NORTH FALLS

Offshore Wind Farm

Five Estuaries' Applicant's Comments on Natural England's Deadline 4 Submissions - Revision A

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FIVE ESTUARIES
OFFSHORE WIND FARM

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10.34.1 APPLICANT'S COMMENTS ON NATURAL ENGLAND'S DEADLINE 4 SUBMISSIONS

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In preparation of this document Five Estuaries Wind Farm Ltd has made reasonable efforts to ensure that the content is accurate, up to date and complete for purpose.

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CONTENTS

DEFINITION OF ACRONYMS

Term	Definition
ANS	Artificial Nesting Structure
AEO	Alde Ore Estuary
AON	Apparently Occupied Nests
AONB	Area of Natural Beauty
CBRA	Cable Burial Risk Assessment
CNP	Critical National Priority
CRM	Collision Risk Model
DAS	Digital Aerial Survey
DBS	Dogger Bank South Offshore Wind Farm
DCO	Development Consent Order
DEFRA	Department of Environment Food and Rural Affairs
DESNZ	Department of Energy Security and Net Zero
ECC	Essex County Council
EIA	Environmental Impact Assessment
ES	Environmental Statement
FFC	Flamborough and Filey Coast
HRA	Habitats Regulations Assessment
IHLS	International Herring Larval Survey
IMP	Implementation and Monitoring Plan
JNCC	Joint Nature Conservation Committee
KIMP	Kittiwake Implementation and Monitoring Plan
LAT	Lowest Astronomical Tide

Term	Definition
LBBG	Lesser Black Backed Gull
LIMP	Lesser Black Backed Gull Implementation and Monitoring Plan
LPA	Local Planning Authority
LSE	Likely Significant Effect
MDS	Maximum Design Scenario
MWHS	Mean High Water Springs
MLS	Margate and Long Sands
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MOD	Ministry of Defence
NAF	Nocturnal Activity Factor
NAS	Noise Abatement System
NE	Natural England
NERC	Natural Environment Research Council
NPS	National Policy Statement
NSN	National Site Network
OTB	Outer Trials Bank
OTE	Outer Thames Estuary
OWF	Offshore Wind Farm
PADS	Principal Area of Disagreement
PCS	Proposed Compensation Site
PEIR	Preliminary Environmental Information Report
RIAA	Report to Inform Appropriate Assessment
RR	Relevant Representation
SAC	Special Area of Conservation

Term	Definition
SCHAONB	Suffolk Coast and Heaths Area of Outstanding Natural Beauty
SHC	Suffolk Heritage Coast
SIP	Site Integrity Plan
SLVIA	Seascape, Landscape and Visual Impact Assessment
SNS	Southern North Sea
SPA	Special Protected Area
SSC	Suspended Sediment Concentration
VE	Five Estuaries Offshore Wind Farm
WCS	Worst Case Scenario
WFD	Water Framework Directive
WTG	Wind Turbine Generator

1. INTRODUCTION

1.1.1 As per the Rule 8 Letter [PD-009] published by the Examining Authority on 25 September 2024, comments on any submissions received at Deadline 4 are to be included with submissions for Deadline 5.

1.1.2 This document has been prepared to set out the response of Five Estuaries Offshore Wind Farm Limited ('the Applicant') to submissions made by Natural England at Deadline 4 with regards to the Five Estuaries Offshore Wind Farm Project ('the Project'), application reference: EN010115.

1.1.3 The Applicant has only responded to points where it believes it would be helpful to the ExA. Rather than copying across whole documents, the Applicant has presented the relevant text or a summary of the points made in the Deadline 4 submissions and then responded to them (while being mindful of the context of those excerpts and being careful not to lose context in summaries).

1.1.4 The absence of commentary on a submission should not be taken as implication that the Applicant supports its content.

2. NATURAL ENGLAND'S COVER LETTER [REP4-057]

Ref	Summary of Deadline 4 submission OR Excerpt of Deadline 4 submission	Applicant's comments
NE01	**3.1.1 Marine Mammals – Porpoise Density** Natural England response: We welcome the response from the Applicant and the use of the site-specific harbour porpoise density to inform the quantitative assessment and conclusions therein. Natural England now considers this issue to be resolved.	This is noted by the Applicant.
NE02	**Habitats Regulations Assessment Site Integrity Matrices – Revision B (Tracked)** 5.1 Marine Mammals The text for all marine mammal matrices has been updated, but there is no material change to the outcome of the Applicant's assessment i.e. they concluded no adverse effect on integrity (AEoI) for all of them. Therefore, our original advice stands that we cannot agree no AEoI without a full commitment to Noise Abatement in their Marine Mammal Mitigation Protocol and Site Integrity Plan.	The Applicant maintains their assessment conclusion of no AEoI, which is concluded without the need for noise abatement systems (NAS). The finalisation of the Site Integrity Plan and Marine Mammal Mitigation Protocol in the post-consent stage provides a mechanism to revisit the assessments, where the potential need for further mitigation to avoid AEoI (such as NAS) can be assessed. The Applicant has included the potential use of noise abatement systems from the Project design, should they be required, in their outline plans. A discussion of these measures is included within 9.14.1 Outline MMMP – Piling – Revision C [REP4-023] and 9.15 Outline Southern North Sea Special Area of Conservation Site Integrity Plan [APP-246].
NE03	5.2.1 Matrix 9 Outer Thames Estuary Special Protection Area (OTE SPA) The evidence supporting conclusions state that there will be no work in the OTE SPA between 01 November-31 March. However, it does not specify the spatial limits of this restriction relative to the SPA. We reiterate the advice provided in our Relevant Representations [PD2- 005], that we would support the Applicant's conclusions if no work on the offshore Export Cable Corridor (ECC) is undertaken within the SPA + 2km buffer during the seasonal restriction period. Please also refer to our detailed advice in Appendix D4 to this Deadline 4 submission.	The Applicant would like to clarify that the commitment made relates to cable laying only and does not preclude other works. Requiring no works during 5 months of the year for the SPA +2km in an area already heavily disturbed due to existing high levels of shipping is not a reasonable position. The Applicant in response to Natural England's relevant representations (see Response C9 in 10.4.1 Applicant's Response to Natural England's Relevant Representations [REP1-051]) set out the rationale for this and provided data demonstrating the existing level of shipping, concluding that project vessels would not significantly change the area of disturbance (and therefore the distribution) of RTD in the OTE SPA. Further this data demonstrates that a 2km buffer is over precautionary in this area, with RTD densities in high levels adjacent to existing shipping lanes.
NE04	5.2.2 Matrix 10/11 Alde-Ore Estuary Special Protection Area/Ramsar site The evidence supporting conclusions quote the estimated impacts on lesser black-backed gull (LBBG) solely using the Applicant's approach and not those advised by Natural England. We advise that values for the project alone and in-combination impacts on LBBG estimated using Natural England's advised approach should be presented alongside those of the Applicant.	Matrix 10 and 11 within the HRA Integrity Matrices [APP-041] do not present the methodological approaches to the assessment, or any values considered as part of the assessments. These matrices simply state a "Potential for AEoI on lesser black-backed gull, in-combination for collision risk" for the Alde-Ore Estuary SPA, which applies equally to both Natural England and the Applicant's approaches. On this basis, no amendments to the information presented within the matrices have been made.
NE05	5.3 Onshore Ecology Orfordness-Shingle Street Special Area of Conservation (SAC) is not considered in the matrices (which includes shingle and coastal lagoon habitats as features). It does not appear to have been included in previous iterations or the screening process. Vegetated shingle impacts are not considered in the matrix. Therefore, we advise that this SAC should be included in the matrix and screened in. Please also refer to Appendix J4 to this Deadline 4 submission.	The Applicant can confirm that the Orfordness-Shingle Street SAC is considered within the HRA assessments for Five Estuaries (hereafter VE). The site is presented within the HRA Screening Report [APP-042] and in Matrix 6 of the HRA Screening Matrices [AP-043]. As presented in those documents, the site has been screened out from further consideration based on the distance to VE. On this basis, no amendments have been made. However, it should be noted that the Orfordness-Shingle Street SAC is also considered within the separate assessment considered for the Lesser Black-Backed gull compensatory measures associated with the Site [APP-045].
NE06	**RIAA – Revision B Tracked** **6.1 Benthic Ecology**	The Applicant notes that an assessment of SPA designations with regards to the benthic habitats acting as supporting habitats for bird features has been included in 6.2.5 Benthic and Intertidal Ecology [APP-074], Section 5.10 and 5.11. Additionally, the Outer Thames Estuary (OTE) SPA (as specifically noted in Natural England's Deadline 4 Risk and Issues

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	Natural England notes that no updates have been made to the RIAA in relation to pressures/impacts on SPA feature supporting habitat. Therefore, our concerns remain unchanged as detailed in our Deadline 4 Risk and Issues Log. Natural England notes that the Applicant refers to Marine Evidence-based Sensitivity Assessment ('MarESA') benchmarks. However, MarESA benchmarks refer to single discrete events, not repeated and/or ongoing events over the lifetime of the project. Therefore, there remains a requirement on the Applicant to clarify whether the impacts being assessed against the benchmarks are single discrete events or otherwise and further justify their assessment conclusions/positions.	Log) is assessed within Section 11.4, paragraphs 11.4.67 to 11.4.70 (inclusive) of the 5.4 Report to Inform Appropriate Assessment (RIAA) - Revision B [REP1-016]. This assessment includes discussion of the impacts to supporting habitats including habitat loss and the effects on prey species. The assessment concluded that there would be no significant long-term impact of habitat loss or impacts to prey species on the red-throated diver population of the Outer Thames Estuary SPA. Not all MarESA benchmarks refer to a single discrete event. Of those used within the assessment, Abrasion/disturbance is not limited to a single discrete event, and changes in SSC relate to a change in one rank on the WFD (Water Framework Directive) scale e.g. from clear to intermediate for one year[1]. The MarESA benchmarks for smothering (light smothering and heave smothering) do relate to a single, discrete events. The Maximum Design Scenario (MDS) for Impact 2: Temporary increase in suspended sediment and sediment deposition (Table 5.12 within Benthic and Intertidal Ecology [APP-074]) counts each volume of sediment potentially impacted separately, as separate impacts (discrete events). For example, 'sandwave clearance cable for cable installation' and 'cable trenching' both provide the maximum worse case volume for each activity. There is the likelihood that some of these activities that cause deposition (especially in the example provided), that these activities occur in the same area. As such, the assessment has considered these discrete activities (events) over a larger area, due to the double counting of area /volumes that are potentially impacted. It is not possible to determine at this stage if, for example, there is very little time between sandwave clearance and cable trenching, where-by there is unlikely time for any recovery between activities, where these two activities combined may be considered one discrete event, or if there will be a larger time between each activity, where each activity is then a discrete event in its own right. As such, by double counting volumes of potential impact, an appropriate assessment can be made which make use of the MarESA benchmarks. The applicant is confident that the assessment is appropriate and robust and that no amendments are required for the assessment.
NE07	**9.32 Offshore In Principle Monitoring Plan – Revision B (Tracked).** Natural England has reviewed the Offshore In Principle Monitoring Plan – Revision B (Tracked) and have provided our detailed advice in Appendix O4 to this Deadline 4 submission. Natural England would like to highlight our comments on the potential requirement for monitoring of migratory bats, as per our response to ExA Q2 Appendix M4 and our comments on the In Principle Monitoring Plan Appendix N4. We would recommend that the draft DCO will need to be updated to secure this monitoring and the potential for additional mitigation should the monitoring highlight a significant impact.	Please see the Applicant's response to NE80 where further detail is provided with regards our position on migratory bats.
NE08	**9.13 Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan – Revision B (Tracked)** Natural England has reviewed the updated Margate and Long Sands Special Area of Conservation (MLS SAC) Benthic Mitigation Plan – Revision B (Tracked) and, unfortunately, it has not allayed our concerns in relation to benthic impacts to MLS SAC and NERC Priority	Please see the Applicant's response to Appendix E4, where further detail is provided with regard the Applicant's position on MLS SAC. (Please note this is Appendix E4 and not F4).

[1] https://www.marlin.ac.uk/sensitivity/SNCB-benchmarks

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	Habitats. For full details of our advice, please see Appendix F4 to this Deadline 4 submission.	
NE09	**10.24 Applicant's Summaries of Oral Submissions – ISH3, CAH2, ISH4** 9.1 Section 1.6 (f) Ornithology - HRA Natural England notes that the Applicant has provided an updated RIAA, which we welcome. The Applicant states that the updated RIAA is now in line with the Natural England approach. However, we advise that there remain some discrepancies where the RIAA does not match their compensation documents. There also remains disagreement, as stated by the Applicant, on the measures in terms of which approach to the impact assessments is most appropriate and which should be applied to the compensation quantum calculations. These have been highlighted in Appendix J4 to this Deadline 4 submission.	Please see responses to Appendix J4 below.
NE10	9.2 Section 1.6.7 Migrating Bats We note that concerning impacts to migrating bats, the Applicant's comment that "…NE has not flagged this as an issue". To clarify, we have previously advised during the pre-application phase that the Applicant considers potential impacts to migrating bats and surveys for Nathusius' pipistrelle Pipistrellus nathusii which migrate across the North Sea. Furthermore, we advised that surveys needed to be carried out at the appropriate times and locations (e.g. PEIR response, May 2023). Please see Appendix M4 to this Deadline 4 submission on this matter.	Please see the Applicant's response to NE80 where further detail is provided with regards the Applicant's position on migratory bats.

3. APPENDIX C4 – NATURAL ENGLAND'S COMMENTS ON ORNITHOLOGY [REP4-058]

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NE11	**5.4.1 HRA Site Integrity Matrices – Revision B (Tracked)** Matrix 9 OTE SPA As per our advice in Appendix C of Natural England's relevant representations (NE ref. C9 and C21) [PD2-005] we would support the Applicant's conclusions if no work is undertaken on the ECC within the OTE SPA + 2km buffer between 1st November and 31st March. The seasonal restriction must extend to the 2km buffer around the seaward boundary of the SPA. This is because evidence suggests red-throated diver displacement from vessel activity is highly likely within this range (Burt et al. 2017, Schwemmer et al. 2011, Fleissbach et al. 2019) and, for a proportion of the population may extend much further (Burger et al 2019, Mendel et al 2019). To protect site integrity vessel activity must not restrict habitat use by the divers within the boundary of the SPA.	Please see the Applicant's Response to NE03.
NE12	Matrix 10/11: AOE SPA/Ramsar Natural England advised approach to the project alone and in-combination impacts on LBBG should be presented alongside the Applicant's preferred approach. Importantly, we consider the impact as calculated and apportioned by the Natural England advised parameters to be the appropriate one to use.	Please see the Applicant's Response to NE04.
NE13	**5.5.3 Lesser Black-Backed Gull Compensation Evidence, Site Selection and Roadmap – Revision B** We reiterate that the impact on LBBG as calculated and apportioned by the Natural England advised parameters is the appropriate one (c.f. related comments on document 5.5.6 [REP2-007]). Natural England therefore advocate that the compensation quantum should be based on the predicted mortalities derived using its recommended approach, i.e. 11.09 birds per annum and not 5.7 birds per annum as used by the Applicant. This is because of the Applicant's approach to adult apportioning and use of sabbaticals in the calculation. These concerns have already been addressed in our Relevant Reps [PD2-005] and response to the Examining Authority's Written Questions 1 [REP3-034]. Consequently, we advise that the impact on the lesser black-backed gull (LBBG) Alde Ore Estuary SPA population, as calculated and apportioned by the Natural England advised parameters, is the appropriate one. Natural England also note that the Applicant has calculated the compensation quantum (CQ) using the method developed by the Hornsea 4 Project (HOW4) for guillemot and gannet. We advise that the method developed and employed by the Hornsea 3 Project (HOW3) for kittiwake would be more ecologically appropriate. This is because the Hornsea 3 method involves additional consideration of philopatric birds (i.e. those that remain at their natal colony). It also considers that the productivity of the colony should account for the annual breeding adult mortality to reduce the reliance on immigration from the meta-population. However, Natural England acknowledge that the 'HOW3 method' relies on detailed demographic data not available for LBBG and so could not be fully applied in this case. With that in mind we would accept the 'HOW4 method' if the CQ calculation were amended to include an adjustment for natal philopatry. This is to account for birds migrating away from a breeding site that will not recruit back into their natal colony when they reach the breeding age. The rates on natal dispersal are given in Horswill and Robinson (2015). As a precautionary measure, Natural England also advocate that the compensation measure should be at a scale that has the potential to deliver enough birds to replace the losses predicted at the upper confidence interval (UCI) of the mortality estimate rather than the mean, in order to assess whether the proposed compensation could encompass those impacts.	The Applicant has noted Natural England's position and has presented both the Applicant's preferred approach and Natural England's preferred approach in the 5.5.3 Lesser Black-Backed Gull Compensation Evidence, Site Selection and Roadmap – Revision C, submitted at this Deadline. The Applicant stands by the approach adopted using sabbaticals as it represents a more realistic approach to calculating the impacts. The Natural England approach uses the site specific DAS data for calculating adult rates however this includes 'adult like' birds, therefore over estimates the impacts. The Applicant notes Natural England's advice to use the HOW4 approach with an adjustment for natal philopatry based on the 95% UCI estimate. However, the Applicant does not consider it necessary to adjust the compensation quantum to account for natal dispersal in this scenario because the proposed compensation measure is delivering compensation at the impacted SPA (AOE SPA). Adjusting the quantum to account for natal philopatry rates and using the Natural England's preferred approach (using the UCI) would lead to a compensation quantum of 1,270 pairs which the Applicant believes is highly disproportionate for a realistic estimated impact of 5.7 birds.

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	Further, compensatory measures guidance states a 1:1 ratio would only be appropriate if there was little uncertainty around the success of the measure and therefore presenting ratios up to 3:1 is appropriate. We highlight that in terms of developing numeric targets for assessing the success of the compensation measure e.g. in an Implementation and Monitoring Plan (IMP), Natural England regard it as generally legitimate to look at the quantum derived using the central impact (mean) value plus an appropriate ratio applied, though there may be cases where the level of uncertainty around the predicted impacts is so great that the 95% UCI is appropriate. Nevertheless, it is important to demonstrate that the compensation has the potential to provide compensation for the 95% UCI value with an appropriate ratio.	
NE14	**5.5.4 Kittiwake – Evidence, Site Selection and Roadmap – Revision B** Natural England welcome the Applicant's use of the Hornsea 3 project (HOW3) method to calculate the number of pairs required at the artificial nest structure (ANS) to compensate the impact of the project. This is in line with advice commissioned by The Crown Estate to inform the Round 4 strategic compensation plan for kittiwake. The HOW3 method involves additional consideration of philopatric birds (i.e. the proportion of birds that remain at their natal colony) and considers that the colony's productivity should account for the annual breeding adult mortality to reduce the reliance on immigration from the meta-population. However, we advise the 95% upper confidence interval (UCI) impact estimate (2.35 birds) is used to calculate the compensation quantum (rather than the mean, 1.1 birds – see Table 6 NE Ref. 1 below) and advise that this approach should be maintained in updated calculations. This approach will help encompass the uncertainty regarding the level of impact and ensure sufficient nest spaces are allocated on the ANS should a proportion be unoccupied for any reason. We also highlight the uncertainties surrounding future colonisation and productivity of any colony at the ANS. Given the small impact to be compensated we agree a contribution to a single ANS location is appropriate but consider that a 3:1 compensation ratio offers a more realistic prospect of the measure delivering benefits into the UK National Site Network (NSN). See additional comments for doc 5.5.7 [REP2-015] below.	The Applicant has presented the HOW3 method in the Roadmap but believes that the HOW4 method with a 3:1 ratio remains the most appropriate method for calculating the quantum as stated in the RIAA – Revision B [REP1-016], and Kittiwake – Evidence, Site Selection and Roadmap – Revision C. The Applicant does not agree that the use of UCI impact numbers are more appropriate than using the mean, especially when applying a 3:1 compensation ratio. Uncertainties are factored in when calculating the impacts through CRM and therefore adding further levels of precaution is likely to result in a compensation quantum that is further from reality. Please note that the mean is 0.82 birds as presented in the RIAA - Revision B [REP1-016], Kittiwake – Evidence, Site Selection and Roadmap – Revision C and the 5.5.7 Kittiwake Implementation and Monitoring Plan – Revision C.
NE15	**5.5.5 Guillemot and Razorbill – Evidence, Site Selection and Roadmap – Revision B** Natural England advise the Applicant to consider the HOW4 method they have chosen to calculate the CQ does not account for natal philopatry and the likely loss of some of the matured offspring to other colonies. Therefore, just as omitting the benefits of disturbance reduction from the calculation could lead to an over estimation of the number of nests required for compensation, so too could the omission of natal philopatry underestimate it. Natural England advise these uncertainties need to be factored into the CQ calculation (where data are available) or taken into account by applying a ratio to the quantum to scale up the compensation appropriately. In this regard we advise the Applicant to calculate the CQs using the HOW3 method to take account of natal philopatry. We continue to advise that the compensation quantum should be scaled with respect to predicted impacts to auks at Flamborough and Filey Coast SPA (FFC SPA) under the 70% displacement and 2% mortality scenario. We highlight there is precedence for the 70%/2% approach to auk compensation elsewhere e.g. Sheringham Shoal and Dudgeon Extension Projects (SADEP). An appropriate ratio should then be applied to this CQ to test whether the measure can provide an adequate number of pairs can recruit enough birds into the population to replace losses predicted at the upper (95%) confidence interval of the impact value. Furthermore, Natural England advise that it is likely to be very difficult to quantify the nature and extent of the potential threat posed by anthropogenic disturbance and how this may affect	The Applicant stands by its approach to calculating compensation quantums for guillemot and razorbill (the HOW4 approach using the mean impact estimates). Taking into account natal philopatry is not appropriate for this compensation measure because any additional fledglings will support the national site network regardless of whether they relocate to other colonies within the region or remain at their natal colony. An example of including natal philopatry into the compensation calculations is provided below: If the Applicant was to use the Natural England's approach, 70% displacement and 2% mortality, UCI and includes natal philopatry in the compensation calculations then the required quantum for razorbill would be 1,364 pairs. The Applicant considers this to be inconceivably disproportionate to the estimated impact of 0.22 birds. Therefore, the Applicant believes that the compensation quantum, at a ratio of 3:1, presented in the 5.5.5 Guillemot and Razorbill – Evidence, Site Selection and Roadmap – Revision C of 11 pairs for guillemot and 6 pairs for razorbill is more than appropriate for the low levels of impact.

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	nesting success. It will, therefore, be challenging to quantify the potential efficacy of the proposed measures in addressing this threat.	Outer Dowsing Offshore Wind have produced a document for their Deadline 3 presenting the compounding effect of adding inappropriate levels of precaution at each step in the assessment process (see Outer Dowsing Offshore Wind: 19.8 Levels of precaution in the assessment and compensation calculations for offshore ornithology ([REP2-057] of the Outer Dowsing Examination Library). This focuses on auks and highlights the levels of precaution built into the calculations (up to 16 levels of precaution) to address the uncertainties that lead to disproportionate compensation quantums. The Applicant acknowledges potential challenges in quantifying the benefits of these compensation measures at the Project level. However, they are open to adopting a strategic approach for the delivery and monitoring of these measures. This approach would enable a more comprehensive monitoring campaign, facilitate the measurement of benefits at a regional scale, and better account for natural population fluctuations.
NE16	**5.5.6 LBBG Implementation and Monitoring Plan – Revision B** Natural England would encourage the Applicant to liaise with the National Trust (NT) to explore again the previously scoped out option at Lantern Marshes. This should be in collaboration with North Falls OWF who are already in discussions with NT to use this site for a similar purpose. Natural England emphasise close collaboration with North Falls OWF will be especially valuable at this stage so that both projects can deliver their compensation using a combined approach. Whilst the Outer Trial Bank (OTB) site option remains promising, a site within the AOE SPA has clear advantages in delivering birds direct to the impacted protected area. However, given the Norfolk Projects' predator exclusion site on Orfordness has yet to attract any birds after 2 seasons, we advise that progressing a compensation site within the AOE SPA in addition to OTB would offer a far more robust option. A '2 site' compensation package (shared with North Falls OWF) provides less risk than proceeding with just one site, as each site could potentially cover for any shortfall in the other. This would be particularly valuable in the early stages when any delay in occupation might accrue a mortality debt that may prove difficult for a single site to make up for in later years.	The Applicant is continuously engaging with North Falls OWF in regard to collaborating on compensation measures. However, as explained in the paragraph below, the Orford Ness site can be secured, the Lantern Marshes site holds no additional advantages over the Orford Ness site and would need to be secured by other means as it is out with the Order Limits and has not been assessed. While the Applicant is looking to progress voluntary agreement with the land owner of the Orford Ness site, it is within the Order Limits which provides security for the delivery of the measure via compulsory acquisition if necessary. The Applicant is progressing the OTB site as an alternative measure to the Cobra Mist land. It should be noted, only one of Orford Ness or Outer Trial Bank will be taken forward.
NE17	Against NE advice, the Applicant continues to advocate that the Hornsea 4 project (HOW4) method for calculating the compensation quantum and its approach to estimating collision impacts are appropriate for determining the compensation levels for the lesser black-backed gull.	In NE13 Natural England have stated that the HOW3 approach is not suitable for LBBG and it is happy for HOW4 method to be used if natal philopatry is included. The Applicant does not believe that an adjustment for natal philopatry rates is appropriate for LBBG. The proposed compensation measure is located at the impacted SPA, AOE SPA, and therefore any increase in breeding pairs are directly compensating for any impact at the SPA - Adjusting for natal dispersal is therefore irrelevant. Adjusting for natal philopatry rates and using the Natural England's preferred approach would lead to a compensation quantum of 1,270 pairs which the Applicant believes is highly disproportionate for an impact of 5.7 birds.
NE18	Natural England welcome the adaptive measures proposed by the applicant and agree they have the potential to help minimise the accrual of mortality debt by encouraging birds to occupy and nest at the site from Year 1. In this regard we note that LBBG begin to return to their nest sites from late February (Ross-Smith et al, 2014) and therefore also suggest that the compensation area is made available before this time in Year 1 to allow pairs adequate time to scope the area before nesting commences (usually in April). Importantly, additional adaptive management will be needed imposed if too few chicks are produced each season. This is something that could be achieved by improving the prospects	The Applicant plans to have the management measures in place prior to the breeding season in Year 1.

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	at the existing site but also having a worthy additional site (see comment 1 above for section 3.2.1).	
NE19	Natural England advise LBBG compensation measures should be completed at least 4 full years prior to the operational phase. We highlight this was achieved by the Norfolk projects for their predator exclusion fence on Orfordness, so it is a realistic requirement. LBBG reach maturity in their 4th year, but age of first breeding varies between 4 and 7 years old (Ross-Smith et al. 2014). Therefore, offspring fledging from a compensation site established 3 breeding seasons before commencement of operation will not have recruited into the adult breeding population. As a result, the proposed timing of delivery will accrue some mortality debt. In addition, colonisation in Year 1 is far from guaranteed (noting that the Vanguard/Boreas/East Anglia One North/East Anglia Two compound has not been colonised after two breeding seasons). This debt will need to be recovered in future years, and the debt will compound if a suitably sized colony is not established quickly. This risk has not been specifically addressed by the Applicant in their adaptive management. Nevertheless, we recognise that if both sites proposed by the Applicant were progressed, they would have the potential to deliver more than the required level of compensation over the lifetime of the project (see Comment 1 above).	The Applicant is aware that this approach may potentially accrue a mortality debt by committing to 3 years prior to operation rather than 4 years however, either measure has the capacity to over-compensate and therefore any mortality debt accrued would be easily recovered over the lifetime of the proposed development. Acquiring a small mortality debt is considered to be appropriate given the critical national priority status of the project.
NE20	**5.5.7 Kittiwake Implementation and Monitoring Plan – Revision B** Natural England do not consider a CQ calculated using the central impact value to be appropriate for kittiwake compensation at artificial nest structures (ANS's). Natural England advise for kittiwake that the CQ is calculated using the UCI value, see comment 1 above, [REP2-009] 5.5.4 Kittiwake - Evidence, Site Selection and Roadmap – Revision B (Tracked). Furthermore, the mean collision estimate quoted in this document (0.82 birds) matches the value quoted in the updated RIAA but differs to that quoted in document 5.5.4, Kittiwake - Evidence, Site Selection and Roadmap – Revision B (1.1 birds) – see comments above. The difference appears to be related to which nocturnal activity factor (NAF) was applied to the CRM and is based on two NAF levels Natural England recommended at the time of submission. The collision estimate of 0.82 birds is the mean derived using the lower NAF (25%), while the 1.1 birds collision estimate is derived using the higher NAF (50%). Natural England recommend the higher NAF is used in this case. The latest Natural England advice recommends applying a 40% NAF to kittiwake data (see JNCC, Natural England, Natural Resources Wales, NatureScot. 2024). Regarding the approach to CQ calculation for kittiwake, we advise the HOW3 method is more ecologically appropriate (see comment 1 above, [REP2-009] 5.5.4 Kittiwake - Evidence, Site Selection and Roadmap – Revision B (Tracked)).	The Applicant has noted Natural England's comment regarding the UCI values, however the Applicant maintains that the mean value is more appropriate for calculating compensation quantums, as several layers of precaution have already been added prior to calculating the impact. The mean collision estimate of 0.82 in the RIAA and KIMP as quoted by Natural England, is also in the 5.5.4 Kittiwake - Evidence, Site Selection and Roadmap – Revision C paragraphs 1.2.1, 1.2.3, 1.2.4 and Table 1.3**.** Natural England must have been referencing a draft copy of the roadmap regarding impacts of 1.1 birds. The differences in the numbers are not due to updated nocturnal activity factor (NAF) values, the 0.82 number has been derived using the StochLab methods in the CRM report [APP-110] where a NAF of 37.5% was used. The Applicant has presented the compensation quantum for the mean and UCI using the HOW4, HOW3 stage 1 and HOW3 stage 2 in the 5.5.4 Kittiwake - Evidence, Site Selection and Roadmap – Revision C and although the Applicant maintains that the appropriate compensation quantum is 7 pairs (mean impact, HOW4 method and 3:1 ratio) Table 1.3 in [REP2-009] shows that the compensation measure proposed by the Applicant will cover the worst case scenario of UCI, HOW3 stage 2 and 3:1 ratio.
NE21	**5.5.8 Guillemot and Razorbill Implementation and Monitoring Plan – Revision B** Natural England welcome the ongoing discussions with local landowners and stakeholders and the progress made so far but note no agreements have been met yet. Evidence that the proposed management measures (wardening, signage, education, visitor access statements, and engagement with local stakeholders) are achievable at the proposed sites should be in place so that prescribed work can commence on time and the preferred locations.	The Applicant is continuing discussions with stakeholders in the south west and other offshore windfarm projects to determine the best solution to achieve a strategic measure.
NE22	In setting the delivery of compensation 4 breeding seasons prior to an impact occurring (at the operational phase) there is a risk of impacts arising in advance of the measures becoming functional (notwithstanding the risk of impacts may commence prior to operations in the construction phase). Guillemots reach breeding age maturity at 6 years old, thus it will take at least 7 breeding seasons after compensation measures are implemented for young fledged to	The Applicant does not agree that the requirements should be increased to deal with any mortality debt accruing. These measures are being carried out at existing colonies and will benefit the productivity of the colony from the first year of implementation. In addition, the measures will be in place several years prior to construction benefiting the population and accruing a 'mortality credit', prior to operation.

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	recruit into the adult breeding population and thus provide compensation for the project's impacts. The equivalent values for razorbill are 5 and 6 years, respectively, which we recommend is a challenging lead-in time the OWF projects. Therefore, if the Applicant wishes to retain the current implementation schedule, Natural England consider that the scale of the requirements can and should be increased to address the risk of 'mortality debt' accruing in the early years of the project.	In addition, the impact from the proposed development is extremely small, and therefore if there was uncertainty in the benefits of the measure any debt will remain extremely small (<1 bird), if it were accrued.
NE23	To assess the success of the measure, it would be preferable to use changes in population counts and productivity estimates rather than just visitor statistics or disturbance rates. The purpose of compensation is to ensure sufficient chicks are produced to ensure the required number of adults survive and then recruit into the national site network. Therefore, beneficial changes to the auk populations and productivity arising from the compensation project are appropriate measures of success. These can be sought through an extended monitoring plan designed to detect and compare changes in the auk populations and productivities across sites with and without measures to reduce anthropogenic activity. Natural England recognise that change in anthropogenic activity to reduce disturbance will be a key objective of the project, but we are unable to agree that its sole use as a measure of the project's success is acceptable. This is because it is not yet known to what extent disturbance is an issue at the proposed sites and what degree of change in any disturbance will benefit the birds, if at all. Consequently, whilst a reduction in anthropogenic activity may occur it would need to be sufficient to benefit the birds. Whilst it may prove difficult, we advise that the Applicant needs to survey the auk populations and productivity, to try to assess any changes including those due to anthropogenic activity. Approaches to improve the accuracy of monitoring should be sought, if necessary. The use of drones presents one possibility and could be investigated further. We also acknowledge natural fluctuations in the auk populations and productivity caused by other factors such as food availability and predation may mask any benefits brought about by the compensation measures. Extending the monitoring program to include control sites in the region could help determine if any benefits from the compensation measures are being accrued at the study sites over the long-term.	The Applicant has acknowledged Natural England's position, however it still believes that assessing the success of the measures should be based on the visitor statistics and disturbance rates due to the difficulties attributing population and productivity changes to the measures, especially as several colonies are difficult to monitor and in additional guillemot and razorbill populations are prone to large natural fluctuations. It should be noted that every effort will be made to measure success through changes in population counts and productivity estimates, but given the small impact, attributing any changes directly back to the measures may be challenging. Annual colony counts and productivity studies will be carried out where possible at the selected colonies and several colonies will be monitored as control sites.
NE24	**10.27 Digital Aerial Survey – Outer Trials Bank** Whilst the survey results are useful, the accuracy of the nest counts does not likely represent the true number of apparently occupied nests (AON). The breeding phenology of the gulls is such that we can assume most of the birds would have been sitting on eggs earlier rather than later in June. Therefore, a DAS in late June would likely be less accurate than a survey carried out in late May or early June.	Noted by the Applicant – the DAS data was an opportunistic survey and if carried out in the future it would be targeting the main breeding period in early June. The DAS data collected in 2024 was useful to help map habitats and to look into the preferred nesting locations for HG and LBBG.

4. APPENDIX E4 – NATURAL ENGLAND'S COMMENTS ON MARGATE AND LONG SANDS SAC [REP4-059]

Ref	Summary of Deadline 4 submission OR Excerpt of Deadline 4 submission	Applicant's comments
NE25	**Overarching Comments** Natural England highlights that monitoring of Priority Habitats under Section 41 of NERC (2006) is not mitigation. We advise mitigation in the form of avoiding priority habitats, where possible, should be committed too and secured. Where this is not possible then the Applicant should develop a decision tree for minimising the impacts as much as possible and this should be secured in a named plan, such as the Cable Specification and Installation plan. We also note that the MLS SAC mitigation measures, as the title of the document suggests, are only applicable to inside the designated site boundary and therefore there remains no mitigation measures for potential areas of Priority Habitats within the rest of the red line boundary. We advise that this remains an 'Amber' project risk.	The Applicant agrees with Natural England that monitoring of Priority Habitats under Section 41 of NERC (2006) is not mitigation. Mitigation will be provided by the avoidance of Priority Habitats under Section 41 wherever possible. An additional sentence has been added to an updated 9.13 Margate and Longs SAC Benthic Mitigation Plan – Revision D. Prior to any construction works commencing, geophysical and geotechnical surveys will be carried out to further understand the seabed characteristics. Following these surveys, should there be any identification of potential Annex I reef habitats, further surveys will be undertaken as set out in the Offshore IPMP – Revision B [REP1-045], which aim to determine if the reef is classified as Annex I reef. These additional surveys may also identify potential Section 41 Natural Environment and Rural Communities (NERC) Act 2006 habitats and species of principle importance. Piddock communities are found in one discrete section of the offshore ECC. There is a commitment to not dispose of any dredge material within this area identified to contain piddock communities Information is provided in 10.30 Outline Sediment Disposal Management Plan [REP4-041] Section 3.6). Due to the scarcity of other NERC habitats identified within the site, no other specific pre-construction surveys are planned to inform benthic mitigation.
NE26	We note that no mitigation commitments to reduce potential impacts have been made for: > benthic mitigation to be informed by specific pre-construction surveys. > dredge disposal > cable exposure within Margate and Long Sands (MLS) SAC over the lifetime of the project and beyond > reducing cable protection outside of fisheries byelaw areas	The Applicant considers Natural England's concerns on each of these topics have been addressed within the Application and supporting documents as follows: > Pre-construction surveys to inform mitigation: >> The Applicant notes that all works will be informed by pre-construction surveys, informing and directing the mitigation put in place. This includes areas both within and those outside of MLS SAC e.g. micro-siting to avoid sensitive features will be dictated by pre-construction surveys (Table 2.1 of 9.13 Margate and Longsands Special Area of Conservation Benthic Mitigation Plan – Revision D. Therefore, the Applicant considers that the approach taken to including pre-construction surveys is appropriate > Dredge disposal: >> The Applicant has submitted an 10.30 Outline Sediment Disposal Management Plan [REP4-041] as part of the Deadline 4 submissions, which includes a number of sediment disposal mitigations. > Cable exposure within the MLS SAC: >> The Applicant has submitted details of the MDS for cable protection within MLS SAC (Technical Note - Methodology for Determining MDS (Offshore) - Revision B [REP4-034]), noting that the area of 5,400 m^2 (or 900 m length) includes any required as a result of cable repair and replacement or cable exposure during operation. > Reducing cable protection outside of fisheries byelaw areas: >> The Applicant is committed to cable burial wherever possible, with the preferred means being without the need for cable protection (9.12 Outline Cable Specification and Installation Plan - Revision B [REP04-019]).
NE27	**Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan – Revision B**	The Applicant notes that Section 5 of the 9.13 Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan – Revision D is specifically discussing the maximum

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	Natural England advises that the routing of cable within the SAC should minimise not just the spatial extent of the impact to Annex I features, but also duration of the impacts and maximising recoverability of the feature. Section 5.1.3 updates should be more aligned with Section 7 and 8 in relation to balancing between reducing cable length within MLS SAC and minimising impacts to Annex I sandbanks and priority habitats.	length of cable protection in the M&LS SAC, with Section 5.1.3 discussing the minimisation of the spatial extent (length) of the cable within the SAC. Sections 7 and 8 then present the discussion around mitigation commitments and the benefits of said commitments (including the minimisation of impacts). Whilst the Applicant considers that these sections all function cohesively to present the Applicant's position relating to cable routing within the SAC, an additional sentence has been added to Section 5.1.3 to assist. The duration of construction impacts will be determined by the overall cable installation programme and is not clear what realistic commitments could be made to 'minimise' impacts, noting that the strong preference from both NE and the Applicant is to bury the cable and therefore it is more appropriate to focus on suitable installation methods. It is in the Applicant's interest to reduce construction time as far as reasonably practical whilst maintaining the quality, safety and integrity of the infrastructure.
NE28	Natural England notes that the Applicant states that MDS for cable protection is 'highly precautionary' Natural England suggests that a realistic/ MDS is presented and assessed, rather than an over precautionary figure. Otherwise, what is presented and assessed must be considered the WCS to inform the HRA.	The Applicant can confirm that the MDS presented for cable protection is also the worst case scenario used for the HRA assessments. Although the presented MDS is highly precautionary, the Applicant wishes to ensure the HRA conclusions remain valid in the event that cable protection is required.
NE29	If loose rock or gravel is not to be used within MLS SAC, we advise that the impacts assessments and RIAA are updated as currently they are based upon: Section 1.10.2 and 1.10.3 of the Project Description which states that 'Cable protection may consist of one or more of the following methods: > Rock placement; > Concrete mattresses; > Flow dissipation devices; > Protective aprons, coverings, cladding or pipes; and/ or > Rock bags. With only in the nearshore (out to 1,600 m seaward of MHWS), removing loose rock or gravel as an option. Natural England advises that the impact assessments and RIAA should be updated to reflect this commitment.	The assessment presented within 5.4 RIAA – Revision B [REP1-016] for the MLS SAC is based on the MDS table presented within Table 11.1 and therefore the Project Description [APP-069]. The commitment to not use loose rock within the MLS SAC: "*Rock dumping using loose rock will not be considered a feasible protection in the M&LS SAC*" (as stated Table 8.1 of the RIAA – Revision B [REP1-016]) is introduced to the assessment as a proposed mitigation measure in relation to any potential effects. Therefore, it is considered that the assessments for the MLS SAC within Section 11.2 of the RIAA – Revision B [REP1-016] do not require updating.
NE30	Natural England notes that that the benthic mitigation plan only commits to considering the ability to remove cable protection, and not, to a) only using cable protection that is readily removable and b) that cable protection will be removed. We also note within the offshore decommissioning technical note [REP2-028] there is no commitment to remove cable protection at the time of decommissioning. Natural England advises that the benthic mitigation plan should commit to using cable protection that is readily removable, and to removing cable protection.	The Applicant has updated and submitted Revision D of the Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan at Deadline 5 to include this additional detail as requested by Natural England (Section 7.1.1).

5. APPENDIX J4 – NATURAL ENGLAND'S COMMENTS ON THE APPLICATIONS CHANGE REQUEST DOCUMENTS [REP4-060]

Ref	Summary of Deadline 4 submission OR Excerpt of Deadline 4 submission	Applicant's comments
NE31	**Summary Comments** **Lesser Black Backed Gull Compensation Site – Habitats Regulations Assessment (HRA) – Revision B** Natural England notes that the Applicant continues to conclude no likely significant effects despite acknowledging that baseline survey data and assessment are still required. Therefore, our concerns remain unresolved.	The Applicant has completed additional ecology surveys on Orford Ness which are set out in: > Orford Ness Surveys Report [REP4-042] And updated the following documents: > Lesser Black Backed Gull Habitats Regulations Assessment - Revision C [REP4-007] > Lesser Black Backed Gull Compensatory Areas Environmental Impact Assessment - Revision C [REP4-013] > Lesser Black Backed Gull Ecological Impact Assessment - Revision C [REP4-015] As noted in those documents, due to access restrictions (summer storms and landowner negotiations) the data collected has limitations in terms of geography and seasonality. However, it provides good evidence of the habitats and species that have or will be found on the PCS and the results of these surveys have been in line with expectations and support the conclusions. For example, the PCS is dominated by dense coarse grasses (sea couch and/or false-oat grass) which has proved to be the least favourable habitat for scarce invertebrates. To clarify, the conclusions of the screening stage of the HRA has always been that LSE cannot be excluded and that an AA is required. The HRA report assesses the potential for adverse effects on the integrity of the European sites and concludes that, with mitigation, the published conservation objectives for the European sites, and assumed conservation objectives for the Ramsar sites, could not be undermined and therefore there would not be an adverse effect on the integrity of any European or Ramsar site. The Applicant believes there is sufficient information available to enable the competent authority to reach the same conclusion, without the need for further surveys. It would be helpful if NE could point to the conservation objective(s) it considers at risk from the works, to enable the Applicant to address this directly. To date the concern set out by Natural England appears to relate solely the carrying out of surveys for assessment and it is unclear what potential impacts from these minor works could lead to an AEoI. Additional, pre-installation surveys will be carried out. Their purpose is simply to refine the location of mitigation measures that are described in the assessments listed above. The applicant has committed to implement the mitigation measures in full.
NE32	**6.8.1 Lesser Black Backed Gull Compensatory Areas Environmental Impact Assessment – Revision B (Tracked).** Natural England advises that new areas and amended boundaries have been identified with the refined LBBG compensation area, however, baseline data are still absent for the refined area. Therefore, the Applicant needs to provide additional information to confirm their conclusions of no significant impact. Consequently, our concerns remain unresolved.	This is noted by the Applicant, please see Response to NE31.
NE33	**6.8.1.2: Lesser Black Backed Gull Landscape and Visual Impact Assessment – Revision B (Tracked)** Natural England has no comment on this document because the changes do not appear to change the visual impact considerations.	This is noted by the Applicant. The updated compensatory area represents a reduction in area in the same general location. The findings of the updated assessment are very similar to the original, with no change to impact ratings, concluding no significant effects.

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NE34	**6.8.1.3 Lesser Black Backed Gull Compensation Site - Ecological Impact Assessment – Revision B (Tracked)** Natural England notes that the map on page 66 shows that more than a third of the current proposed compensation site sits outside of the original survey area. Consequently, without baseline information we are unable to adequately assess the ecological impacts. Furthermore, our earlier comments may need to be revisited, along with those issues previously considered resolved, when the necessary additional information is available.	This is note by the Applicant, please see Response to NE31.
NE35	**10.18 Report On Proposed Changes** Natural England advises that the statements noting our agreement that the proposed compensation can support the sufficient breeding pairs of LBBG to ensure the necessary recruitment and therefore provide appropriate compensation in this document are not supported by the ornithological comments we provided in our Deadline 4 Risk and Issues Log (Tab D – Ornithology Compensation, NE Ref D26) around sufficient provision for LBBG impacts.	Whilst NE are not in agreement with the compensation level i.e. the number of birds the Applicant is required to compensate for, it should be noted that the size of the compensation site at Orford Ness, which is 6 ha, was developed in conjunction with NE. An area of this size, regardless of the methodologies and/ or compensation quantums that are used has the potential to provide more than enough space for the nesting density required.
NE36	**Detailed Comments** **Revised LBBG Compensation Site HRA** This document still relies on insufficient baseline survey data owing to surveys carried out outside of an appropriate survey window. Para 2.2.5 states that updated survey results/assessments will be included in a later iteration of the HRA. Therefore, conclusions of no Likely Significant Effect (LSE) are based on incomplete baseline information and are therefore not robust.	This is note by the Applicant, please see Response to NE31.
NE37	**Survey Area Partial Overlap with Proposed Compensation Area** Para 2.2.6 [AS-040] confirms that the boundary of the proposed LBBG compensation site has been changed. The original surveys and desk-based data collation and assessment do not cover all of the new area and are, therefore, incomplete. Consequently, the conclusions of no LSE are based on insufficient evidence. Para 2.3.8 states that a new ditch crossing will be required including a temporary bridge or permanent culvert installation to allow vehicle access. Therefore, we advise that further information will be required to assess these impacts.	This is noted by the Applicant, please see Response to NE31 and below. The area in which the ditch crossing is planned was included in the January 2024 survey area and the ditches in proximity have been surveyed. These do not support vegetation, other that algae (not seaweed), and have a limited diversity of invertebrates. On either side of the ditch is a bank, presumably formed when the ditch was excavated. The banks are shingle, the eastern being sparsely vegetated, including lichens, and the western being dense, coarse grasses. There are no pieces of timber present. The Applicant's view is that the impacts on the ecological features in this location are understood and have been adequately assessed/ described, and the proposed mitigation will ensure that the published conservation objectives for the SPA or SAC and the assumed conservation objectives for the Ramsar will not be undermined, and therefore adverse effects on site integrity can be excluded. Similarly, it is concluded that there will no likely significant effects on other important ecological features in this location. It is unclear what Natural England consider is missing from the assessment that would require further information to conclude. The Applicant's position is that this is a well understood site, with data collected from adjacent land parcel with similar vegetation communities which correspond to the citation.
NE38	**The Applicant's response to Natural England's Relevant Reps and Risk and Issues Log:** J4 – The Applicant states that the reduction of the site area to 6ha has been agreed with Natural England as sufficient to support required number of LBBG pairs. It is worth noting that the level of compensation in terms of the population needed has not yet been agreed, and that the size of the area needed will in part relate to the habitats present, noting that areas have been both removed and added from the proposed area.	This is noted by the Applicant, please see Response to NE31 and below. The Applicant selected a site that is 6 ha after consultation with Natural England and has the potential to produce a breeding population more than the maximum required using a nesting density of 0.04 m² (or 400/ha which would equate to a maximum of 2,400 nests for the 6 ha area) (Ross-Smith et al, 2015).

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	J4 - Rel Rep D26 states that the level of compensation has not been agreed. Progressed. Baseline surveys are required to confirm current sensitivity of the shingle habitats before we can agree with the conclusions.	
NE39	J4 – The Applicant states that the area does not have natural morphology and precedent from agreements around North Norfolk Compensation, hence conclusion of no LSE for shingle geomorphology. J4 - The Applicant needs to check National Coastal Erosion Risk Mapping 2 (NCERM2) data, when released, to allow further consideration of the 50-year erosion line position.	This is noted by the Applicant and NCERM2 data will be checked when available in the future.
NE40	J8 – The Applicant has assessed climate change impacts. The compensation area has been assessed as stable; no impact assessment is considered necessary. J8 - Not resolved.	As previously advised by the Applicant, a comparison of aerial imagery shows that there has been very little change of shingle morphology in the last 50 years, with vehicle tracks created in the 1970s still visible now. Moreover, the beach has been advancing eastwards in that time, providing more protection from the sea than previously. Based on this understanding, effects on the PCS arising from climate change are assessed as unlikely during the lifetime of the Wind Farm. NE43 suggests that this matter is agreed and resolved.
NE41	J11 – The Applicant considers that there is no requirement to reconsider the conclusion of no LSE for fence installation based on the assumption that the site has already been modified and the delicate matrix already impacted. However, this does not preclude the presence of rare and sensitive shingle flora and fauna associated with the SAC, and new survey data should be acquired to support this conclusion. J11 - Baseline surveys are needed to confirm current sensitivity of shingle habitats before conclusions can be agreed.	This is noted by the Applicant, please see Response to NE31 and below. No rare species of flora have been found during the surveys and most of those found along the proposed fence line are not sensitive, the exceptions being lichens which could take some time to recolonise disturbed areas. There are populations of rare invertebrates present in proximity to the PCS. These are associated with open habitats (and pieces of timber therein) rather than the dense stands of sea couch and false-oat grass which dominate the area. The proposals include mitigation to protect rare and sensitive species, and the other species would recover quickly from the disturbance as evidenced by existing fence lines within the SAC.
NE42	J12 – The Applicant states that because the morphology has already been modified, it considers that impacts of fence installation and maintenance do not need to be included in EIA. However, this will be included the implementation and monitoring plan. J12 - Resolved.	This is noted by the Applicant.
NE43	J13 – The Applicant has stated that the new fence line will avoid saline lagoons. Climate change impacts have also been assessed in J8. Therefore, this issue is resolved. J13 - Resolved.	This is noted by the Applicant.
NE44	J22 – The Applicant has agreed to discuss maintenance and best practice options with Natural England. J22- In progress, pending discussions.	This is noted by the Applicant.
NE45	J23 – in Para 4.4.8 [AS-040] and [REP2- 013], the Applicant states that once a colony has established, if nutrients are increased, consideration may be given to removing cut vegetation from the site, which they consider sufficient additional mitigation for any increased nutrient levels. This remains part of the maintenance plan (4.1.10 [AS-040] and 6.2.3 [REP2-103]). However, we question whether this is additional mitigation? J23 - The proposed mitigation was already secured, and we do not consider it as additional. Natural England queries if this mitigation sufficient.	The Applicant has described this as 'additional mitigation' because was not included in the original project design. The need for and sufficiency of the measure will be determined by monitoring. Regardless, any increase in nutrients would be no more than that derived from the stated conservation objective to restore the gull breeding colony within the SPA.
NE46	J24 – refers to the shingle matrix and damage to the communities present. Reference is again made to the modified nature of this site, a broad definition of habitat is made, it is stated that best practice will be adopted during installation to limit damage, and Annex 1 habitat	This is noted by the Applicant, please see Response to NE31 and below.

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	would not be lost. However, we are concerned that machinery will have to operate on the shingle habitat and there is the additional concern that this new area has not yet been surveyed. J24 - Baseline survey data is needed to confirm no LSE. Not resolved.	The PCS has been partially surveyed and the remainder has been viewed while on site and from aerial imagery. The habitats along the proposed fence line are dominated by coarse grasses, especially sea couch, which can quickly recover from disturbance. Nevertheless, mitigation is proposed to limit disturbance to the shingle as much as possible, including the types of vehicles to be used. As described in Lesser Black Backed Gull Habitats Regulations Assessment – Revision C [REP4-007], the PCS can be reached using existing tracks until just before the proposed ditch crossing. Any vehicles used off the tracks will, where required, use an appropriately agreed method e.g. low ground pressure rubber tyres or tracks (not steel), such as softrak vehicle. The final details of the vehicle types and routes will be set out in the final LIMP and the construction method statement for approval by the Secretary of State and LPA respectively.
NE47	J25 – Natural England advised previously on the HRA that we wished the Applicant to consider fencing impacts on saline lagoons and climate change impacts/coastal stability. The Applicant has signposted to J13 and stated that saline lagoons are no longer within the fence line. J25 - Resolved – see also J13.	This is noted by the Applicant.
NE48	**5.4.5 Lesser Black Backed Gull Habitats Regulations Assessment - Revision B** 4.2.3 – We note that the new fence alignment boundary runs along an existing ditch line. The manmade nature of the ditch and the excavated shingle material along the banks are considered disturbed communities. However, this disturbance dates from 1881 to 1960's, therefore recovery of shingle communities is possible. However, we advise that updated baseline surveys are required. New information regarding the alignment of the fence has been provided, therefore, Natural England needs to see and consider updated baseline data to assess conclusions. Not resolved.	This is noted by the Applicant, please see Response to NE31, NE41 and NE46.
NE49	**6.8.1 Lesser Black Backed Gull Compensatory Areas Environmental Impact Assessment - Revision B** <u>Table 1.2 [AS-048] Summary of Consultation</u> Issues regarding concerns around birds finding the site and numbers of breeding pairs to be presented in an updated LBBG Compensation Evidence, Site Selection and Roadmap at a future deadline. Rel Rep D23 and D26 not resolved. Final level of compensation not agreed. Concerns about securing sites remain. We note that the Applicant is liaising with North Falls about potential collaboration on compensation measures. Rel Rep D28 and D32 progressing. Natural England raised the need for Outer Trial Bank access and methodology to be submitted within our Relevant Representations (Issue D25) this requirement remains. Rel Rep D25 not resolved.	An updated 5.5.3 LBBG Compensation, Evidence, Site Selection and Roadmap – Revision C has been submitted at Deadline 5. The Applicant has provided further reasoning with regards to the compensation quantum above in response to Natural England's Appendix C4. As highlighted previously and set out in the 5.5.6 Lesser Black Backed Gull Implementation and Monitoring Plans - Revision C, the Orford Ness site has been secured within the Order Limits and therefore the option of compulsory acquisition remains, however the Applicant is continuing negotiations with the landowner with the strong preference to reach a voluntary agreement. In this respect the Applicant's site is considerably more secure than land outside of the Order Limits.
NE50	<u>Perennial Vegetation on Coastal Shingle</u> 1.11.55 states that stones supporting lichens will be placed to one side and replaced upright near to their original location, once the digger has finished installing the fence. This is not new but is this a feasible/robust mitigation approach?	The lichens are generally attached to a substrate, small stones or wood, and can therefore be moved with the substrate. The lichens also occur in discrete patches not all the way along the fence line. It would be straight forward to remove and replace the lichens on their substrate before/after the fence is installed. Only common species of lichen have been identified during the survey. The mitigation is therefore feasible and adequate. No rare

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	Further detail on the methodology and efficacy of the proposed mitigation is required to confirm if this is adequate mitigation for impact to lichen and other important floral species based on the updated survey results.	species of flora have been identified during the surveys and it is unclear what survey results would add to determine the efficacy of this mitigation.
NE51	<u>Ditches</u> 1.11.65 to 1.11.68 Updated baseline information is still required to confirm the no LSE conclusion. Issue not resolved.	This is not agreed by the Applicant, please see Response to NE31 and NE41.
NE52	Increase in Nutrients Effect on Perennial Vegetation on Coastal Shingle 1.11.95 to 1.11.101 The Applicant still needs to consider, and a commitment made within the outline LBBG Implementation and Mitigation Plan (IMP) removal of arisings from vegetative maintenance and clearance of blockages in fences to remove issues around nutrient increases and flood risk. No change to our response.	This is now included in Section 5.4 of 5.5.6 LBBG Implementation and Monitoring Plan – Revision C, which was updated and submitted at Deadline 5.
NE53	<u>Climate Change Effects</u> 1.13 Climate change effects have been assessed, including roll back of the shingle ridge. However, the site boundary has been moved further inland away from main coastal ridge so this should address impacts to the site due to climate change-related roll back of the ridge. The Applicant has concluded no significant effects are expected from climate change. The Applicant needs to check NCERM2 data when released to consider the 50- year erosion line position to confirm their conclusion is accurate.	This is noted by the Applicant, please see Response to NE31.
NE54	**5.4.5 Lesser Black Backed Gull Habitats Regulations Assessment - Revision B** <u>2.1.1 Proposed Compensation Measures</u> Despite noting the changes to the compensation area boundary and the incomplete surveys, 6.1.1 has still concluded no LSE or AEoI. However, seasonally appropriate baseline surveys are needed for the new compensation area, along with updating the January surveys for the rest of the site. We note [AS-040] that the final details (including location) of the new ditch crossing will be set out in the final LIMP and the construction method statement for approval by the Secretary of State and LPA respectively. New information has been provided stating that vegetation management will be outside the bird breeding season. We advise that this needs to be for all relevant species, not just LBBG. This appears to include new information, and potentially significant additional impacts. Until the updated survey information is provided and assessed we cannot confirm if we can support a conclusion of no LSE.	This is noted by the Applicant, please see Responses to NE31, NE41 and NE46 and below. It would be helpful if Natural England could elaborate on what 'potentially significant additional impacts' have been identified as the Applicant does not consider this to be the case, with only very minor updates being made.
NE55	**5.4.1 Habitats Regulations Assessment Site Integrity Matrices - Revision B** <u>Orfordness-Shingle Street SAC</u> HRA Integrity Matrices 10 and 11 are related to LBBG. However, we note that OrfordnessShingle Street SAC is not considered in the matrices (which includes shingle and coastal lagoon habitats as features). It also does not appear to have been included in previous iterations or the screening process. Similarly, vegetated shingle impacts are not considered in the matrix. This SAC was included in our Table 5.1 of our Rel Reps Cover Letter [PD2-002]. Orfordness-Shingle Street SAC should be in the matrix and screened.	This is noted by the Applicant, please see Responses to NE05
NE56	**10.18 Report on Proposed Changes** 3.2.5 - The boundary changes for the LBBG compensation site at Orford Ness will be assessed through ongoing and planned vegetation and invertebrate surveys, alongside an ecological walkover survey. Natural England notes that updated documents expected at Deadline 4, but it is anticipated that there will be no change to the conclusions.	This is noted by the Applicant, please see Responses to NE31. Regarding 4.1.4 this is incorrect. The Applicant presented three potential areas including the chosen site to Natural England in a meeting to discuss the scope of the onshore surveys in August 2024. In this meeting it was clearly noted that access may not be

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	4.1.4 – This states that Natural England agreed the reduction in compensation site to 6ha, and the survey scope and methods to address data gaps. This agreement was prior to the boundary change that encompasses a new area. We need to see the new baseline survey data to assess the robustness of surveys and conclusions	possible for all sites (specifically including the chosen site), but that surveys would be undertaken where access was available which would support characterisation of the sites. It was agreed in this meeting that should one of the sites without survey data be taken forward, that a commitment to further surveys would be required. The Applicant has made this commitment.

6. APPENDIX N4 – NATURAL ENGLAND'S COMMENTS ON THE OFFSHORE IN PRINCIPLE MONITORING PLAN [REP4-064]

Ref	Summary of Deadline 4 submission OR Excerpt of Deadline 4 submission	Applicant's comments
NE57	**Introduction** Natural England welcomes the submission of the Five Estuaries Offshore In Principle Monitoring Plan (IPMP) as part of the application. Further, we welcome the Applicant's inclusion of the general guiding principles for proposed monitoring (Section 2). We also refer the Applicant to Natural England's Best Practice Advice document which sets out our expectations in terms of monitoring. This document is available at: Environmental considerations for offshore wind and cable projects - Phase IV Best Practice Advice for Post-Consent Monitoring, Version 1.0, July 2022.pdf. Relevant sections are also included in Annex A of this document for reference.	This is noted by the Applicant.
NE58	**Overarching Concerns with the IPMP** Natural England advises that this is a live document which is updated throughout examination and post consent to reflect the outcome of discussions and/or monitoring.	This is noted by the Applicant.
NE59	In recognition of the emphasis being placed by projects currently in the post consent phase on the IPMP when setting the monitoring requirements and parameters; Natural England highlights the importance of this document. Natural England emphasises the requirement to agree the scope of the IPMP and hypotheses which will be tested by the monitoring as part of the consenting phase.	This is noted by the Applicant.
NE60	Overall, Natural England feels that much more detail is required than is provided in the IPMP in its current form. For example; > What are the hypotheses the monitoring will be testing and how do they relate to the assessments undertaken in the ES? > How will the monitoring be designed to ensure that the desired outcomes can be achieved i.e. is the monitoring fit for purpose? > What are the indicative timings of the surveys? > Can lessons be learnt from previous thematic surveys and how will modifications to surveys design be incorporated between survey campaigns? > What does 'success' look like to demonstrate that no further monitoring is required? > What happens if the results do not support the null hypothesis? Is further monitoring required (with/without modifications)? If impacts are greater than predicted, do actions need to be undertaken to address these impacts? How will further monitoring and actions be secured, is a change to the wording of the dML required? And if so, how will success of any action/s be monitored and what will be the success criteria before monitoring can cease? To answer the above, Natural England considers the IPMP should focus on what the uncertainties and evidence gaps of the EIA and/or HRA are, rather than repeating the outcomes of the EIA only (Sections 4.3 - 4.8). We consider that establishing and agreeing the uncertainties and evidence gaps of the EIA and/or the HRA is necessary to inform what monitoring should be undertaken.	The Applicant notes NEs concern in relation to the current detail included within 9.32 Offshore IPMP – Revision C. The Applicant will review the IPMP and look to address NEs comments where possible at a future deadline.
NE61	As per the Applicant's 'General Principles and Guidance' (Section 2) Natural England advises an approach mechanism in which the Applicant presents a clearly defined hypothesis or null hypothesis of no impact would be beneficial. Monitoring thereafter would aim to test this. We advise a review period during which Statutory Nature Conservation Bodies (SNCBs) and regulatory bodies such as the Marine Management Organisation (MMO) are consulted by the Applicant to assess the results of the first period of monitoring. For example, one mechanism that could be introduced for particular receptors would be a	The Applicant will review the IPMP and look to address NEs comments where possible at a future deadline

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	live document which is reflective of what the monitoring is observing, including consideration of species/habitat recovery.	
NE62	We advise that monitoring should be effective in providing sufficient evidence pre-construction to inform the deployment of mitigation measures and similarly demonstrate the efficacy of mitigation measures during construction and post-construction. This is important to demonstrate compliance with the measures identified in assessments to mitigate significant impacts. It is also important to provide evidence to assess the significance of adverse effects, evaluate the success of mitigation measures and to help inform whether further remedial measures are required.	This is noted by the Applicant.
NE63	In relation to remedial measures, Natural England wishes to highlight the importance of ensuring that all relevant monitoring proposals for Five Estuaries (and/or associated DCO/dML conditions) consider the aim of securing a mechanism for adaptive monitoring when unforeseen impacts are detected. Thus, ensuring remedial measures (i.e., adaptive management) are triggered should the results of monitoring demonstrate impacts that are significantly greater than predicted and/or incorrect assumptions were made following review of the conclusions of the environmental statement and supporting documents. We advise that the potential for certain monitoring to trigger the development of countermeasures (with associated monitoring of those measures) should be clearly stated in relevant tables of the IPMP and incorporated into the DCO conditions where relevant.	The Applicant does not see the appropriateness of securing a mechanism for adaptive monitoring with regards to unforeseen impacts. Appropriate measures have already been put in place to monitor sensitive habitats, particularly in the benthic environment, where if biogenic and geogenic reef features are identified during the pre-construction surveys, a post construction survey targeting that feature will be undertaken to determine any change in the location, extent and composition of such feature. Additionally, if cable protection is installed in the Margate and Long Sands SAC, post construction monitoring will be carried out in line with methods agreed in pre-construction monitoring in the first year following installation of cable protection. The results of this survey will be used to inform the timing of subsequent surveys, if required, in consultation with the MMO and NE. This is outlined in Section 4.6 of 9.32 Offshore In-Principle Monitoring Plan Additionally, the monitoring of any counter measures which are put in place would add another layer of monitoring which is unlikely to highlight sufficient change and thus encourages monitoring of no real value.
NE64	**Nature conservation thematic advice - Engineering and design related monitoring** It is unclear to Natural England if this also encompasses monitoring surveys to inform final project design including those required to inform mitigation measures such as avoidance of certain sensitive receptors particularly environmental ones. If so, it would be useful if the Applicant could specify the purpose of each aspect of the engineering and design related monitoring in full. We highlight that geotechnical investigations will be critical to inform the cable burial risk assessment and in relation to reducing down the direct or indirect impacts to environmental receptors. We request that further details are provided to answer the questions posed in our overarching comments.	As noted in the 9.32 Offshore IPMP – Revision C in Section 4.2 the Applicant will undertake surveys at the pre-construction phase such as Geophysical and Geotechnical which may comprise of multibeam sonar, side-scan sonar, sub-bottom profiling, cone penetration tests and vibrocoring. Such surveys conducted will look to gather the following information: - Debris; - Boulders; - Archaeological features; - UXO presence; - Seabed Features; - Sediment Depths; and - The nature of the seabed. This information will aid engineering and design decisions to be able to commence construction activities and final survey proposals will be determined post-consent. The Geophysical and Geotechnical data that is collected from those surveys will inform pre-construction identification and mapping of features of importance to archaeology and benthic ecology.
NE65	Marine Processes	

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	Evidence is needed to validate predictions of impacts to, and recovery of, sandbanks, sandwaves and designated areas of seabed following seabed preparation and sandwave clearance. Natural England advises that sandwave/sandbank pre- and post- construction monitoring should be carried out to ensure no unexpected changes occur to seabed morphology, as predicted in the EIA. And that hypothesis on sandbank recovery have been met.	As highlighted above in Response NE63, appropriate measures have already been put in place to monitor sensitive habitats, particularly in the Benthic Environment.
NE66	Coastal Processes The Applicant has stated [REP1-051] that they intend to use Environment Agency LiDAR data and Anglian Coastal Monitoring Programme data to monitor coastal change. This should be secured either in the In Principle Monitoring Plan (IPMP) or elsewhere.	The Applicant will review the IPMP and look to address NEs comments where possible at a future deadline.
NE67	Offshore Ornithology The IPMP proposes that ornithological monitoring is focused solely on the compensatory measures that are implemented for the project. No further monitoring is proposed. Natural England highlights that compensation monitoring is undertaken to observe the success of the compensation measures and not to test the predictions of the ES. Therefore, we advise that further monitoring is required of residual concerns and to test agreed hypothesis. We advise that post-consent monitoring of the offshore wind farm could help clarify the key risks, such as those posed to LBBG from collision, and as such be included within the IPMP.	The Applicant's position is that site specific ornithological monitoring has provided little value at operational projects and should not be undertake as a matter of course, particularly not for non-significant impacts. There is no requirement to undertake monitoring to test ES predictions and given the highly precautionary nature of the assessment and the conclusion of no significant effects, there is, in the Applicant's view, no justification for post-construction monitoring beyond what is set out in the IPMP. Where there are perceived data gaps which further data may allow reduced precaution in future EIAs, this is best done at an industry level.
NE68	Benthic Ecology Natural England advises that Section 41 habitats (which includes piddocks) have now been appropriately included within the Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan [REP2- 021], however, it is unclear if biogenic reef monitoring within the Principle Monitoring Plan Revision B (Tracked) (Doc 9.32) [REP1-046] also relates to priority reef habitat. Natural England reiterates that all Section 41 Habitats should be included within the In Principal Monitoring Plan so that impacts on these habitats, particularly those that are irreplaceable (i.e. boring Piddock communities), can be avoided and reduced. We also advise that a commitment should be made to carry out specific pre-construction surveys to inform the benthic mitigation.	The Applicant notes that 'biogenic reef' as stated within the 9.32 Offshore In-Principle Monitoring Plan - Revision B [REP1-045] does relate to priority reef habitat. Prior to any construction works commencing, geophysical and geotechnical surveys will be carried out to further understand the seabed characteristics. Following these surveys, should there be any identification of potential Annex I reef habitats, further surveys will be undertaken as set out in the 9.32 Offshore IPMP [REP1- 045], which aim to determine if the reef is classified as Annex I reef. Piddock communities are found in one discrete section of the offshore ECC. There is a commitment to not dispose of any dredge material within this area identified to contain piddock communities Information is provided in 10.30 Outline Sediment Disposal Management Plan [REP4-041] Section 3.6). Due to the scarcity of other NERC habitats identified within the site, no other specific pre-construction surveys are planned to inform benthic mitigation.
NE69	Benthic Ecology It remains unclear if all surface laid infrastructure within MLS SAC will be monitored post construction and for how long. Or will any monitoring only be along a subsection. Again, as with Ornithology, we highlight that compensation monitoring is undertaken to observe the success of the compensation measures and not to test the predictions of the ES. Therefore, we advise that further monitoring is required of residual concerns and to test agreed hypothesis. Natural England advises that all infrastructure within MLS SAC should be monitored post installation to test particular hypotheses relating to significance and duration of impacts	The Applicant notes that the only infrastructure that is intended to be placed within MLS SAC is the cables, which will be buried wherever possible and where required, cable protection will be installed where it is not possible to burry to a sufficient depth. If cable protection is used within MLS SAC there is a commitment to monitor all areas where cable protection is placed [REP1-046] within the SAC. If it is noted that the details of this post-construction monitoring will be submitted for approval to the MMO for written approval at least six months prior to the commencement. The Applicant would like to note that this is not compensation monitoring as this is not considered a compensatory measure, it is monitoring of a potential impact within the SAC.
NE70	Marine Mammals We note that Section 4.8 of the IPMP now includes 4.8.5 "VE will consider the advice of the SNCBs regarding additional monitoring that may be required for marine mammals." We welcome this comment and will engage with the Applicant on the monitoring plan for marine	This is noted by the Applicant.

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	mammals. It would be helpful if some hypothesis could be agreed and secured during the examination within the IPMP.	
NE71	<u>Migrating Bats</u> Currently there is a lack of evidence regarding potential impacts to migrating bats due to the presence of the Five Estuaries arrays. Natural England advises that pre, during and post construction acoustic monitoring (possibly radiotracking) within the proposed development zone should be considered to increase the baseline knowledge of bat species migrating across the development area and inform the requirement for mitigation measures (including monitoring the success of any mitigation measures implemented.	Please see the Applicant's response to NE80 where further detail is provided with regards the Applicant's position on migratory bats.

7. APPENDIX O4 – NATURAL ENGLAND'S COMMENTS ON OFFSHORE DECOMISSIONING [REP4-065]

Ref	Summary of Deadline 4 submission OR Excerpt of Deadline 4 submission	Applicant's comments
NE72	**Summary** Natural England notes that the Applicant has submitted into examination a technical note on offshore decommissioning [REP2-028]. However, this is not an Outline Decommissioning Plan as requested by Natural England in our Relevant/Written Representations [RR-X] because its primary focus is on noise impacts during decommissioning of turbines. It is also too high level to advise with confidence that the impacts at the time of decommissioning will be less than construction. Therefore, as written, the technical note doesn't address concerns raised by Natural England in our Relevant and Written Representations. But, we believe that many of these are readably resolvable through the provision of an Outline Decommissioning Plan, adoption of appropriate project design changes and commitment to implementing mitigation measures.	The Applicant does not consider that an Outline Decommissioning Plan would provide any benefit or clarity at this stage beyond what is set out in the ES as this information is not available until more is known about the final design of the project. The decommissioning plan is a legal requirement under the Energy Act 2004 and there is an established process through which this is submitted and approved. There is no justification to duplicate that statutory process.
NE73	**Outline Decommissioning Plan** We draw the Examining Authority's (ExA) attention to the pre-construction requirement under S105 (2) of the Electricity Act 1989, where offshore windfarm developers are required to provide a Decommissioning Programme prior to construction. Therefore, we advise that there is a requirement to consider project decommissioning prior to decommissioning as suggested by the Applicant in the offshore decommissioning technical note [REP2-028]. The purpose of the programme is to provide preliminary information on the methods and approaches to the offshore components which will be decommissioned at the end of the operational lifetime of the Project. Therefore, we suggest that an Outline Offshore Decommissioning Plan provided during the consenting phase could provide the foundations of the Decommissioning Programme and consider all potential impacts to environmental receptors.	See response to NE72.
NE74	**Scour/Cable protection** Natural England notes that the offshore decommissioning technical note does not consider the removal of scour/cable protection at the end of the project lifetime citing '...the approach will be based on an assessment of relative net environmental benefit taking into consideration the in situ ecological value of offshore components alongside other factors...', which indicates an intension to leave cable protection in situ, including within Margate and Long Sands Special Area of Conservation (MLS SAC). The leaving in situ of cable protection within MLS SAC is of particular concern to Natural England. Natural England's current advice is that we do not agree with the Applicant's conclusion of no Adverse Effect on Integrity (AEoI) in relation to MLS SAC from lasting habitat loss/change resulting from the placement of cable protection over the lifetime of the project, even with an expectation that it will be removed at the time of decommissioning. This advice is consistent with the advice provided on all offshore windfarms since Hornsea Project Three, where cable protection within Annex I sandbanks has been proposed. The Secretary of State (SoS) decision for Hornsea Project Three, Norfolk Boreas, Norfolk Vanguard and Sheringham Shoal and Dudgeon Extensions Projects (DEP and SEP) supports this position; and has placed a requirement on those projects to provide compensation measures. Natural England therefore advises that without a commitment to remove cable protection at the time of decommissioning, impacts can no longer be considered to be 'lasting' for the duration of the project and will be a permanent impact within MLS SAC. Therefore, while we agree that the present HRA/EIA may not be sufficient to fully determine decommissioning impacts at the end of the OWF lifespan every effort should be made at the consenting phase to ensure that decommissioning impacts can and will be minimised as much as possible through project design commitments (e.g., only using appropriate cable protection that is readily removable).	The Applicant has committed to removing cable protection from within the M&LS SAC, see response to NE30.

8. APPENDIX M3 – NATURAL ENGLAND'S COMMENTS ON THE EXA'S WRITTEN QUESTIONS [REP4-062]

Ref	Summary of Deadline 4 submission OR Excerpt of Deadline 4 submission	Applicant's comments
NE75	**Ornithology Methodological Concerns** Natural England responded at Deadline 3 [REP3- 034] on our ornithology methodological concerns and the updated/new documents at Deadline 1. Below are our responses on our fish ecology (herring) and marine mammal methodological concerns and the relevant updated/new documents that relate to the Examining Authority's question.	This is noted by the Applicant.
NE76	**Fish Ecology (Herring) Methodological Concerns** > Natural England query the Applicant's approach of defining a 'peak' spawning time for seasonal restrictions (and lots of assumptions seem to have been used). We note that Cefas are advising on the method and defer to their expert judgement on the issue. > The data used are from surveys between December and January, however our understanding for this region is that the Downs herring spawn between November - January. The IHLS survey is targeted to the 'peak' herring larvae abundance, but it can be expected that some spawning may occur at any time between November-January. > Natural England welcome the inclusion of a piling restriction as a suitable mitigation. However, the proposed piling restriction has been suggested as 25th November - 3rd January; however, this does not seem to take into consideration when herring may arrive in the area to spawn and would also be potentially susceptible to underwater noise. Furthermore, as noted by Cefas, herring arrive in waves rather than all at once thus limiting the restriction to the determined peak spawning time only does not seem to account for this. Additionally, the suggested end date of the piling restriction (3rd January) seems to be very early in the month, which contradicts earlier text which states January has the highest larval densities for this stock. Therefore, we have outstanding concerns that the piling restriction may not cover a sufficient period to effectively mitigate the impacts to herring.	> The Applicant directs Natural England to the latest version of the 6.5.6.4 Herring Seasonal Restriction Note – Revision C [REP4-010] submitted at Deadline 4, within which further back-calculation scenarios were undertaken in accordance with the MMO's recommendations. The use of the parameters as suggested by the MMO, has led to the definition of a period that reflects spawning earlier in the season (from the 2nd November to the 17th December). The Applicant stands by its approach and the peak spawning period that results in a timing restriction later in the season, from 25th November to 3rd January. > The Applicant confirms that, as recommended by the MMO in their Relevant Representation [MMO-RR98], the IHLS data was interpreted by breaking down the data by each of the three survey periods (one in the 3rd quarter of each year undertaken by the Netherlands between 16th - 31st December, and two in the 1st quarter of each year; between 1st - 15th January undertaken by Germany, and between 16th – 31st January undertaken by the Netherlands (noting that the from 2018 onwards, the latter survey (between 16th – 31st January) was discontinued) as herring spawning typically occurs later in the season in the area of the Downs spawning ground where VE is located. In doing this, it was evident that, although of low intensity (relative to the broadscale spawning of the Downs stock), herring spawning of the Downs stock in the southern North Sea occurs later in the spawning season (defined by Ellis et al., 2015, as taking place between 1st November and 31st January (inclusive)), reflecting the migration of herring in a northerly direction (Cushing & Bridger, 1966, and Burd, 1978). It was on this basis, that the data collected as part of the December surveys were therefore discounted from the back calculations. This approach was supported by the MMO in their latest submission [REP3-029]. > The Applicant would first like to note the implementation of a variety of precautions into the back calculations, notably: > The consideration of a four hatch sizes, from 5mm (the most conservative hatch size to determine the start date) to 11mm (the most conservative hatch size to determine the end date) as informed IHLS survey data; > The inclusion of a 7-day yolk absorption period (based on a study in lower water temperatures) and slower growth rate (0.34 mm d-1); > The inclusion of the yolk absorption period separately to the duration required for larvae to grow to catch length, when in the fact that larvae will be growing during the yolk absorption phase rather than growing and yolk absorption being sequential processes (this results in a degree of double counting); and > The use of the earliest spawning start date and latest spawning end date across all eight back calculation scenarios, extending the seasonal restriction period from 10 days to 39 days > VE lies within the migration pathway for herring; however, it is positioned on the northeastern return leg of the herring migration pathway. Therefore, it is not considered that piling would have any impacts on herring migration to the spawning grounds. Notwithstanding this, taking the above measures of precaution into account, the Applicant is confident that that it has

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		implemented a sufficiently precautionary approach in defining the Downs stock herring spawning period to accommodate the migration of herring from the spawning grounds. > The Applicant acknowledges that peak larval densities are apparent in the January IHLS surveys but notes that the back calculations are undertaken to determine the peak spawning period of adult herring. As eggs and larvae lack swim bladders, or the connection between the swim bladder and the inner ear has not yet formed at this stage, they are considered to be less sensitive to underwater noise than spawning adult herring. The Applicant therefore reaffirms, that the focus of the piling restriction should be to mitigate against impacts from underwater noise on spawning adult herring (as these are the sensitive receptors), and not eggs and larvae
NE77	**Marine Mammal Methodological Concerns** Natural England had concerns with several conclusions in the Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) due to the lack of robust evidence supporting the conclusion. Thus, Natural England recommended population modelling to be conducted, such as Interim Population Consequences of Disturbance (iPCoD), to aid understanding of the impacts of the project alone and in-combination with other plans and projects at a population level and to inform the conclusions of the EIA and HRA. Natural England notes that the Applicant in response to our comments conducted iPCoD modelling and produced report 10.13 Marine Mammal Ipcod Modelling – Project Alone. We note that the modelling was conducted for project alone due to the uncertainties/ lack of data on the piling schedules of projects included in the in-combination assessment. We don't have objections to the Applicant position on this. In general, Natural England views the iPCoD as a tool to help support the conclusions of the assessment that had not been supported by robust evidence. However, we acknowledge the evidence gaps in the relationship between sound, disturbance and population impacts and many assumptions and uncertainties build into the model. Thus, the results of the model are only an indication of the possible population impacts and should be interpreted with caution. Therefore, although the model can be used as a tool alongside other methods for assessing the impacts of disturbance, it does not mean the results of the modelling should dictate the final significance conclusion. More specifically, Natural England notes that the Applicant only used the 'mean' to present the results of iPCoD modelling (Tables 5.1, 5.2, 5.3). Without having a sight of 'median' values, we cannot conclude with confidence that there are no population impacts. Natural England understands that both values, mean and median, need to be considered and presented for completeness. We would recommend that the Applicant amend the document to include the median values and a consideration of them to improve the robustness of their conclusions. Natural England notes that the Applicant has followed our advice on using the site-specific density estimates for harbour porpoise. (1.82 porpoises/km2). However, we disagree with the Applicant's claim made in paragraph 4.2.1. :" It is important to note here that while the site-specific density estimate has been used as requested by Natural England, there is no evidence that the density estimate is valid for impacted areas beyond the boundary of the site-specific surveys (i.e.: most of the disturbance contours)." Our position on the species densities remains the same as stated in the 'Appendix H to the Relevant Representations of Natural England Marine Mammal Ecology', comment H4. Furthermore, as the iPCoD has been conducted only for project alone, the site-survey density is the most representative.	The Applicant is pleased to note Natural England's agreement regarding not running cumulative iPCoD due to the uncertainties/ lack of data on the piling schedules of projects included in the in-combination assessment. As requested, the Applicant has added median and 95% CIs to the iPCoD results tables to 10.13 Marine Mammal iPCoD Modelling for Project alone – Revision C which has been submitted at Deadline 5. The Applicant notes the comments relating to porpoise density, but no further action is required at this stage as the requested density estimate has already been used to inform the iPCoD assessment. The Applicant would like to re-iterate that there is no evidence that the site specific survey results are representative of porpoise density estimates at much larger distances from the survey area.

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	Natural England notes that the Applicant conducted iPCoD modelling for two scenarios for harbour seal i.e. stable and declining population. Given that the population remains in decline, the latter scenario is the most appropriate. Currently, the cause of the decline of harbour seals in the Wash and North Norfolk Coast (WNNC) SAC is unknown; until the cause of the decline is found, any activities that have the possibility to hinder recovery need to be carefully assessed for less impactful alternatives (such as the use of noise abatement or other suitable alternative to reduce sound at source).	

9. APPENDIX M4 - NATURAL ENGLAND'S COMMENTS ON THE EXA'S WRITTEN QUESTIONS 2 [REP4-063]

Ref	Summary of Deadline 4 submission OR Excerpt of Deadline 4 submission	Applicant's comments
NE78	**ME.2.02 - Technical Note – Methodology for Determining Maximum Design Scenario** Please be advised that Technical Note – Methodology for Determining Maximum Design Scenario (Offshore) [REP2-027] doesn't allay our concerns. We hope the following explanation as to why is helpful to the ExA and the Applicant. Natural England advises that [REP2-027] Methodology for Determining MDS Technical Note still does not explicitly state whether the MDS area of cable protection within MLS SAC of 5,400m2 includes any scour/cable protection which may be required as a result of cable repair and/or replacement during the O&M phase of the project. If the MDS value for scour/cable protection does include O&M requirements, any assumptions used in the determination of this MDS value should be provided. There are also inconsistencies between [REP2- 027] Technical note - Methodology for Determining MDS (Offshore) and the [REP2-021[9.13 Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan - Revision B (Tracked) with regards to the MDS length of cable protection placed within MLS SAC i.e. 900 m per cable vs 900 m in total. We advise that this should be clarified. No additional detail has been included that adds certainty that the cables can be buried. Further detail should be provided to give more certainty or clarity on this issue. Natural England notes that, in the MDS Technical Note [REP2-027], Section 2.4.2, the Applicant states that a 50% sediment disturbance has been used for trial trenching (Table 1.6) which seems to contradict [REP1-051] in which the Applicant confirms use of the assumption that up to 100% of material will be fluidised and displaced from the trench. We advise that this needs to be clarified. We also note in the MDS Technical Note [REP2- 027] that "only very minor changes are expected to the sediment transport regime at MLS SAC due to the presence of cable protection", this conclusion needs to be supported with more evidence, such as a detailed sediment transport modelling study, based on the prevailing conditions at the proposed cable protection site.	The MDS area of cable protection within MLS SAC of 5,400 m^2 (or 900 m length) includes any required as a result of cable repair and replacement or cable exposure during operation. This will made more explicit in a revision of 10.20.1 Technical Note - Methodology for Determining MDS (Offshore) at Deadline 6. The MDS of 5,400 m^2 (or 900 m length) of cable protection in total within the MLS SAC, as detailed in Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan - Revision C [REP4-022] is correct. This will be updated in a revision of 10.20.1 Technical Note - Methodology for Determining MDS (Offshore) at Deadline 6. The available data on the ground conditions in the ECC in the M&LS SAC and outline CBRA work undertaken to date, illustrates that the cable will be buried either into sand or in the London clay that sits below these surficial sediments. Based on this information it is expected that it will be possible to effectively bury the cables in the M&LS SAC. However, it is not possible to completely rule out the potential need for cable protection if burial fails for any reason (e.g. due to presence of unexpected boulders/ cobbles in the London clay that may hamper burial). Obtaining geotechnical data (which is at discrete point sources typically 1-2 km apart) will not assist is the determination of the likelihood of encountering equipment breakdown and unexpected boulders. The level of information on the soils is sufficient to confirm that the cable can be buried. If the DCO is granted, there will be a detailed design process to determine the final route, and select the final burial tool, this will be informed by a detailed design geotechnical survey. It is not appropriate for the Applicant to conduct such work at this early stage, therefore a worst case scenario has been assessed. The difference in the 50% assumption considered as realistic and the 100% modelled in the environmental assessment is explained clearly in section 2.6 REP4-034. Modelling of trenching has assumed up to 100% of material may be fluidised which has also been utilised in the assessments of potential effects, as this presents a worse case and was recommended by Natural England. Regarding the numerical modelling for sediment transport – please see response to P4 below.
NE79	**ME.2.03 - Margate and Long Sands Special Area of Conservation – conservation advice** Natural England advises that it is unlikely that the Margate and Long Sands SAC conservation advice package will be updated in time to inform the Five Estuaries (VE) Examination. However, Natural England is hoping to publish an update to the MLS SAC condition assessment at the start of 2025. We will be able to provide a further update on this at Deadline 5.	This is noted by the Applicant.
NE80	**ME.2.10 Effects on migratory bats** Natural England notes that there is increasing concern in relation to OWF impacts on migrating and foraging bats. We are aware that there is evidence that Nathusius' pipistrelle Pipistrellus nathusii cross the sea between land mass in the foci area and mainland Europe. How significant this route is in terms of number of individuals cannot be confidently defined at this time.	Following the response from Natural England at Deadline 4 (NE80), and the Rule 17 request from the ExA on the 16th December regarding Migratory Bats, the Applicant has outlined their position below and proposed next steps. Natural England identified that advice on surveying for *Nathusius' pipistrelle* was provided at PEIR. The following advice was provided in response to the onshore ecology PEIR chapter – '*Any trees/buildings to be removed will need bat assessment. Habitat which may be foraging/commuting habitat will need assessment. Consider surveys for Nathusius' pipistrelle*

Ref	Summary of Deadline 4 submission OR Excerpt of Deadline 4 submission	Applicant's comments
	We have previously advised the Applicant during the pre-application process to consider migrating bats and surveys for Nathusius' pipistrelle which migrate across the North Sea. Furthermore, we advised that surveys needed to be carried out at the appropriate times and locations (e.g. PEIR response, May 2023). However, at present Natural England has insufficient evidence to allow us to quantify and confidently advise on the level of potential impacts on migrating Nathusius' pipistrelle and possibly Nyctalus bat species from the proposed VE windfarm arrays. Consequently, at this stage, our advice is that the Applicant needs to consider options to reduce impacts to migrating bats as much as possible, although there is a risk that these may not be sufficient to reduce impacts to acceptable levels. Clearly, there is a need to gain further insight into bat movement where the turbines are proposed. Therefore, we advise that acoustic monitoring (possibly radiotracking) within the proposed development zone may help to increase survey baseline knowledge. Ideally, data should inform the consenting process to give the level comfort to the Secretary of State as the decision maker, and where this is not possible a more precautionary approach to ensure adverse effects can be avoided should be followed. Should the Secretary of State (SoS) choose to grant consent to VE, then we would suggest that the DCO should secure a requirement to monitor migratory bats (pre, during and post construction) and would recommend that the In Principle Monitoring Plan and Deemed Marine Licence within the Development Consent Order should be updated to secure this monitoring. Further, if the monitoring provides clear evidence that a significant proportion of migratory bats are at risk of collision from the new development, the new condition wording should require further mitigation. Natural England highlights that the only long-term mitigation at present known to reduce fatalities from collision is curtailing (slowing) blade rotation speed or further still stopping the blades all together. Curtailing turbines has been shown to reduce collision impact to bats in the United States (Whitby et al. 2024) 1 . Bats are more likely to be volant at reduced wind speed, and this is when turbines produce less energy, having a reduced impact on overall energy generation. However, it is also worth noting the presence of two operational windfarms in this area of the Southern North Sea (i.e. Greater Gabbard and Galloper) may mean such a mitigation measure proves unlikely to be effective. We also highlight that if the same approach is applied to sea as to land, then it is probable that where there is a significant risk of disturbing, removing wildlife or damaging habitats, that a protected species licence would be required prior to construction.	*which migrates across North Sea – surveys need to be carried out at appropriate time and locations.*'. In this context the Applicant interpreted the advice as relating to onshore bat surveys (which were carried out). It is noted that no other reference or response on the assessment of migratory bats was received either in response to PEIR or the application until Natural England's Deadline 4 response. As highlighted in previous responses [REP1-049 and REP3-025], the Applicant reaffirms that we consider there will not be a significant effect on migratory bats from the project. The Applicant maintains the position that the data submitted and cited within the German Hydrographic response does not support the conclusion that the proposed development area is within an important area for migratory bats between the UK and Europe. This lack of evidence is highlighted by Natural England in their response at Deadline 4 "… at present Natural England has insufficient evidence to allow us to quantify and confidently advise on the level of potential impacts on migrating *Nathusius' pipistrelle* and possibly *Nyctalus* bat species from the proposed VE windfarm arrays." In addition, the level of active offshore wind farms currently operating within the Southern North Sea and the immediate area adjacent to Five Estuaries would likely render mitigation, such as curtailment, ineffective. Five Estuaries proposed position is directly behind Galloper and Greater Gabbard operational OWFs (and further, North Falls to the south if consented and East Anglia 2 to the north once built). Any potential bats migrating from the UK coastline, would be likely to encounter these other projects, which are not required to implement any mitigation, first. This is referred to in part in Natural England's response "it is also worth noting the presence of two operational windfarms in this area of the Southern North Sea (i.e. Greater Gabbard and Galloper) may mean such a mitigation measure proves unlikely to be effective." The presence and close proximity of these windfarms, and the lack of current population and baseline data, means that determining project level effects (i.e. attributable to Five Estuaries or any single project) would be extremely difficult, irrespective of any site specific monitoring being carried out. Nevertheless, the Applicant recognises that there is currently a lack of baseline data associated with migratory bats, therefore, to aid future decision making and to increase the evidence base only, the Applicant is willing to carry out appropriate monitoring which provides useful and relevant additional data. This could involve deploying acoustic detectors, either offshore and onshore, during the known migration periods for bats species. Alternatively, the Applicant could support any ongoing or new research projects into migratory bats and their interaction with offshore wind farms. The Applicant is engaging with Natural England to seek to agree the approach to monitoring. Overall, the Applicant believes that contributing to increasing the limited evidence base is the best course of action, considering the very limited scale of any potential effect, and also the likely ineffectiveness of proposed mitigation (curtailment) in this context.
NE81	**ME.2.15 Marine Noise Policy Paper** Natural England understands that the Defra Marine Noise Policy paper is currently due to be published in the next few weeks. The paper will set out that from January 2025, all offshore wind pile driving in English waters will be required to demonstrate that they have utilised best endeavours to deliver noise reductions through the use of primary and/or	The Applicant is aware of the DEFRA marine noise policy paper regarding noise reduction measures that is due to be published however, at the time of writing no guidance, policy or legislation has been published by DEFRA. Therefore the Applicant maintains that unabated piling remains the MDS.

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	secondary noise mitigation methods in the first instance. We strongly advise that the Applicant commit to the use of specific mitigation measures at this stage, which may be removed at a later date if the revised SIP demonstrates they are not required.	The Applicant has not excluded the potential use of noise abatement systems from the Project design, should they be required. A discussion of these measures is included within 9.14.1 Outline MMMP – Piling – Revision C [REP4-023]. The Applicant maintains that the Natural England approach to 'removing' mitigation at a later stage is not appropriate and does not follow the mitigation hierarchy. The SIP sets out the process through which impacts on the SNS SAC will be managed to ensure no AEoI. This includes, if required, consideration of noise reduction. The SIP is an established process for controlling noise impacts on the SNS SAC and the Applicant maintains that this is the most appropriate way to secure no AEoI on the site.

10. APPLICANTS RESPONSE TO NATURAL ENGLANDS PADSS [REP4-061]

NE Ref	The principal issue in question	The concern held by Natural England	What actions have been taken and what still needs to change to overcome the disagreement D4	Likelihood of the concern being addressed during examination	RAG rating at D4	Applicant's position
Development Consent Order (DCO)						
P1	The during construction monitoring conditions within the deemed Marine Licences (dML) Schedules 10 and 11 do not secure that piling must cease in the event the monitoring highlights the noise impact is significantly in excess of the predicted impacts assessed.	This is a key mitigation for marine mammals and has been included in previous DCOs for various offshore wind farms, such as the recent East Anglia One North project or the Sheringham and Dudgeon Extension Project.	Natural England and the Applicant have a meeting scheduled for 9th December to discuss the outstanding DCO issues. An update on progress made will be provided at Deadline 5.	Potential resolution.		Additional drafting to address this point has been included in the dDCO submitted at deadline 4. Please see REP4-005, schedule 10, part 2 new paragraph 19 and schedule 11, part 2, new paragraph 20, 'Marine mammal condition'.
P2	Margate and Long Sands Special Area of Conservation (MLS SAC) Benthic Mitigation Plan is not secured within the transmission deemed Marine Licence (dML).	This plan includes key mitigation for the SAC which needs to be updated to include relevant up-to-date information on the final designs and up to date mitigation techniques.	Natural England and the Applicant have a meeting scheduled for 9th December to discuss the outstanding DCO issues. An update on progress made will be provided at Deadline 5.	Potential resolution.		Compliance with this plan is secured within dML. Schedule 11, part 2 paragraph 13(1)(g) (iv) requires the CSIP to comply with this plan. The M&LS SAC Benthic Mitigation Plan is a final plan that sets out the commitments the Applicant has made regarding how cable installation and cable protection will be considered within the SAC. These commitments must be reflected in the final CSIP for approval by the MMO.
P3	Schedule 14 includes only impacts to Alde-Ore Estuary Special Protection Area (SPA) Lesser Black Backed Gull (LBBG), but not affected features of MLS SAC or Flamborough and Filey Coast (FFC) SPA.	We cannot rule out Adverse Effect on Integrity (AEoI) on MLS SAC and FFC SPA and advise that compensation may be required for these sites, if the Secretary of State (SoS) determines that it is required.	Natural England and the Applicant have a meeting scheduled for 9th December to discuss the outstanding DCO issues. An update on progress made will be provided at Deadline 5.	Potential resolution.		Without prejudice dDCO schedules have been provided at Deadline 5.
Marine Geology, oceanography and Physical Processes						
P4	Disruption of sediment transport processes at MLS SAC due to the placement of cable protection	Insufficient information to assess the magnitude and significance of potential impacts to sediment transport processes within MLS SAC.	The Applicant needs to provide more evidence to support their conclusions of 'only very minor changes' to the sediment transport regime, such as a more detailed sediment transport study/modelling of the proposed cable protection placement area at MLS SAC,	Potential resolution.		The assessment of potential impacts of cable protection on sediment transport is provided in paragraph 2.11.61 onwards of APP-071. Cable protection could result in a local increase in the elevation of the seabed by up to 1.1 m (1.4 m at cable crossings) with a sloped side profile. The height of structure is small relative to the total water depth (typically 30 m) and would not present any meaningful obstruction to currents.

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			based on the prevailing conditions to resolve this matter.			The assessment identifies that a small amount sediment might become trapped in the limited void space of the protection, and that a limited amount of sediment might accumulate to the side of the berm before sediment transport continues uninterrupted at the natural rate and direction. The basis and conclusion of this assessment is consistent with sediment transport theory, laboratory experiments, and an absence of field evidence to the contrary. In terms of potential far field effects, the assessment makes the reasonable assumption that if currents (the main driver for rates and patterns of sediment transport) are not changed, then neither is the natural sediment transport regime. Sediment transport is naturally variable and complex in space and time – and this is simply expected to continue in the future, unaffected by the presence of the MDS cable protection. Explicit modelling of the impact of cable protection on sediment transport would require a detailed three-dimensional hydrodynamic model that resolves the shape of the protection berm (i.e. tens of centimetres spatial resolution) and which includes a sufficiently robust morphological feedback system to account for the changing flow conditions in response to sediment accumulation (and vice versa). Due to the very high computational requirement of the fine-resolution mesh, such detailed modelling could only realistically be used to simulate a small seabed area for a short simulation time, which is unlikely to be sufficient to inform long term response or to account for differences in sediment type, water depth and other hydrodynamic variables within the study area. We also suggest there is no reason to think that the result of the modelling (based on sediment dynamics theory) would not be consistent with the original conceptual assessment.
P5	Construction and Operation and Maintenance Impacts to SPA/SAC supporting habitats, and priority habitats	Incomplete consideration of potential impacts to seabed morphology and magnitude and significance of their effect.	Partially resolved. The Applicant needs to be provide a WCS/MDS for construction-related sediment deposition thickness within the Array Areas to inform the impact assessment for other ecological receptors (e.g. fish). With regards to changes to operational impacts to seabed morphology, we advise that further information is needed regarding seabed mobility/bedform migration and stability.	Potential resolution.		The WCS/MDS for construction-related sediment deposition thickness within the Array Areas is provided in paragraph 2.10.8 onwards (supported by Figures 2.3 and 2.4) of APP-071.
Offshore Ornithology						

NE Ref	The principal issue in question	The concern held by Natural England	What actions have been taken and what still needs to change to overcome the disagreement D4	Likelihood of the concern being addressed during examination	RAG rating at D4	Applicant's position
P6	Potential incorrect estimates for Alde-Ore Estuary (AOE) SPA lesser black backed gull (LBBG) mortalities.	At present, the estimates for mortalities due to collision at both the north and south VE arrays appear incorrect.	Uncertain. Whilst the mortality estimates have been clarified, the assessment still needs to be revised for the issue to be resolved.	Uncertain. If the assessment is updated, as advised, this issue may be resolved. It will still be the case that an AEoI cannot be ruled out.		The assessment has been carried out using the correct mortalities estimates and the results both the Applicant's preferred approach and Natural England's preferred approach have been presented.
P7	Apportioning of adults (other than AOE SPA LBBG) during the breeding season based on generic data rather than site-specific data.	We advise that the evidence used to inform adult apportioning is not sufficient. The data on the number of adult- or adult-type birds present is generic. Seasonal variations should also be considered.	Resolved adequately for the key species of concern.	Potential resolution. If the Applicant updates the assessment in line with our recommendations, then this issue could be resolved.		The Applicant has provided an assessment for both the Applicants approach and Natural England's approach for the apportioning of adults.
P8	In-combination impacts on the FFC SPA populations of guillemot and razorbill are at a level where adverse effects cannot be ruled out and VE will be adding to this.	The Applicant has applied their preferred displacement (50%) and mortality (1%) rates to the guillemot and razorbill populations at risk at each offshore wind farm (OWF) project included in the in-combination assessment for the FFC SPA. As well as departing from Natural England advice on this matter, in so doing the Applicant disregards the in-combination values that have been used by DESNZ for recent consents.	Progressed but not resolved - outputs for the VE project impact have now been presented at 70% displacement and 2% mortality, and some updates for other projects have been added, but the need to maintain and update the in-combination assessment in the light of additional information on other projects remains a live issue.	Potential resolution. This should be submitted into the Examination to resolve this issue.		The Applicant has updated the in-combination numbers with the most recent numbers from additional information from other projects.
Ornithology Compensation						
P9	AOE SPA LBBG - concerns regarding the suitable level of compensation and the effectiveness of measures proposed at the two sites.	As well as the above issue regarding the impact calculation for AOE SPA LBBG, the compensation requirement is based on the mean number of mortalities rather than the 95% upper confidence interval (UCI) value.	The compensation quantum needs to be calculated in line with Natural England's advice. Further information on the proposed compensation sites needs to be provided, particularly with respect to survey visits in summer 2024 as regards avoiding	Uncertain. If the assessment is updated and the compensation based on the 95% UCI, the compensation requirements issue		The assessment of the compensation quantum is presented in 5.5.3 Lesser Black-Backed Gull Compensation Evidence, Site Selection and Roadmap – Revision C. The Applicant maintains its position that the use of the mean number of mortalities, not the UCI, is the most suitable method. Assessments and survey reports with regards to the proposed Orford Ness compensation site were updated and submitted at Deadline 4 [REP4-007, REP4-013, REP4-015]. Additionally, a

NE Ref	The principal issue in question	The concern held by Natural England	What actions have been taken and what still needs to change to overcome the disagreement D4	Likelihood of the concern being addressed during examination	RAG rating at D4	Applicant's position
		The proposed compensatory measures have potential merit, however further information is needed to provide sufficient confidence that the measures can be secured and will be effective.	impacts on other designated sites (Orford Ness) and the likely drivers of population decline (Outer Trial Bank). No change. We note that landowner support for the proposed location on Orfordness is not available.	may be resolved. However, unless findings are presented promptly following the 2024 breeding season, the uncertainties around the proposed compensation are unlikely to be resolved during Examination.		Digital Aerial Survey (DAS) report [REP3-026] for the Outer Trials Bank site was also submitted at Deadline 3. The Applicant has included the site within its Order Limits which secures the measure.
P10	Uncertainty regarding adequacy of implementing disturbance management at southwest colonies for FFC SPA guillemot and razorbill.	Whilst we consider this measure to be technically feasible, candidate locations have been identified but not secured. Impact levels are also still to be agreed.	We welcome the provision of breeding season surveys, which indicate potential issues with recreational disturbance which could be addressed. However, several important elements still require further investigation or detail - please see Appendix M2 for more detail.	Uncertain Monitoring will take time so unless findings are presented promptly following the 2024 breeding season, this issue is unlikely to be resolved during Examination.		The Applicant carried out site suitability surveys during the 2024 breeding season to identify the best sites for compensation. Further, more detailed surveys will be carried out in 2025 onwards.
P11	FFC SPA kittiwake Artificial Nesting Structure (ANS).	As with LBBG above, the compensation requirements are to be calculated using the central impact value. There is also some uncertainty regarding the nature of the sharing agreement with DBS OWF for their ANS at Gateshead.	Progressed but not resolved. Information on the sharing arrangement and apportioning of benefits for the Gateshead ANS has now been provided. However whilst the roadmap presents calculations regarding the 95% UCI, these relate to outputs using the lower of the two Nocturnal Activity Factors (NAF), whereas the higher one should be used.	Potential to Resolve. If further details can be provided, then it is likely that this issue can be resolved.		See comment NE20 above. The differences in the numbers have nothing to do with NAF, the 0.82 number has been derived using the StochLab methods in the CRM report [APP-110] where a NAF of 37.5% was used.
Benthic Ecology						
P12	AEoI on Annex I sandbank feature of Margate and Long Sands Special Area of Conservation (MLS SAC).	We disagree with the Applicant on the scale and significance of the impact.	Further reduction of impacts through adoption of robust mitigation measures.	Unlikely		The Applicant has provided details of mitigation that is possible within MLS SAC [REP4-022] to further reduce the potential for impacts to occur. The Applicant maintains its position that a miniscule amount of cable protection within MLS SAC does not constitute an AEoI.

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P13	Mitigation measures fail to consider potential presence of Section 41 NERC Act habitats.	The Applicant has failed to consider Section 41 NERC Act habitats in their assessment.	Progressed but not resolved as there is no firm commitment to avoid and inclusion of a decision tree to minimise impacts where avoidance is not possible.	Potential resolution		The Applicant is committed to avoiding Section 41 Priority Habitats wherever possible [REP4-022] and [REP1-046].
P14	Methods and evidence used to determine MDS for cable protection within MLS SAC and WCS potentially not realistic.	Natural England is unable to advise on the scale and significance of the impacts and therefore compensatory requirements.	No change (there remain inconsistencies in MDS between the [REP2-027] 10.20.1 Technical note - Methodology for Determining MDS (Offshore) and the [REP2-021] 9.13 Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan - Revision B (Tracked) i.e. 900 m per cable vs 900 m in total)	Potential resolution		The Applicant has made updates to the Technical note - Methodology for Determining MDS (Offshore) – Revision B [REP4-035] and provided responses to inconsistencies with MDS information provided in 9.13 Margate and Long Sands Special Area of Conservation Benthic Mitigation Plan - Revision D within NE78.
P15	"Without Prejudice" Benthic Compensation	Further progress is required on each measure to have confidence that they are achievable and would deliver effective compensation for project impacts.	Natural England advised in ExQ1 ME.1.10 [REP-059] that at this stage, we do not believe that there is merit in progressing and/or placing reliance upon **project** specific benthic compensation measures namely, Anthropogenic Pressure removal (Redundant infrastructure or aggregates) and Sea Grass Habitat Creation/Restoration. Therefore, we advise that once DEFRA's guidance on, and assurances in relation to the delivery of strategic benthic compensation (including timings etc.) become available, every effort is made by the Applicant to update the examination on Five Estuaries commitments to Strategic Benthic Compensation measures i.e. Marine Protected Area designation/extension	Uncertain. Further review is likely to be undertaken during examination and with no guarantee this issue will be resolved within the examination timeframe.		The Applicant is in agreement with Natural England that should benthic compensation be required, the option with the best likelihood for success is the Strategic compensation option. However, due to the delay in the ministerial statement, the Project would like to retain other options as a precaution.
Marine Mammal Ecology						
P16	Southern North Sea Special Area of Conservation (SNS SAC) – harbour porpoise underwater noise impacts - Outline Site Integrity Plan (SIP)	Current approach to SIP implementation is unlikely to prevent impact thresholds from being exceeded in the SNS SAC. The Applicant has not	No change. Natural England understands that the Defra Marine Noise Policy paper is currently due to be published in the next few weeks. See Appendix M4 for further information.	Potential Resolution. If changes can be made to the Outline MMMP, it		The Applicant is aware of the DEFRA marine noise policy paper regarding noise reduction measures that is due to be published however, at the time of writing no guidance, policy or legislation has been published by DEFRA. Therefore, the Applicant maintains that unabated piling remains the MDS.

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		committed to using Noise Abatement Systems (NAS) at this stage, increasing the risk that an adverse effect on site integrity (AEoI) cannot be avoided.		is likely this issue can be resolved		Should the DEFRA marine policy paper be published during the timeframe of examination, the Applicant will review the policy paper and will consider any implications.
P17	EIA/HRA Conclusions	Lack of robust evidence supporting the conclusions made.	We welcome the iPCoD modelling carried out by the Applicant. However, we have concerns with the approach taken and results. Please refer to Appendix M3 of our Deadline 4 Examiners Question response.	Potential Resolution. If the Applicant carries out population modelling and updates their EIA/HRA assessment it may be possible to resolve this issue.		As requested, the Applicant has added median and 95% CIs to the iPCoD results tables to 10.13 Marine Mammal iPCoD Modelling for Project alone which will be submitted at Deadline 5. The Applicant notes the comments relating to porpoise density, but no further action is required at this stage as the requested density estimate has already been used to inform the iPCoD assessment. The Applicant would like to re-iterate that there is no evidence that the site specific survey results are representative of porpoise density estimates at much larger distances from the survey area.
Seascape, Landscape and Visual						
P18	Suffolk and Essex Coast & Heaths National Landscape/AONB and Suffolk Heritage Coast (SHC) – seascape impacts.	The special qualities of the National Landscape/AONB and the SHC will be affected by the proposed development. This is of particular concern at Orford Ness. We are concerned that the most northerly 8 WTGs will 'close the gap' and create a distinct grouping between the existing Galloper and Greater Gabbard OWF arrays, and the to be built EA2 array. In addition, the size difference between the VE and other WTGs in the area will result in a visually jarring 'cluttering' effect.	The SLVIA needs to be updated to properly assess the potential impacts on the AONB and SHC, particularly with respect to the most northerly WTG and the potential for the array to cause 'curtaining' and 'cluttering' effects. Once the assessment is updated, further consideration of NE advice on embedded mitigation is required, drawing on our three proposed design principles.	Uncertain. There is potential for the applicant to update the assessments during the examination. However, it is likely that the issues raised will not be resolved through. assessment alone and will require design changes in line with our proposed principles to be addressed.		The likely significant effects of the VE arrays areas on the views and special qualities of the SCHAONB are assessed in 6.2.10 Seascape, Landscape and Visual Assessment [APP-079]. The Applicant highlights that this includes assessment of the full VE array areas including the most northerly WTGs and the potential for the array to cause 'curtaining' and 'cluttering' effects (Section 10.13, including Tables 10.32 – Table 10.36). The conclusion of this assessment is that significant adverse effects on the special qualities of the SCHAONB will be avoided. The Applicant's assessment is that on balance the 'curtaining' effect is not significant given the retention of a gap between VE and EA2 in the majority of views; the very long distance of the viewpoints where the gap is narrowest; the relatively narrow additional increase in lateral spread of the VE WTGs; their introduction as elements that are similar to those that are present or consented; and their very long distances from the SCHAONB on the sea skyline, all of which diminishes the potential 'curtaining' effect, and limits the effect to occurring in only the most optimum, infrequent, visibility conditions. The Applicant notes that Natural England have a particular concern at Orford Ness. The Applicant notes that this narrow strip of coast forms the closest point of the Suffolk Coast to the VE arrays but is not representative of the impacts from other locations set further back from Orford Ness or at longer distances to the north and south of the SCHAONB, and it is a location with limited public access. Wider views of Orford Ness

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						also include other development influences, including structures associated with the former military use, tall communications masts and bleak, austere, foreboding character associated with its remoteness and years of military testing, bombing and disposal. The Applicant considers that these special qualities would still be appreciated by visitors, even with the addition of the further VE WTGs on the visible seaward horizon. The Applicant has sought to limit the northerly spread of WTGs as far as possible (and has reduced the maximum height of the WTGs), such that the effect of the VE array areas on the special qualities of the SCHAONB has been assessed as not significant in the ES and by other Interested Parties (East Suffolk District Council and Sussex County Council). The Applicant is unable to further reduce the northern spatial extent of WTGs in the array area (as recommended by Natural England), given the lack of significant effects arising and the ultimate purpose and functionality of the development to maximise renewable energy regeneration in line with National Planning Policy (NPS EN1), which recognises the urgent need for critical national priority (CNP) infrastructure to achieve our energy objectives (Section 4.2) (DESNZ, 2023a). With respect to the apparent height of the VE WTGs, the Applicant considers that WTGs within the southern VE array area will generally be in keeping with the existing Galloper and Greater Gabbard WTGs in views from the SCHAONB; with a similar overall blade tip height, albeit with a perceptibly larger rotor diameter, however, the Applicant did not consider them to be 'significantly' taller. Further consideration has been given to the apparent heights of the VE WTGs and Natural England's advice on this matter. Due to MOD requirements, the Applicant has committed to reducing the maximum blade tip height of the VE WTGs to 370m (above LAT) in its schedule of changes to the dDCO (AS-061), which will result in an incidental reduction in seascape and visual effects, including a reduction in the apparent height of WTGs within the northern VE array and the relative size difference with other WTGs in the area. As set out in full in the Applicant's Response to ExQ1 (REP2-039) (SLV.1.05), that Applicant considers that design principles 2 and 3 proposed by Natural England do not meet the test in NPS EN-1 requiring the Secretary of State to only consider alternatives where they can meet the objectives of the proposed development (NPS EN-1 paragraph 4.3.22), as both would lead to significant compromise in the project capacity

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						and energy generation. The Applicant considers that design principle 1 has been met, and any further reduction would also unnecessarily limit the generating capacity of the wind farm.
Onshore Ecology						
P19	Potential impacts to designated sites and features at the proposed LBBG compensation site on Orford Ness.	Insufficient baseline data on the saline lagoon, shingle vegetation shingle sediment structure and morphology to advise on potential impacts.	Uncertainty now over acquisition of Cobra Mist land. Baseline survey data remains incomplete. Need to see appropriate survey data to support assessment conclusions, including to confirm current sensitivity of shingle morphology and habitats.	Uncertain. If the Applicant can commit to carrying out pre-determination surveys and providing further information, as required, then this issue could be resolved during Examination		As set out in our response to NE31, the Applicant has undertaken additional surveys at Orford Ness. Due to access constraints, the survey work was primarily undertaken on adjacent land which includes the same vegetation communities and habitats that are found within the PCS. The requirements for mitigation have been updated in response to the survey results. The Applicant believes that, with the mitigation proposed, the published conservation objectives for the European sites, and assumed conservation objectives for the Ramsar sites, could not be undermined and therefore there would not be an adverse effect the integrity on any European or Ramsar site. The Applicant believes there is sufficient information available to enable the competent authority to reach the same conclusion, without the need for further surveys. For example, the current sensitivity of shingle morphology and habitats has been described in the reports. Additional surveys will be undertaken along the fence prior to construction with the sole purpose of refining the mitigation measures.
P20	Operational and maintenance facility impacts have not been considered.	No consideration has been given to the potential impacts from the operational port on the environment.	Natural England advises that impacts from the operation port should be assessed as part of the DCO at the consenting phase to ensure that a Holistic approach can be taken to the HRA.	Uncertain. The Applicant needs to include the O&M port in its EIA/HRA to resolve this issue during Examination.		No O&M port has been identified for VE and the Applicant is not proposing development at a port within its DCO. Should any new permissions be required for an O&M facility in the future (noting this is not at all a certainty) then assessments would be undertaken to support that application.

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HARNESSING THE POWER OF NORTH SEA WIND

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