities are provided with sufficient detail to assess whether a justified election has been made. Potential wording for such requirements includes: • Unless there are clear and compelling technological reasons as to why the use of HVDC transmission cannot be provided within the scope of this DCO, then the method of electrical transmission within each phase of the authorised development shall be via HVDC and, only where clear and compelling technological reasons have been provided to the relevant LPAs justifying why the use of HVDC transmission cannot be provided and why the use of HVAC has been selected shall the use of HVAC transmission be permitted. • Or No phase of the authorised development shall begin until written details justifying why the use of HVDC or HVAC has been selected for	

Interested Party Relevant Representation Comment	Applicant's Response
that phase of the development. Local planning authorities that deal with major projects are well used to being provided with and assessing the type of information that Ørsted identified would be required to comply with such a Requirement, including: • Technical information concerning the supply chain; • Commercially sensitive information concerning funding (often provided in viability assessments); • Pricing information. Local authorities are also under a duty to co-operate and neighbouring authorities are often required to work together on major projects. If the first choice of wording were used for the Requirement, then the local planning authorities would be under a duty to work together to ensure they reached an agreed position, taking into account the information provided and having regard to the judgments made by the examining authority in assessing the merits of the scheme as a whole. If a dispute arose (as may potentially arise in other areas on the DCO) then the usual arbitration mechanism would apply.	
<u>Draft DCO</u> Further to the submission made above concerning a requirement relating to the HVDC/HVAC choice, NNDC also made a number of submissions concerning other requirements at Issue Specific Hearing 3. In relation to the landscaping requirements, NNDC supports including details and	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-103 regarding the draft DCO: • The Applicant's position in respect to landscape planting maintenance is set out in the Statement of Common Ground between Hornsea Three and South Norfolk District Council submitted at Deadline 4. The Statement of Common Ground between Hornsea Three and Norfolk Norfolk District Council reflects

<table>
<tr><th>Interested Party Relevant Representation Comment</th><th>Applicant's Response</th></tr>
<tr><td>the Landscape Officer will be meeting with officers of South Norfolk District Council and Broadland District Council in order to propose agreed wording by Deadline 4. The wording may be based on the Landscape Scheme requirement in the Hornsea Project Two DCO.

The other local planning authorities have indicated that they support wording of Requirement 9 being consistent across all authority areas and support the 10-year period requested by NNDC.

Table 2.2: Planting sizes and growth rates assumed in photomontages.
<table><tr><th>VP</th><th>Height at year 1</th><th>Height at year 15</th><th>Assumed annual growth rate</th></tr><tr><td>Woodland and woodland edge planting</td><td>0.4 m</td><td>4.9 m</td><td>0.3 m</td></tr><tr><td>Individual trees in hedgerows</td><td>3.5 m</td><td>6.5 m</td><td>0.2 m</td></tr></table></td><td rowspan="2">this wording, but will be submitted into the Examination at a later Deadline. Growth rate for the proposed planting is discussed in the Applicant's response to the ExA's second written questions submitted at Deadline 4, Q2.7.3.
• Tourism within North Norfolk is discussed in Volume 3, Chapter 10: Socioeconomics of the Environmental Statement (APP-082), the Applicant's comments to North Norfolk District Council Local Impact Report (REP2-008, as well as in the written summary of the Applicant's case put at Issue Specific Hearing 4 (REP3-006), particularly section 7.
• The construction methodology, and its potential impacts at landfall, are discussed in Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061), Volume 5, Annex 1.1: Marine Processes Technical Report of the Environmental Statement (APP-101), the Applicants response to the ExA's first written questions (REP1-122), Q1.1.5, Annex 10 of the Applicant's Comments on Relevant Representations (REP1-131) and in the Applicant's comments to North Norfolk District Council Local Impact Report (REP2-008) .
• Impacts to the landscape designations within North Norfolk are discussed in Volume 3, Chapter 4: Landscape and Visual Resources (APP-076), whilst matters relating to the AONB in particular are also addressed in the following:
- Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131), in particular the response to RR-025, RR-097, RR-101 and AS-006.
- Appendix 23 Impacts to the Qualities of the Norfolk Coast AONB to the Applicant's submission to Deadline 1 (REP1-167).
- Applicants response to Natural England's written representation</td></tr>
<tr><td>Having regard to rates of growth, any tree species should be considered in line with recommendations contained on the ecological site classification tool as supplied by Forest Research. This is an online tool only (https://www.forestresearch.gov.uk/tools-and-resources/forest-planning-andmanagement-services/ecological-site-classification-decision-support-systemesc-dss/). This tool is based of grid reference data and provides climatic data and default coarse resolution soil quality information. If additional detailed soil information and plant indicator species are available, a more precise determination of site quality, and a better estimate of species suitability and yield is provided by the ecological site classification system.</td></tr>
</table>

Interested Party Relevant Representation Comment	Applicant's Response
NNDC consider that The Landscape Management Plan should detail the establishment and management of the woodland and all planting for the first 10 years after implementation. The plan should meet the basic requirements of the UK Forestry Standard including establishment densities and final canopy cover rates.	submitted at Deadline 4.
In relation to monitoring of operational noise, the report by Royal HaskoningDHV entitled Sheringham Shoal, Cawston, Norfolk Substation Noise Assessment Summary (2015), referred to by Environmental Health Officer Carol Bye, is an excellent example of why such monitoring is required. The tonal noise described in the report was not expected to occur, but it was discovered and investigated.	
Finally, the report by Destination Research entitled Economic Impacts of Tourism 2017 Results, referred to by the Head of Economic and Community Development Rob Young, shows the value of the tourism economy to NNDC and that seasonality is levelling out. While it is correct that tourism has grown during the course of other significant off-shore development, Mr Young explained the potential for impact, particularly on the Deep History Coast (which begins at Weybourne and which is an important attraction throughout the year).	
Given the time constraints of Issue Specific Hearing 4, NNDC indicated that the submissions to be made by Mr Rob Goodliffe, the Coastal Manager, would be provided in writing. Mr Goodliffe, on behalf of NNDC wanted to re-iterate to the Examining Panel the position set out in the Council's Local Impact Report and Statement of Common	

Interested Party Relevant Representation Comment	Applicant's Response
Ground in relation to bring cables onshore in that alternatives other than trenching are possible and work in this location due to it being used for earlier cable landfalls (Sheringham Shoal). NNDC contend that mechanical disturbance of the shingle bank releases the fines in the material and therefore weakens the structure. Likewise cutting through the shore platform and cliff will again weaken the geological make up directly where the infrastructure is placed. Although it may be argued that it will be backfilled and consolidated, Mr Goodliffe thinks it unlikely that mechanical means will do this to the standards of thousands of years of deposition, compression etc. It also appears in the materials provided that the cabling will only be 2-3 metres below the surface using open cut trenching. This would appear shallow on an eroding coastline and there would be a real risk that the cabling would become exposed well within the life of the scheme. As such we conclude that alternative methods such as HDD would overcome NNDC concerns, is feasible for the construction of the infrastructure, has been completed successfully in this location and will ultimately lead to more resilient infrastructure. NNDC would expect decommissioning conditions in any consent so that should infrastructure become exposed or reaches the end of its functional life, it would be decommissioned and removed (as far as would be practical) to prevent future issues with beach and marine debris.	
The onshore element of Hornsea Project Three passes through some of the District's most sensitive and valued landscapes and this emphasises the	

Interested Party Relevant Representation Comment	Applicant's Response
importance of key design considerations which will help to reduce overall impacts, both short, medium and long-term.	
Appendix providing document titled: "*Report by Royal HaskoningDHV entitled Sheringham Shoal, Cawston, Norfolk Substation Noise Assessment Summary (2015)"*	The Applicant reviewed the documents which informed the responses referred to above.
Appendix providing document titled: "*Report by Destination Research entitled Economic Impacts of Tourism 2017 Results, referred to by the Head of Economic and Community Development Rob Young."*	

National Farmers Union and Land Interest Group Written Representations (REP3-104, REP3-105, REP3-106, REP3-107, REP3-108, REP3-109)

REP3-104 Response

Interested Party Relevant Representation Comment (REP3-104)	Applicant's Response

Interested Party Relevant Representation Comment (REP3-104)	Applicant's Response
1.0 Introduction 1.1 Submissions on behalf of the National Farmers Union ("NFU") and the Land Interest Group (LIG) in respect of the application for a Development Consent Order (DCO) by Orsted Hornsea Project three (UK) Limited for the Hornsea project Three Offshore Wind Farm. The NFU is making a case on behalf of its members and LIG its clients, who are affected by the DCO. 1.2 The NFU represents 47,000 farm businesses in England and Wales, and additionally has 40,000 countryside members with an interest in the farming and the country. 1.3 The objectives of the NFU are to champion farming in England and Wales and to provide professional representation and service to its members. The matters raised in this submission are matters not only of concern to the farming owners of agricultural land affected by the DCO, but also of concern to, and raise points of principle that will affect, members of the NFU having farm holdings that may be affected by similar electrical and other infrastructure schemes.	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-104: • Transmission technology and design flexibility (including the approach to ducting) are discussed in the Written summary of Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraphs starting 3.1 and paragraph 3.68. Further details on the communication of project details, including the choice of transmission technology are provided in the Applicant's response to ExA's First Written Questions (Q2.1.7 (c)) with proposed text changes incorporated into the Outline CoCP, updated and submitted at Deadline 4; • Funding is discussed in the Applicant's response to the ExA's First Written Questions (REP1-122), particularly Q1.14.7 - Q1.14.12. • Link boxes are discussed in Written summary of Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraphs 3.40; the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131), in particular, Annex 12 – Full response to National Farmers

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2.0 Representation from NFU and LIG 2.1 Louise Staples on behalf of the NFU and LIG stated that they were going to highlight the main issues from the written representation submitted and that they would like for these issues to be covered at specific issue hearings during the examination. 2.2 HVAC and HVDC Cables: The NFU and LIG would like to understand further why Orsted feel that they cannot agree to take forward HVDC cables rather than HVAC cables. As highlighted in our written representation we believe and understand that HVDC cables would have less impact on farm businesses on a day to day basis once constructed. We understand that design HVAC and HVDC cables will be discussed further tomorrow at the specific hearing on Tuesday 4th December 2018.	Union [RR-146]; and the Applicant's response to the ExA's second written questions submitted at Deadline 4 (Q2.9.1). • An outline soil management strategy has been prepared and submitted as an annex to the Outline CoCP updated and submitted as Appendix 2 at Deadline 4, in response to the ExA's Second Written Questions submitted at Deadline 4, Q2.9.2. • The rights and restrictive covenants being sought by the Applicant are set out in Table 1 of the Statement of Reasons (updated and submitted at Deadline 4). The specific rights and restrictions that are being sought over each plot are set out in the Book of Reference (updated and submitted at Deadline 4). • Access to land is discussed in the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131), in particular, Annex 12 – Full response to National Farmers Union [RR-146]. • Highways is discussed in Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131), in particular, RR-001, and the Applicant's response to the ExA's first written questions submitted at Deadline 1 (REP1-122), Q1.11.19 and Q1.11.20. • The grid connection selection process is discussed in the Applicant's comments on relevant representations submitted at Deadline 1 (REP1-131), RR-019. Information, was initially provided within Volume 1, Chapter 4: Site Selection and Consideration of Alternatives [APP-059] and its associated appendices (APP-092 – APP-095).
Construction: The NFU and LIG understand that Orsted will use reasonable endeavours to complete construction works within a period of 2 years from date of entry for each phase. Landowners would like the cables to be laid in ducts and for all ducts to be laid in the first phase so that the overall impact is reduced on farm businesses as it would mean only coming on to the land once.	
Funding: Further clarification is required from Orsted that they will be able to get funding for the scheme proposed. We have raised questions as to whether Orsted should be seeking a DCO for the second phase if funding is not secured.	
Link Boxes: Further information is needed on what the link boxes will look like and how will they be set out especially if there is a group. It is understood they will look like manhole covers. Also what type of marker posts will be used? Landowners would like the link boxes to be situated in field boundaries so to reduce the impact on day to day agricultural operations.	

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Code of Construction Document: The NFU and LIG would like to see outline wording agreed for field drainage, soil reinstatement and aftercare as well as water supplies. This needs to be shown in a soil management document which is linked to the Code of Construction Practice in the DCO.	
Restrictive Covenants: The final wording on the restrictive covenants that will be in place over the final lease area are still to be agreed. The NFU and LIG would like to see these included in the DCO so that the wording is binding.	
Access: Further information is needed from Orsted on how access is to be achieved on a day to day basis to land during the laying of cables when contractors are on site. Further access across the cable route will be required permanently for maintenance which is still to be agreed.	
Highways: Further clarification is required as to whether there will be any road closures during construction as this could have a big impact on a farm business if a road is closed. This is especially true where a farm may take access off this road. An example was highlighted in regard to one of the farm businesses having a large Christmas tree enterprise and how a road closure meant the business could not move trees which had been cut on a regular basis throughout the day, prevent customers making collections and deliveries, which would have a massive financial impact.	

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DCO Schemes: The NFU stated that they supported Mr. Pearce in regard to this comments about how National Grid should be planning how these different Nationally Significant Infrastructure Projects are brought forward especially in Norfolk so that they cause the least impact to landowners, occupiers and local communities. At the present time each project is looked at on an individual basis by National Grid and PINS. This needs to be looked at and considered by Government through the Ministry of Housing, Communities and Local Government Planning. Land being compulsory purchased for these types of schemes on an individual basis are having far too great an impact on farming businesses.	

REP3-105 Response

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The NFU and LIG understands from the questions raised by Mr David Prentice the lead planning officer for the DCO examination to Orsted in regard to HVAC and HVDC that design flexibility is an issue. Orsted have highlighted that they need the application to go forward for both HVAC and HVDC cables. The reasons given by Mr Gareth Parker were as follows that DC is still a maturing technology, it is developing but not fast enough for them to be able to commit at this time for this project. Orsted would not want to put a date on when they thought it would be possible to make a decision on whether they could go HVDC. They believe there is still insufficient information in the market place and they raised an issue over suppliers stating that there are only two major suppliers for DC cables and so cost and timings is an issue. At the present time there is not enough competition and that HVDC has very high fixed costs. They	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-105: • Transmission technology and design flexibility (including the approach to ducting) are discussed in the Written summary of Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraphs starting 3.1 and paragraph 3.68. • Phasing is discussed in the Applicant's Response to the ExA's First Written Questions (REP1-122) in particular Q.1.1.10, Q1.9.7 and in the Written summary of the Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraph 3.57 – 3.67.

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stated that systems are well understood for HVAC over long distances, as for this project and that Orsted is very experienced. The lead in time for HVAC cables is likely to be 3 years where as the lead in time for HVDC will be longer as depends on suppliers. NFU and LIG were pleased that the Examining Authority at the hearing made it clear that Orsted are applying for Compulsory Acquisition rights for two phases and therefore must be certain that Phase 2 will happen. NFU and LIG understands that Orsted, in regards to funding, explained that under the Contracts for Difference it was not certain the required level of funding could be secured at the same time for both phases due to capping. The capping provisions are not clear. A range of bids will be put forward for different designs and that the bids can reflect a different scale of project. It was confirmed that no bids can be put forward until the project has secured consent for the DCO. Therefore Orsted stated that the first opportunity to put in a bid would be May 2021. Orsted raised the issue that some projects like the East Anglia One had applied for their DCO to cover HVDC cables and have since had to go back requesting a non-material change to the DCO to be able to take forward HVAC cables. Orsted believe that this created a time delay and they do not want to be in this position. They have stated that it is essential for the DCO to go ahead for both HVAC and HVDC cables. It was highlighted that Vattenfall have made a commercial decision to take the Norfolk Vanguard and Boreas projects forward applying for HVDC cables and LIG very much believes that these projects are a very strong comparable. NFU and LIG are still unclear why Vattenfall is able to make this commercial decision but Orsted are not. LIG is also aware that National Grid have applied for planning to approve HVDC cables on the Viking Link Project in Lincolnshire a	• Funding is discussed in the Applicant's response to the ExA's First Written Questions (REP1-122), particularly Q1.14.7 - Q1.14.12. • Link boxes are discussed in Written summary of Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraphs 3.40; the Applicant's Comments on Relevant Representations submitted at Deadline 1 (REP1-131), in particular, Annex 12 – Full response to National Farmers Union [RR-146]; and the Applicant's response to the ExA's second written questions submitted at Deadline 4 (Q2.9.1). • Impacts on agricultural land from constructing and operating an onshore HVAC booster station and onshore HVDC converter/HVAC substation is assessed in Volume 3, Chapter 6: Land Use and Recreation of the Environmental Statement (APP-078). • Compensation for any depreciation in the value of land as a result of physical factors associated with the construction or operation of Hornsea Three is payable in accordance with the statutory compensation code. Further information is set out in paragraph 11.2 of the Statement of Reasons [APP-032].

Interested Party Relevant Representation Comment (REP3-105)	Applicant's Response
1.4GW electricity link between Great Britain and Denmark. It is scheduled to be commissioned in 2023. It was stated that a converter station will be needed no matter what size the cables for HVDC and Orsted highlighted that it would be possible to use HVAC cables on the first phase and then HVDC cables on the second phase. NFU and LIG do have concerns with this and raised issues over the amount of structures that would need to be built with HVAC and HVDC which include both a converter station and a substation, a booster station, along with multiples of link boxes and potentially a greater number of joint bays. The impact on land could be greater than first considered with the additional infrastructure. NFU and LIG stated that there preference is for the DCO to be approved for HVDC cables onshore as this will mean that Orsted will take a narrower corridor through agricultural land for the laying of the cables asthe working width required is less. Further the final lease width is less at 40m. This reduces the impact on the farm businesses in the future as the restrictive covenants in place will be over a reduced area. We would like clarification as to why 40m is needed when the Norfolk Vanguard and Boreas projects for 3.6GW scheme requires a 20m easement. Also the need for link boxes for HVDC cables is far less with only 52 required instead of 440 with HVAC cables. Link boxes greatly interfere with agricultural operations on a day to day basis. They have to be sited within 10m of a joint box at the end of every cable run which will be approximately 800m long.	

Interested Party Relevant Representation Comment (REP3-105)	Applicant's Response
Norfolk County Council did state that their preference is for the DCO to go forward for HVDC cables as the cable width is reduced with less link boxes and so is less disruptive to land. Further if there is no need for a booster station then this would reduce traffic impacts. North Norfolk District Council stated that their preference is that the DCO should be approved for one type of cable and not both HVAC and HVDC. They believe that HVAC cables will have a greater impact in the area due to the wider corridor required for the cables which will lead to a bigger impact on landowners and agricultural production. Further stated that a booster station is not required with HVDC cables. NNDC also raised a policy issue in regard to EN3 at para 6.2.42 which allows for design flexibility where there is an unknown. They believe that Orsted do know about HVDC cables and that EN3 should not be used because something is more commercially favourable one way or the other. They believe that under EN3 elements have to genuinely be unknown and that this is not the case in regard to Orsted's understanding on HVDC cables. They believe this element needs to be addressed. They also clearly believe that of all the other projects highlighted by Orsted in Appendix 22: Table 2 on page 15 that actually Vanguard is the main comparison and should be considered. South Norfolk District Council stated that they would prefer to see HVAC cables and it is the NFU and LIGs view that this is due to the impact that a converter station would have sited next Keswick Hall if the project goes ahead with HVDC cables. CPRE for Norfolk also stated that they favour the use of HVDC cables due to land take being 50% less than HVAC. They also mentioned the Rochdale Envelope and the flexibility that is available for DCO projects but that this is for unlikely and unforeseen events. They believe that with Orsted events are	

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known.	
The NFU and LIG is concerned that Orsted at the hearing were only prepared to state that they do have the ability to duct the cables which would remove the direct lay option. They also have not made a commitment to ducting. The NFU and LIG stated very clearly that they need Orsted to make a commitment to pre-duct. Further it was also stated by Orsted that even if they ducted the first phase that they may not be able to lay ducts for the second phase as the specification may change for the ducting due to different cable lengths and design.	
In regard to Phasing of the projects Orsted made it clear that they do need a 3 year gap between both phases. The NFU and LIG are very concerned about this as Orsted have also made it clear that it will take at least 2 years to complete the each phase. This means that to complete both Phases Orsted will impact and disrupt the agricultural land for a minimum of 7 years. This length of time for land and agricultural businesses to be disrupted is far too long. This emphasises the importance that ducts must be laid not only for phase 1 but for phase 2 at the same time.	
Orsted tried to state that compensation will be paid to landowners and that this will compensate for the disruption over the length of time the land is taken for. This is not the case, compensation in money terms will not be able to compensate for the disruption caused to top soil not being reinstated and a haul road left down for 7 years. This will cause severance within each field the route	

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goes through and impact on the overall running of the business.	

REP3-106 Response

Interested Party Relevant Representation Comment (REP3-106)	Applicant's Response
Article 2: Further clarity is needed for landowners on the definition of "maintain" especially in respect of "remove, reconstruct and replace". The NFU and LIG would like to see the definition changed to include "that not in any circumstances so as to vary from the description of the authorised development in Schedule 1 and in any event not so as to vary the footprint, height or appearance."	The Applicant would refer to the written summary of the Applicant's oral case put at Issue Specific Hearing 3 (REP3-005) which provides information pertaining to the concerns raised within REP3-106 as it relates to Articles of the DCO. In respect to Article 25 in particular, the Applicant would also refer to the response provided in the Applicant's response to the ExA's second written

Interested Party Relevant Representation Comment (REP3-106)	Applicant's Response
Article 6: Neighbourhood Planning Act 2017: The NFU and LIG would like Orsted to agree to not less than three months notice before entering and taking temporary possession of land and not just 14 days notice as highlighted in Article 25 para(2). This would then follow what has been set out in the Neighbourhood Planning Act 2017 Part 2 Section 20. This requires acquiring authorities to give at least three months notice and it also requires the acquiring authority to specify the period for which temporary possession is going to be taken. 2.4 The NFU and LIG believe strongly that all DCOs going forward should fall in line with these changes to compulsory purchase powers under the Neighbourhood Planning Act 2017. Taking land for temporary possession and only giving 14 days notice has become an issue on other infrastructure schemes especially HS2. HS2 already gives 28 days notice before temporary possession can be taken and this lead in time has caused farmers problems. Therefore the NFU has petitioned for three month notices to be included in the Hybrid Bill for Phase 2a. In response to this the Select Committee for Phase 2a in their Second Special Report has instructed HS2 that where possession may be for longer than a week farmers should be given advance warning of the quarter year in which the temporary possession is likely to be taken and notice should be not less than three months prior to that quarter. Further HS2 have also stated that they will give a timeline of how long temporary possession is going to be taken for. 2.5 The NFU and LIG therefore ask the Examining Authority to change the 14 days notice to three months notice at Article 25 para (2).	questions submitted at Deadline 4 (Q2.1.7) which provides further amendments to the Outline CoCP which sets out minimum timeframes for the publication of key project communications, including phasing.

Interested Party Relevant Representation Comment (REP3-106)	Applicant's Response
Article 16: Authority to survey and investigate the land onshore NFU and LIG would like to see further details included within the notice which is served 14 days on an landowner or occupier of land. The notice should include details of the type of survey to be carried out, who is carrying out the survey and what if any equipment is to be left on the land. This would then follow what has been set out in Chapter 22 of the Housing and Planning Act 2016 which makes provision about rights of entry in relation to compulsory purchase generally and states what the notice must include: The notice must include details of what is proposed- • Searching, boring and excavating • Leaving apparatus on the land • Taking samples • An aerial survey • Carrying out any other activities that may be required.	
Article 18: Time limit for Compulsory Powers: The NFU and LIG believe strongly that the time limit to exercise the right to acquire land compulsorily should only be 5 years. Extending the time limit to 7 years allows Orsted an even longer period to carry out the two phases and will not in any way incentivise them to commence the second Phase at the earliest opportunity. As long as Orsted have served temporary notices to take possession and have entered land before the end of the 5 years the undertaker can remain in possession of the land after the end of that period. As stated before it is the duration of time in which Orsted will be in possession of the land to lay the cables which is the biggest issue for the landowners and occupiers due to the disruption to the farming business.	

Interested Party Relevant Representation Comment (REP3-106)	Applicant's Response
Article 25: Temporary Use of Land: It is considered that further clarity is needed for landowners where this project is likely to be delivered in two phases. This is not clear as it is worded under Article 25.	
3.0 Schedule 1: Part 3: Requirements 3.1 Requirement 6: NFU and LIG would like to see it stated that there are to be two main phases of construction. The wording 'phases of construction' is to open. 3.2 It was raised at this point in the hearing by NNDC the issue over whether the cables are going to be HVAC or HVDC. The NFU and LIG did state at the hearing on Tuesday 4th December that if the DCO was to granted for both HVAC and HVDC that there should be some kind of condition applied that the cables should be HVDC unless Orsted can prove that there is some technical reason why they have to be laid as HVAC cables. 3.3 NFU and LIG therefore support the wording that was put forward by NNDC in regard to whether the cables are HVAC or HVDC. The drafting was as follows: "Unless a clear and compelling reason as to why HVDC cables cannot be provided within the overall phase then the method of electrical transmission shall be HVAC. Clear and technology reasons should be given by the developer to the local authority. HVAC then and only permitted". It was also highlighted that there was a preference for local authorities to give approval to this.	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-106 as it relates to Requirements within the DCO: • Transmission technology and design flexibility (including the approach to ducting) are discussed in the Written summary of Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraphs starting 3.1 and paragraph 3.68. No amendments to the wording of the Requirements is proposed in respect to the transmission technology. • Phasing is discussed in the Applicant's Response to the ExA's First Written Questions (REP1-122) in particular Q.1.1.10, Q1.9.7 and in the Written summary of the Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraph 3.57 – 3.67. The Applicant has amended the wording of Requirement 6 in the dDCO submitted at DL4 to refer to two phases of construction. This is confirmed in the Applicant's response to the ExA Second Written

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3.4 Requirement 17: Code of Construction Practice: The NFU and LIG stated that they would like further details to be included in a document linked to the Code of Construction practice such as a "Outline Soil Management Plan" or a "Construction Environmental Management Plan" where details of how soil reinstatement and aftercare, water supplies and field drainage are to be treated. The NFU has previously been involved in the drafting of wording to be included in these documents for the Triton Knoll Electrical System in Lincolnshire (DCO granted 6/9/2016) and the Richborough Connection Project in Kent (DCO granted 3/8/2017). 3.5 The wording for the particular issues which landowners are concerned about were included in an "Outline Soil Management Plan" in the Triton Knoll DCO and in a "Construction Environmental Management Plan" for the Richborough Connection project. The links to both documents have been highlighted below:- Triton Knoll "Outline Soil Management Plan" https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020019/EN020019- 001455-Appendix%2031%20-%20%20Outline%20Soil%20Management%20Plan%20(Revision%20E).pdf Richborough CEMP https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020017/EN020017- 002686-National_Grid_5.4.3C(D)_Construction_Environmental_Management_Plan_Apr_17.pdf	Questions submitted at Deadline 4 (Q2.1.9). • An outline soil management strategy has been prepared and submitted as an annex to the Outline CoCP updated and submitted as Appendix 2 at Deadline 4, in response to the ExA's Second Written Questions submitted at Deadline 4, Q2.9.2. This will be further developed during detailed design, including further details regarding the role of the Agricultural Liaison Office, and submitted for approval by the relevant planning authority under Requirement 17 of the DCO. The Applicant has taken into consideration the specific examples provided by NFU, please see response to REP3-107 and REP3-108 below.
3.6 NFU and LIG would also like to see more detail confirmed as to how an Agricultural Liaison Officer (ALO) will be engaged and work. Wording is highlighted blow from the Richborough CEMP in regard to an ALO. Agricultural Liaison Officer An Agricultural Liaison Officer (ALO) (or person of similar title) will be employed by the principal contractor to assist in the day to day liaison between the contractor and Persons with Interest in Land (PILs). The ALO will be responsible for providing PILs with information about the daily construction activities and project programme and reporting any issues to both the main contractor and National Grid Land and Engineering teams. Other duties to be conducted by the ALO include the following:- o be responsible for ensuring	

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that contractors are using the correct access routes and report any deviation from those routes to the National Grid Land officer/Agent; to report and record any damage that may occur to fences, drainage, gates, trees, buildings etc to the National Grid Land Officer; To relay any requests from PILs to alter/amend access routes conditions of access to the National Grid Land Officer; and Contact details for the ALO will be made available to PILs, who will be contactable throughout the contractors working days and hours. Outside of these times and in the event of emergency, out of hours contact details will be provided. Highlighted below is the particular wording on soil reinstatement and aftercare as well as field drainage taken from the Triton Knoll and Richborough documents. The NFU and LIG is expecting Orsted to draft similar wording to be included and linked to the Code of Construction Practice within the DCO.	
[extracts were provided from the fuill documents provided in REP3-107 and 108 relating to land drainage and soil management. The Applicant has responded to these representations separately below, and not reprovided the extract].	

REP3-107 and REP3-108 Response

Interested Party Relevant Representation Comment (REP3-107 and REP3-108)	Applicant's response
Doucment Titled "Outline Soil Management Plan - Supporting Material of Written Submission to Issue Specific Hearing - 6 December 2018"	The Applicant has reviewed the representations submitted by NFU at Deadline 3, in particular the final Construction Environmental Management Plan associated with the Richborough Connection (REP3-108) and Outline Soil Management Plan associated with Triton Knoll (REP3-107). Many of the provisions within these documents reflect those captured in the Outline Soil Management Strategy which has been submitted by the Applicant as Appendix G of the updated Outline CoCP submitted at Deadline 4. In particular: • The location of soil heaps away from surface watercourses; • Confirmation that the soil surveys would be undertaken by a competent person; and • Monitoring during the aftercare period. The detail provided in respect to land drainage is not appropriate for this stage of the project, and will be developed during the detailed design stage and included in the final CoCP to be submitted and approved as part of Requirement 17 of the DCO.
Document Titled "Construction Environmental Management Plan - Supporting Material of Written Submission to Issue Specific Hearing - 6 December 2018"	

REP3-109 Response

Interested Party Relevant Representation Comment (REP3-109)	Applicant's response
Land Use and Recreation 2.1 The NFU and LIG confirmed that negotiations are progressing on a voluntary basis and that a further meeting had been held that morning with Richard Grist from Orsted. 2.2 We do still have some significant issues especially after hearing information	The comments raised in REP3-109 have been addressed in the Applicant's responses to REP3-104 – REP3-108. It is noted that the Applicant's discussions with the NFU as part of the Land Interest Group, remain ongoing. Discussions continue to be held on a regular basis and it is anticipated that solutions will be agreed on these matters.

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provided by the Applicant at the hearings earlier in the week. The main issue is the length of time the project will take if it goes ahead in two phases to lay the cables onshore. We now understand very clearly that the gap between the first phase being completed and the second phase starting is likely to be 3 years. Orsted have explained that it will be a minimum of 2 years for a phase to be completed and so this means that construction could be completed for the two phases over 7 years. We understand that Orsted have asked for 8 years. 2.3 The disruption and severance caused to agricultural businesses by contractors being in situ over 7 years, which will include the haul road, temporary land requirements, temporary access routes and top soil which has not been reinstated over the cable ducts, will be very significant. 2.4 Further to reduce the impact on the condition of the soil, the soil needs to be reinstated as soon as possible and not left stored in bunds along the length of the cable route for a minimum of 7 years. The condition of the soil will deteriorate the longer it is left in a bund and so the quicker the soil can be reinstated the quicker it will settle. It is then possible to start to rebuild the condition and structure of the soil. This will then have less impact on farm businesses as the aftercare needed to bring the soil back to its condition and yielding potential will not take so long. 2.5 The concerns over the time required to lay the cables in two phases was re-iterated to Richard Grist at the meeting we had in the morning. In particular the importance of reinstating both sub and top soil over as much of the cable lengths as possible was discussed but that probably would not be possible to re-instate the soil around the jointing bays and link boxes until the end of both phases. It was emphasised how this would greatly reduce the impact on disruption and in particular severance in fields and on daily field operations. 2.6 This is why the NFU and LIG believe it is so important to have the wording	

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on soil reinstatement and aftercare agreed in a soil management document which is linked to the Code of Construction Practice. 2.7 As above it is essential that the general wording on how field drainage and water supplies will be dealt with pre, during and post construction and again for this to be highlighted in a soil management document. This document will then be binding by the DCO and contractors undertaking the laying of the cables for Orsted will have to abide to it. 2.8 For negotiations to progress on a voluntary basis, now in particular to the Option, the NFU and LIG are expecting Orsted to include appropriate wording in a soil management type document which can be agreed. The NFU and LIG are not asking for anything which has not been agreed under other DCO projects. Examples of the wording that we would like to see for soil reinstatement and aftercare as well as field drainage have been submitted in a submission to the specific hearing held on Thursday 6th December on the draft DCO.	

Corpusty & Saxthorpe Parish Council and Edgefield Parish Council Written Representation (REP3-111)

Interested Party Relevant Representation Comment	Applicant's Response
It is noted that table 2 in Appendix 22, shows projects consented for and being delivered HVAC and HVDC. Orsted used this as proof that HVAC would be preferable, due to HVDC being emerging technology. We believe this table is misleading, as Orsted have used the HVAC examples at under 1000MW, when they admitted themselves that only HVAC is suitable for under 100MW. We note that all the projects with consent for HVDC are over this limit, and appears to be the preferred option for other companies for larger projects. We strongly favour the project going ahead with HVDC technology only, and would support any requirement for this.	The Applicant would refer to the following which provides information pertaining to the concerns raised within REP3-111: • Transmission technology and design flexibility (including the approach to ducting) are discussed in the Written summary of Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraphs starting 3.1 and paragraph 3.68; • Phasing is discussed in the Applicant's Response to the ExA's First Written Questions (REP1-122) in particular Q.1.1.10, Q1.9.7 and in the Written summary of the Applicant's oral case put at Issue Specific Hearing 1 (REP3-003), in particular paragraph 3.57 – 3.67. In respect to phasing of the landscape mitigation planting, the Applicant would refer to the Applicant's Response to ExA First Written Questions (Q1.7.10). This commits to planting sections of the landscaping at the commencement of construction works at the onshore HVDC converter/HVAC substation (see also newly created paragraphs 3.1.2.3 and 3.1.3.4 in the Outline CoCP (REP1-142, Version 2)). • Details relating to Articule 7 (defence to proceedings in respect of statutory nuisance) is provded in the written summary of the Applicant's oral care put at Issue Specific Hearing 3 (REP3-005), paragraph 4.13-4.14. • Design Objectives and Principles for the onshore HVAC booster station has been provided at Appendix 5 of the submission at Deadline 4. This sets out the objectives and principles which will be applied when developing the detailed design for the aesthetics of the buildings of the onshore HVAC booster station. The Applicant notes that should the Development Consent Order (DCO) be consented, Requirement 7 'Detailed Design approval onshore' of the Draft DCO (submitted for Deadline 4) requires that work must not commence until details of the layout, scale and external appearance of the work, which must be substantially in accordance with the Design Objectives and Principles, have been submitted to and approved by the relevant local authority.
We agree with North Norfolk District Council's submission that Policy EN3 allowance for design flexibility should be for unknown factors, not commercial reasons, as these are already known.	
Should phasing be used, we strongly feel that ducting should be used, to minimise disruption for local communities, and we note that Vattenfall have already	

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committed to this. This will be vital should these be the three-year gap between phases.	• Details of the Noise Management Plan, including a commitment that one will be provided for the onshore HVAC booster station, is provided at Issue Specific Hearing 4 (REP3-006), paragraph 5.6). Furthermore, as noted in the Applicant's response to the ExA's Second Written Questions (Q2.12.10), the Applicant has amended Requirement 21 of the dDCO (Version 2 submitted at Deadline 4) to clarify the contents of the Noise Management Plan. • Core working hours are discussed in the Applicant's responses to the ExA's First Written Questions (Q1.12.6, Q1.12.8) as well as the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties (Q1.11.25, Q1.12.6, 1.12.8). Additional discussion is provided in the Applicant's oral case put at Issue Specific Hearing 4 (REP3-006), in particular paragraphs starting 5.7; and • Impacts on tourism are discussed in the Applicant's oral case put at Issue Specific Hearing 4 (REP3-006), in particular agenda item 7, as well as the Applicant's response to the ExA's Second Written Questions submitted at Deadline 4 (Q2.10.4).
We feel that there should be no statutory defence for operational noise.	
Should the project proceed in two phases, all mitigation should take place in phase one, especially to allow for screening of booster / sub stations etc.	
Both Edgefield and Corpusty & Saxthorpe Parish Councils are disappointed and concerned at the lack of detail for the booster station at Barningham. It is unacceptable that full visual, noise and mitigation details are not available by this stage of the examination.	
It is unacceptable that the Noise Management Plan only covers the substation and not the booster station at Barningham, due to the relatively close proximity of houses to the site.	
The core working hours should commence at 8am, rather than 7am. There are many holiday properties along the cabling route and near the proposed	

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booster station in North Norfolk, and the later start could minimise the effect on tourism. A 7am start shows a lack of consideration on local communities.	
Orsted suggested that the effect on tourism from this project will be negligible, saying that the projects in the last five years did not show any adverse effect on the rise of tourism in North Norfolk. The only project locally that we are aware of is Sheringham Shoal, which was completed in 2012.	

Joanna Church on behalf of Richard Bacon MP (AS-014)

Interested Party Relevant Representation Comment	Applicant's Response
Good afternoon, RE: Mr and Mrs Hall, / Hornsea Project three Please find below an email dated 10th December 2018 to Richard Bacon MP from Mrs Natasha Hall who is concerned that the development of the Hornsea Three Project in Swardeston has left her family prisoners in their own home, as it is no longer saleable. Mr Bacon has asked me to write immediately on his behalf to ask for a substantive response on the points his constituents have raised. As you will see, these are specifically: "…we asked working times they [Orsted] stated 8.00-5.00 5 days maybe saturday morning we have since found out it is 6 days a week 7-5.30 and bank holidays. We asked for a visual but got shown plans which looked like storage units which we both know it is going to be the size of the N&N hospital these have not been forthcoming Asked at the latest meeting (7th December) when landscaping will start Orsted abruptly said not until 3 years after 1st stage- we got told they would start visual screening for our property straight away another lie And they have stated on live radio that there is no evidence of it devaluing our property- another lie we cannot sell so we are prisoners in our own	The Applicant would refer to the following which provides information pertaining to the concerns raised within AS-014: • Core working hours are discussed in the Applicant's responses to the ExA's First Written Questions (Q1.12.6, Q1.12.8) as well as the Applicant's comments on responses to the ExA's Written Questions submitted by Interested Parties (Q1.11.25, Q1.12.6, 1.12.8). Additional discussion is provided in the Applicant's oral case put at Issue Specific Hearing 4 (REP3-006), in particular paragraphs starting 5.7; • Visual effects of the onshore HVDC converter/HVAC substation are discussed in the Applicant's Comments on Relevant Representations (REP1-131, RR-01 and RR-052), furthermore visualisations of the infrastructure are provided in Volume 6, Annex 4.5: Photographic Panels, Wireframes and Photomontages of the Environmental Statement (APP-146). • Details of the landscape planting proposed, including the commitment to planting sections of the landscaping at the commencement of construction works at the onshore HVDC converter/HVAC substation, is provided in the Applicant's Response to ExA First Written Questions (Q1.7.10). This commitment was provided in the newly created paragraphs 3.1.2.3 and

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home". These are worrying points and Mr Bacon would be grateful for your urgent attention to this matter. With best regards, Joanna Church Senior Caseworker On Behalf of Richard Bacon MP "Morning Mr Bacon I understand that you have met with Derek Barber chair of Swardeston Parish Council re Hornsea project I would like to invite you to our property to visually see the impact that this construction will have on my family and I None of our concerns seem to be taken seriously we have had a visit (after much badgering) from Orsted who just lie for example we specifically asked working times they stated 8.00-5.00 5 days maybe saturday morning we have since found out it is 6 days a week 7-5.30 and bank holidays. We asked for a visual but got shown plans which looked like storage units which we both know it is going to be the size of the N&N hospital these have not been forthcoming Asked at the latest meeting (7th December) when landscaping will start Orsted abruptly said not until 3 years after 1st stage- we got told they would start visual screening for our property straight away another lie And they have stated on live radio that there is no evidence of it devaluing our property- another lie we cannot sell so we are prisoners in our own home This is just the tip of the iceburg of issues we have encountered	3.1.3.4 in the Outline CoCP (REP1-142, Version 2) and will be secured in the dDCO through Requirement 17. This commitment also applyies to the optional strategic planting indicated in the Outline LMP (REP1-145).

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Hopefully you will be able to give us some of your valuble time Regards Natasha Hall"	