



Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Written Summary of the Applicant's Oral Submissions
at Issue Specific Hearing 6

Revision A

Deadline 3

May 2023

Document Reference: 16.11

Title:	
Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects Examination submission	
Written Summary of the Applicant's Oral Submissions at Issue Specific Hearing 6	
PINS document no.: C282-BS-Z-GA-00019	
Document no.: 16.11	
Date:	Classification
May 2023	Final
Prepared by:	
Royal HaskoningDHV	
Approved by:	Date:
Tom Morris, Equinor	May 2023

Table of Contents

1 Introduction4

Table of Tables

Table 1 Written Summary of the Applicant's Oral Submission at ISH 6..... 5

1 Introduction

1. This document presents a written summary of Equinor New Energy Limited's (the Applicant) oral case at Issue Specific Hearing 6 (ISH 6) (Table 1-2). ISH 6 on the Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP) Development Consent Order (DCO) application took place on 31 March 2023 at 10:00am at Fishmongers Recital Hall, Gresham School, Cromer Road, Holt NR25 6EA.

Table 1 Written Summary of the Applicant's Oral Submission at ISH 6

I.D.	Stakeholder Comment	Applicant Response
Benthic Ecology		
3.i	Provide a detailed assessment (or explain why it cannot be provided) of the extent of necessary cable protection needed within the Marine Conservation Zone, designation at the Cromer Shoal Chalk Beds, for this examination, for a more accurate worst-case scenario regarding adverse impacts to the Marine Conservation Zone.	<p>A. The Applicant confirmed it has not further refined the 1,800 square metres of cable protection as flexibility is required to be retained within the design envelope. The quantity of cable protection allowed for is not large for a project of this nature (approximately one third less than Hornsea Project Three for example) and has been minimised already. The specific method of cable installation and external cable protection requirements will be determined post consent following contractor selection and detailed engineering studies – as per the normal approach.</p> <p>B. The Applicant notes the suggestion that a more detailed assessment of cable protection in Marine Conservation Zone (MCZ) is required. The rigour with which the Applicant has assessed this matter is clearly set out in the Outline Cromer Shoal Chalk Beds (CSCB) Marine Conservation Zone (MCZ) Cable Specification, Installation and Monitoring Plan (CSIMP) [APP-291] (outline CSIMP). This includes: use of the previous experience, data and lessons learnt from the installation of the Sheringham Offshore Wind Farm (OWF) and Dudgeon OWF cables; a geotechnical survey (routinely only conducted post-consent) and associated soil interpretations by the British Geological Survey; a draft Export Cable Burial Risk Assessment [APP-293] (again routinely only produced post-consent); and an Interim Cable Burial Study [APP-292]. It would be difficult to find another development which has provided an assessment that approaches the level of detail presented in the application documents.</p> <p>C. As is made clear across these documents, the Applicant is committed to minimising external cable protection in the CSCB MCZ and will make reasonable endeavours to bury offshore cables. Cables will be buried where the substrate allows burial to a target burial depth of 1.0m, with 0.6m or greater being acceptable</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>in chalk. Furthermore, as described in the Export Cable Burial Risk Assessment [APP-293], reduced burial depths (0.3m) may be accepted in order to avoid the need for external cable protection in the MCZ. Acceptance of burial depths is something that will be decided between the Applicant and the export cable installation contractor at the time of the cable installation.</p>
3.ii	<p>Whether the potentially harmful effects of removing cable protection within the Marine Conservation Zone in the decommissioning stage, if it has been in situ for a long period of time, outweighs the benefits of it remaining.</p>	<p>A. The Applicant notes Natural England's comments dated 23 March which include "<i>that a real time assessment at the decommissioning phase will be required to determine the best course of action</i>" and confirmed it agrees with this position. As such, the Applicant anticipates that the requirement for decommissioning will be determined at the time of decommissioning in consultation with Natural England and the Marine Management Organisation (MMO) and will be informed by benthic surveys and decommissioning guidance at that time.</p> <p>B. The Applicant confirmed that when the decommissioning assessment is done prior to the decommissioning stage, the position could change. The Applicant has committed to use only cable protection systems that are designed to be removable, which is in the outline CSIMP [APP-291] and is secured in the deemed marine licences (condition 13 of Schedules 10 and 11 and condition 12 of Schedule 12 and 13 of the draft DCO (Revision F) [document number 3.1]).</p> <p>C. The Applicant confirmed there are potential beneficial impacts arising through the colonisation of external cable protection. Section 8.6.3.5 of the Environmental Statement (ES) Chapter 8 Benthic Ecology [APP-094] assesses the potential effects of colonisation of foundations and cable protection. Cable protection in the MCZ will likely be colonised by a different benthic community to the primarily soft sediment communities present prior to installation. However, the seabed sediments and associated habitats within the MCZ are already diverse, ranging from the hard substrates of the outcropping rock in the nearshore, areas of mixed</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>sediments with cobbles and boulders; to the soft sediments ranging from gravel to sand to mud. As such whilst the seabed habitat will no doubt be changed at the point at which any cable protection is installed, it will not fundamentally change the type of habitats that are available for colonisation by benthic communities across the MCZ. Further, studies of operational wind farms in the North Sea have found that widespread colonisation of sub-sea surfaces occurs. For example, boulders and mattresses used as cable protection have been found to add habitat complexity and increase heterogeneity of the environment in and around offshore wind farms, as described in Chapter 8 Benthic Ecology [APP-094]. These matters are of relevance in considering whether, or how, the conservation objectives could be hindered as a result of the use of cable protection in the manner proposed. The Applicant's position remains as set out in its Stage 1 Cromer Shoal Chalk Beds (CSCB) Marine Conservation Zone Assessment (MCZA) [APP-077], namely that the conservation objective of maintaining the protected features of the MCZ in a favourable condition or restoring them to favourable condition will not be hindered either alone or on a cumulative basis.</p> <p>D. The Applicant reiterated that the scale of the impact is very small: 1,800 m² for SEP and DEP equating to 0.0006% of the MCZ. Scale must be important because at such a small scale it can only be concluded that the extent, distribution and structure of sediment features and the associated biological communities will be maintained (or not prevented from recovering, as appropriate) across the MCZ.</p> <p>E. The Applicant confirmed, as reflected in the Environmental Statement and secured through the requirement for the CSCB MCZ CSIMP (see Schedules 10 and 11, part 2, condition 13 and Schedules 12 and 13, part 2, condition 12 of the draft development consent order (Revision F) [document reference 3.1]) (draft DCO), that it has committed to using horizontal directional drilling (HDD) to install cables at landfall and avoid</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>direct effects on outcropping chalk features in the nearshore area. The Applicant has also taken appropriate steps to minimise impacts on sub-cropping chalk features and the evidence presented shows there is limited ability for those areas of sub-cropping chalk to be exposed. Regarding the mixed coarse and sand sediment habitats, the Applicant referred to the assessment provided in the MCZA and the and the conclusion set out in that regard.</p>
3.iii	<p>Whether the proposed cables and possible cable protection would impact or counter the conservation objectives of the fishing Bylaws (including Closed Area Bylaw 2021) which cover the Marine Conservation Zone.</p>	<p>A. The Applicant confirmed that the commitment to using HDD in the nearshore completely avoids any direct effects on the outcropping chalk feature in the nearshore.</p> <p>B. Turning to the subcropping or veneered chalk the applicant has taken the appropriate steps to minimise any potential impacts on that. The evidence that we have presented, shows that there is limited ability for those areas of subcropping chalk to be exposed, which is an important point that does need to be taken into account.</p> <p>C. In the final category are the impacts on those broadscale habitats e.g. the mixed, coarse and sand sediment habitats, whereby we refer to the assessment that has been provided in the Stage 1 marine conservation zone assessment and the conclusions set out in that regard.</p>
3.iv	<p>Due to their potential adverse impact with the seabed and therefore benthic ecology, whether the use of Jack-Up vessels could be avoided within the Marine Conservation Zone and what alternatives exist.</p>	<p>A. The Applicant confirmed the use of a small jack-up vessel may be required at the HDD exit point (only). The reason why it is required there is because shallow water and tidal currents present a challenge for some vessels to stay in position. As such, before the relevant contractors have been selected and the detailed design studies have been completed pre-construction, the Applicant requires the flexibility to use a range of vessels, including a small jack-up at this location.</p> <p>B. The Applicant confirmed other alternatives such as an anchored barge or cable laying vessel can potentially be used however use</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>of a small jack-up is required to be retained within the design envelope since the shallow water at the HDD exit point may exclude the use of certain vessels that are available to export cable installation contractors, meaning the only feasible option may be the use of a small jack-up.</p> <p>C. The Applicant also noted that use of an anchored vessel at this location would bring its own challenges in terms of the impact of the anchors on the seabed and the need to position those anchors to avoid the sensitive outcropping chalk feature in the nearshore. However, as noted in Section 4.4.8 of ES Chapter 4 Project Description [APP-090], no anchoring or use of jack-up vessels will be undertaken where the subtidal chalk or subtidal rock (Habitat class: A3 – Infralittoral rock) associated with outcropping chalk features in the inshore area of the MCZ are reported and subsequently confirmed by pre-construction survey.</p> <p>D. The Applicant confirmed the HDD exit pits will be located within the deep infilled channel cut through the chalk to 17m below the seabed filled with Weybourne Channel deposits (Environmental Statement Appendix 6.3 - Sedimentary Processes in the Cromer Shoal Chalk Beds MCZ [APP-182] - visible on Figure 3.4), located across the export cable corridor from approximately 750m to 1.5km offshore. Given the depth of overlying sediment deposits there is no potential for exposure of chalk in this area.</p> <p>E. The Applicant confirmed it would produce a further concise explanation of this for Natural England's benefit. [Post-hearing note: see response to Q2.3.2.1(a) The Applicant's Responses to the Examining Authority's Second Written Questions [document reference 16.2]]</p>
3.v	<p>Natural England consider sub-cropping chalk (chalk covered with a veneer of sediment) to also comprise the subtidal chalk feature [REP2-065]. If this is the case, what are the implications of this on the assessment of potential impacts to the Marine Conservation Zone?</p>	<p>A. The Applicant confirmed it is not possible to avoid the sub-cropping chalk entirely. The Applicant noted Natural England's position is that areas of subtidal sub-cropping chalk may become exposed in the future. As such it should be considered as subtidal chalk in the assessment. The Applicant would draw attention to the description</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>of the sub-cropping chalk feature provided throughout Environmental Statement Appendix 6.3 - Sedimentary Processes in the Cromer Shoal Chalk Beds MCZ [APP-182] which explains that the sub-cropping chalk is in an eroded form to a relatively flat and regular surface and that it is in no way similar to the complex erosional geo-structures of exposed chalk (such as ridges, pinnacles and arches) present in the nearshore. The implication of this is that in the unlikely event that sub-cropping chalk was somehow impacted by the works it is not reasonable to treat it as the same feature (the outcropping chalk) for which the MCZ has been designated. This issue was discussed through the expert topic groups and agreed with Natural England and the MMO that seabed sediments in the export cable corridor are static, with the exception of Holocene sand / subtidal sand, which is mobile under some conditions. Therefore, the potential for subtidal chalk to be exposed in the future is restricted to the subtidal sand areas.</p> <p>B. The Applicant confirmed that all efforts will be employed to reduce the chance of sub-cropping chalk being encountered through undertaking the works, as set out in the outline CSIMP [APP-291] and Interim Cable Burial Study [APP-292]. The Applicant wants to install the cables as efficiently as possible without external cable protection and so shares this objective with stakeholders. Where there are challenging ground conditions, one of the key tools is to be able to accept reduced burial depths (see Export Cable Burial Risk Assessment [APP-293] and the Interim Cable Burial Study [APP-292]). In the event that target burial depth is not achieved, the Applicant has the ability to accept a reduced cable burial depth. This will help to avoid the need for further remedial action, including use of external export cable protection.</p> <p>C. The Applicant confirmed it would use micro-siting to avoid sub-cropping chalk with a thin veneer. The Applicant will optimise that process by undertaking pre-construction surveys and use that data to micro-site cables as much as possible to maximise the chance of success of the burial. There are many features which are built</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>into the design and which help in that regard. For example, the export cable corridor has been widened in this area which is to increase the degree of flexibility to allow micro-siting around sensitive features or where there is challenging burial circumstances.</p>
3.vi	<p>Natural England [REP2-064, Point 31] state in reference to the Marine Conservation Zone that "Should cable protection be placed in the mixed sediment within the cable corridor, then the conservation objectives to restore/maintain features will not be achieved". Could cable protection in mixed sediment areas of the Marine Conservation Zone be avoided or can the impacts be suitably and sufficiently mitigated.</p>	<p>A. The Applicant confirmed it considers the risk of requiring cable protection may be higher in mixed sediments areas [post hearing note – although there are many reasons why external cable protection might be required including factors that are entirely independent of soil conditions, such as mechanical failure during the burial works]. There are areas of mixed sediment which extend the full width of the cable corridor. Therefore it would not be possible to micro-site around these areas entirely.</p> <p>B. However, in seeking to maximise the chance of success of cable burial, micro-siting will be used to optimise the route taken. Cable protection will only be used as a last resort and, in the event that cable protection was necessary, commitment is made to removal on decommissioning (if required at the time).</p> <p>C. A further key point is that whilst these sediments and habitats might appear on a figure as if they are in clearly defined areas, in reality there is a relatively high degree of dynamism. Boundaries of different habitats merge into each other forming a mosaic. As such, the Applicant confirmed that the pre-construction surveys will be used to confirm the nature and location of any higher value ecological areas to inform the micro-siting process.</p> <p>D. The Applicant referred to Condition 13 (i) of Schedules 10 and 11 and Condition 12 (j) of Schedules 12 and 13 of the draft DCO (Revision F) [document 3.1] which includes provision for a mitigation scheme for any benthic habitats of conservation, ecological and/or economic importance constituting Annex I reef habitats identified by pre-construction surveys and will be in accordance with the Offshore In Principle Monitoring Plan [APP-289]. This is the appropriate approach to mitigating impacts on</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>benthic habitats of conservation, ecological and/or economic importance.</p>
3.vii	<p>What would be the benthic ecology impacts with the provision of a large oyster bed (as is the preferred option of the Applicant put forward for the Measures of Equivalent Environmental Benefit), as it would cover a significant seabed habitat area. This includes the need for any cultch for the oyster bed and what impacts this could have on existing benthic ecology.</p>	<p>A. The Applicant noted that MCZ Measures of Equivalent Environmental Benefit (MEEB) proposals are ‘without prejudice’ and the Applicant’s position is that conservation objectives will not be hindered.</p> <p>B. The Applicant confirmed there is a figure in the MCZ Measures of Equivalent Environmental Benefit (MEEB) Plan [REP1-011] (Plate 2.1 in Annex C) which presents evidence of the historic existence of oyster beds. It was that historical map which provided the Applicant with the initial concept for this measure. The evidence of native oysters in this region is generally accepted, including by Natural England.</p> <p>C. The Applicant confirmed there are a number a potential factors which caused the decline of these oyster beds including significant impacts of fishing and declining water quality.</p> <p>D. The Applicant confirmed that cultch is the substrate which is provided or placed on the seabed to encourage the growth of oysters. There are a few different options in terms of the material can be used for this. For example, it is possible to use marine aggregate.</p> <p>E. The Applicant confirmed the potential impacts on the MCZ conservation objectives from the planting of native oyster bed are assessed in Appendix 4 of the Assessment of Potential Impacts on Cromer Shoal Chalk Beds Marine Conservation Zone Features from Planting of Native Oyster Beds [REP1-010]. Following discussions with Natural England earlier in the Examination, the Applicant amended the proposed specification for the search area to cover a mixed and coarse sediment area. Natural England confirmed they are happy with that (please see Appendix K1 - Risk and Issues Log [REP2-064]). The fundamental point is that the proposed without prejudice MEEB</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>would partially restore a historic feature of the region which is the key reason why the measure is supported by Natural England and which is agreed in the Draft Statement of Common Ground with Natural England (Offshore) [REP2-044].</p>
3.viii	<p>Evidence to demonstrate the effects of the potential oyster bed in terms of impacts to fish species in the area, such as resultant changes in species or numbers/stocks.</p>	<p>A. The Applicant confirmed that native oyster beds support the biomass of other species and the Applicant would expect a net positive effect on biodiversity. In general, native oyster beds (and other bivalve beds) support a higher biodiversity and biomass of species than the surrounding seabed. That flows through to the potentially positive impacts on fish species and numbers. There are other native oyster restoration projects which the Applicant has drawn on for information in this regard. Also similar projects involving mussels where studies have shown clear benefits.</p> <p>B. The Applicant reiterated the key point being that Natural England seem to be very positive about the proposed measure. One alternative was to relocate the MEEB outside the MCZ but Natural England preferred a location within the MCZ.</p>
3.ix	<p>The chances of success for the oyster bed as a 'Measure of Equivalent Environmental Benefit' and how this would be quantified and assessed; also, whether the oyster bed would be developed and cultivated in sufficient time to suitably offset any adverse impacts to the Marine Conservation Zone.</p>	<p>A. The Applicant confirmed it considers the MEEB proposals to have a high chance of success. The aim of the MEEB is to deploy and maintain a native oyster bed of 10,000 m² with an average density of 5 live oysters per m². This scale of oyster bed restoration would be delivered irrespective of whether SEP or DEP are built in isolation or if SEP and DEP are both built as it is considered to be the minimum size that could be implemented to achieve the overall aim of this MEEB which is to create a self-sustaining oyster bed. That density would be provided irrespective of whether only one project comes forward.</p> <p>B. The Applicant confirmed that table 8.1 of the In-Principle MEEB Plan [REP1-011] sets out the monitoring aims and criteria for success in the context of MEEB with consideration of key metrics. These include:</p> <ul style="list-style-type: none"> a. Oyster survival

I.D.	Stakeholder Comment	Applicant Response
		<ul style="list-style-type: none"> b. Oyster density <ul style="list-style-type: none"> i. OSPAR definition of a reef is 5 live oysters per m² so success would be determined by a density of greater than or equal to 5 live oysters per m² on average throughout the 10,000m² bed ii. Partial success would be defined as 2-4 live oyster per m² iii. Failure would be defined as 1 or fewer live oyster per m² c. Shell cover d. Temperature e. Oyster bed area f. Oyster size frequency g. Increases in biodiversity <p>C. The Applicant confirmed that a proposal such as this is clearly a fairly ambitious one but is supported by key stakeholders. On this basis, there can be a greater degree of flexibility in terms of those success criteria. The judgements as to the overall ecological benefits being achieved would need to be made at the time through the steering group which helps govern this process. Part of that is the adaptive management process which would enable the Applicant to consider further steps as necessary to improve the performance of what has been installed or whether it is necessary to consider other alternatives.</p> <p>D. The Applicant confirmed the area proposed for the MEEB is already subject to an extensive fisheries management programme. As such, there is already a ban on use of bottom towed gear. If the Closed Area Byelaw 2021 was removed then the oyster bed could require a further restriction to ensure its protection this would need to be determined at the time.</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>E. The Applicant confirmed that oyster restoration would begin before the installation of export cable protection. There would be a pilot project with two subsequent phases. These details are set out in the In-Principle Cromer Shoal Chalk Beds (CSCB) Marine Conservation Zone (MCZ) Measures of Equivalent Environmental Benefit (MEEB) Plan [REP1-011].</p>
Shipping and Navigation		
4.i	<p>Applicant and the Marine and Coastguard Agency is requested to provide a plan/annotated map at the Hearing to illustrate the points made by the Marine and Coastguard Agency [REP1-117] under the section headed 'Navigable Sea room and collision risk'. This should include both the limits on navigable sea room that exist and the resultant sea room if the proposed development is implemented in full.</p>	<p>A. The Applicant confirmed that the comments of the Maritime and Coastguard Agency (MCA) in the hearing demonstrate how this is a complex sea area. Consideration of the corridor calculation was an over simplification of the process. By focussing on a calculation which does not, in isolation, answer the question as to whether the safety risk of having the development in situ is as low as reasonably practicable (ALARP). The Applicant then detailed the Navigation Risk Assessment (NRA) [APP-198] process noting it is similar to an evidence plan but is specific to the shipping and navigation guidance (Marine Guidance Noted (MGN) 654).</p> <p>B. The Applicant explained that the NRA is a process, not just the document that was submit as part of the application. It is also a sum of all of the consultation, baseline data gathering, modelling and assessment through the 4-5 years the Applicant has working on the development. The NRA ALARP statement is not the decision of any one person or party but the output of all the work undertaken.</p> <p>C. The Applicant confirmed that a key part of that process is consultation. Consultation commenced in 2018 and has continued throughout the pre application process including pre/post scoping, section 42 consultation and pre application consultation (Section 4 of the NRA [APP-198]). One to one meetings were also undertaken, regular operator outreach and the hazard workshop (2021) which a number of key parties, including the MCA, attended.</p>
4.ii	<p>Whether the proposed wind farm extensions would allow for sufficient sea room to ensure reasonable levels of safety for ships traversing this sea area. This includes a discussion relating to the remaining sea room for vessels east of the Triton Knoll wind farm area.</p>	

I.D.	Stakeholder Comment	Applicant Response
		<p>D. Holding the hazard workshop was the process by which the Applicant created the hazard log which is again a key part of the NRA process. The section 42 consultation is a 'dry run' for the NRA where a draft is submitted to relevant parties for consultation and comments are then provided to the Applicant. The Applicant considers what mitigation might be required as a result of the comments and that is then included in the NRA submitted with the DCO application.</p> <p>E. The Applicant noted the MCA has also agreed as part of the Draft Statement of Common Ground (SoCG) with the Maritime and Coastguard Agency [REP1-045] that the NRA has been undertaken in line with MGN 654 including completion of an MGN checklist which demonstrates where and how the Applicant has met the relevant requirements. This checklist was also submitted alongside the draft NRA at Section 42 and included collision risk modelling .</p> <p>F. The Applicant confirmed that whilst there were questions raised, the Applicant did not receive the MCA's comments in relation to DEP North until a few weeks prior to ISH6. For example a key operator in the area were concerned with deviations around project vessel operating between the sites and therefore a bespoke mitigation, the Navigation Management Plan, was developed.</p> <p>G. The Applicant confirmed it would not have submitted the NRA with the DCO application had they been aware of outstanding safety concerns held by the MCA.</p> <p>H. The Applicant was surprised to receive the written representation from the MCA (see the MCA's Written Representations [REP1-117]) suggesting a reduction in the redline boundary was necessary. The Applicant is not aware of any new information which has come to light which would have led to these conclusions.</p> <p>I. The Applicant noted that a reduction in the redline boundary would not materially influence the collision risk return period identified assessed. This is due to the fact that changes in collision risk</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>identified by the NRA were primarily due to increased traffic volumes as provided for in the model (and within the entire study area) and not the presence of the development.</p> <p>J. The Applicant reiterated that focusing on the calculations, the corridor calculation in particular is an oversimplification of the process. The 20 degree calculation, as noted in MGN 654, is to be assessed between an area that is bounded by turbines. So that is why within the navigational risk assessment, we have drawn it within the area where there are turbines on either side of that shipping route.</p> <p>K. The Applicant noted that vessels currently pass at a distance of 1.5nm from the Sheringham OWF and Triton Knoll OWF. However, this is likely to align with waypoints. This is illustrated for the Sheringham OWF in Figure 5 of the NRA. In the case of Triton Knoll OWF, it is considered likely that this distance is also resultant of the construction buoys in place to increase set back for vessels as opposed to a distance from the wind turbines. Vessels do pass closer than 1nm to Dudgeon Offshore Wind Farm and Sheringham Offshore Wind Farm based on the 12 months of Automatic Identification System studied for the NRA. Similar passing distances are also evidenced at other windfarms.</p> <p>L. The Applicant confirmed there is no guidance or legislation which requires a minimum of 1.5nm as it is up to the mariner to determine how close the vessel can pass (and this depends on the type of vessel and conditions).</p> <p>M. The Applicant confirmed that as part of the collision risk assessment, the baseline vessel traffic volumes are first gathered. Collision risk is then modelled on the basis of an assumed 10% increase, with and without the presence of the development. A further scenario in which a 20% increase in traffic volumes, with and without the development is modelled. The 20% is a recent addition [following requests from the stakeholders to include that</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>scenario in the models] but the Applicant considers the 10% scenario is a realistic worst case.</p> <p>N. The Applicant confirmed it would submit further detail on collision risk as referenced during the hearing. [Post-hearing note: see response to Q2.19.1.2 of The Applicant's Responses to the Examining Authority's Second Written Questions [document reference 16.2]]</p> <p>O. In response to the MCA's suggestion that survey data was only made available at Deadline 1 of the Examination, the Applicant confirmed that 12 months of AIS data was included in the preliminary environmental impact report (PEIR) , as well as one dedicated vessel survey. The 12 months of data provides an improved picture of traffic movements compared to the 28 days dedicated survey data required by MGN 654. A draft of the NRA was then submitted to the MCA in July 2022.</p> <p>P. The Applicant confirmed again that applying a mathematical calculation to an area that does not suit it means that the corridor has been extended beyond where the turbines bound the route (which is not compliant with MGN 654)).].</p> <p>Q. The Applicant is unclear why the MCA's position has changed and believes the conclusions of the NRA are sound. The Applicant also confirmed the proposed mitigation would not materially improve collision risk and would result in a significant impact on the development. The Applicant noted that the collision risk over the entirety of the study area derives only 14% of its value from the area in proximity to DEP North which the MCA is suggesting is the area of concern. As such a clear case would need to be made out by the MCA before this mitigation could be considered by the Applicant.</p> <p>R. The Applicant confirmed it would submit calculations and figures to demonstrate the points raised.</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>S. The Applicant confirmed vessels are able to safely navigate around the development even without the MCA's proposed change as a result of the mitigation secured in the NRA which requires the provision of navigation plans.</p> <p>T. The Applicant confirmed it would continue discussions with the MCA on this matter but may need to seek an additional hearing to consider this point in further detail once the MCA's concerns are better understood. [Post-hearing note: please see the Applicant's covering letter [document 16.1]]</p> <p>U. The Applicant confirmed the relevant Nationally Policy Statement test is set out in EN3 paragraph 2.6.165: '<i>The [Secretary of State] should not consent applications which pose unacceptable risks to navigational safety after all possible mitigation measures have been considered</i>'. The Applicant is confident that policy test has been met.</p> <p>V. The Applicant confirmed it would submit an explanation of the implications of not reaching agreement with the MCA. [Post-hearing note: see response to Q2.19.1.3 of The Applicant's Responses to the Examining Authority's Second Written Questions [document reference 16.2]]</p>
4.iii	<p>The Maritime and Coastguard Agency [REP1-117] state that the Applicant's collision risk assessment for two third-party vessels is unrealistic in an already high-risk area. Therefore, has there been sufficient and accurate consideration as to the safety of third- party vessels? Could more be done to mitigate against this type of collision risk?</p>	<p>A. The Applicant confirmed the hazard log is output of hazard workshop in August 2021. The log is a specific outcome of that workshop and reflective of the discussions had with all parties. This was sent to all parties who participated in the workshop in draft form on 9th September 2021 with the final log being provided in November 2021.</p> <p>B. The Applicant confirmed that with regards to the assessment of collision risk within the hazard log, the presence of a wind farm cannot cause a collision which is why displacement is considered as the pathway to any third party collision incident. There are encounters which occur and some of those may result in a collision. However, the most likely impact that two vessels will</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>encounter each other but it is unlikely that those would then result in a collision event. Within NRA the Applicant has separated those impacts of displacement and collision risk out and looked at both on their own.</p>
4.iv	<p>Whether there would be sufficient space for a 'non-production installation' to be installed with decommissioning of the Waveney platform.</p>	<p>This agenda item was not discussed.</p>
<p>Helicopter Access to Offshore Platforms</p>		
5.i	<p>Whether the 1 nautical mile obstruction free area around the Waveney platform installation is reasonably sufficient to allow for helicopter access for the continued operations and future decommissioning of this platform.</p>	<p>A. Following comments from Perenco, the Applicant sought to clarify that the 3 nautical mile (nm) buffer applies to weather limits, and not the minimum distance to WTGs as suggested by Perenco. The Applicant noted that the Civil Aviation Authority (CAA) has begun to develop increased weather limits for flying close to wind farms. This will eventually lead to a change in the acceptable cloud base to 700ft but the Applicant has applied the existing cloud base of 600 foot. Further the CAA is considering changing the visibility limits from 4000m to 5000m. Again, the Applicant confirmed that the 4000m limit is used in the Helicopter Access Study [APP-205] (the Study).</p> <p>B. The Applicant noted there are currently flights into Hornsea Project 1 and Hornsea Project 2 offshore substations, which are considered safe, are onto platforms which are 1200 m (0.65 Nm) from the nearest wind turbine. Considerably less than what Perenco are suggesting is a minimum safe distance. Similarly on the Blythe platform, there are three turbines within 1200m (0.65Nm) and again those flights are considered safe. Mitigation has been provided for those platforms in the way of training but otherwise flights can be safely made within the bounds of normal industry practices. The Applicant noted that if those were not safe distances then operators would not fly to those platforms.</p> <p>C. The Applicant confirmed a half mile stabilised approach is built into the Study's approach. In addition, actual access data was used to consider what potential impacts the development would have on</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>current operations of the Waveney Platform. Other relevant considerations in the Study was that Waveney is an unmanned installation which means flights are only done in good weather conditions due to the fact individuals cannot be left on the platform as there are no facilities so if weather begins to worsen then individuals are flown out whilst conditions are still good. The Study notes in 2020 there were 72 flights and 2 of those would be impact with the presence of the development. In 2021 there were 67 flights and 1 of those would be impacted.</p> <p>D. The Applicant noted there are ways to mitigate impacts to ensure a safe approach with turbines within 1nm such as training for flying to that specific platform and restrictions on flying in particular weather conditions. Therefore with a minimum distance of 1nm to the nearest turbines it is safe to fly to and from Waveney. Perenco's position that a minimum of 3nm is required questions the CAA's position and suggests that flying to all wind farms should be stopped as they are not safe.</p> <p>E. The Applicant also noted the Study takes a worst-case scenario approach to the assessment assuming the wind farm is a solid wall but in reality the placement of turbines and flying procedures will be in place which will reduce the overall impacts. Similar procedures were put into place on the Beatrice Offshore Wind Farm which had two platforms within 0.8nm of the nearest turbine. The Applicant noted the dialogue would continue with Perenco with regards to turbine placement to optimise turbine layout in order to reduce impacts. This is included in the Study.</p> <p>F. The Applicant noted the concerns of Perenco are commercial and not to do with safety.</p> <p>G. The Applicant confirmed it has had advanced sight of the CAA proposed rule changes which are not yet in the public domain. The Applicant confirmed with these new rules, the results of the Study</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>will be changed only slightly with a 2% additional loss of access period for the 2020 figures.</p> <p>H. The Applicant confirmed the proposed 1nm minimum distance has already sought to minimise disruption and economic loss for Perenco as required by NPS EN3. This also reflects current guidance which requires 1nm for a safe approach provided adequate training is given to pilots.</p> <p>I. The Applicant confirmed that currently prevailing wind direction has not been taken into account as the final turbine layout is not known. Turbine placement will take into account the most likely approach directions.</p> <p>J. The Applicant confirmed the types of helicopter that fly in the Southern North Sea is either the AW139 or the slightly smaller AW169.</p> <p>K. The Applicant noted that during decommissioning there will be a jack-up rig in place. Flights can be schedule to take place during the day time and as the Study shows, the impact on day flights is small. If works are planned for the correct time of the year there will be access to the jack-up rig for more than 12 hours per day.</p>
Civilian and Military Aviation – Radar impacts		
6.i	A discussion as to the progress being made with regards to any mitigation required for civil aviation safety purposes, such as the use of radar.	<p>A. The Applicant confirmed it is unlikely that there will be a SoCG with National Air Traffic Services (NATS). NATS has identified and defined a technical mitigation for this site and is currently engaged with the Applicant in respect of securing the necessary contractual agreement to secure the implementation of this mitigation. The Applicant remains positively engaged with the NATS and has no reason to believe that an agreement will not be forthcoming.</p> <p>B. The Applicant also confirmed that it hopes to submit an SoCG with Norwich Airport at Deadline 3 with agreement on all points. Norwich Airport take secondary feeds from NATS and the Applicant is confirming the safeguarding approach between NATS</p>

I.D.	Stakeholder Comment	Applicant Response
		and Norwich regarding this mitigation. [Post-hearing note: please see Draft Statement of Common Ground: Norwich Airport [document reference 16.23]].
6.ii	Whether there is mitigation being considered and the extent of any progress within this regarding the Ministry of Defence radar installations at RRH Neatishead and RRH Trimmingham.	<p>A. The Applicant confirmed it is committed to mitigating the radar head, whether located at Trimmingham or Neatishead. Discussions have taken place with the safeguarding team to discuss the mitigation proposal and the Applicant is currently awaiting further feedback.</p> <p>B. The Applicant confirmed it would continue discussions with DIO, including in relation to mitigation and provide an update at Deadline 3. [Post-hearing note: see response to Q2.4.1.3 of The Applicant's Responses to the Examining Authority's Second Written Questions [document reference 16.2]].</p>
Commercial Fishing		
7.i	NPS EN3 states that export cables which should be buried at a sufficient depth, amongst other forms of mitigation against the potential impact of electro-magnetic fields on fish. However, whilst some mitigation is proposed, there may be surface laid export cable within the Cromer Shoal Marine Conservation Zone for example. Given the NPS contents on this matter, is there still a concern that electro-magnetic fields could have significant impact to fish species?	<p>A. The Applicant clarified that there would be <i>no unprotected</i> surface laid cable within the MCZ Project-alone EMF effects are assessed in section 9.6.2.8 of ES Chapter 9 Fish and Shellfish Ecology [APP-095] and Section 12.6.2.5 of ES Chapter 12 Commercial Fisheries [APP-098]. Burial of offshore export cables reduces EMF, and, additionally, the development will use armoured cables for mechanical protection, which acts to reduce the EMFs produced. The use of single 3-core cables, compacting the circuit phases also reduces and localises the EMFs significantly.</p> <p>B. The Applicant confirmed that Appendix 28.1 (Sheringham and Dudgeon Extension Projects EMF Assessment [APP-279]) provides an independent project-specific EMF assessment which describes that the magnetic fields from all scenarios reduced to very low levels within a few metres from the circuits and are highly localised. For example, under a worst case cable circuit option, EMF at the cable surface could be up to 1653 micro tesla (μT) but assuming a cable burial depth of 1m below the seabed, this would produce a magnetic field of 27 μT at the surface of the seabed and</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>it's important to note that that these levels do not take account of shielding factors of the cable sheath which would further reduce the fields.</p> <p>C. Background measurements of the magnetic field in the southern North Sea are approximately 50μT (Tasker et al. 2010). Whilst there is potential that burial depths shallower than 1m would be achieved, which could result in EMF levels higher than 27μT, these levels would still be below those expected to result in significant physiological or behavioural impacts on fish and shellfish ecology receptors (particularly those which are commercially exploited) and along the majority of the cable routes EMF would be below ambient measurements.</p> <p>D. The Applicant confirmed that where external cable protection is installed to protect cables that are unable to be buried to an adequate depth, the barrier provided by this would be expected to attenuate EMF by a factor approximating that of a burial depth of 0.5m (since cable protection would be 0.5m high).</p> <p>E. The Applicant confirmed elasmobranchs (sharks, skates and rays) are the class of fish most sensitive to EMF effects (defined as medium sensitivity in ES Chapter 9 Fish and Shellfish Ecology [APP-095]). As described in ES Chapter 12 Commercial Fisheries [APP-098] elasmobranchs do not form a targeted fishery in this area and are not taken in significant quantities as retained or non-target species by the fleets in operation across the SEP and DEP offshore sites.</p> <p>F. The Applicant confirmed shellfish dominate fish landings from the regional study area and are considered to be of low sensitivity to EMF effects.</p> <p>G. The Applicant noted that evidence from post construction surveys of Round 1 wind farms (Kentish Flats, Lynn and Inner Dowsing, Burbo Bank and Barrow) show no significant effects to fish populations as a result of EMF. In addition, recent scientific</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>research investigated the effect of EMF exposure on brown crab, which is an important commercially caught species in the SEP and DEP commercial fisheries study area. Scott et al. (2021) tested EMF strengths of 250 μT, 500 μT and 1,000 μT and measured stress related parameters and behaviour responses of brown crab in laboratory conditions. Brown crab showed a clear attraction to EMF shelters exposed to strengths of 500 μT and above, with significant reduction in time spent roaming (i.e., they stayed still in the EMF exposed shelters). However, no differences were found between brown crab exposed to 250 μT and the control group (which were not exposed to EMF). Responses were recorded at EMF strengths of 500 μT, which is over 10 times the predicted level to be produced by the Projects assuming a cable buried at 1m.</p> <p>H. The Applicant does not, therefore, consider that EMF could have significant impact to fish species.</p>
7.ii	<p>An update as to discussions within the fishing industry as to potential compensation to mitigate against fishing restrictions, particularly for the potting fleets.</p>	<p>A. The Applicant confirmed the timing at present is too early to start discussing details of disturbance payments. As detailed in Outline Fisheries Coexistence Plan [APP-295], there are various steps which need to be followed. Payments are made based on the most up to date evidence at the time and after all other mitigation and management tools have been fully explored. It is not normal to enter into these discussions at this stage.</p> <p>B. The Applicant confirmed the Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Guidance will be followed. In terms of compensation payments, the Applicant has experience from existing wind farms and followed the same process in 2022 for survey operations. The FLOWW Guidance has been followed and the process in place has worked for surveys. It is not yet appropriate to progress discussions for the main construction and/or operational impacts.</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>C. The Applicant confirmed the recipients of payments are identified through existing lines of communications including the Project Fisheries Liaison Officer and following the FLOWW guidance.</p> <p>D. The Applicant confirmed it first considers mitigation for or management of impacts before consider the evidence for individual payments being made.</p> <p>E. The Applicant confirmed it was in dialogue with Jonas Seafood but that this entity falls outside of the FLOWW Guidance as it does not include compensation for entities which are not fishers, like Jonas Seafood. The FLOWW Guidance has been developed to mitigate impacts on the fishing industry so is the appropriate one to follow. The Applicant does not consider there is a special case for mitigation outside of that process.</p> <p>F. The Applicant confirmed it would discuss further with Jonas Seafood. [Post-hearing note: see response to Q2.7.2.2 of The Applicant's Responses to the Examining Authority's Second Written Questions [document reference 16.2]]</p> <p>G. The Applicant noted in relation to the oyster beds there is a possibility of growth in species richness and numbers. Further information was provided in response to agenda item 3.viii. These impacts would, however, be very localised and the Applicant does not anticipate any detectable change in the regional levels of fish or shellfish.</p>
Draft Development Consent Order		
8.i	Regarding the comments from the Marine Management Organisation for Deadline 2 [REP2-059], whether Part 2, Article 5 of the draft Development Consent Order (Benefit of Order) allows for the transfer or temporary lease of the benefits of the draft Marine Licences in a way which would be a significant departure from the current statutory framework set out by Marine and Coastal Access Act 2009? Also, whether there would be sufficient involvement in such circumstances by the Marine Management	A. The Applicant confirmed it has undertaken a further review of Article 5 and precedents in made Orders and draft DCOs and confirmed there is precedent for the drafting of Article 5 of the draft DCO in the Hornsea Project 3 and Hornsea Project 4 DCOs. The Applicant noted there is a slight difference with the drafting of the equivalent Article in Norfolk Vanguard and Norfolk Boreas and East

I.D.	Stakeholder Comment	Applicant Response
	<p>Organisation in considering a proposed transfer or lease of development order benefits?</p>	<p>Anglia One North and East Anglia Two which only provide for the transfer of the whole of the deemed marine licences and not part.</p> <p>B. The Applicant confirmed that it will be amending the draft so that only the whole of the deemed marine licences could be transferred, and not allow a transfer of part. The Applicant is also willing to amend the wording to only provide for the transfer of the benefit of the deemed marine licences and not a lease. [Post-hearing note: see draft DCO (Revision F) [document reference 3.1]</p> <p>C. With regards to whether Article 5 of the draft DCO should apply to the deemed marine licences, the Applicant confirmed that the position has been accepted by the Secretary of State many times that in the DCO context it is the Secretary of State who gives consent to the transfer of deemed marine licences. Where a transfer of a deemed marine licence is proposed, the Secretary of State would be looking at that in the context of all the provisions of the DCO and there are some Articles and Requirements relating to offshore matters within the DCO which overlap with the deemed marine licences. In that context, it is entirely appropriate that the Secretary of State has the ability to approve the transfer of a deemed marine licence.</p> <p>D. The Applicant confirmed that whilst it would further consider the MMO's comments, its position is that the drafting which includes deemed marine licences in Article 5 should remain. Any further amendment of Article 5 would be unprecedented and would require careful consideration.</p> <p>E. With regards to concerns raised by the MMO that a transfer of the benefit under Article 5 would create an additional step in the process as a variation would still need to be made by the MMO to the deemed marine licence(s), the Applicant highlighted that this is not an unusual situation. The Applicant confirmed that from experience the situation can arise post consent where variations are made to the DCO which also require a separate application to be made to the MMO to vary the deemed marine licence(s). For</p>

I.D.	Stakeholder Comment	Applicant Response
		<p>example, where there are Requirements within a DCO which have an offshore element and these are subsequently amended by the Secretary of State through a non-material change application, then this could also potentially require a variation to the deemed marine licence which would have to be separately submitted to the MMO. This is simply a consequence of having the deemed marine licences wrapped up into the DCO through this consenting process.</p> <p>F. The Applicant confirmed that with regards to the potential to include a collaboration condition within the deemed marine licences discussions are ongoing with the MMO around suitable draft wording. [Post-hearing note: see draft DCO (Revision F) [document reference 3.1].</p>