



THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES

2010

Sheringham Shoal Extension and Dudgeon Extension Offshore Wind Farms

Appendix L2 to the Natural England Deadline 3 Submission

Natural England's Response to The Examining Authority's Second Written Questions

For:

The construction and operation of the Sheringham Shoal Extension and Dudgeon Extension Offshore Wind Farms located approximately 16km and 27km respectively from the Norfolk Coast in the Southern North Sea.

Planning Inspectorate Reference: EN010109

2nd May 2023

Appendix L2 Natural England's Response and Comments to the Examining Authority's Second Written Questions

This document sets out Natural England's (NE's) responses to the Examining Authority's (ExA) second set of Written Questions and requests for information (WQ2) published on 12 April 2023. Natural England has only included responses on those questions directed to NE by the ExA or pertain to our remit.

Q2.3. Benthic ecology, Intertidal, Subtidal and Coastal effects			NE Response
Q2.3.1 Effects on Marine Life and Benthic Habitats			
Q2.3.1.4	Marine Management Organisation Natural England	<p>Electromagnetic Field impacts</p> <p>Even if cables were buried or covered with cable protection, would this be sufficient mitigation to prevent adverse impacts to benthic ecology by reason of electromagnetic fields or through sediment heating?</p>	<p>Based on current understanding, Natural England's standard advice is for cables to be sufficiently buried to reduce the impacts from electromagnetic fields or through sediment heating.</p> <p>However, Natural England advises further evidence is being gathered in relation to electromagnetic fields.</p> <p>However, this is unlikely to be available during this examination.</p>
Q2.3.1.6	Marine Management Organisation Natural England	<p>UXO in Benthic Communities</p> <p>The Applicants' document 'Assessment of Sea Bed Disturbance Impacts from Unexploded Ordnance Clearance' [APP-080] states, regarding the recovery of benthic communities following a detonation, that <i>"Recovery of these communities will take place rapidly with full recovery expected within two years in many areas based on the resilience of most biotopes. Recovery may take longer in some coarse and mixed sediment areas but based on DOW post-construction monitoring of</i></p>	<p>a) As advised in our Relevant Representation [RR-063] limited evidence is presented in [APP-080] to demonstrate that the structure and function of benthic habitats will fully recover from the detonation from UXO clearance. Thereby, further information is required in relation to the depth of any crater and the impacts this may have on benthic communities and their recovery.</p> <p>b) If further evidence can't be provided by the Applicant to demonstrate the impacts from</p>

Q2.3. Benthic ecology, Intertidal, Subtidal and Coastal effects			NE Response
		<p><i>cable installation activities, full recovery is expected in less than four years”.</i></p> <p>a) Do you agree with the conclusions on this matter? Explain with reasons.</p> <p>b) Provide details if you consider further evidence or mitigation is necessary?</p> <p>See related questions in the sections on Habitats and Ecology Offshore and the section on Historic Environment and Cultural Heritage.</p>	<p>UXO detonation are not significant; then Natural England would advise that UXO detonation does not occur in the most sensitive habitats where recovery is less likely to occur, such as mixed sediment, outcropping and sub-cropping chalk, peat and clay exposures. We would welcome inclusion of this mitigation requirement as part of the consenting phase.</p>
Q2.3.1.7	Applicant	<p>Response to Natural England Issue and Risk Log</p> <p>The NE issue and risk log [REP2-064] indicates that there are many points relating to the MCZ and Benthic Ecology that NE still has concerns about, identified as red and amber in the log. Applicant, respond specifically of each of the issues where disagreement remains in Tab E – Marine and Coastal Processes, Tab F – All Other Marine Matters (where it relates to Benthic Ecology) and Tab G – Cromer MCZ. The ExA is seeking a clear response to all points.</p>	<p>Natural England wishes to highlight that unless there are fundamental changes made within a document or plan, our risk and issues log is unlikely to change. This is for audit trail purposes post consent to ensure that our advice has been and will be taken into account and any commitments are secured for future reference.</p>
Q2.3.2 Impact on subtidal chalk features			
Q2.3.2.2	Natural England	<p>Sub-cropping chalk</p> <p>a) Explain in detail the concerns regarding potential impact to sub-cropping chalk and what value it contributes towards the MCZ conservation objectives?</p>	<p>a, b, and c) Chalk is a <u>rare</u> habitat which once impacted is unable to be restored. As sub-cropping chalk has the potential to become outcropping, Natural England advises the conservation objectives of both out-cropping and sub-cropping chalk are of equal value. If the Applicant can install cabling within the sediment veneer without impacting the sub-</p>

Q2.3. Benthic ecology, Intertidal, Subtidal and Coastal effects			NE Response
		<p>b) Explain why you consider this to be a feature of the MCZ, and how it would be affected where it is below the surface?</p> <p>c) Is there any way impacts to sub-cropping chalk can be mitigated or avoided, especially if it is covered with a layer of sediment?</p>	<p>cropping chalk and the use of cable protection, then Natural England's concerns in relation to impacts to chalk have been addressed. This commitment must be secured within the DCO. However, if cable protection is required this would remain a concern as the structure and function of any future chalk exposures are likely to be hindered.</p> <p>Further to the above, Natural England advises impacts to sub-cropping chalk can be further mitigated or avoided if the HDD exit pit is located within the deep infilled channel presented in [APP-182] and it can be demonstrated that the HDD operations will not physically impact the layer of sub-cropping chalk.</p>
Q2.3.2.3	Applicant	<p>Avoidance of sub-cropping chalk</p> <p>a) What would the contractor do if sub-cropping chalk is uncovered when ploughing/digging the trench for cable burial?</p> <p>b) What would be the consequence for the cable route?</p> <p>c) Could the impact to this uncovered sub-cropping chalk be avoided?</p> <p>d) Where in the application material is this set out?</p>	<p>Further to the ExA questions, Natural England would welcome a management plan for the scenario of the cable becoming exposed during the Operations and Maintenance phase.</p>
Q2.3.2.4	Natural England	<p>Cable protection or impacts to sub-cropping chalk</p> <p>Would it be preferable for the cable route to impact sub-cropping chalk with burial or alternatively to</p>	<p>Natural England advises that both impacting sub-cropping chalk and use of cable protection is likely to hinder the conservation objectives of the site and therefore MEEB would be required. However, as identified by the Applicant, there is a sediment</p>

Q2.3. Benthic ecology, Intertidal, Subtidal and Coastal effects			NE Response
		avoid such impact by use of cable protection in the MCZ?	veneer overlying the sub-cropping chalk. As advised in our response to Q2.3.2.2 above, if the cable is installed within the veneer above the sub-cropping chalk, without impacting the sub-cropping chalk and/or using cable protection then Natural England's concerns would be addressed.
Q2.3.4 Effects on the Marine Conservation Zone			
Q2.3.4.1	Natural England	<p>Cable Protection Assessment</p> <p>The Applicant in ISH6 [EV-084] [EV-088] explained the analysis that underpinned the calculation of the amount of cable protection they could be required within the MCZ. To retain the necessary flexibility, the Applicant does not consider it necessary to provide more accurate cable protection details until pre-construction.</p> <p>a) Provide your comments to the Applicant's position and explain why you consider further detail is required at this stage.</p> <p>b) What would be the implications of not having further detail of cable protection requirements until post-consent/ pre-construction stage?</p>	<p>a) Natural England will review the Applicants ISH submission at Deadline 3 on this point. However, our position can be one of we agree to disagree on the basis of our advice to point b of this question.</p> <p>b) Natural England advises a more precautionary stance needs to be taken due to the uncertainties of the impact of cable installation and the quantity of cable protection required in any one sediment type. With a high likelihood that cable protection will be predominantly within mixed sediment areas. Thus, this places a greater emphasis on the requirement for MEEB to offset any potential impacts. A ratio of greater than 1:1 would allow for uncertainties of scale.</p>
Q2.3.4.2	Applicant Natural England	<p>Impacts of Cable Protection</p> <p>NE's position [REP2-064] is that, even with cable protection removal at decommissioning stage, scientific doubt remains regarding the impact of the</p>	<p>a) Natural England advises this relates to all features, as the restore, extent and distribution targets for the site's conservation objectives are</p>

Q2.3. Benthic ecology, Intertidal, Subtidal and Coastal effects			NE Response
		<p>proposals (alone or in combination with other projects) on the conservation objectives of the MCZ and that site recovery would not be assured.</p> <p>a) NE, regarding the long-term habitat loss, does this point relate to the MCZ generally or can NE provide detail as to which specific features and/or conservation objectives of the MCZ would be most impacted by any cable protection?</p> <p>b) NE, given the cable corridor route is through the MCZ, is there any way to overcome your concerns or does this indicate the inevitable need for MEEB to offset potential adverse effects?</p> <p>c) If the MEEB was deemed to be required, what specific features and/ or conservation objectives would it specifically be compensating for?</p> <p>d) The Applicant can also respond to these questions.</p>	<p>unlikely to be achieved where there is cable protection.</p> <p>b) Unless it can be secured within the DCO that the cables can be installed without the requirement for physical external cable protection, Natural England advises significant impacts may occur and therefore there is a requirement for Measures of Equal Environmental Benefit.</p> <p>c) As per our advice in our Relevant Representation [RR-063], Natural England is content with the Applicant's proposal for oyster reef restoration as an equivalent measure of environmental benefit within the MCZ by providing the same reef-like ecological function as mixed sediment.</p> <p>d) N/A</p>
Q2.3.4.3	Natural England	<p>Cromer Shoals MCZ Conservation Advice update</p> <p>Update the ExA on the Conservation Advice package for the Cromer Shoal Chalk Beds MCZ, and the current timescales for issue.</p>	Natural England advises the MCZ Conservation Advice update will be available no later than Deadline 5 and a link will be provided at this stage.
Q2.3.4.5	Applicant Marine Management Organisation Natural England	<p>Historic oyster bed evidence</p> <p>The Applicant has stated [REP2-020] that there were oyster beds historically in this area, when providing support for their MEEB preference. Can you provide any evidence of historic oyster beds in this part of the southern North Sea?</p>	Natural England notes that the Applicant has provided supporting evidence in [REP2-020] which includes historic maps from 1883. Natural England is content with this supporting information provided and we have no further information to provide.

Q2.3. Benthic ecology, Intertidal, Subtidal and Coastal effects			NE Response
	Inshore Fishing Conservation Authority		
Q2.3.4.6	Natural England	<p>Need for the MEEB</p> <p>Considering the extent and size of the oyster bed proposed by the Applicant, would this be deemed necessary as compensation for impacts to the MCZ?</p>	Natural England is content that the size and extent of the native oyster bed proposed as MEEB is likely to be sufficient to have ecological functionality.
Q2.3.4.7	Applicant Natural England	<p>Necessary level of success for the MEEB</p> <p>a) Provide a view on what level of oyster bed success or partial success would be considered a suitable level of compensation?</p> <p>b) Also, would any such success need to be achieved within a particular timeframe?</p>	<p>a) Natural England advises a fully functioning oyster bed would be required for compensation to be considered as delivering and monitoring would be required to demonstrate this. We advise this monitoring plan condition is secured with the DCO Whilst we recognise there is uncertainties around the timeframe for achieving this a higher ratio will offset any debt whilst the Oyster bed is establishing.</p> <p>b) Therefore, Natural England advises the first phase (partial success), in terms of seeding and introduction of cultch is started prior to construction.</p>
Q2.3.4.8	Natural England Applicant	<p>Securing the MEEB if necessary</p> <p>a) If you consider the MEEB as necessary to offset adverse impacts to the MCZ how would this best be secured?</p> <p>b) Provide suitable wording for the dDCO.</p> <p>c) Applicant may comment.</p>	<p>a) Natural England notes that wording to secure MEEB was proposed within the In-Principle Cromer Shoal Chalk Bed Marine Conservation Zone Measures of Equivalent Environmental Benefit Plan [APP-083], our comments were provided on this wording within our relevant and written reps Annex A [RR-063]. We further note the wording has now been included in the Applicant's Proposed Without</p>

Q2.3. Benthic ecology, Intertidal, Subtidal and Coastal effects			NE Response
			<p>Prejudice DCO Drafting (Revision B) [REP2-011]. While our comments on the drafting remain, we consider the inclusion of the provisions within a schedule of the DCO as an appropriate format to secure MEEB.</p> <p>b) Natural England advises the dDCO wording should be provided by the Applicant.</p> <p>c) N/A</p>
Q2.3.4.9	Natural England	<p>Priority of MCZ qualifying features</p> <p>Can you provide, a list of the qualifying features of the MCZ and how they may rank in terms of priority, and particularly where sub-cropping/ subtidal chalk features may fit within this.</p>	<p>Natural England advises that it is not appropriate to assign priority to the MCZ features in terms of assessing impact, particularly when differentiating between sub-cropping and sub-tidal chalk. All designated Cromer MCZ site features afford equal protection. However, in relation to development activities we advise that habitats that where recovery is likely to be limited should be avoided.</p>
Q2.3.4.10	Natural England	<p>Mixed sediment areas</p> <p>The Applicant at ISH6 [EV-084] [EV-088] stated that it is unlikely that the cable route would avoid areas of mixed sediment. Is there any mitigation that could be suggested that would minimise any impact to these mixed sediment areas, both if there is to be any cable protection and also if the cable can be buried?</p>	<p>Please see NE response to above question Q2.3.4.1 relating to mixed sediment</p> <p>Unless it can be secured within the DCO that the cables can be installed without the requirement for physical external cable protection, Natural England advises significant impact may occur and therefore there is a requirement for Measures of Equal Environmental Benefit.</p>

Q2.5 Construction Effects Offshore			NE Response
Q2.5.1 Development Scenarios and Rochdale Envelope			
Q2.5.1.2	Natural England Marine Management Organisation Wildlife Trust	<p>Concurrent versus sequential scenarios</p> <p>Depending on the construction scenario, the offshore construction period may either be 2 years in the concurrent scenario or 4 years in the sequential scenario, with a potential maximum 2 years break in between [APP-314]. The concurrent scenario would result in a greater intensity of activity, but over a shorter time frame whereas the sequential scenario would seek a lesser intensity of activity but over a longer period of time. Whilst much of the focus for offshore ornithology, marine mammals and benthic ecology has been on the operational effects, comment on:</p> <p>a) From EIA and HRA perspectives, which construction scenario is considered better and would be preferred by the Applicant and why?</p> <p>b) Would the concurrent scenario, by limiting the amount of construction time within the Greater Wash SPA, be more beneficial for red-throated divers than the sequential scenario?</p> <p>c) Is there any evidence to suggest that the on and off effect of construction in the sequential scenario would have a dissuading effect that birds may not return to the location?</p>	<p>a) Natural England advises this depends on the receptor. From an ornithology perspective, some receptors would be less impacted by sequential compared to concurrent, and vice versa. From a marine mammal perspective, concurrent piling would impact the greatest area and so number of individuals at any one time (which is the basis of the Applicant's assessment of impact significance). Generally, there is limited understanding on how the different construction scenarios would affect the long-term trajectory of the marine mammal populations.</p> <p>b) It is difficult to draw firm conclusions regarding the preferability of the different scenarios with respect to Greater Wash SPA; whilst sequential could reduce the intensity of displacement in a given period, it would also prolong the time over which some displacement is manifested. Therefore, Natural England considers the most effective approach to mitigating for the impacts of construction on RTD SPA irrespective of the scenario being considered is to carry out construction works within or adjacent to the SPA outside the sensitive period of 1st November and 31st March inclusive.</p> <p>c) There is no clear evidence to suggest that an 'on-off' effect would be worse (or indeed better) than a scenario of four concurrent years. We recommend avoidance and mitigation measures are more likely to deliver effective reductions in impact.</p>

Q2.5 Construction Effects Offshore			NE Response
Q2.5.1.4	Applicant Natural England	<p>Statistical Differences between DEP-N and DEP as a whole</p> <p>The intention of the Applicant to retain optionality for DEP-N to be developed fully as opposed to being in conjunction with DEP-S, and the statistical basis underpinning this is stated [REP2-040].</p> <p>a) Is NE satisfied and in agreement with the justification?</p> <p>a) If not, in light of the statistical position put forward by the Applicant, explain why a minimal number of turbines should be built in DEP-N.</p> <p>b) Applicant and NE, if a commitment to reducing turbine numbers in DEP-N was required, where would this best be secured?</p>	The issues raised by the ExA are complex and require further consideration. NE will respond to this question at Deadline 4.

Q2.11 Draft Development Consent Order			NE Response
Q2.11.5 Requirements			
Q2.11.5.3	Applicant MMO Natural England	<p>Requirement 20</p> <p>In the interests of protecting sensitive seabird or marine mammal species and any activities they may do in the hours of darkness, should construction hours be imposed in respect of offshore works?</p>	Given the nature of the marine receptors, and the mitigation proposed and under discussion, Natural England does not propose a construction restriction during the hours of darkness.

Q2.11 Draft Development Consent Order			NE Response
Q2.11.6 Draft Deemed Marine Licences			
Q2.11.6.1	Applicant Marine Management Organisation	<p>Timeframes for determinations</p> <p>The MMO and Applicant, provide a joint statement setting out your positions and corresponding rationales for the appropriate lead-in period (4 months or 6 months) for review and decisions from the MMO on detailed submissions from the Applicant.</p>	Natural England has also raised concerns regarding the timelines for post construction documentation and notes our support for the 6 month lead-in period for most pre-construction conditions.

Q2.12 Habitats and Ecology Offshore			NE Response
Q2.12.1 Effects on Ornithology			
Q2.12.1.1	Natural England	<p>Rates and Assumptions Within the Models</p> <p>Following the Applicant's submission [REP2-036] can NE confirm that there is no disagreement with the Applicant regarding:</p> <ul style="list-style-type: none"> • Application of the Population Viability Analysis • Use of the Biologically Defined Minimum Population Scale • Avoidance rates (including use of macro avoidance) • Mortality rates • Counterfactuals • Determination of the 95% CI • The use, or not, of ranges <p>If there is disagreement, NE identify and expand on the precise issues and specify what re-modelling or reassurances are required.</p>	Natural England will respond to this question at Deadline 4, as some aspects relate to material anticipated to be submitted by the Applicant at Deadline 3.

Q2.12 Habitats and Ecology Offshore			NE Response
Q2.12.1.2	Natural England Applicant	<p>Highly Pathogenic Avian Influenza (HPAI)</p> <p>a) Applicant and NE, discuss and agree how the HPAI should be accounted for in the assessments including the relevant species, colonies, methodologies and data required.</p> <p>a) Provide details of the agreed approach and what further information is required in relation to assessing HPAI effects on the ES data set.</p> <p>b) Provide timetable for any additional evidence gathering and the timetable for submission of material in relation to the Examination Timetable.</p>	Natural England has worked with the Applicant to set out an appropriate scope of works and have provided datasets to facilitate the submission of a report at Deadline 4. Please note though that we do not expect the Applicant to revise any quantification of impact due to HPAI, instead we are asking that the HPAI impacts at a colony/species level are presented to contextualise the impact assessments.
Q2.12.1.4	Natural England Royal Society for the Protection of Birds	<p>Outline Project Environmental Management Plan</p> <p>The Applicant submits that mitigation for red-throated divers is contained in the OPEMP [REP1-017]. For this species, and in general, do you consider the OPEMP to be sufficiently detailed to give you assurances that appropriate mitigation will be implemented? Explain with reasons.</p>	Natural England anticipates that the Applicant is submitting updated OPEMP wording at Deadline 3, which we will respond to at Deadline 4. We highlight our previous advice that the use of the best practice protocol, whilst welcome, may not remove the need for seasonal restrictions.
Q2.12.1.5	Natural England	<p>Great Black-backed Gull</p> <p>The Applicant states that embedded mitigation to minimise collision is a 30m air gap between the sea level and the blade sweep of each turbine. This is the only mitigation measure being proposed. NE, do you consider this mitigation would adequately minimise the adverse impacts on this species and any others where you perceive the air gap to be of a benefit</p>	'NE highlights that SADEP is making a relatively small contribution to a cumulative impact on GBBG from North Sea windfarms. The proposed minimum air gap will have reduced the likely collision risk to GBBG compared to that of already-installed windfarms, though this is driven in part by the industry trend towards larger turbines which tend to have a greater air gap.'
Q2.12.1.8	Natural England Royal Society for the	<p>Responses to matters raised at Issue Specific Hearing 5</p>	NE notes the assumption made by the Applicant that because a RTD best practice protocol for vessel movements has prevented the Hornsea 4 project from having a contribution to in-combination effects, the same can be concluded for the

Q2.12 Habitats and Ecology Offshore			NE Response
	Protection of Birds	Please review the recording for ISH5 [EV-076 to EV-083] and provide any written responses.	vessel movements associated with SADEP. NE highlights that the two cases are quite different, and our conclusions on Hornsea 4 should not be extrapolated to SADEP. The Hornsea 4 ECR corridor lies outside (though adjacent to) the GW SPA, whereas that of SADEP lies within the SPA. Construction and O&M movements associated with Hornsea 4 are likely to use the Humber shipping channel, where RTD densities are likely to already be low, whereas SADEP vessel movements are not likely to follow major shipping lanes whilst transiting through the SPA and so could impact less disturbed parts of the SPA. Each case needs to be considered on its merits.
Q2.12.2 Effects on Aquatic Wildlife including Mammals, Fish and Shellfish			
Q2.12.2.1	Marine Management Organisation Natural England Norfolk Wildlife Trust	<p>Confidence in the Southern North Sea Special Area of Conservation Site Integrity Plan [APP-290]</p> <p>Do you have confidence that site integrity plans for relevant projects in the Southern North Sea SAC would provide sufficient control over the timing and nature of noisy activities to ensure that the relevant in-combination disturbance impact thresholds for marine mammals would not be breached? Explain with reasons.</p>	<p>Whilst we recognise the potential utility of SIPs (site integrity plans) to manage in-combination noise impacts, Natural England is not confident that the current approach to SIP implementation will prevent in-combination disturbance impact thresholds from being exceeded in the Southern North Sea SAC. The reasons are as follows:</p> <ul style="list-style-type: none"> • The final SIP may identify necessary mitigation measures at a time that final project design and financial investment decisions have already been made. As a result, mitigation options may no longer be achievable on financial or design grounds e.g. use of alternatives to impact piling; use of pin piles instead of monopiles; use of noise abatement systems; seasonal or other timing restrictions. • SIPs are submitted at different times relative to the season of the SNS SAC that they will impact. SIPs for offshore wind piling are currently submitted 6-9 months

Q2.12 Habitats and Ecology Offshore			NE Response
			<p>in advance of piling operations, which may be more than 9 months in advance of the relevant (impacted) season of the SNS SAC. Other industries and activities typically have shorter lead-in times for their licences, meaning their applications are submitted closer to or during the SNS SAC season they will impact. Offshore wind piling SIPs may therefore be signed off in advance of up-to-date information on other projects that may act in-combination. An inaccurate in-combination impact assessment may lead to mitigation not being identified at the time of the offshore wind piling SIP and risk of AEoI being identified too late.</p> <ul style="list-style-type: none"> • Furthermore, the number of offshore wind projects due to undertake piling in the SNS SAC from now to 2030 means that the in-combination disturbance impact thresholds are likely to be exceeded by offshore wind piling alone without further mitigation and management. Other industries or activities will only increase this risk, particularly given the aspirations for a range of developments in the southern North Sea (oil and gas, carbon capture and storage etc.). • The management measures implemented through SIPs thus far have been limited to co-ordination measures to ensure that activities on a given day do not exceed the daily thresholds. This approach does not robustly reduce the risk of exceeding the seasonal thresholds and indeed the seasonal threshold was almost exceeded in summer 2022. Accordingly Natural England has low confidence in appropriate measures being secured to ensure the seasonal threshold is not exceeded.

Q2.12 Habitats and Ecology Offshore			NE Response
			<ul style="list-style-type: none"> The SIP approach inevitably defers detailed Habitats Regulations Assessment questions to subsequent decisions. To function effectively, subsequent HRAs need to be conducted once the piling SIP is submitted. However, the MMO has recently signed off a SIP for OWF piling without carrying out an Appropriate Assessment, despite Natural England advising that one was required. as the application could have potential significant effects on the SNS SAC. <p>For these reasons, Natural England strongly advise that mitigation measures to reduce the risk of Adverse Effect on Integrity of the Southern North Sea SAC are committed to now in principle. The final SIP could then be used to identify mitigation measures that are no longer needed. Please see our Hornsea 4 relevant reps (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010098/EN010098-000847-Natural%20England.pdf) for a fuller exploration of this potential approach, as well as a more detailed appraisal of our concerns regarding the implementation of SIPs.</p>
Q2.12.2.4	Natural England Marine Management Organisation	<p>Underwater Noise Modelling</p> <p>Are you content, at this stage, that sufficient underwater noise modelling has been satisfactorily undertaken? Explain with reasons.</p>	Natural England is content that sufficient underwater noise modelling has been satisfactorily undertaken. We do not have any outstanding concerns on the underwater noise modelling specifically.
Q2.12.2.5	Marine Management Organisation	<p>PTS and TTS reasoning</p> <p>Review document APP-193 wherein the Applicant states to have provided justification for screening out PTS and TTS from the cumulative impact assessment. Provide</p>	Based on [APP-193], the Applicant has screened out PTS and screened in TTS to the Cumulative Impact Assessment. We consider that sufficient justification has been provided by the Applicant to screen out PTS.

Q2.12 Habitats and Ecology Offshore			NE Response
		comments if you believe the justification and reasoning to be robust or if there remains a disagreement and why.	
Q2.12.2.6	Natural England Marine Management Organisation	<p>Barrier, Disturbance and Displacement Effects</p> <p>Has the Applicant adequately mitigated for potential barrier, disturbance and displacement effects to marine mammals [APP-096, REP1-014]? If not, what would you expect or require from the Applicant to give reassurances on this matter?</p>	Natural England is awaiting an updated assessment of potential barrier, disturbance and displacement effects to marine mammals in the Marine Mammal Technical Note, due to be submitted at Deadline 3. Natural England defers responding to this question until after receipt of the Marine Mammal Technical Note.

Q2.13 Habitats and Ecology Onshore			NE Response
Q2.13.1 Effects on Protected and Priority Species			
Q2.13.1.1	Natural England	<p>Construction Sites and Compounds</p> <p>a) Does the Applicant's comment on responses to the ExA's first written questions [REP2-040, Q1.13.2.2] adequately identify the need for mitigation of effects from lighting and noise on bat species and their prey resulting from construction works in the vicinity of watercourses?</p> <p>b) Would the mitigation proposed reduce the potential effects on bat species and their prey to an acceptable level?</p>	<p>Natural England agrees the Applicant's comment on responses to the ExA's first written questions [REP2-040, Q1.13.2.2] adequately identifies the need for mitigation of effects from lighting and noise on bat species and their prey resulting from construction works in the vicinity of watercourses.</p> <p>Natural England advises the mitigation proposed should, in theory, reduce the potential effects on bat species to an acceptable level. However, this remains dependent upon the pre-construction survey findings.</p>
Q2.13.1.2	Natural England	<p>Weybourne Cliffs</p> <p>Does the Applicant's response [REP1-036, Q1.13.2.4] provide sufficient information to demonstrate that there are no effects predicted on the living conditions for sand martins in this location as a result of vibration related</p>	Natural England is content with the information provided by the Applicant that there are no effects predicted for sand martins in this location as a result of vibration related HDD activity.

Q2.13 Habitats and Ecology Onshore			NE Response
		HDD activity? If not, please expand with further reasoning.	
Q2.13.2 Effects on Ancient Woodland, Trees and Hedgerows			
Q2.13.2.1	Applicant	<p>Wensum Woods</p> <p>Provide a response to NE's suggestion [REP1-138] that Wensum Woodlands may become a SSSI due its Barbastelle bat colony and whether this impacts upon the Proposed Development in any way?</p>	<p>Natural England has advised that as protected species, bats, along with their breeding roosts and resting places, are afforded protection whether notified features of a designated site or not. It is acknowledged that a draft licensing decision has been issued for the projects in the form of a Letter of No Impediment. However, due to the 3 - 7 year gap between consent and construction of the DEP and SEP projects; we also suggest that the Applicant considers adopting appropriate mitigation measures at the consenting phase in recognition that the area to the west of Norwich known as Wensum Woodlands is being considered for SSSI notification for bats, including barbastelles. Whilst it is recognised under Natural England's designations programme that inclusion is not a commitment to designate, and therefore areas on this list are not afforded the same legal protection as those notified as a SSSI under the Wildlife and Countryside Act 1981 (as amended); we would encourage the adoption of further best practice due to the potential that this area could be a notified SSSI in the future. This is likely to future proof the project by avoiding any unnecessary disruption/delay to the projects in the event that the Wensum Woods area becomes notified.</p>

Q2.14 Habitats Regulation Assessment			NE response
Q2.14.1 Effect of the Proposed Development on its own and In-combination with Other Plans and Projects			
Q2.14.1.1	Applicant	AEoI Conclusions	Natural England has worked with Equinor to produce a joint position table and is expected to be submitted by the

Q2.14 Habitats Regulation Assessment			NE response
	Natural England	<p>The Applicant assessed a number of designated sites and features within their HRA screening and assessment processes [APP-059] on a project alone and in-combination basis. The Applicant concluded that the project, alone, would not have an AEoI on any feature of any designated site. The Applicant concluded that for the project, in-combination with other plans and projects, an AEoI could be ruled out on all features of all designated sites except for sandwich tern and kittiwake.</p> <p>The ExA require confirmation that this is a common and shared position with NE. Applicant and NE submit a jointly produced table (see Annex A), listing all relevant sites and all features from the HRA process [APP-059] and submit it to the Examination either as a standalone document or as an appendix to the SoCG. Refer to the extract from the East Anglia One North Recommendation Report and provide similar colour coding.</p>	Applicant. This summarises where we are able to reach a joint position at Deadline 3 and indicates where this is yet to be confirmed, with an outline of outstanding information required to achieve that. It is the intention this will continue to be updated at subsequent deadlines until our joint positions are completed.
Q2.14.1.2	Natural England	<p>Updated CRM Assessments</p> <p>Whilst a full review of the Applicant's CRM Updates [REP1-056] is to be provided at D3, for the purpose of this question, please provide a short response confirming whether or not NE still consider compensatory measures are required for guillemot and razorbill species.</p>	Guillemot and razorbill are not species thought to be sensitive to collision, given they generally fly close to the sea surface. Concerns regarding these species relate to displacement from the OWF array and adjacent waters due to the ongoing presence of the turbines and associated activities. NE considers that compensatory measures are required due to the SADEP contributing to in-combination adverse effects on the FFC SPA populations of both species.
Q2.14.1.3	Applicant	<p>Maximum Design Scenarios</p> <p>Are any further design, alternatives or mitigation options under consideration or not yet fully explored to</p>	Natural England highlight that a commitment to not installing turbines within 10km of the Greater Wash SPA would significantly reduce the impacts on RTD and the contribution of the project to in-combination effects. Furthermore, there

Q2.14 Habitats Regulation Assessment			NE response
		reduce potential Adverse Effects on Integrity of European sites? Are there any instances where uncertainties (for example, the absence of completed ground conditions or other engineering assessment work) mean that the Maximum Design Scenario may change going forward, with subsequent implications for the information supporting the HRA?	are mitigation options relating to vessel movements that could also reduce the impacts of the project on SPA RTD. We would be pleased to discuss options with the Applicant.
Q2.14.1.4	Natural England	<p>Project-led compensation</p> <p>The Applicant described at ISH1 [EV-011, EV-015] a process of retaining optionality with regards as to whether project-led compensation would be pursued in the future, or a contribution being made to the Marine Recovery Fund.</p> <p>a) Do you think this appropriate?</p> <p>b) What in your view are the implications for the HRA conclusions and derogations tests if the means of compensation remains undetermined at the close of the Examination?</p>	<p>a) Whilst there are many uncertainties regarding the MRF, Defra's ambition is to have a mechanism in place for developer contributions next year. This being the case, we do not consider it inappropriate for the developer to seek this optionality. However we do consider it necessary for any proposed 'switch' to the MRF or strategic compensation to be subject to appropriate control. We advise that this control should be in the form of seeking approval from SoS following consultation with Natural England and Defra.</p> <p>Nevertheless, the availability of this optionality should not be viewed as 'lowering the bar' in terms of the required level of detail and security for the project's proposed compensatory measures during the consenting phase.</p> <p>c) In the event of compensatory measures remaining 'undetermined' at the close of the Examination, it seems highly likely that the SoS would not find themselves able to conclude that compensatory measures could be secured.</p> <p>As regard specific implications for the HRA conclusions and derogations tests, we note that the requirement to secure compensatory measures is subsequent to these steps. Strictly speaking, the availability or otherwise of compensatory measures should not influence the competent authority's</p>

Q2.14 Habitats Regulation Assessment			NE response
			conclusions on adverse effects, or the extent to which the derogations regarding no alternative solutions or IROPI are satisfied. But in instances where there were elements of uncertainty regarding the effectiveness of a compensatory measure, or where elements of the scheme would only be determined post-consent, it would necessitate provision at a higher impact:benefit ratio to take the increased level of risk into account.
Q2.14.1.5	Applicant Natural England Royal Society for the Protection of Birds Norfolk Wildlife Trust Marine Management Organisation	Timetable for Delivery The Applicant's compensatory measures documents [APP-069, APP-072] set out the time periods (breeding seasons etc) for implementation of the compensatory measures before the Proposed Development becomes operational. Are these time periods sufficient in length and sufficiently secured in the dDCO?	<p>Whilst the Applicant plans to install the kittiwake ANS four breeding seasons in advance of the turbines turning, in terms of a DCO commitment this is only for three years. Natural England highlights that other DCO schedules for kittiwake compensation have secured implementation four breeding seasons in advance. We see no reason why SADEP should be treated differently.</p> <p>With regards to sandwich tern, the Applicant aims to allow 2 full breeding seasons of operation prior to first power. Sandwich tern recruit into the breeding population in their third year, and therefore the measure could in theory be delivering adults into the wider breeding population at the point of impact. However, colonisation of habitat is highly uncertain in terms of time taken, and uptake/growth. With a 2-year lead in it is highly likely that the measure will accrue a mortality debt in the formative years. Calculations relating to the scale of the measure required to compensate a specified impact should be stress tested against mortality debt scenarios, especially when further adaptive management options are limited.</p> <p>With regards to guillemot/razorbill compensation, auks take longer to reach breeding age (typically guillemot breed at 6 years and razorbill at 5 years), which has significant implications for compensatory measures that function by</p>

Q2.14 Habitats Regulation Assessment			NE response
			producing additional recruits into the population. These would need to be carefully explored and mortality debt mitigated for. However, at this stage the Applicant's proposals are insufficiently developed for NE to place any weight on their effectiveness, irrespective of when they are implemented.
Q2.14.1.11	Applicant Natural England	<p>Seabird Assemblage and Highly Pathogenic Avian Influenza</p> <p>With regards to HPAI, does this effect the robustness of the Applicant's assessment and conclusions, particularly with regard to whether the bird species can continue to be considered in favourable conservation status [REP2-036]?</p>	Please see our response to Q2.12.1.2.
Q2.14.1.12	Natural England Royal Society for the Protection of Birds	<p>Seabird Assemblage, HPAI and Applicant Assertions</p> <p>During ISH5 [EV-076] [EV-080], the Applicant stated that if HPAI had reduced the numbers of birds within the assemblage, there would logically be less birds to collide with the turbines and, as such, the collision risk would be lower, and the effects of any collision would be lesser upon the population. It was asserted NE agreed with that position. Do NE and the RSPB concur with the Applicant's view?</p>	<p>We highlight the following sections of our HPAI interim advice note [Appendix B2 – [RR-063]:</p> <p><i>'6. Broadly, we expect any changes in abundance at colonies to be reflected proportionately in the at sea data. That is, it is reasonable to assume distribution patterns will remain broadly similar, but densities to change accordingly.</i></p> <p><i>7. This assumption means that the scale of impact is likely to remain in proportion to the size of the colony. For instance, if a population were reduced by 10% then we would expect 10% fewer collisions. However, where a population has been significantly depleted, it should be considered whether an equivalent level of impact would have greater implications for the newly reduced population.'</i> [our emphasis].</p> <p>In other words, in some instances there may be a difference between a reduced number of collisions and a reduction in the</p>

Q2.14 Habitats Regulation Assessment			NE response
			significance of the impact at the colony. NE assesses the impact (of collision caused mortality) at the colony in terms of how vulnerable a population is to additional mortality. If a population has been made extremely vulnerable (due to extensive HPAI mortality) then an AEOI conclusion would be reached with a much lower additional impact than compared to a healthy or increasing population.
Q2.14.1.13	Natural England Royal Society for the Protection of Birds	Seabird Assemblage Methodology Has the Applicant demonstrated, to your satisfaction, that the diversity and abundance elements of the FFC SPA seabird assemblage would remain intact? Explain with reasons.	Natural England's advice at the close of the Hornsea 4 Examination was that adverse effects on the seabird assemblage at FFC SPA could not be ruled out either alone or in-combination. This was driven by impacts on the abundance attribute, particularly with respect to impacts on guillemot and uncertainty regarding the consequences of Hornsea 4 for marine processes. For SADEP, we can rule out adverse effects alone on the seabird assemblage, however given the above advice it is difficult to discount the potential for AEOI in-combination. However, should this be the case, it would not require additional compensation beyond that required for individual qualifying features.
Q2.14.1.14	Applicant Natural England RSPB	Loch Ryan and the Scottish Authorities Has any meaningful consultation with the Scottish Authorities and Nature Scot taken place with regards the compensation proposals for Loch Ryan [REP1-036]? Explain with reasons.	Natural England defer to the Applicant to update on this matter.
Q2.14.1.15	Natural England	Need for compensation on Guillemot The Applicant states [REP1-057, Page 13,]: <i>"Natural England agrees with the conclusion that there is no connectivity between breeding adult guillemot population of the FFC SPA and the Projects. Therefore, no update to the assessment for the</i>	NE's position remains that an AEOI on FFC SPA guillemot cannot be ruled out in-combination with other OWF projects. There is predicted connectivity between FFC SPA and SADEP outside the breeding season, when guillemot disperse from their colonies into the wider North Sea and beyond. For

Q2.14 Habitats Regulation Assessment			NE response
		<i>qualifying feature is required. Natural England apologises for this error.</i> Does this change NE's position on whether compensation is required for the guillemot species?	SADEP, this results in predicted mortality levels of 2 – 47 guillemot per annum.
Q2.14.1.19	Applicant Natural England National Trust	<p>Additionality and Differentially</p> <p>It is reported that, despite current management and intervention measures, the sandwich tern population at the Farne Islands is in steep decline. The Applicant's compensation proposals include the provision of nest boxes and shelters.</p> <p>Are these measures already being used on the Farne Islands and, if so, would the Applicant's proposal just be perpetuating an already failing measure?</p>	National Trust are best placed to advise on current management measures in place on the Farne Islands. Our understanding is that nest boxes/shelters have been used previously. Please see comment 15 on p60 of our Relevant Representations [RR-063] for more detail.
Q2.14.1.20	Natural England	<p>Marine Mammals</p> <p>Confirm whether, in light of the MMMP and the SIP, an AEol can be ruled out for all marine mammal species assessed in the HRA [APP-059].</p>	<p>Natural England's position is that it cannot agree with the conclusion of no AEol for in-combination disturbance impacts to the SNS SAC due to lack of confidence in the SIP process. This was the position at the end of Examination for Hornsea 4 [REP8-030] Please see our response to Hornsea 4, and Q2.12.2.1, for further information on our concerns with the SIP process.</p> <p>For other marine mammal species assessed in the HRA, Natural England defer responding to this question until after the review of the Marine Mammal Technical Note anticipated to be submitted by the Applicant at Deadline 3.</p>

Q2.14 Habitats Regulation Assessment			NE response
Q2.14.1.21	Natural England	<p>Onshore Habitats Regulations Assessment</p> <p>With regards to the onshore elements of the Applicant's HRA:</p> <p>a) Are you content with the assessment, methodology and conclusions?</p> <p>b) Are you content that all relevant European sites and all relevant features of those sites have been screened and considered by the Applicant?</p> <p>c) Are you content with the conclusions that an AEol can be ruled out in respect of all affected onshore environmental assets?</p> <p>d) Are there any unresolved matters that require urgent attention during the Examination in order to secure or otherwise reassure that AEol would not occur?</p>	<p>a) Natural England advises that following the submission of the Applicant's Updated Onshore RIAA technical note submitted at Deadline 2 [REP2-050] we are content with the HRA assessment, methodology and conclusions.</p> <p>b) Natural England is content the Applicant's Updated Onshore RIAA technical note now screens all relevant features for the River Wensum SAC including White-clawed crayfish, Brook lamprey and Bullhead, which were previously omitted.</p> <p>c) Natural England advises the following in relation to terrestrial designated sites</p> <p><u>River Wensum SAC</u>: provided mitigation is agreed and secured in the DCO and Outline Code of Construction Practice in the form of sediment management, pollution prevention and bentonite breakout plans. Then <u>we are likely</u> to reach agreement with the Applicant's conclusion that an AEol can be ruled out in respect of all affected onshore environmental assets.</p> <p><u>North Norfolk Coast SPA</u>: - on the proviso that a pink-footed geese mitigation plan is agreed and secured in the DCO, then <u>we are likely</u> to reach agreement with the Applicant's conclusion that an AEol can be ruled out in respect of all affected onshore environmental assets. Please see Natural England's responses at Deadline 3 Appendix 14 in relation to these matters</p> <p>d) As above, please see Natural England's advice in Appendix 14 in relation to the requirements of the Bentonite Break out Management plan. Please see below in terms of our engagement with the Applicant in</p>

Q2.14 Habitats Regulation Assessment			NE response
			<p>agreeing a Pink-Footed Geese Mitigation Management Plan.</p> <p>We are not aware of any impediment to resolving our outstanding onshore concerns during examination and once the above outline mitigation plans are provided and agreed we will update our risks and issues log accordingly.</p>
Q2.14.1.22	Applicant Natural England	<p>Pink-footed Geese</p> <p>The ExA note the best practice note on PFG [REP1-137] and the Applicant's commitment to develop an approach to PFG with NE [REP2-017]. For the HRA, can an AEol be ruled out at this stage?</p>	<p>Please see Natural England's response to Question Q2.14.1.21 above. Natural England is currently working with the Applicant to agree appropriate mitigation for pink-footed geese.</p>
Q2.14.1.23	Natural England	<p>Pink-footed Geese mitigation</p> <p>You highlight [REP2-064, point A25] the need for a condition for strategic mitigation to be secured. Provide further details.</p>	<p>At Deadline 1 Natural England submitted best practice advice on North Norfolk Coast SPA Pink Footed Geese [REP1-137]. As noted above we are currently working with the Applicant to agree appropriate mitigation for pink-footed geese. However, for Natural England to agree with any proposed mitigation we will also need to have certainty that this mitigation will be put into effect. This will require a requirement within the DCO or a condition within the deemed marine licence schedules to ensure enforcement of the required mitigation. Natural England notes that under the Planning Act process it is for the Applicant to draft the DCO and the conditions within. However, we are willing to engage with the Applicant on a condition, which could be submitted on a without prejudice basis should we fail to reach agreement on the need for such mitigation.</p>

Q2.17 Landscape and Visual Effects			NE response
Q2.17.1 Effects on designated and historic landscapes, including Areas of Outstanding Natural Beauty and Ancient Woodlands			
Q2.17.2.1	The Countryside Charity Norfolk North Norfolk District Council Norfolk Wildlife Trust Norfolk Coast Partnership	Areas of Outstanding Natural Beauty Do you consider that the Proposed Development prejudices the special qualities of the affected AONB and, if so, state which ones and why conflict is considered to arise?	Natural England's advice provided within our RR/WR [RR-063] still stands.
Q2.17.3 Effectiveness of mitigation proposals			
Q2.17.3.1	Local Authorities Natural England National Trust Woodland Trust	Removal of Existing Trees and Hedgerows, Replanting and Management a) Are you satisfied that the Applicant's proposals for the removal, replanting and management of existing trees and hedgerows have been set out to a sufficient level of detail at this stage [REP1-036, Q1.17.1.11]? b) In particular, is the Applicant's approach to managing the likelihood of damage occurring to existing trees and hedgerows during the construction period sufficiently clear [REP1-036, Q1.17.1.11]?	Natural England draws the ExA attention to our advice relating to the importance of maintaining supporting habitats such as trees and hedgerows for protected species we will therefore review any amendments made to named plans which relate to this, but have no further response to this question at this time.
Q2.17.3.4	Local Authorities	Tree and Hedgerow Replacement	See response to the above question.

Q2.17 Landscape and Visual Effects			NE response
	Natural England National Trust Woodland Trust Interested Parties	Set out whether the Applicant's approach [APP-303] and as further clarified in its response to WQ1 [REP1-036, Q1.17.1.12] is a reasonable one at this stage of the Examination.	