NORTH FALLS

Offshore Wind Farm

Applicant's Response to Natural England's Deadline 3 submissions

Document Reference:	9.43
Volume:	9
Date:	April 2025
Revision:	0

Project Reference: EN010119

Project	North Falls Offshore Wind Farm
Document Title	Applicant's Response to Natural England's Deadline 3 submissions
Document Reference	9.43
Supplier	NFOW

Revision	Date	Status/Reason for Issue	Originator	Checked	Approved
0	April 2025	Deadline 4	NFOW	NFOW	NFOW

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1. INTRODUCTION

1.1 Introduction

1.1.1 This document has been prepared by North Falls Offshore Wind Farm Limited ('the Applicant') in relation to the North Falls Offshore Wind Farm (hereinafter referred to as 'North Falls' or the 'Project').

1.1.2 The Examining Authority's Rule 8 letter **[PD-008]** confirmed that Deadline 3 for the Examination was Tuesday 18 March 2025.

1.1.3 This document has been prepared by the Applicant for submission at Deadline 4 on Friday 25 April 2025, and responds to submissions received at Deadline 3 from Natural England.

1.2 Purpose of the document

1.2.1 This document presents the Applicant's response to the following Natural England's Deadline 3 submissions:

- Appendix B3 **[REP3-059]**: Natural England's Marine Processes Advice on the Applicant's Deadline 1 Documents;
- Appendix C3 **[REP3-060]**: Natural England's Benthic Ecology Advice on the Applicant's Deadline 1 Documents;
- Appendix G3 **[REP3-061]**: Natural England's Red Throated Diver Compensation Advice on the Applicant's Deadline 1 Documents;
- Appendix H3.1 **[REP3-062]** Natural England's Protected Species Advice on the Applicant's Deadline 1 Documents;
- Appendix H3.2 **[REP3-063]** Natural England's comments on 7.15 Outline Horizontal Directional Drill Method Statement and Contingency Plan; and
- Appendix K3 **[REP3-064]** Natural England's Risk and Issues Log.

2. APPLICANT'S RESPONSE TO NATURAL ENGLAND'S DEADLINE 3 SUBMISSIONS

2.1 Applicant's Response to Natural England's comments regarding Appendix B3 [REP3-059]

Table 2.1 Applicant's Response to Natural England's comments regarding Appendix B3 [REP3-059]

Ref	Issue raised by Natural England	Natural England's advice to resolve issue	Applicant's Response
REP3-059_a	The Applicant has stated that cables and cable protection will be sited 150m or more from the Margate and Long Sands Special Area of Conservation (MLS SAC). Natural England welcomes this commitment to mitigate morphological and sediment transport effects. However, currently there is insufficient evidence to demonstrate that this separation distance will be sufficient to avoid impacts to sediment transport processes operating within/near MLS SAC.	Natural England advises that further information is needed to demonstrate that this separation distance is sufficient to avoid impacts to sediment transport processes within MLS SAC due to the presence of cable protection over the lifetime of the Project.	The Applicant has undertaken bespoke hydrodynamic and dispersion modelling **[9.54 (Rev 0)]**, which is submitted at Deadline 4, accompanied by a technical note presenting the interpretation of sediments dispersion modelling results **[9.56 (Rev 0]** and supporting information on offshore additional mitigation **[9.55 (Rev 0)]** which includes consideration of the Margate and Long Sands SAC and Kentish Knock East MCZ and confirms there will be no AEOI or hinderance of the conservation objectives of these sites.
REP3-059_b	The removal of Gravity Base foundations from the project design envelope is welcomed, as is the minimum separation distance of 50m between turbine foundations and KKE MCZ. However, currently there is insufficient information to demonstrate that changes to wave, hydrodynamic and sediment transport regimes at Kentish Knock East Marine Conservation Zone (KKE MCZ) will not be affected by the presence of the array.	Natural England advises further information is needed to demonstrate that changes to wave, hydrodynamic and sediment transport regimes at KKE MCZ will not be affected by the presence of the array.	See response to REP3-059_a.
REP3-059_c	There is no mention of scour, decommissioning, and cable protection types (including within the nearshore) in the Schedule of Mitigation for marine physical processes or benthic ecology.	We advise that the Applicant should capture any mitigation measures proposed for reducing potential impacts due to scour, decommissioning, and different types of cable protection (including within the nearshore).	Decommissioning of offshore renewable energy installations is heavily regulated by the Energy Act 2004. As such, as is standard practice for offshore wind farm DCOs, Requirement 25 of the draft DCO secures that no offshore works can commence until a written decommissioning programme is provided to the Secretary of State pursuant to the requirements of the Energy Act 2004 (and an advance notice from the Secretary of State under that Act). It is noted that where other offshore wind farms have had a requirement to decommission scour or cable protection, this has been in relation to protection placed within SACs or MCZs. The North Falls site selection process has avoided any overlap of the Order limits with such sites, namely the MLS SAC and KKE MCZ, and therefore this is not applicable for North Falls and a requirement to remove cable protection or scour protection is considered disproportionate to the level of associated impact. Therefore, no additional mitigation is proposed regarding decommissioning of scour or cable protection.

2.2 Applicant's Response to Natural England's comments regarding Appendix C3 [REP3-060]

Table 2.2 Applicant's Response to Natural England's comments regarding Appendix C3 [REP3-060]

Ref	Issue raised by Natural England	Natural England's recommendation to resolve issues	Applicant's Response
REP3-060_a	Natural England welcomes the wider consideration of Section 41 habitats, including those which are irreplaceable, within the schedule of mitigation. However, we advise that the mitigation is not sufficient.	Natural England advises that where avoidance of Section 41 habitats during construction is not practicable, then there should be a requirement to demonstrate how impacts will be minimised.	These impacts have already been minimised through provision for micrositing, and by the extensive commitments made by the Applicant embedded in the project design, including reducing the number of export cables from four to two and reducing the maximum number of turbines from 72 to 57.
REP3-060_b	Whilst Natural England welcomes the commitment to deploy cables and cable protection 150m or more from Margate and Long Sands Special Area of Conservation (SAC), the Applicant has not demonstrated whether this distance is sufficient to prevent pathways of effect to supporting processes for the Annex I designated sandbank communities within Margate and Long Sands SAC.	Natural England advises that further evidence is required in order demonstrate that this is sufficient to prevent pathways of effect to supporting processes for the Annex I designated sandbank communities within the SAC. We also note that commitments in relation to the nature of cable protection and the feasibility of its removal at the decommissioning phase remain absent.	The Applicant has undertaken bespoke hydrodynamic and dispersion modelling **[9.54 (Rev 0)]**, which is being submitted at Deadline 4, accompanied by a technical note presenting the interpretation of sediments dispersion modelling results **[9.56 (Rev 0)]** and supporting information on offshore additional mitigation **[9.55 (Rev 0)]** which includes consideration of the Margate and Long Sands SAC and confirms there will be no AEOI.
REP3-060_c	Natural England welcomes the commitment to remove gravity base foundations from the Project and the associated reduction in temporary disturbance and lasting habitat loss.	Whilst Natural England welcomes the commitments which reduce the worst-case scenario (WCS) of direct and indirect impacts on benthic receptors (i.e. Kentish Knock East Marine Conservation Zone), we advise that further evidence is required to fully identify, quantify and evaluate predicted WCS benthic impacts from sandwave levelling/seabed preparation (including disposal), and turbine foundation placement and scour protection.	See above response to REP3-059_a
REP3-060_d	Natural England welcomes the commitment to place turbine foundations at a minimum distance of 50 m from the Kentish Knock East Marine Conservation Zone (KKE MCZ). However, further information and assessment is required in relation to the updated WCS.	Natural England advises that a more robust assessment (identification, quantification and evaluation) of anticipated worst case sediment deposition parameters due to sandwave levelling/seabed preparation (including disposal), turbine foundation placement and scour in the vicinity of KKE MCZ is required.	See above response to REP3-059_a

2.3 Applicant's Response to Natural England's comments regarding Appendix G3 [REP3-061]

Table 2.3 Applicant's Response to Natural England's comments regarding Appendix G3 [REP3-061]

Ref	Issue raised by Natural England	Natural England's recommendation to resolve issues	Applicant's Response
REP3-061_a	Compensation measures in Finland	In response to the Applicant's statement in [REP1-022] "As a consequence of Natural England's clear and consistent preference for RTD compensation to be delivered in Scotland, the Applicant has not progressed site selection in Finland any further", Natural England consider this issue resolved.	Noted.
REP3-061_b	Scale/extent of the Measure – Increasing Productivity by Provision of Nest Rafts	Natural England advised in our Relevant Representation (Appendix G [RR-243]) that there was no robust way to quantify the scale of compensation to be delivered. This was due to the mismatch between the expected benefits (increased productivity) and the nature of the impact (habitat loss/degradation). Nonetheless, we considered that the scale of the measure should be cognisant of the fact that a significant impact needed to be compensated for, namely displacement effects arising over 108.7km^2 of the OTE SPA. In that light, we did not judge that the scale of nest raft installation proposed was likely to deliver sufficient or significant benefits to the RTD population or National Site Network (NSN) coherence, with regard to the scale of impact.	108.7km^2 is the area of overlap between the 12km buffer of North Falls and the OTE SPA, equivalent to 2.8% of the total SPA area. To summarise the shadow appropriate assessment for RTD at the OTE SPA (RIAA Part 4 **[APP-178]**, Section 4.4.1.4.4), North Falls array area does not overlap with the OTE SPA but is situated 4.5km from the SPA boundary at the nearest point. Much of the area of overlap between the 12km buffer of North Falls with the OTE SPA, is already within the 12km buffers of other OWFs, and RTD are thus likely to be already subject to displacement within this area (**[APP-178]**, Figure 4.3). The area of the OTE SPA, where the 12km buffer of North Falls does not overlap with the 12km buffers of other OWFs is 54.5km^2, equivalent to 1.4% of the SPA area **([APP-178]**, para 106). As well as overlapping with the 12km buffers of OWFs, the area of overlap between the North Falls 12km buffer and the OTE SPA also overlaps almost entirely with international shipping lanes (RIAA Part 4, 7.1.4 **[APP-178]**, Figure 4.1 (IMO shipping measures), para 107). Thus, all of the novel area of impact (where the North Falls 12km buffer does not overlap with 12km buffers of other OWFs), and the area where North Falls is the closest of two OWFs with overlapping buffers) overlaps with the international shipping lanes. RTDs are displaced by ships (as well as OWFs) **([APP-178]**, para 108). In the German North Sea, Mendel et al. (2019) modelled the effects of OWFs and ships on RTD displacement. They found that ships had a strong negative impact on diver abundance within 5km, although it was not possible to predict the reduction in densities associated with ships independently of those from OWFs. Densities within the shipping lanes are shown in **[APP-178]** Figure 4.2, peaking at 1,000-2,000 vessels per year within the SPA and adjacent to the eastern border of the SPA. As set out in the (RIAA Part 4 **[APP-178]**, Section 4.4.1.4.4), it is the Applicant's view that North Falls will not contribute significantly to the existing sources of displacement for RTDs within the area of overlap between the 12km buffer of North Falls and the OTE SPA from existing operational OWFs and international shipping lanes. The shipping lanes partially overlap with the SPA and North Falls is further away from the SPA than the shipping lanes, so the shipping lanes would be the closest source of potential displacement for RTD within the 12km buffer of North Falls where it overlaps with the SPA (**[APP-178]**, Figure 4.1).ıIndividual RTDs show variable responses to disturbance, with some being more tolerant than others of anthropogenic disturbance

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			(Sue O'Brien, Pers. Comm.). Such individual variation is a common finding in bird species. It is likely that within the area of overlap between the 12km buffer of North Falls and the OTE, the levels of existing disturbance mean that the RTDs using this area are more disturbance-tolerant individuals, and the presence of North Falls beyond the international shipping lanes would not result in any detectable change in the numbers present, or the distribution of RTDs in this area of the OTE SPA. The Applicant therefore maintains that there will be no AEOI of the red-throated diver from the Outer Thames Estuary and therefore no compensation should be required. In the event that the Secretary of State concludes an AEOI, the scale of compensation proposed is sufficient to deliver benefits to the RTD population and maintain coherence of the National Site Network, as discussed further below.
REP3-061_c	Scale/extent of the Measure – Increasing Productivity by Provision of Nest Rafts	The Applicant continues to propose the installation of nesting rafts and/or habitat management at 20 sites, suggesting that this could result in 5-7 additional RTD juveniles entering the population each year. Natural England agree but applied a further calculation using juvenile survival rates to determine that (assuming 6 additional chicks fledge) this may equate to just 2 adult birds per year that could then recruit into the breeding population. We note there is some uncertainty around all these calculations, especially due to the reliance on relatively poorly evidenced demographic rates.	Natural England has already agreed the potential impacts of habitat loss in the Outer Thames Estuary SPA are not quantifiable in terms of RTD mortality, therefore the Applicant wishes to stress the importance of not using Natural England's approach to estimate a quantum of compensation. Nevertheless, to address the point raised by Natural England that 'the Applicant should take a more ambitious approach to the scale of the measure', the Applicant has reviewed Natural England's approach to calculation of the number of additional adult red-throated divers that the compensation measures could produce each year. It is noted that the wintering population of RTD in the OTE SPA will be composed of birds of all age classes, so that any effects of North Falls in terms of effective habitat loss as a result of displacement would also apply to all age classes of red-throated divers and not just adult birds. From a population model, Furness (2015) estimated that RTD populations comprise 60% adult birds, the rest being sub-adults (juveniles and immatures). A precautionary approach is to consider the number of additional birds that reach breeding age that would be produced by the compensation measures. The Applicant agrees with Natural England's calculations in terms of the number of adult red-throated divers that would potentially be produced from the installation of rafts. However, it is also noted that there is potential for increased benefits from peatland management measures compared with rafts. Shetland is the preferred area for compensation. This is where RTDs breed in the highest densities in the UK (Dillon et al., 2009) and where RTD breeding success is likely to be constrained by availability of suitable lochs (Fraser et al. 2009; Gomersall 1986, Digger Jackson, Pers. Comm.). Implementing compensation in Shetland through peatland habitat management has the potential to increase breeding success to a greater extent than rafts. Habitat management would restore lochs where divers could not otherwise have bred successfully due to water draining away. Thus, on Shetland, breeding success per managed loch could be increased from zero to an estimated value of 0.77 chicks per loch occupied by a pair of RTDs, and compensation at 20 lochs would produce an

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			estimated additional 4.3 adults per annum, (See Appendix A of this document).
REP3-061_d	Benefits to non-breeding season marine SPA component of the NSN	In defense of their original position, the Applicant now argues that "… the compensation would start to benefit the non-breeding season marine SPA component of the NSN before the additional fledglings reach maturity" [Section 8.4.2 REP1-022]. Natural England question the relevance and significance of any benefit that these additional juvenile RTDs confer to the NSN. The Applicant presumably considers their potential contribution to non-breeding 'abundance' Conservation Objectives within those SPAs to be of value. We would highlight that even if recruitment into the breeding population is not the objective, some 40% of the additional juveniles fledged each year might be expected to perish over their first winter. Thus, it is not clear how a benefit can be construed from the measure's total (surplus) productivity, or indeed how the ecological effectiveness of the measure can be judged in-lieu of proper consideration of juvenile survival rates. Natural England are not persuaded that any significant 'benefit' will accrue to ensure the coherence of the NSN by way of juvenile birds being present in marine SPAs during the non-breeding season, noting that some of these birds are expected to perish over winter as environmental conditions become more challenging. Any benefit arising would only last as long as each juvenile bird persists. Further, we suggest that the Applicant's position does not align with the measure's primary aim. A compensatory measure to increase breeding success must ultimately aim to also increase recruitment of breeding birds into the population to be ecologically effective. In this sense, the measure is closely aligned with many other compensatory measures. For example, efforts to increase kittiwake breeding success through the provision of Artificial Nesting Structures (ANS) are judged against their ability to deliver new recruits into the breeding population. Natural England acknowledges the uncertainties around this function, not least due to potential interactions of demographic rates. It is not clear that increasing juvenile production always leads to proportionate increases in recruitment due to other limiting factors. Nonetheless, we continue to advocate for the consideration of additional individuals recruiting into the breeding population as being of fundamental importance to any consideration of ecological effectiveness of this measure. It is therefore more legitimate to consider the potential benefits of the measure to the UK breeding population of RTD, and their interaction with the NSN of sites classified for the species, as the principal mechanism for delivering benefits.	The Applicant maintains that additional birds – both juvenile, immature and adult – produced through compensation measures, would contribute to the populations using marine SPAs for RTD in the non-breeding season. The wider populations of RTDs using these SPAs will include subadult birds, some of which will not survive to recruit into the breeding populations, but which are still part of the protected population. The primary objective of the Applicant's proposed RTD compensation is to make a contribution to the National Site Network. The RTD UK National Site Network includes terrestrial and marine SPAs with breeding season features as well as marine SPAs with non-breeding season features. Therefore, a contribution to any of these SPAs fulfils the objective of the compensation. This objective does not require recruitment of breeding birds into the population to be ecologically effective as suggested by Natural England. Instead, a contribution of juvenile, immature and adult birds to any SPA with a red-throated diver feature (breeding or non-breeding) can be deemed to be ecologically effective. RTDs from Scottish breeding populations tend to overwinter in Scottish offshore waters (Duckworth et al. 2022). The closest marine SPA with a non-breeding season RTD feature to Shetland and Caithness & Sutherland is the Moray Firth SPA. This site has the following conservation objective for red-throated diver: "*Maintain the population of non-breeding red-throated divers at a stable or increasing trend relative to the site reference population*." (see p32 of the site's Conservation and Management Advice: Moray Firth SPA Conservation and Management Advice). The feature condition is 'Favourable maintained' when last assessed on 29 March 2023 (see: SiteLink - Moray Firth SPA). Consequently, the project's proposed compensatory measures could benefit the Moray Firth SPA Conservation Objectives by contributing additional juveniles, immatures and adults to the non-breeding population feature of the SPA, thereby helping to maintain the site's conservation objective of a stable or increasing trend in the population. Natural England argue that, "…*In this sense, the measure is closely aligned with many other compensatory measures. For example, efforts to increase kittiwake breeding success through the provision of Artificial Nesting Structures (ANS) are judged against their ability to deliver new recruits into the breeding population*." However, this compensatory measure for kittiwake is to compensate for adverse affects to the *breeding* kittiwake feature at SPAs. The project's potential adverse affect is to the *non-breeding* red-throated diver feature of the OTE SPA. As noted above, this latter feature includes juvenile and immature birds as well as adults that use the OTE SPA during the non-breeding season. Effective habitat loss for these RTDs, which NE propose could be caused by the project, would potentially affect all age classes.

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			The proposed compensation will produce additional juveniles, immatures and adults and not only breeding adults, thereby contributing to the non-breeding population. Natural England state that, "…*we continue to advocate for the consideration of additional individuals recruiting into the breeding population as being of fundamental importance to any consideration of ecological effectiveness of this measure*." This would be the primary compensation aim if the impact was on breeding features of SPAs. However, in this instance, the predicted impact is on non-breeding features (i.e. the RTD feature of the OTE SPA). Consequently, increasing the number of individuals of all ages within non-breeding SPAs and adults within breeding SPAs (both marine and terrestrial) will help to maintain ecological coherence of the network.
REP3-061_e	Benefits to non-breeding season marine SPA component of the NSN	Finally, if the increased abundance of RTDs of any age and status were to be considered a benefit in and of itself, it might be sensible to judge if the increased number of birds could be detectable against the background of natural variation in population. Clearly, the addition of approximately six birds per annum, with four of those expected to perish over the following two years, would not be detectable in the context of any non-breeding SPA population of RTDs.	In accordance with Defra (2021) Best practice guidance for developing compensatory measures in relation to Marine Protected Areas, "*Compensatory measures must address the impact of the activity in comparable proportions depending on issues such as certainty of success, time for recovery or distance from the area of loss*" Whether a contribution to the National Site Network is detectable against background variation in population size is not a requirement of the Habitats Regulations or relevant guidance. Compensation measures for individual OWFs are based on the predicted adverse effect (usually predicted mortality from collision and/or displacement) of a given project on an SPA and scaled to offset predicted losses from the project alone. However, in many cases the AEoI for the SPA is based on an in-combination effect from OWFs, while the project alone effect to be compensated is a small contribution to the in-combination total (such that a project alone effect on a particular SPA can be ruled out). Compensation should be deemed to be sufficient when predicted damage to SPAs is more than compensated for by proposed measures, thereby ensuring the ecological coherence of the national site network is maintained. Whether this is detectable against background natural variation is not a material consideration when ensuring a proposed measure is sufficient. In Shetland, the compensation management would involve peatland habitat management to restore lochs where RTDs are unable to breed successfully as water is draining away due to erosion. In Caithness and Sutherland, compensation measures would involve the installation of rafts on lochs to enhance the breeding success of RTDs. Both of these are proven techniques for increasing RTD breeding success (**[REP1-021]** and **[REP1-022]** (clean/tracked)). With reference to Appendix A, depending on the location of compensation for RTD, there is potential for the measures to contribute between six and 14 additional birds per annum. This is proportionate to the predicted mortality from displacement at North Falls, which would not materially alter the background mortality of

Ref	Issue raised by Natural England	Natural England's recommendation to resolve issues	Applicant's Response
			the SPA population and would be undetectable (RIAA Part 4 **[APP-178** paragraphs 100-101), although, as noted elsewhere, the effect for which compensation is proposed is the potential effective habitat loss from the OTE SPA, for which no measure is available in terms of predicted mortality to the SPA population (if any) or other effect,
REP3-061_f	Scale of compensation	Natural England remain satisfied that the installation of nest rafts for RTD represents a viable and potentially ecologically effective option for compensation, subject to further information being provided regarding specific locations for delivery (including landowner agreement), and that benefits arising from the measure can contribute to NSN coherence. However, we continue to advise that the Applicant should take a more ambitious approach to the scale of the measure, to ensure a more significant benefit than an increase of 2 breeding adults is delivered, and thus give some comfort that the compensation proposed can be judged as commensurate with the estimated impact.	The Applicant welcomes Natural England's acknowledgement that installation of nest rafts is a viable and ecologically effective option for compensation, and that it would contribute to NSN coherence. In relation to scale of measure, see response above (REP3-061_c).
REP3-061_g	Shetland is not included in the locations identified for long listing in the bulleted list.	We advise the Applicant to correct this text.	Shetland is referred to within Section 9.4.1 of the Red-Throated Diver Compensation Document **[REP1-021]** and **[REP1-022]**, noting the measure in Shetland would be primarily habitat management/ peat restoration.
REP3-061_h	"NFOW has, and continues to, engage with SPR to explore potential collaboration, however opportunities for North Falls to provide additional benefit to the data collection required for the EA1N/2 projects have not currently been identified. NFOW expects to be invited to join a working group being established by SPR and intends to contribute to this group." We note that no tangible progress has been made towards securing a suite of measures. It appears that a clear proposal defining actions in collaboration with SPR is increasingly unlikely within the Examination timetable.	Natural England continue to advocate for the delivery of a package of measures. Any progress made towards identifying opportunities for relevant and novel data collection or other actions that could ultimately inform strategic measures to benefit RTD, especially at the impacted site, should be submitted into Examination for review.	While NE request a package of measures, the Applicant maintains that the without prejudice compensation proposal is proportionate and therefore a package is not required. Scottish Power Renewables is progressing data collection of the Outer Thames Estuary SPA as part of the compensation requirement for the East Anglia ONE North and TWO OWFs. The Applicant is aware Defra has initiated a group to undertake an initial desk based review of strategic compensation options for RTD. In our discussions with Defra they have noted the uncertain timescales of this. Should a suitable collaborative or strategic measure become available, this would be considered and would be a partial or whole substitute for the project led measure in Scotland.
REP3-061_i	"Recognising that it is the Applicant's position that RTD compensation should not be required, landowner agreements will be secured post consent, if the SoS's decision determines that compensation is required." The Applicant does not propose taking any further action to secure the measure ahead of the SoS's decision. Crucially, this includes any effort to secure sites for delivery of nest raft installation. Natural England would highlight that other compensatory measures requiring landowner collaboration have tended to suffer significant issues and barriers to progress when trying to secure agreements in the post-consent phase.	Under these circumstances, it is very difficult to advise on the likelihood of the measure being securable by the project. There have been no similar attempts by offshore wind farm (OWF) developers to undertake a project of this nature. As well as increasing the number of proposed locations, we advise that the Applicant should continue to make efforts to secure sites for nest raft installation.	The Applicant notes that consented offshore wind farms have secured landowner agreements post consent and none to date have been unable to secure land, therefore the Applicant maintains that this approach is appropriate. It is not reasonable to expect landowners to engage in detailed discussions on land for compensation which may not be required. Given the significant number of sites identified in the long list, the Applicant is confident that appropriate sites can be secured, if required.

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REP3-061_j	Natural England are concerned about the approach to long term monitoring of the nest raft/habitat intervention measure. We note that the Applicant states that, *"It is expected that monitoring of RTD breeding success will be required for the first three years or until the measure is deemed to be operating successfully. The need for ongoing monitoring will be discussed with the RTDCSG and agreed with the SoS."* Natural England would expect that some level of monitoring would be required to evidence that the measure remains effective for the lifetime of the project. We note that the Applicant also states that *"If breeding success is demonstrated to be higher at lochs with rafts installed or habitat management undertaken (i.e. the compensation aim has been achieved), no adaptive management will be required. Instead, the RTDCSG, in discussion with the Project, will agree a programme of ongoing monitoring which balances collection of necessary data whilst minimising unnecessary disturbance (e.g. annual monitoring may no longer be required, or only conducted at a subset of sites)."* Natural England are in general agreement with this approach, noting that careful consideration should be given to the nature of ongoing monitoring within the Red-Throated Diver Compensation Steering Group (RTDCSG).	Natural England are content that expert knowledge has been applied by the Applicant to propose a sensible and sensitive approach to monitoring. However, we advise that the approach to long-term monitoring could be clarified within the document. Natural England suggest that regardless of prior success, some level of monitoring will be required to evidence ongoing efficacy, and this should be clearly acknowledged by the Applicant.	Noted, as secured by the Outline Red-Throated Diver Compensation Implementation and Monitoring Plan **[REP1-023]** and **[REP-024]**, the need for ongoing monitoring will be discussed with the RTDCSG and agreed with the SoS. The Applicant also notes that, periodic monitoring of breeding success will be required to ensure that breeding success remains high but that the frequency of this monitoring will be balanced against unnecessary disturbance of this sensitive species. Lochs at which compensation has been implemented will be checked every year, outside of the breeding season, to confirm that rafts remain in good condition and that no further peatland habitat restoration works are required to stabilize water levels.

2.4 Applicant's Response to Natural England's comments regarding Appendix H3.1 [REP3-062]

Table 2.4 Applicant's Response to Natural England's comments regarding Appendix H3.1 [REP3-062]

Ref	Issue raised by Natural England	Natural England's recommendation to resolve issues	Applicant's Response
REP3-062_a	If dormice presence is confirmed within habitat due to be removed OR within connected habitat networks, a Natural England licence must be sought prior to the commencement of works.	Natural England advises that the wording is amended within the Outline Landscape and Ecological Management Strategy OLEMS to take into consideration dormice presence in connected habitat to the hedgerows to be removed.	The Applicant acknowledges this point, and is submitting an updated version of the OLEMS (Rev3) at Deadline 4, which includes amendments to Section 2.2.3.7 to confirm that land adjacent to the onshore project area will, where relevant, be included within the pre-construction surveys, and a licence will be sought if potential effects upon dormice located in habitats adjacent to the onshore project area are anticipated.
REP3-062_b	Where possible, impacted habitat should be replaced on a like for like basis.	Natural England advises that the wording is amended in the OLEMS to ensure commitments are secured to replaced habitats on a like for like basis.	The Applicant is not proposing to make this update to the OLEMS, for the reasons set out below: In many cases, the habitat affected temporarily by the Project *will* be replaced on a like-for-like basis. However, for certain habitats, for example hedgerows, in many cases the existing habitat is in poor condition, and the Applicant is proposing that when the

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			habitat is reinstated, its quality is improved. In the case of hedgerows, the Applicant is currently committing in Section 2.5.1 of the OLEMS (Rev2) **[REP3-019]** to reinstating hedgerows as native, species-rich hedgerows with trees, where in many cases the baseline hedgerows are species-poor and gappy. Hedgerows will comprise a locally appropriate mixture of locally important and native species, as advised by Essex Wildlife Trust. In these instances, the habitats will not be reinstated on a like-for-like basis, but be improved. The Applicant has committed to seeking to improve habitats during reinstatement for other habitats, including arable field margins and grassland areas, where such improvements are feasible and beneficial.
REP3-062_c	While Natural England may licence clearance of Dormouse habitat to ground level within the hibernation season, this is considered a higher risk activity that requires additional justification. Evidence must be provided that the clearance works cannot be completed during the typical licence period (Two stage November March & May or Single stage Active season May or mid September-October). If works cannot be completed in the recommended period, then evidence must be provided that a thorough ground search of the area can be carried out prior to vegetation removal to ensure that no hibernation nests are impacted.	Natural England advises that any update to the OLEMS ensures that there if required mitigation measures as we have set out can be adopted by the project in order to secure a licence.	Based on the survey findings to date (as reported in ES Appendix 23.5 Hazel Dormouse Survey Report **[APP-128]**), dormice have not been recorded within habitats proposed to be directly affected by the Project. If, based on the pre-construction surveys, the baseline changes, then a licence would be sought and appropriate mitigation discussed in advance with Natural England. The two-stage clearance currently described in Section 2.2.3.7 of the OLEMS (Rev2) **[REP3-019]** is describing potential mitigation measures in the event that the pre-construction surveys record dormice present within habitat to be affected by the Project. In Section 2.2.3.7, the two-stage clearance is being proposed in order to balance the potential impacts on nesting birds utilising the habitat during the nesting season (March – August inclusive), and a two-stage removal is considered the best option to minimising impacts on these different species. If mitigation is required prior to construction, the method used would be discussed with Natural England in advance of licence being sought.

2.5 Applicant's Response to Natural England's comments regarding Appendix H3.2 [REP3-063]

Table 2.5 Applicant's Response to Natural England's comments regarding Appendix H3.2 [REP3-063]

Ref	Issue raised by Natural England	Natural England's recommendation to resolve issues	Applicant's Response
REP3-063_a	Natural England notes that key mitigation in the form of further coordination between North Falls and Five Estuaries could help further reduce the impacts. For example; this could include the first project to commence installation, installing the HDD ducts for both projects particularly at landfall.	Natural England advises that the Applicant gives this further consideration.	Noted. The Applicant and Five Estuaries Offshore Wind Farm are committed to on-going co-ordination during the detailed design and construction stages of the projects. Further opportunities to co-ordinate on aspects of construction will continue to be explored during detailed design. Further detail on the Applicant's commitment to co-ordination can be found in the Co-ordination Report **[REP1-004]**.

Ref	Issue raised by Natural England	Natural England's recommendation to resolve issues	Applicant's Response
REP3-063_b	Whilst Natural England welcomes the use of walkover surveys to detect bentonite on ground, Natural England is concerned about trampling of vegetation and invertebrate supporting habitat within Holland Haven Marshes SSSI and around Tendering Brook.	Natural England advises that when agreeing the final plan that the number of walk overs, route/s taken and by how many people is agreed.	Noted. The Applicant proposes the following text update to Sections 4.2.3 and 4.4 of the Outline Horizontal Directional Drill Method Statement and Contingency Plan **[REP1-037]**: *'The final Horizontal Directional Drill Method Statement and Contingency Plan will include the number of walkovers, proposed route(s) taken and the number of operatives involved'*. The Applicant will consult with Natural England before submitting an updated version of the Outline Horizontal Directional Drill Method Statement and Contingency Plan (Rev2) containing this wording at Deadline 5.
REP3-063_c	Natural England notes that within the flow chart there is a step missing to determine if clean-up and/or containment is required. We advise that just because there is a visible leak, this shouldn't automatically lead to either of these things occurring given the inert nature of the bentonite. Natural England highlights that the area of spill is not the key detrimental factor, but more the potential depth of any smothering especially where there are sensitive environmental receptors.	Natural England advises that the decision tree is refined to help with making any decisions on the course of action to be taken. Please see following points.	Noted. The Applicant will amend Step 1 ('*Is the quantity sufficient to cause environmental problems? (e.g. visible release)*') into two steps, the first being 'Is there a visible release?' (leading to 'Do nothing' or further steps), followed by a second step 'Is the quantity sufficient to cause environmental issues (to watercourses, or to sensitive ecological receptors)?' (leading to 'Do nothing' or further steps). The Applicant will consult with Natural England before submitting an updated version of the Outline Horizontal Directional Drill Method Statement and Contingency Plan (Rev2) containing this amendment at Deadline 5.
REP3-063_d	It is not clear what is meant by both manual and/or mechanical clean up.	Natural England advises that more detail is required in relation to the tools and/or methodology to better understand the risk of any damage.	'Manual clean-up' refers to clean-up by hand, where an individual operative or operatives using hand held tools (e.g. a spade and wheelbarrow or bucket) to remove the material. 'Mechanical clean-up' involves the use of mechanised equipment, e.g. a suction pump, as detailed in paragraph 120 of the Outline Horizontal Directional Drill Method Statement and Contingency Plan **[REP1-037]**. Section 4.2.5 the Outline Horizontal Directional Drill Method Statement and Contingency Plan **[REP1-037]** will be updated to clarify the definition of 'manual clean-up'. The Applicant will consult with Natural England before submitting an updated version of the Outline Horizontal Directional Drill Method Statement and Contingency Plan (Rev2) containing these amendments at Deadline 5.
REP3-063_e	Natural England notes that there is no inclusion of roles and responsibilities for implementing the decision tree. And how consultation with the relevant SNCB will be factored in, when and how.	Natural England advises that more information on roles and responsibilities are included to ensure that the environment is safe guarded.	The Applicant will update the example decision tree for bentonite release in the Outline Horizontal Directional Drill Method Statement and Contingency Plan **[REP1-037]** to include further detail on relevant roles and responsibilities for implementing the decision tree actions. The Applicant will consult with Natural England before submitting an updated version of the Outline Horizontal Directional Drill Method Statement and Contingency Plan (Rev2) containing these amendments at Deadline 5.
REP3-063_f	Entry Pits: Natural England notes that bentonite is most likely to occur in the first 30m of HDD. And that further mitigation measures could be employed to minimise potential impacts to area of nature conservation.	Natural England advises that entry pits, and where appropriate exit pits are located >30m away from any sensitive environmental receptors.	Noted. The Applicant will review the feasibility of this constraint, and will consult with Natural England further on this point, if appropriate. The Applicant will provide an update on this in the updated version of the Outline Horizontal Directional Drill Method Statement and Contingency Plan (Rev2) to be submitted at Deadline 5.
REP3-063_g	Natural England notes that containment in itself could be damaging to sensitive environmental receptors.	Natural England advises that the options to contain the spill should be site specific and finalised in consultation with Natural	Noted. The Applicant proposes the following update to paragraph 118 of the Outline Horizontal Directional Drill Method Statement and

Ref	Issue raised by Natural England	Natural England's recommendation to resolve issues	Applicant's Response
		England to ensure that no detrimental compaction and/or vegetation trampling occurs which may effect the recovery afterwards.	Contingency Plan **[REP1-037]**: *'Options to contain the spill will be detailed in the final Horizontal Directional Drill Method Statement and Contingency Plan, and will be site specific to ensure that no detrimental compaction and/or vegetation trampling occurs, which may affect the recovery of sensitive environmental receptors'.* The Applicant will consult with Natural England before submitting an updated version of the Outline Horizontal Directional Drill Method Statement and Contingency Plan (Rev2) containing these amendments at Deadline 5.
REP3-063_h	Natural England notes that an alternative to making any bentonite breakout thicker would be to water it down to spread the impact area, but reduce the likelihood of smothering. We also highlight that if bentonite becomes thicker and more solidified that there is likely to more to result in damage to vegetation when removed.	Natural England advises that all opinions to lessen the environmental impacts from a bentonite break out are considered.	Noted. The Applicant will consider this approach, and will if appropriate will add text to Section 4.2.5.2 detailing alternative options for minimising the impact on sensitive receptors during a bentonite release (e.g. increasing the viscosity of the material). The Applicant will consult with Natural England before submitting an updated version of the Outline Horizontal Directional Drill Method Statement and Contingency Plan (Rev2) containing any further amendments on this point at Deadline 5.
REP3-063_i	Natural England welcomes the inclusion of mitigation measure to avoid tracking through the HHM SSSI to access the HDD compound.	We advise that the mitigation measure is expanded to also include no works vehicles to access the SSSI which would align with the HDD chart.	The Applicant acknowledges this point, and will update the Schedule of Mitigation **[REP1-006]** and submit it into the Examination alongside the updated Outline Horizontal Directional Drill Method Statement and Contingency Plan **[REP1-037]**, at Deadline 5.

2.6 Applicant's Response to Natural England's comments regarding Appendix K3 [REP3-064]

Table 2.6 Applicant's Response to Natural England's comments regarding Appendix K3 [REP3-064]

(The Applicant has only commented here by exception to items listed within Natural England's Appendix K3. A lack of response to a particular point does not suggest the Applicant agrees with Natural England's position on that point.)

Applicant Ref	Point	NE Ref.	Relevant provision	Natural England - Relevant and Written Representation	Natural England comment Consultation, actions, progress at Deadline 3 (Column G of NE document)	Natural England RAG at D3	Applicants Comments at Deadline 4
(A) DCO							
REP3-064_a_1	2	A2	Schedule 15	Schedule 15 compensation only covers impacts to Lesser Black Backed Gull (LBBG). We cannot advise that an Adverse Effect on Integrity (AEoI) on the Flamborough and Filey Coast (FFC) Special Protection Area (SPA) can be excluded. Provision for compensatory measures for the relevant features should be included in the draft DCO on a without prejudice basis.	No change.		The Applicant is preparing without prejudice DCO compensation schedules for Kittiwake, Guillemot and Razorbill, to be submitted at Deadline 5.

Applicant Ref	Point	NE Ref.	Relevant provision	Natural England - Relevant and Written Representation	Natural England comment Consultation, actions, progress at Deadline 3 (Column G of NE document)	Natural England RAG at D3	Applicants Comments at Deadline 4
REP3-064_a_2	3	A4	Schedule 1 Part 3 Para 2, Schedule 8 Part 1 Condition 2, and Part 2 Condition 10	Natural England recommends that the Applicant considers an amendment to the DCO to include the maximum volumes of drill arisings within the requirements and both dMLs.	No change.		The Applicant has updated the dMLs in Schedules 8, 9 and 10 of the draft DCO to specify the total volume of drill arisings [Document Ref: 6.1 (Rev 5)].
REP3-064_a_3	4	A5	Schedule 1 Part 3 Para 7	We would expect the landscape requirements to also cover survey methods, monitoring requirements and the requirement to maintain, including the potential for replanting due to plant failures. Further, we would expect to be consulted on these plans prior to their approval by the relevant Local Planning Authority (LPA).	Requirement amended to include consultation with the SNCB, in Deadline 1 update. Issue is partially resolved.		The Applicant does not propose to make further changes to the drafting of the DCO on this point. The Applicant submitted an updated Outline Landscape and Ecological Management Strategy (OLEMS) at Deadline 3 **[REP3-019]** and **[REP3-020]** and a further update is being submitted at Deadline 4. Schedule 1, Part 3, Requirements 7 and 12 require landscaping and ecological management to be implemented in accordance with the landscape and ecological management strategy. The Applicant considers the level of detail sought by Natural England to be covered in the requirements is more appropriately addressed in the final Ecological Management Plan (EMP). The OLEMS sets out the specifics of required surveys, monitoring and reporting requirements, maintenance and replanting activities. The Applicant notes Natural England supports the addition of Natural England as a consulted party for requirements 7 (provision of landscaping) and 12 (ecological management plan).
REP3-064_a_4	5	A6	Schedule 1 Part 3 Para 8	Natural England requests the text be amended to include a requirement to consult the relevant Statutory Nature Conservation Body (SNCB) on the Code of Construction Practice (CoCP) and recommends that the requirement should note the final CoCP must accord with the outline CoCP.	Requirement amended to include consultation with the SNCB, in Deadline 1 update. Issue is partially resolved.		Schedule 1, Part 3, Requirement 8(1) sets out that the code of construction practice (CoCP) must accord with the outline code of construction practice. Natural England has been added as a named consultee for this Requirement. The Applicant considers this point is resolved.
REP3-064_a_5	8	A9	Schedule 1 Part 3 Para 21	The relevant SNCB is not listed as a consultee on the Biodiversity Net Gain (BNG) strategy, given the nature of this plan we would request consultation on this document. Further we note that no time period is given for the duration of which the strategy should be monitored,	Requirement amended to include consultation with the SNCB, in Deadline 1 update. Issue is partially resolved.		The Applicant does not propose to make further changes to the drafting of the DCO on this point. The Applicant's position remains as set out in its Response to Relevant

Applicant Ref	Point	NE Ref.	Relevant provision	Natural England - Relevant and Written Representation	Natural England comment Consultation, actions, progress at Deadline 3 (Column G of NE document)	Natural England RAG at D3	Applicants Comments at Deadline 4
				maintained or when adaptive management measures may be implemented. The requirement should ensure the strategy is enforced for a period of thirty years, or for the lifetime of the development.			Representations from Natural England **[REP1-044]**. Requirement 21(1) provides that the final biodiversity net gain assessment must be in accordance with the outline biodiversity net gain strategy, which is a secured document and which contains the information sought by Natural England. Natural England is a consultee on the finalisation of the BNG assessment. Most importantly, requirement 21(2) requires that the BNG assessment must be implemented as approved. Note, the Applicant has submitted an updated Biodiversity Net gain Strategy at Deadline 3 **[REP3-027]** and **[REP3-028]**.
REP3-064_a_6	10	A11	Schedule 8 Part 2 Condition 25	Natural England notes that the monitoring conditions only cover benthic monitoring. Ornithological and marine mammal monitoring should also be requirements due to the potential for impact.	No change.		The Applicant does not propose to make further changes to the drafting of the DCO on this point. The Applicant considers the scope and drafting of the suite of conditions on monitoring to be well precedented and appropriate. Ornithological and marine mammal monitoring is detailed in the offshore in-principle monitoring plan [APP-245], which is secured by condition 21(1)(j), which requires the pre-commencement submission and approval of an offshore monitoring plan in accordance with the outline offshore in-principle monitoring plan. Further, condition 21(1)(f) requires the pre-commencement submission and approval of 'details of proposed pre-construction monitoring surveys, construction monitoring, post-construction monitoring and related reporting in accordance with conditions 25, 26 and 27' – requirements for pre-construction monitoring and surveys, construction monitoring, and post-construction monitoring, respectively.

Applicant Ref	Point	NE Ref.	Relevant provision	Natural England - Relevant and Written Representation	Natural England comment Consultation, actions, progress at Deadline 3 (Column G of NE document)	Natural England RAG at D3	Applicants Comments at Deadline 4
REP3-064_a_7	15	A16	Schedule 15	Natural England notes that compensation provisions have been provided for LBBG only. We have advised that compensation is required for other ornithological and benthic features, specifically kittiwake, guillemot and razorbill at Flamborough & Filey Coast Special Protection Area (SPA). The compensation schedule should be updated to cover all sites where there is currently disagreement regarding an adverse effect on site integrity.	No change		The Applicant maintains its position as based on the conclusions of the EIA and HRA screening process that there is no risk of adverse effects on the integrity on the FFC SPA and its qualifying interests from the North Falls project (alone or in combination). As such, it is not proposing to add compensation schedules for these interests to the DCO. However, the Applicant has prepared without prejudice compensation cases for Kittiwake, Guillemot and Razorbill for the FFC SPA, presented in the Report to Inform Appropriate Assessment (RIAA) Part 4 **[APP-178]**. As noted above, the Applicant is preparing without prejudice DCO compensation schedules for Kittiwake, Guillemot and Razorbill, to be submitted at Deadline 5.
REP3-064_a_8	16	A17	Schedule 15	All references to Natural England within this schedule should be amended to the 'relevant SNCB' to ensure consistency with the rest of the DCO.	No change		The Applicant updated Schedule 15 of the draft DCO at Deadline 1 so that all references in Schedule 15 to Natural England now refer to the relevant SNCB. The Applicant has made a further change to Schedule 9, Part 2, Condition 36(1) of the DCO to update the reference from Natural England to 'the relevant SNCB' **[6.1 (Rev 5)]**.
REP3-064_a_9	22	A23	Outline Offshore Operations and Maintenance Plan	The Outline Offshore Operations and Maintenance Plan should be amended to reflect the dML conditions that ensures cable protection should only be deployed up to ten years following completion of construction. We recommend this document be updated to avoid any confusion post consent.	No change.		The Applicant submitted an updated Outline Offshore Operations and Maintenance Plan at Deadline 3 **[REP3-024**] and **[REP3-025]**, which addressed this point. The Applicant understands Natural England is reviewing the updated OOOMP and will respond at Deadline 4.
REP3-064_a_10	23	A24	Outline Offshore Operations and Maintenance Plan	It would be helpful if the Outline Operations and Maintenance plan could specifically set out O&M activities so it can be read as a standalone document.	No change.		Appendix A (Operations and Maintenance List) to the Outline Offshore Operations and Maintenance Plan lists out the relevant operations and maintenance activities. The Applicant considers the OOOMP can be read as a standalone document.

Applicant Ref	Point	NE Ref.	Relevant provision	Natural England - Relevant and Written Representation	Natural England comment Consultation, actions, progress at Deadline 3 (Column G of NE document)	Natural England RAG at D3	Applicants Comments at Deadline 4
REP3-064_a_11	24	A25	Outline Offshore Operations and Maintenance Plan	The replacement or addition of scour protection around foundations for the lifetime of the project (Page 13) doesn't align with comments made in the DCO and/or the Benthic Appendix.	No change		The Applicant submitted an updated Outline Offshore Operations and Maintenance Plan at Deadline 3 **[REP3-024]** and **[REP3-025]**, which addressed this point. The Applicant understands Natural England is reviewing the updated OOOMP and will respond at Deadline 4.
(B) Marine Processes							
REP3-064_b_1	1	B1		There is uncertainty regarding the likely success of subtidal Horizontal Directional Drilling (HDD) at the landfall point. Geotechnical/expert evidence in support of HDD should be presented. Otherwise an alternative WCS should be presented as a contingency.	In Progress. The Applicant states [REP1-044] that the Outline HDD methodology is based on initial feasibility work. It is considered that an HDD exit in the intertidal area may not be feasible, hence the subtidal exit was considered the most feasible option based on the best available information at the application submission. Applicant to confirm that further ground investigations and surveys will be carried out.		The Applicant can confirm that further site investigation works are planned for later this year to better understand the geology in the area. An HDD exit in the intertidal area may not be feasible due to the depths of the seawall and the extents of the intertidal area. It will be challenging to meet the requirements of the Environment Agency (EA), and the depths required owing to the sea defences, and exit in the intertidal area due to the bending radius required. Therefore, the subtidal exit was considered the most feasible option based on the best available information at time of application submission. Plans for an intertidal exit pit are included within the Outline HDD Method Statement **[REP1-038]** Figure 2.2. However, subsequent to this, the intertidal area was reclassified, and the EA have indicated that their drawings of the sea defences are not accurate. Furthermore, the intertidal exit would mean passing under the sea defences in a layer of sand, which could affect the sea defences. Therefore, balancing the range of factors, it is currently considered that the optimum option is a subtidal exit. This allows North Falls to pass under the sea defences lower, meaning less risk of interfering with the sea defences, and in stiffer clay for better support . This makes it optimal from a technical perspective, hence this has been taken forward.

Applicant Ref	Point	NE Ref.	Relevant provision	Natural England - Relevant and Written Representation	Natural England comment Consultation, actions, progress at Deadline 3 (Column G of NE document)	Natural England RAG at D3	Applicants Comments at Deadline 4
REP3-064_b_2	3	B3, B16, B30, B31, B32		(a)There is uncertainty regarding the wave and current modelling and a lack of information regarding seabed mobility and seabed erosion/deposition. As a result, we are currently unable to support the impact assessment conclusions relating to sediment transport processes and scour development at KKE MCZ and Annex I sandbanks. (b) Equally further consideration of bed shear stress changes and the sediment erosion/deposition potential within and adjacent to the array through the different phases for the Project alone and cumulatively with other nearby Offshore Wind Farms (OWFs) is required due to uncertainties.	In Progress. The removal of GBS from the project design and the 50m separation distance between turbine foundations [REP1-007] and KKE MCZ are welcome but further evidence is needed to demonstrate that the MCZ will not be impacted by changes to waves, hydrodynamics and sediment transport over the lifetime of the Project		The Applicant has undertaken bespoke hydrodynamic and dispersion modelling **[9.54 (Rev 0)]**, which is submitted at Deadline 4, accompanied by a technical note presenting the interpretation of sediments dispersion modelling results **[9.56 (Rev 0)]** and supporting information on offshore additional mitigation **[9.55 (Rev 0)]** which includes consideration of the Kentish Knock East MCZ and confirms there will be no hinderance of the conservation objectives of this site.
REP3-064_b_3	5	B5, B28		Further information on the anticipated location and extent of cable protection near MLS SAC is required to demonstrate that adverse impacts to the SAC due to disruption of sediment transport pathways operating around the northern boundary and seabed morphology can be excluded. The assessment should consider total amounts of cable protection proposed across the different project phases. Please also refer to B13.	In Progress. Natural England welcomes the Applicant's commitment to a 150m buffer between MLS SAC and export cable protection [REP1-007]. However, further evidence is needed to demonstrate that cable protection near the SAC will not modify sediment transport pathways/processes operating on/near the SAC and in turn lead to morphological change		The Applicant has submitted Supporting information on offshore additional mitigation **[9.55 (Rev 0)]**, which includes consideration of the Margate and Long Sands SAC and confirms there will be no AEOI of this site, at Deadline 4
REP3-064_b_4	6	B8, B28		North Falls acknowledge that cable protection on the seabed would represent the WCS at HDD exit pits and along the intertidal cable route. Natural England is unable to agree with the Applicant's negligible significance assessment of this impact. Further clarity is require on whether rock berms for cable armouring are proposed within the intertidal, If that is the case then further investigation of potential disruption to longshore drift and the potential to impact overlapping designated sites downdrift is required.	In progress. The North Falls HDD exit will be in the subtidal zone [REP1-038] not the intertidal zone which partially resolves this issue. We advise that the Applicant should provide WCS parameters for nearshore cable protection requirements and specify locations.		Nearshore cable protection is assessed in ES Chapter 8 **[APP-022]**, Section 8.6.3.6, which confirms that if cable protection is placed within this area, it would form a similar beneficial function to the existing groynes along the Essex coast which have been installed to provide coastal defence by restricting the flow of sediment to protect the coast. The locations of cable protection cannot be determined pre-consent. This is standard for offshore wind farms and other offshore cables.
REP3-064_b_5	7	B11, B29		Sediment deposition from sandwave levelling could led to an order of magnitude difference in seabed height which could have significant implications for sensitive receptors, such as spawning fish, benthic ecology. The significance of which will be influenced by the persistence of the mound. Further evidence from adjacent OWFs of mound persistence/redistribution and thickness should be provided to support conclusions.	The Applicant is confident that sandwave levelling/seabed preparation mounds will be mobile and re-distributed by the prevailing physical processes. However, the WCS parameters for the mounds need to be confirmed and their persistence		Mound persistence is not usually monitored and, based on expert interpretation, it has been ascertained that sediment will be redistributed based on the fact that their particle size characteristics will be the same as the sand waves from which they were created. Hence, the physical processes driving the sand waves will drive transport of the sediment in the mounds.

Applicant Ref	Point	NE Ref.	Relevant provision	Natural England - Relevant and Written Representation	Natural England comment Consultation, actions, progress at Deadline 3 (Column G of NE document)	Natural England RAG at D3	Applicants Comments at Deadline 4
REP3-064_b_6	8	B12, B29		The WCS for foundation installation requiring drilling is 10% of 34 Wind Turbine Generators (WTGs) and one Offshore Substation Platform (OSP)/Offshore Converter Platform (OCP). The rationale for this WCS is unclear. The anticipated location where drilling may be required for foundation installation has not been provided. It is also stated that aggregated mud clasts within drill spoil mounds would mostly remain static. Conversely, it is also stated that over time the mound would gradually winnow away and lower through erosion. Further clarity on WCS for persistence of drill arisings and their location is required, before we can advise on the scale and significance of changes to marine process and potential impacts to sensitive receptor from the presence of the arisings.	In Progress. The Applicant has stated [REP1-044] that all monopiles at Greater Gabbard were installed by piling hence the Applicant's expectation that drilling will not be required at North Falls. However, if needed, drilling could lead to creation of persistent mounds that are unlikely to fully erode. We advise that indicative drilling and disposal locations should be provided.		The closest WTGs to the KKE MCZ have been chosen conservatively as the worst case scenario to inform the hydrodynamic and dispersion modelling **[9.54 (Rev 0),** see sections: 5.9 and 5.10**]** for both the smaller WTGs and larger WTGs layouts.
REP3-064_b_7	10	B14, B28		It is stated that currently "the exact number of crossings are still being confirmed." Therefore, the WCS for the number of cable protection needed at crossings is unclear. A map should be provided identifying the location of cable crossings offshore, including designated sites and sensitive receptors. And assessments updated accordingly.	In Progress. While Applicant has provided an Export Cable Crossing Zone Plan [REP1-059] we advise that a map is needed with indicative locations of any other potential crossings with the North Falls ECR. The Applicant also needs to demonstrate whether impacts to MPA supporting processes and other Annex I sandbanks will be avoided.		The Applicant has submitted an outline Cable Specification and Installation Plan (oCSIP) to provide details around burial depth at Deadline 4 **[9.53 (Rev 0)**]. There are no other known crossings on the ECR. Supporting information on offshore additional mitigation **[9.55 (Rev 0)]** which includes consideration of the Margate and Long Sands SAC and Kentish Knock East MCZ and confirms there will be no AEOI or hinderance of the conservation objectives of these sites, is also submitted at Deadline 4.
REP3-064_b_8	11	B11, B15		The calculation of drill arising mound footprint is based on a mound height 'fixed' at the equivalent average height of the naturally occurring sandwaves on the seabed within the site i.e. 2m high. We believe that this figure could be higher at certain locations. Further clarification as to why this has been fixed as the WCS height for the drill arising mound should be provided and assessments updated.	in Progress. We are content with the rationale provided by the Applicant [REP1-044]. However, in areas where drill arising mounds may affect sensitive ecological receptors (e.g. sandeel or spawning herring which in turn provide prey resource for other sensitive receptors), we advise that appropriate surveys to determine change in size and form of the disposal mounds, should be carried out.		ES Chapter 11 Fish and Shellfish Ecology **[APP-025]** has assessed Physical disturbance and temporary habitat loss (section 11.6.1.1) and Increased SSCs and sediment re-deposition (Section 11.6.1.2) related to the construction phase, including the installation of WTGs and OSPs/OCP on relevant spawning grounds (including Herrings and sandeels) and concluded effects of minor significance. As presented in ES Chapter 5 Project Description **[APP-019]**, drilling would only be required for up to 10% of monopile foundations and 50% of OSP/OCPs. This means that up to 5 WTGs could require drilling when considering the smaller turbine indicative layout and up to 3 WTG, if

Applicant Ref	Point	NE Ref.	Relevant provision	Natural England - Relevant and Written Representation	Natural England comment Consultation, actions, progress at Deadline 3 (Column G of NE document)	Natural England RAG at D3	Applicants Comments at Deadline 4
							considering the larger turbine indicative layout. Accordingly, with regards to ES Chapter 8 Marine Geology, Oceanography and Physical Process **[APP-022]**, because of their potentially large particle sizes, future transport of the aggregated clasts would be limited, and most would remain static within the mound. However, over time the flow of tidal currents over the mound would gradually winnow (there would be a gradual disaggregation of the clasts into their constituent particle sizes) the topmost clasts and over time the mound would lower through erosion. The overall significance of effect associated with sediment dispersal would be no greater than negligible adverse (see Section 8.6.2.4.3). As no significant effect has been identified in the ES due to drill arising mounds, the Applicant's position is that no additional monitoring measure is required.
REP3-064_b_9	12	B17		It is stated that current speeds will return to baseline conditions with progression downstream of each foundation and generally will not interact with wakes from adjacent foundations. It is also stated that these effects will be relatively small in magnitude and local. However, we are unable to agree until the WCS spatial extent of turbulent wakes have been evaluated to inform the impact assessment	No change. We advise that an indication of WCS wake effects should be parameterised. This will help inform the scour potential assessment.		The Applicant has submitted a technical note presenting the interpretation of Hydrodynamic and dispersion modelling results at Deadline 4 **[9.56 (Rev 0)]**.
REP3-064_b_10	14	B19, B20, B30		There is insufficient evidence to support the conceptual approach taken for tidal currents and sediment transport characterisation at North Falls. Further evidence/information is needed to demonstrate that the GWF, GGOW and VE modelling results are directly applicable to the conditions prevailing at North Falls. Additionally, Natural England advises further justification is needed for the conceptual approach that has been used.	No change. We advise that when making use of previously collected data, it is important to demonstrate that the data are still valid for the intended purpose (i.e. is not out-of-date) and directly applicable to the study area.		The Applicant has now completed numerical modelling of predicted changes to tidal currents, bed shear stresses, and suspended sediment dispersion due to the Project **[9.54 (Rev 0)]**. Associated with this report, the Applicant has also submitted a technical note presenting the interpretation of the results with respect to environmental impact **[9.56 (Rev 0)]**. This information supersedes the conceptual approach already presented.
REP3-064_b_11	15	B21		Wave measurements have not been gathered at the North Falls site for model validation. The data used for calibrating the wave model were collected at West Gabbard 2 and South Knock wave buoys.	No change. We advise that when making use of previously collected data, it is important to demonstrate that the data are still valid for the		The Applicant reiterates that the data used for the wave assessment **[APP-093]** is adequate and applicable to the study area.

Applicant Ref	Point	NE Ref.	Relevant provision	Natural England - Relevant and Written Representation	Natural England comment Consultation, actions, progress at Deadline 3 (Column G of NE document)	Natural England RAG at D3	Applicants Comments at Deadline 4
				The model was calibrated against a range of past significant storm events, but some were underpredicted. Therefore, the modelled data may not accurately describe the baseline wave climate. Further evidence should be provided to demonstrate that the wave model data are representative of the present-day conditions at the project site.	intended purpose (i.e. is not out-of-date) and directly applicable to the study area.		It is common to calibrate regional wave models using data collected 10's of km away. The model was calibrated using the largest storm events between 2016 and 2021 (the latest data available at the time that the wave assessment was produced). Overall, the Applicant considers there is a good agreement between the modelled and measured wave heights of each event, although in some cases the model over or under predicts wave height. The Applicant would like to highlight that the focus of this modelling is to investigate potential change due to the presence of the wind farm, for which the model is reliable.
REP3-064_b_12	17	B23		An estimated 177 major component replacement activities are proposed per year (using jack-up vessels and/or anchoring). This is a significant number of component replacements, and no rationale has been provided for the WCS. Natural England advises that further justification is needed of this WCS	The Applicant has provided rationale for MDS major component replacement activities [REP1-044]. This resolves this issue. However, we advise the Applicant to ensure that impacts to ecological receptors associated with major component replacement are appropriately assessed.		Impacts to ecological receptors associated with major component replacement have been assessed within the ES: • Chapter 10 Benthic and Intertidal Ecology **[APP-024**] Section 10.6.2.1.1; • Chapter 11 Fish and Shellfish Ecology **[APP-025]** in section 11.6.2.1; • Chapter 12 Marine Mammals **[APP-026],** Sections 12.6.2.3 and 12.6.2.4.
REP3-064_b_13	18	B24		The potential for temporary physical disturbance associated with Operations and Maintenance (O&M) vessels has only been considered for Annex I sandbanks in the array area. Furthermore, it is stated that all other receptors are beyond the Zone of Influence (ZoI) for this impact. Does this exclude potential impacts to the nearshore. Further clarification is needed that indentations to the seabed due to O&M vessels (and Unexploded Ordnance (UXO)clearance) are not anticipated in the nearshore zone.	No change. Only impacts to Annex I sandbanks from O&M vessel indentations on the seabed and UXO clearance have been considered. Impacts to other receptors need to be considered e.g. the nearshore, areas of designated seabed or sensitive habitats/species.		ES Chapter 8, Marine Geology Oceanography and Physical Processes **[APP-022]**, assesses the potential for indentations on the seabed due to UXO clearance and vessels that utilise jackup legs or several anchors to hold station, during construction (Section 8.6.2.10) and during operation (Section 8.6.3.8). The assessment considers the relevant receptors both in the array area and along the offshore cable corridor. In respect of the impact of indentations on the seabed this has been assessed as either resulting in No change or, at most, Negligible significance of effect.

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							ES Chapter 10 Benthic and Intertidal Ecology **[APP-024]** assesses Temporary physical disturbance during operation & maintenance activity as Minor Significance of Effect in Section 10.6.2.1.1; This assessment includes UXO clearance and the need for jack up vessels and/or anchoring, amongst other O&M activities and assess them against all the sensitivity of the biotopes identified in the offshore project area. No designated area for benthic features is overlapped by the offshore project area and therefore no effect from O&M vessel indentations on the seabed or UXO clearance is expected for these areas.
REP3-064_b_14	19	B25		It is suggested that the magnitude of decommissioning impacts would be comparable to or less than those identified for construction. However, the following should be used to inform an outline decommissioning plan to inform the consent: • Potential lasting impacts to the marine physical environment and processes of any assets left in situ; and • Emerging alternatives to decommissioning such as repowering and life extension. Natural England advises that the Applicant should consider emerging alternatives to decommissioning and secure any associated monitoring in the outline decommissioning plan.	No change. We advise that decommissioning should be considered in the Schedule of Mitigation with regards to marine physical processes/environment.		The Applicant considers it is not necessary to provide an outline decommissioning plan pre-consent. The EIA appropriately considered and assessed decommissioning activities so far as it is practicable and possible to do so at this point in time. Each chapter of the ES considered and assessed the potential for likely significant effects during decommissioning based on assumptions as to the known requirements and methodologies at this time. The decommissioning activities will be appropriately addressed through the development of a Decommissioning Programme post consent, to be submitted prior to commencement of offshore works, as required by DCO Schedule 1, Paragraph 25 and therefore mitigation will be agreed at that time. The Applicant notes this is the approach taken in the recently made Sheringham Shoal and Dudgeon Extension and Rampion 2 DCOs.
REP3-064_b_15	20	B27		It is stated that the receptors potentially affected by the cumulative change in sediment transport during operation will not experience a significant cumulative effect. However, the extent of	No change. The potential for cumulative changes to the wave and tidal regimes may, extend a considerable distance from the array and persist for the duration of the development.		ES Chapter 8 Marine Geology, Oceanography and Physical Processes **[APP-022]** section 8.8.3.4 assess the

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				cumulative change has not been quantified. This is important for understanding the implications of the predicted cumulative change over the lifetime of the Project at KKE MCZ and Annex I sandbanks. The cumulative change in sediment transport should be quantified and the implications to KKE MCZ and the Annex I sandbanks over the lifetime of the Project assessed.	Therefore, we advise that consideration needs to be given to potential cumulative impacts due to the other nearby developments.		cumulative changes in operational sediment transport including for KKE MCZ and the Annex I sandbanks. A summary of the cumulative effects on each receptor is available in ES Chapter 8 **[APP-022]**, Section 8.12 (see Table 8.52).
REP3-064_b_16	21	B29, B31		The tolerance, adaptability, recoverability, and sensitivity to changes in seabed level due to foundation installation, have been assessed as 'negligible' for KKE MCZ. This 'negligible' conclusion is contradictory to Table 8.17 [APP-022] which shows that the near-field magnitude of impact is 'medium.' Given the proximity to KKE MCZ, presence of potentially sensitive species within the array, uncertainty regarding the WCS sediment deposition thickness and insufficient supporting site-specific evidence, we unable to agree with the conclusions of the impact assessment. Further clarification and supporting evidence are required regarding the WCS sediment deposition height to inform the impact assessment for KKE MCZ.	No change. We advise more detailed information is needed regarding the anticipated worst-case sediment deposition parameters associated with sandwave levelling/seabed preparation spoil disposal near KKE MCZ		The Applicant has undertaken bespoke hydrodynamic and dispersion modelling **[9.54 (Rev 0)]**, which has been submitted at Deadline 4, accompanied by a technical note presenting the interpretation of sediments dispersion modelling results **[9.56 (Rev 0)]** and supporting information on offshore additional mitigation **[9.55 (Rev 0)]** which includes consideration of the Margate and Long Sands SAC and Kentish Knock East MCZ and confirms there will be no AEOI or hinderance of the conservation objectives of these sites.
REP3-064_b_17	22	B33		Natural England advises that the Applicant should provide further evidence to support the predictions of negligible sediment loss through scour during the lifetime of the Project.	We advise that scour potential should be assessed including assessment of the level that the seabed is likely to drop below during the lifetime of the project due to the movement of mobile sediments. Scour (and secondary scour) monitoring should be included in the IPMP. Note: this issue was missing from the Risk and Issues Log at DL1.		Scour protection will be used where required to minimise the impacts of scour. Secondary scour effects are included in the assessment in Sections 8.6.3.4.2 and 8.6.3.5 of ES Chapter 8 **[APP-022]**.
(C) Benthic Ecology							N/A – At present, the Applicant has no comments on Appendix K3 (C) Benthic Ecology.
(D) Fish and Shellfish Ecology							N/A - At present, the Applicant has no comments on Appendix K3 (D) Fish and Shellfish Ecology.
(E) Marine Mammals							N/A - At present, the Applicant has no comments on Appendix K3 (E) Marine Mammals.
(F) Offshore Ornithology							N/A - At present, the Applicant has no comments on Appendix K3 (F) Offshore Ornithology.

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(G) Offshore Ornithology Compensation							N/A - At present, the Applicant has no comments on Appendix K3 (G) Offshore Ornithology Compensation.
(H) Onshore Ecology and Ornithology							
REP3-064_h_1	4	H4		There are possible disturbance and visual impacts for receptors along the King Charles III England Coast Path (ECP) depending on timing of opening of ECP. Further information relating to any impacts on the associated margins, in addition to any restrictions required and impacts on the line of the path is required.	Partially resolved. The Applicant has provided further information on disturbance and visual impacts for receptors along the King Charles III England Coast Path in [REP1-044]. However, we advise the Applicant to further consider short-term visual impacts. We also note that the ECP route will not be physically affected by the installation of the cable route due to a commitment to use HDD under the ECP. However, if diversion/blockage occurs to the ECP during construction we advise the Applicant to clarify what measures will be taken.		The Applicant notes that at the points at which the landfall horizontal directional drill crosses the King Charles III England Coast Path, its depth will be between 15-20m below the level of the path and as such the risk of any surface effects occurring is negligible. A risk assessment has been undertaken on the level of risk of effects upon the sea defences, where the path will be located, and the consequential need to such a diversion/closure, during the landfall horizontal directional drill. This is detailed in the Outline Horizontal Directional Drill Method Statement and Contingency Plan (Rev1) **[REP1-037]**. As such, the need to create a blockage / diversion will not be required.
REP3-064_h_2	25	H28		There is no commitment here to avoid work in functionally linked land, this is particularly relevant to Hamford Water SPA but applies to all functionally linked land within the red line boundary. Commitments to avoid work on functionally linked land to avoid impacts to supporting habitats and/or disturbing Annex I bird features during sensitive periods. If this is not possible then a management plan would be required to ensure impacts are sufficiently minimised.	Progressed. Natural England notes [REP1-044] 9.1 Applicant's Response to Relevant Representations from Natural England does not address our concerns regarding avoidance of impacts to functionally linked and as it focuses entirely on mitigation which should be of secondary concern in accordance with the mitigation hierarchy. We do, however, welcome confirmation that further detail will be 'included in the final Ecological Management Plan, as secured by Requirement of the Draft DCO.'		As outlined in Table 24.5 of ES Chapter 24 Onshore Ornithology **[APP-038]**, embedded mitigation incorporated into the Project design included mitigation by site selection. This process included avoidance of designated sites with ornithological features (and disturbance buffer zones around them), and where practicable, avoidance of functionally linked land which was identified (through field surveys and desk study) as being of relatively higher importance for SPA qualifying features. An example of this is around Hamford Water SPA where the final onshore project area has avoided higher recorded concentrations of SPA qualifying features on functionally linked land close to the SPA (see e.g., Figures 24.11 and 24.12 of ES Chapter 24 Figures, and see Figure 4.21 of ES Chapter 4 Figures for the alternatives cable routes considered in this area, which have taken the survey findings into account). Due to the wide foraging ranges of some species, in part as a result of ongoing variation in

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							agricultural conditions through the season, complete avoidance of functionally linked land was not possible, and therefore a suite of mitigation measures throughout the year has been proposed to minimise the risk of disturbance or habitat loss to affect SPA qualifying features.
(I) Seascape							N/A – The Applicant notes that Natural England is reviewing the material submitted by the Applicant on these matters at Deadlines 1-3, and Natural England will provide a response at D4.
(J) Landscape VIA							
REP3-064_j_1	1	J1,J3		There is a potential for in-combination/cumulative impacts between Norwich-Tilbury substation, North Falls, and the Five Estuaries (VE) substations. Once more information is available during examination this should fully considered and assessed, with appropriate mitigation measures applied, if necessary, including addressing winter visibility whilst mitigation screening is established.	No change to our earlier advice.		Updated visualisations, which include the Norwich to Tilbury overhead line (OHL) when visible, are being provided at Deadline 4 **[Document reference: 9.44]**. These demonstrate the consideration of the Norwich to Tilbury overhead line, the cumulative landscape and visual effects of which are assessed within Section 30.8 of ES Chapter 30 Landscape and Visual Impact Assessment **[APP-044]**.

Appendix to Applicant's Response to NE's Appendix G3: Scale of RTD compensation

A.1 Calculation of the contribution that North Falls red-throated diver (RTD) compensation could make to the National Site Network (NSN)

1. The Applicant believes that calculation of the contribution that the proposed compensation measures could make to the NSN is inappropriate, as there is no means to translate the predicted potential impacts from the Project (RTD habitat loss/degradation in the Outer Thames Estuary SPA) into demographic benefits (increase in numbers of breeding RTD adults within the NSN).
2. It is understood that Natural England is in agreement on this point, although they have nevertheless used an estimate of the number of additional adult red-throated divers that the compensation measures could produce each year to request that 'the Applicant should take a more ambitious approach to the scale of the measure'.
3. The Applicant intends, if required (compensation is proposed on a without-prejudice basis), to implement compensation measures (breeding rafts and/or peatland habitat management) at 20 lochs, with 20 controls for comparison ([REP1-023 and REP1-024] (clean/tracked), section 3.2).
4. Compensation sites are being identified in Shetland and Caithness and Sutherland. In Shetland, the compensation management would involve peatland habitat management to restore lochs where RTDs are unable to breed successfully as water is draining away due to erosion. In Caithness and Sutherland, compensation measures would involve the installation of rafts on lochs to enhance the breeding success of RTDs. Both of these are proven techniques for increasing RTD breeding success ([REP1-021] and [REP1-022] (clean/tracked)).
5. The Applicant has calculated the total number of additional fledglings per year that the compensation could produce and the number of these that are predicted to survive to produce adult red-throated divers which recruit into the breeding population. These are based on three scenarios, one in which all compensation is delivered in Shetland, one in which three-quarters of compensation is delivered in Shetland and one in which all compensation is delivered in Caithness and Sutherland.
6. The calculations behind for these three scenarios are presented in Error! Reference source not found. below.

    - If the Applicant delivers compensation (peatland habitat management) at 20 lochs, only in Shetland, the measure would produce an estimated additional **13.9 fledglings per annum of which 4.3 are predicted to survive to adulthood**.

- Alternatively, under more precautionary demographic assumptions and assuming that the Applicant delivers compensation at 15 lochs in Shetland (peatland habitat management) and 5 lochs in Caithness and Sutherland (nesting rafts), the measures would produce **an estimated additional 9.4 fledglings per year of which 2.9 are predicted to survive to adulthood**.
- If the Applicant delivers compensation at 20 lochs in Caithness and Sutherland (nesting rafts), the measure would produce an estimated additional **six fledglings per annum of which 1.9 would be expected to survive to adulthood.**

7. The difference in numbers of adults produced each year, from the same number of 20 compensation lochs, is due to the peatland habitat management measure increasing breeding success to a much greater extent than the nesting raft measure. Habitat management would restore lochs that divers could not otherwise have bred successfully on due to water draining away. Thus, on Shetland, breeding success per managed loch would be increased from zero to an estimated value of 0.77 chicks per loch occupied by a pair of RTDs, and compensation at 20 lochs would produce an estimated additional 4.3 adults per annum.

Table 2.7 Number of additional adult RTDs that North Falls compensation could produce per year (numbered notes refer to section A2 below)

DEMOGRAPHIC PARAMETER	SCENARIO 1		SCENARIO 1		SCENARIO 3	
	SHETLAND	CAITHNESS & SUTHERLAND	SHETLAND	CAITHNESS & SUTHERLAND	SHETLAND	CAITHNESS & SUTHERLAND
No. lochs at which compensation is implemented[2]	20	0	15	5	0	20
Breeding success in the absence of compensation[3,4]	0	0.35	0	0.35	0	0.35
Breeding success following implementation of compensation[5, 6]	0.77	0.75	0.7	0.75	0.7	0.75
Difference in breeding success due to compensation	0.77	0.40	0.7	0.40	0.7	0.40
Occupancy rate following implementation of compensation[7]	0.90	0.75	0.75	0.75	0.75	0.75
Number of additional fledglings per annum from compensation lochs[8]	**13.86**	**0**	**7.86**	**1.50**	**0**	**6**
Survival to adulthood (age 3)[9]	0.312	0.312	0.312	0.312	0.312	0.312
No. of fledglings reaching adulthood	4.33	0	2.46	0.47	0	2.23
Compensation benefit: number of additional adults from compensation	**4.33**		**2.93**		**1.87**	

A.2 Assumptions behind calculations

8. Scenario 1 is an estimate of numbers of additional adults based on likely demographic rates and all compensation delivered in Shetland (the Applicant's preferred approach); Scenario 2 assumes more precautionary values and 75% of compensation delivered in Shetland; Scenario 3 assumes no compensation would be delivered in Shetland, under more precautionary values.

9. Under Scenario 1, all compensation is delivered in Shetland, which is the Applicant's preference due to Shetland having higher breeding success, highest densities of breeding RTDs and evidence of a population of large population of non-breeders that would occupy new nesting habitat (Fraser et al. 2009; Gomersall, 1986, Digger Jackson, Pers. Comm.). However, if the Applicant is unable to secure a sufficient number of lochs in Shetland, compensation would be delivered in Caithness and/or Sutherland. Here, there is an assumption made that 15 lochs can be secured in Shetland and 5 in Caithness and Sutherland. This has been assumed solely for the purposes of illustrating benefits of compensation and is not representative of the number of sites secured by the Project.

10. Calculations assume that peatland habitat management in Shetland is undertaken at waterbodies that are currently failing to fledge any chicks. This measure will target waterbodies that are not currently used by RTDs to maximise benefits from the compensation measure.

11. Breeding success in Caithness and Sutherland is unknown but was estimated to be 0.35 chicks per annum in Kintyre and Argyll (Dewar & Lawrence, 2023; Merrie, 1996). Note 'breeding success' is the mean number of chicks fledged per pair per annum

12. Mean breeding success in Shetland, during 2003-2008, for approximately 48 breeding pairs, was 0.77 fledglings per annum (Fraser et al. 2009). Fraser et al. (2009) do note that the Viking Wind Farm study area in which they were working had 10% higher productivity than elsewhere in Shetland. This would give a mean breeding success for RTDs elsewhere in Shetland of 0.7 (0.77/1.1). Scenario 1 assumes RTDs at restored lochs could achieve a higher breeding success of 0.77, whereas Scenario 2 assumes a more precautionary breeding success of 0.7. Note that Thompson et al. (2022) found a mean nest success rate of 0.465 for RTDs breeding in Shetland in 2018-2021 but this was the proportion of nesting attempts that were successful and not the number of fledged young per nest. Nest success rate does not account for breeding attempts that fledged two young and so is an underestimate of breeding success. Therefore, this more recent estimate cannot be used in this calculation.

13. Breeding success of RTDs in Argyll increased from 0.35 young per pair to 0.75 chicks per pair (Merrie, 1996; ap Rheinallt et al. 2007).

14. Scenario 1 assumes that 90% of restored lochs would be occupied by breeding red-throated divers. This is based on evidence that one third of birds on lochs

in Shetland are non-breeders (Fraser et al. 2009; Gomersall, 1986) and so there is a large pool of non-breeding birds seeking suitable nesting habitat (pers. comm. Digger Jackson). However, a more precautionary assumption is used for Scenario 2, of 75% of restored lochs being occupied by breeding RTDs.

15. Number of additional fledglings per annum is [no. of lochs with compensation] x [additional fledglings per annum] x [occupancy rate]

16. Survival to adulthood is [survival age 0-1] x [survival age 1-2] x [survival age 2-3]. Horswill & Robinson (2015) present survival rates for red-throated divers from a single source, Hemmingsson & Eriksson (2002). This paper presents evidence from ringing recoveries of the following survival rates: age 0-1 = 0.6, age 1-2 = 0.62, age 2-3 = 0.84, adult = 0.84. These rates should be treated with caution as they are based on only 25 recoveries of age 0-1 birds and 14 age 1-2 birds. (Also, Table 1 in Hemmingsson & Eriksson (2002) implies survival rate for age 1-2 birds to be 0.77, with 23% of recoveries being in this age class.).

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