



The Planning Inspectorate  
Yr Arolygiaeth Gynllunio

# **REPORT on the IMPLICATIONS for EUROPEAN SITES**

## **Proposed Sheringham Shoal Offshore Wind Farm Extension Project and Dudgeon Offshore Wind Farm Extension Project**

An Examining Authority report prepared with the  
support of the Environmental Services Team

Planning Inspectorate Reference: EN010109

16 June 2023

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# 1 INTRODUCTION

## 1.1 Background

- 1.1.1 Equinor New Energy Limited (the Applicant) has applied to the Secretary of State (SoS) for a Development Consent Order (DCO) under section 37 of the Planning Act 2008 (PA2008) for the proposed Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP) (hereafter referred to as the 'Proposed Developments', other than where it is necessary to distinguish between SEP and DEP). The SoS has appointed an Examining Authority (ExA) to conduct an Examination of the application, to report its findings and conclusions, and to make a recommendation to the relevant SoS as to the decision to be made on the application.
- 1.1.2 The relevant SoS, in this case the SoS for Energy Security & Net Zero (SoSESNZ), is the competent authority for the purposes of the Habitats Regulations<sup>1</sup> and the Offshore Marine Regulations<sup>2</sup> for applications submitted under the PA2008 regime. The findings and conclusions on nature conservation issues reported by the ExA will assist the SoSESNZ in performing their duties under the Habitats Regulations and the Offshore Marine Regulations.
- 1.1.3 This report compiles, documents and signposts information provided within the DCO application, and the information submitted throughout the Examination by both the Applicant and Interested Parties (IPs), up to and Deadline 5 of the Examination (13 June 2023) in relation to potential effects to European sites<sup>3</sup>. It is not a standalone document and should be read in conjunction with the Examination documents referred to. Where document references are presented in square brackets [ ] in the text of this report, that reference can be found in the Examination library published on the project webpage of the National Infrastructure Planning website at the following link:  
<http://infrastructure.planninginspectorate.gov.uk/document/EN010109-000479>
- 1.1.4 It is issued to ensure that IPs including the appropriate nature conservation bodies (ANCBs) – Natural England (NE), Joint Nature Conservation Committee (JNCC) (in this case represented by NE) and NatureScot (NS) – are consulted formally on Habitats Regulations matters. This process may be relied on by the SoSESNZ for the purposes of Regulation 63(3) of the Habitats Regulations and Regulation 28(4) of the Offshore Marine Regulations.

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<sup>1</sup> The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations).

<sup>2</sup> The Conservation of Offshore Marine Habitats and Species Regulations 2017 (the Offshore Marine Regulations) apply beyond UK territorial waters (12 nautical miles). These regulations are relevant when an application is submitted for an energy project in a renewable energy zone (except any part in relation to which the Scottish Ministers have functions).

<sup>3</sup> The term European sites in this context includes Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), proposed SACs, potential SPAs, Ramsar, proposed Ramsar, and any sites identified as compensatory measures for adverse effects on any of the above.

- 1.1.5 It also aims to identify and close any gaps in the ExA's understanding of IPs' positions on Habitats Regulations matters, in relation to all European sites and qualifying features as far as possible, in order to support a robust and thorough recommendation to the SoSESNZ.
- 1.1.6 Following consultation, the responses will be considered by the ExA in making their recommendation to the SoSESNZ and made available to the SoSESNZ along with this report. The RIES will not be revised following consultation.

## 1.2 Documents used to inform this RIES

- 1.2.1 The Applicant provided a suite of Habitat Regulations Assessment (HRA) documents with the DCO application, some of which have been updated during the Examination. See Annex 2 of this report for a full list.
- 1.2.2 In addition to these DCO application documents, the ExA has used representations submitted to the Examination by the Applicant, IPs, Issue Specific Hearing (ISH) documents, Statements of Common Ground (SoCG) and other Examination documents as relevant (cited using Examination Library reference numbers).

## 1.3 The Proposed Developments

- 1.3.1 A single DCO application has been submitted for the SEP and DEP Proposed Developments, which are two separate projects but the Applicant is seeking to coordinate the development of SEP and DEP as far as possible. An HRA assessment has been provided that considers both developments and with a range of possible development scenarios. The RIAA confirms that the Applicant's preferred option is a development scenario with an integrated transmission system, providing transmission infrastructure which serves both SEP and DEP; however, alternative development scenarios have been included to allow for a phased approach (if necessary). The DCO application therefore includes the following development scenarios, as described in the RIAA [APP-059] and in more detail in the Scenarios Statement [APP-314] and Supplementary Information to the Scenarios Statement [REP3-074], which are broadly described as:
- In isolation – where only SEP or DEP is constructed;
  - Sequential – where SEP and DEP are both constructed in a phased approach with either SEP or DEP being constructed first; or
  - Concurrent – where SEP and DEP are both constructed at the same time
- 1.3.2 Under the sequential and concurrent scenario, where SEP and DEP are both constructed, the RIAA explains that it is possible that the electrical infrastructure could be integrated. An integrated transmission system would offer the opportunity to reduce from two Offshore Substation Platforms (OSP) (one for SEP, one for DEP) to a single OSP serving both wind farms (located in SEP).

## 1.4 Change requests

1.4.1 To date, the Applicant has made the following change requests:

- Deadline 2 - a non-material change request relating to: confirmation of the surface water drainage solution at the onshore substation; and the removal of an additional area of hedgerow close to the main construction compound to aid visibility [**REP2-001a**].
- Deadline 2 - a material change request to extend the Order Limits immediately south of the A47 where the cable corridor passes through the proposed Food Enterprise Park Phase 2 site [**AS-045**] to [**AS-065**]

1.4.2 No relevant HRA matters arose from these change requests.

## 1.5 RIES questions

1.5.1 This RIES contains questions predominantly targeted at the Applicant and ANCBs, which are drafted in *blue, underlined italic text*.

1.5.2 The responses to the questions posed within the RIES and comments received on it will be of great value to the ExA in understanding IPs' positions on Habitats Regulations matters. However, it is stressed that responses to other matters discussed in the RIES are equally welcomed.

1.5.3 In responding to the questions in Tables 2-1, 3-1 to 3-4 below, please refer to the ID number in the first column.

1.5.4 Comments on the RIES are timetabled for D7 (10 July 2023).

## 1.6 Structure of this RIES

1.6.1 The remainder of this report is as follows:

- **Section 2** summarises matters in the Examination relating to the Applicant's screening for potential likely significant effects (LSE) to European sites, either alone or in-combination with plans and projects.
- **Section 3** summarises matters in the Examination relating to the Applicant's assessment of adverse effects on site integrity (AEoI), either alone or in-combination with plans and projects.
- **Section 4** provides an overview of the Examination related to the Derogations, including Imperative Reasons of Overriding Public Interest (IROPI), alternative solutions and Compensatory Measures (CM).
- **Annex 2** lists the European sites and qualifying features the Applicant carried forward to consideration of AEoI, together with the Applicant's conclusion and level of agreement with the ANCB.

## 2 LIKELY SIGNIFICANT EFFECTS

### 2.1 European sites considered

#### Introduction

- 2.1.1 The Proposed Developments are not connected with or necessary to the management for nature conservation of any European site.
- 2.1.2 The European sites considered by the Applicant are listed in Table 2-2 of the HRA Screening Matrices [REP4-009]. A total of 182<sup>4</sup> European sites (and their qualifying features) were screened for likely significant effects (LSE) by the Applicant in its HRA assessment [APP-059, APP-060 and REP4-009]. Of these, 94 are within the UK National Site Network (NSN) and 88 are non-UK European sites. The latter are all European sites in European Economic Area (EEA) States. The Applicant concluded there would be no LSE on any European sites outside of the UK [REP4-009]. Only UK European sites are addressed in this RIES.
- 2.1.3 The location of European sites relative to the Proposed Developments are depicted on several figures within Appendix 1 to the RIAA (HRA Screening Assessment) [APP-060], including: Figure 3-1 (onshore European sites); Figure 4-1 (Annex 1 habitat offshore European sites); Figure 6-5 (marine mammal European sites); and Figure 7-1 (ornithology European sites). European sites designated for marine mammal qualifying features that have been carried forward to the consideration of adverse effects on integrity (AEoI) are also shown on Figure 8.1 of the RIAA [APP-059].
- 2.1.4 It is noted that not all European sites considered by the Applicant are clearly shown on the figures provided. Those shown on the figures are predominantly the closest European sites to the Proposed Developments.

**RIES-Q1: To the Applicant: The Applicant is requested to provide further clearly labelled figures to show the extent of all European sites considered in the Applicant's HRA assessment in relation to the Proposed Developments, including a figure(s) to show non-UK European sites.**

#### Applicant's screening methodology

- 2.1.5 Section 5 of the RIAA [APP-059] summarises the screening exercise undertaken by the Applicant. Section 5.1 describes that a 20km buffer zone around all project elements was used for the screening exercise for terrestrial (onshore) ecology features, within which eleven European sites were identified.
- 2.1.6 For the offshore environment, Section 5.2 of the RIAA states that a 100km buffer zone around all project elements was used for the screening exercise for Annex 1 habitat/benthic ecology features, within which eight sites were identified. For migratory fish, the screening considered all European sites within the Southern North Sea (and within 250km of the

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<sup>4</sup> Table 2-2 of [APP-061] lists 166 European sites; however, SPA and Ramsar have been combined into one site within the table



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Proposed Developments), which have migratory fish species listed in Annex II of the Habitats Directive as a qualifying feature. Four European sites were identified in this screening distance. However, the screening exercise undertaken subsequently concluded no LSE to any European sites designated for fish qualifying features [APP-059, APP-060, APP-061].

- 2.1.7 For marine mammals, Section 5.3 of the RIAA states that the approach to HRA screening focused on the potential for connectivity between individual marine mammals from designated populations and the offshore sites (ie demonstration of a clear source-pathway-receptor relationship).
- 2.1.8 Section 5.4 describes the approach to offshore ornithology. For offshore ornithology receptors during the breeding season, the HRA screening focused primarily on the potential for connectivity between seabirds breeding at colonies which are classified as SPAs and the Proposed Developments. The HRA screening exercise considered European sites that either overlap with the projects elements or are within the relevant species' foraging range during breeding and non-breeding, or range of associated foraging areas.
- 2.1.9 Appendix 1 to the RIAA presents the HRA Screening Assessment [APP-060] and Section 2.3 of that document sets out in broad terms the approach to screening for LSE. The selection process to identify relevant European sites and qualifying features is then described in further detail under the following impact pathways/receptor type:
- Terrestrial Ecology (Section 3.1);
  - Benthic Ecology (offshore Annex 1 habitats) (Section 4.1);
  - Fish Ecology (Section 5.1);
  - Marine Mammals (Section 6.1); and
  - Offshore Ornithology (Section 7.1).
- 2.1.10 Section 4.2.1 of RIAA Appendix 1 [APP-059] details that the HRA screening exercise was undertaken in April 2021 and that the HRA Screening Assessment should be read in conjunction with the RIAA [APP-059] and its Appendix 2 (HRA Screening Matrices) [APP-061] (latest version [REP4-009]), which together reflect the final HRA screening outcomes. Changes to the original screening conclusions (which are not reflected in the HRA Screening Assessment [APP-060]) are summarised in Section 4.2.1 of the RIAA and included in Section 2.2 of the HRA Screening Matrices [REP4-009].
- 2.1.11 With regards to changes since the original screening, the RIAA [APP-059] explains that Broadland Ramsar was initially screened out but subsequently screened in for LSE in the RIAA due to the potential for collision risk to affect migratory waterbird qualifying features.
- 2.1.12 In respect of marine mammals, it was initially considered that no European sites designated for bottlenose dolphin had the potential for connectivity with the Proposed Developments. However, based on a recent increase in presence of the bottlenose dolphin along the north-east coast of England, and on a precautionary basis, it has been assumed that bottlenose dolphin

off the east coast of England could be from the Moray Firth Special Area of Conservation (SAC) and as such this European site was assessed further for LSE.

- 2.1.13 With regards to offshore ornithology: Pentland Firth potential Special Protection Area (pSPA) was subsequently screened out as it was withdrawn as a pSPA; Fetlar SPA was screened out because no relevant qualifying features have connectivity with the Proposed Developments; and the Outer Thames Estuary SPA red-throated diver (RTD) qualifying feature was subsequently screened in because vessels associated with the Proposed Developments would transit through its northern extremity between SEP and DEP and the port of Great Yarmouth.

### ***In-combination effects***

- 2.1.1 The HRA Screening Assessment [APP-060] at Section 2.3.1 details the Applicant's approach to assessing in-combination effects. This follows a tiered approach.
- 2.1.2 The projects and plans considered for the in-combination assessment for each receptor type are either identified in the relevant sub-section of the HRA Screening Assessment [APP-060] or a cross-reference is included to supporting information provided in the Environmental Statement (ES). For example, in-combination projects and plans considered for onshore European sites are detailed further in the ES Chapter 20 Onshore Ecology and Ornithology (Section 20.7 and Table 20-15) [APP-106] (updated at Deadline 2 [REP2-024] and Deadline 3 [REP3-026]). For benthic ecology/offshore Annex 1 habitat receptors, these are detailed in ES Chapter 8 Benthic Ecology [APP-094], and for marine mammals these are identified in ES Appendix 10.3 Marine Mammals CIA Screening (document reference 6.3.10.3) [APP-193].
- 2.1.3 The RIAA [APP-059] in Sections 6 to 9 identifies the projects and plans considered for the in-combination assessment at the AEoI stage. The RIAA also confirms that it was agreed with stakeholders at the marine mammals Expert Topic Group (ETG) during the pre-application Evidence Plan Process (EPP) that the potential effects from Unexploded Ordnance (UXO) clearance would be assessed in a separate Marine Licence (ML) and not as part of the DCO submission. The potential in-combination effects from UXO clearance at other offshore wind farms (OWFs) during piling at SEP and DEP are however assessed as part of the Applicant's HRA for the DCO application.
- 2.1.4 During the Examination, NE [RR-063] queried why Outer Dowsing OWF had not been considered as potentially overlapping with the Proposed Developments in respect of the Applicant's assessment of the Southern North Sea (SNS) SAC. See Table 3-3 for further discussion on this matter. Discussions have also been held throughout the Examination concerning the other foreseeable projects that the Applicant has/should include in its in-combination modelling and HRA assessments. See Section 3.3 (Offshore Ornithology) below for further discussion on in-combination assessment at the AEoI stage.

## 2.2 The Applicant's screening assessment

### European sites within the UK NSN

- 2.2.1 The RIAA [APP-059] and HRA Screening Matrices [REP4-009] identified 94<sup>5</sup> European sites (and their qualifying features) for which the UK is responsible for inclusion within the screening assessment. The full list of NSN European sites and qualifying features considered for LSE within the Applicant's HRA are presented in the HRA Screening Matrices [REP4-009] and are not replicated in this RIES.
- 2.2.2 Whilst the Proposed Developments are in England and English waters, 42 European sites located in Scotland have been included within the Applicant's screening assessment [APP-060, REP4-009]. Twenty of these European sites were carried forward to consideration of AEoI [APP-059 and REP4-011]. The ExA issued in its Third Written Questions (WQ3) a question to NS [PD-017] requesting comments on the Applicant's HRA assessment on European sites in Scotland. No response from NS was received at Deadline 5.
- 2.2.3 During the Examination, NE identified several European sites/qualifying features and potential effect pathways where it either disagreed with the Applicant's screening conclusion or identified new/different sites and features it considered should be included in the Applicant's assessment. These are summarised at Table 2-1 of this RIES below.

[RIES-Q2: To NE and all IPs - Except for those sites/features listed in Table 2-1 of this RIES, the ExA is not aware of any representations from IPs identifying any additional UK European sites or qualifying features for inclusion in the Applicant's HRA. IPs are invited to comment.](#)

### Potential effect pathways considered

- 2.2.4 Table 2-1 of the HRA Screening Matrices [REP4-009] identify the potential effect pathways from the Proposed Developments to European sites and qualifying features considered by the Applicant. The rationale for those European sites and qualifying features screened in for consideration of AEoI is also summarised in Table 5-2 of the RIAA [APP-059].
- 2.2.5 The RIAA [APP-059] assessed the potential impacts during construction, operation and maintenance (O&M), and decommissioning. The Applicant considered that for the purposes of a worst-case scenario (WCS), impacts during the decommissioning phase would be no greater than those identified for the construction phase.
- 2.2.6 NE [RR-063] considered additional impact pathways should be screened into the Applicant's assessment, where they had previously been screened out of LSE. These are identified in Table 2-1 below and are in respect to the following European sites:
- River Wensum SAC;

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<sup>5</sup> This number reflects the ExA's understanding when SPA and Ramsar are counted individually

- Berwickshire and North Northumberland Coast SAC;
- Humber Estuary SAC;
- SNS SAC;
- Flamborough and Filey Coast SPA (FFC SPA);
- Greater Wash SPA; and
- North Norfolk Coast SPA.

## 2.3 Summary of Applicant's conclusion on LSE

2.3.1 The Applicant's conclusions in respect of screening are summarised in Section 5 the RIAA [APP-059] and in the HRA Screening Matrices [REP4-009]. The HRA Screening Assessment [APP-060] provided further detail with regards to Applicant's screening assessment but as noted above, this was not updated for the DCO submission and is therefore not the latest screening assessment of the DCO application. The Applicant's latest HRA screening is presented in the HRA Screening Matrices [REP4-009].

2.3.2 The European sites and qualifying features for which the Applicant concludes no LSE are listed in Appendix 2 HRA Screening Matrices [REP4-009]. The Applicant concluded no LSE on 43 European sites within the NSN. The Applicant's conclusions in relation to these European sites and qualifying features **were disputed** by IPs during the Examination, as noted in Table 2-1 to this RIES below, and amendments were made to the Applicant's screening assessments during the Examination (eg in [REP4-009]). Following the amendments and representations made on the matters listed in Table 2-1 below, it is not yet known whether NE are content with the Applicant's screening conclusions for all European sites in England/English Waters, although it appears that screening matters identified in Table 2-1 have been addressed. No response was received from NS at Deadline 5 in respect of European sites in Scotland/Scottish Waters.

[RIES-Q3: To NE and NS – Please can you confirm whether you are content with the Applicant's screening assessment for European sites as updated during the Examination \[REP4-009\].](#)

2.3.3 The European sites and qualifying features for which the Applicant concludes LSE, together with the rationale for screening in, are listed in Table 5-2 of the RIAA [APP-059] and at Annex 1 of this RIES. HRA Integrity Matrices [REP4-011] were also provided for each of the European sites and qualifying features carried forward to consideration of AEoI (see Section 3 of this RIES).

### 2.3.4 Examination matters relating to screening

2.3.5 Matters raised in the Examination to date, or for which the ExA seeks clarity, in relation to LSEs screened out or not considered by the Applicant are summarised in Table 2-1 of this RIES below.

**Table 2-1: Matters raised in the Examination to date by the ExA and IPs in relation to the Applicant's screening of LSE (alone or in-combination)**

ID	European site/ qualifying features	Details of issue	ExA observation/ question
<b>Onshore European sites</b>			
2-1-1	River Wensum SAC White-clawed crayfish Brook lamprey Bullhead	The Applicant initially screened out LSE to these qualifying features [APP-060]; however, NE [RR-063] considered LSE could occur to these features due to a risk of bentonite break-out during drilling and recommended that they be screened in for LSE on a precautionary basis.  The Applicant provided an assessment of LSE for these qualifying features at Deadline 2 in its RIAA (onshore) Technical Note [REP2-050].	n/a – screening matter resolved (however see Section 3 of this RIES)
<b>Offshore Annex 1 habitat European sites</b>			
2-1-2	Inner Dowsing and Race Bank SAC Sandbanks which are slightly covered by seawater all of the time	NE [RR-063] stated that it was unable to agree with the LSE conclusions for Inner Dowsing, Race Bank and North Ridge SAC and The Wash and North Norfolk Coast SAC. NE advised that further evidence be provided to support the LSE conclusions. The Applicant [REP3-101] confirmed that it had considered LSE to these two SACs (potential for indirect effects) in its RIAA [APP-059] and concluded no AEOI. See Section 3 of this RIES for further discussion on this matter.	n/a – screening matter resolved (however see Section 3 of this RIES)

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ID	European site/ qualifying features	Details of issue	ExA observation/ question
2-1-3	The Wash and North Norfolk Coast Sandbanks which are slightly covered by seawater all of the time	As 2-1-2 above	n/a – screening matter resolved (however see Section 3 of this RIES)
<b>Marine mammal European sites</b>			
2-1-4	Berwickshire and North Northumberland Coast SAC – grey seal	NE [RR-063] confirmed agreement that this SAC could be screened out of the Applicant’s HRA Screening at the pre-application stage; however, NE also noted that since the completion of the HRA Screening, further information had been published that has reported that the maximum foraging range of grey seals is 448km and thus the Berwickshire and North Northumberland SAC is within the foraging range. NE did however consider that although there is connectivity between the Proposed Developments and the SAC, the level of connectivity is likely considerably lower than that for the nearer Humber Estuary SAC. Consequently, NE considered that the outcome for the Humber Estuary SAC represents that most precautionary assessment for grey seal sites, and any potential impact to the Berwickshire and North Northumberland SAC would be lower.	Clarification sought by the ExA on this matter. <u><a href="#">RIES-Q4: To the Applicant - The Applicant is requested to provide the Conservation Objectives for this SAC and the grey seal qualifying feature to the Examination.</a></u> <u><a href="#">RIES-Q5: To NE - Can NE confirm it is still in agreement that there would be no AEoI to this SAC and qualifying feature from the Proposed Developments, alone or in-combination with other plans or projects.</a></u>

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<b>ID</b>	<b>European site/ qualifying features</b>	<b>Details of issue</b>	<b>ExA observation/ question</b>
2-1-5	Humber Estuary SAC – grey seal – impacts to supporting habitat of seals	<p>NE [RR-063] did not agree that impacts to supporting habitats of the Humber Estuary SAC could be screened out of having LSE, as it considered that there could be some material effect on the behaviour of seals associated with the site. NE recommended that ‘impacts to grey seal habitats’ impact pathway should be assessed as having LSE.</p> <p>The Applicant [REP2-051] responded at Deadline 2 that due to the distance of Project to the supporting habitats of the Humber Estuary SAC (59km) any potential for LSE was screened out [APP-060] and has not been considered further. The Applicant confirmed that grey seal as a qualifying feature has been assessed for impacts outwith the SAC including disturbance, vessel interactions and supporting habitat considerations (such as changes in prey availability).</p> <p>NE responded at Deadline 5 [REP5-093] in its latest Risk and Issues log that the Applicant has provided an updated assessment of barrier effects to seals, which has addressed its concerns in part.</p>	See Section 3 of this RIES for further discussion of this matter.
2-1-6	Humber Estuary SAC – grey seal – barrier effects to seals	NE [RR-063] requested to see more details in the assessment of barrier effects to seals. Further detail was requested to be provided in the assessment of barrier effects to seals, specifically regarding movement between important sites and feeding areas.	n/a – screening matter resolved (however see Section 3 of this RIES)

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ID	European site/ qualifying features	Details of issue	ExA observation/ question
2-1-7	SNS SAC – harbour porpoise – underwater noise	<p>NE [RR-063](ref 65 and 70) and [REP3-146] did not agree that physical and permanent auditory injury should have been screened out at LSE stage, as mitigation is relied on. NE recommended that the pathway of 'physical and permanent auditory injury' should be assessed as LSE. NE did however confirm that it would expect no AEOI on this site from this pathway due to the use of appropriate mitigation, as secured through the Marine Mammal Mitigation Protocol (MMMP). The Applicant [REP2-051] in response confirmed that physical and permanent auditory injury are not screened out from the HRA but are considered for AEOI (eg 8.4.1.1.1.1.1 for the SNS SAC).</p> <p>NE at Deadline 5 [REP5-093] stated that it accepted that this concern has been addressed by the Applicant.</p>	n/a – screening matter resolved
<b>Offshore ornithology European sites</b>			
2-1-8	FFC SPA Seabird assemblage	<p>NE [RR-063] requested an assessment of the potential effects of the Proposed Developments on the seabird assemblage feature of FFC SPA.</p> <p>The Applicant provided an assessment in its Apportioning and HRA Updates Technical Note (Revision B) [REP2-036] and the seabird assemblage subsequently screened in to LSE [REP4-009, REP4-011, REP4-013]. An updated Apportioning and HRA Updates</p>	n/a – screening matter resolved (however see Section 3 of this RIES)



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ID	European site/ qualifying features	Details of issue	ExA observation/ question
		Technical Note (Revision C) [REP5-043] was provided at Deadline 5.	
2-1-9	Greater Wash SPA and North Norfolk SPA Sandwich tern	During the Examination, the Applicant and NE agreed (as stated in its draft SoCG at Deadline 2 [REP2-045]) that a separate displacement assessment for the Sandwich tern was not required. The Applicant therefore amended its HRA conclusions regarding displacement effects on the Sandwich tern qualifying feature of these SPAs to screen out LSE. The revised conclusions were presented in the Applicant's updated HRA Screening Matrices [REP4-009] and Integrity Matrices [REP4-011] submitted at Deadline 4.	n/a – matter resolved
2-1-10	Greater Wash SPA Common scoter	NE identified in its position statement in lieu of attendance at ISH6 [AS-041] and in its Deadline 3 submissions [REP3-143, REP3-146] that the common scoter qualifying feature of the Greater Wash SPA was missing from the Applicant's RIAA and HRA Screening Assessment. NE requested that an assessment of LSE to this qualifying feature be provided.  At Deadline 4 the Applicant provided updated HRA Screening Matrices [REP4-009] to include an assessment of LSE on common scoter feature of the Greater Wash SPA. The Applicant concluded no LSE to common scoter, either alone or in combination with plans or projects.  NE [REP5-089, REP5-093] responded at Deadline 5 confirming it agreed with the Applicant's conclusion of	n/a – matter resolved

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<b>ID</b>	<b>European site/ qualifying features</b>	<b>Details of issue</b>	<b>ExA observation/ question</b>
		no potential for LSE for this feature, alone or in-combination and is therefore satisfied that it can be screened out.	

## 2.4 Summary of Examination outcomes in relation to screening

- 2.4.1 A total of 94 European sites within the UK NSN were screened by the Applicant (see [REP4-009]). Of these European sites, the Applicant concluded that there would be no LSE on 43 European sites and their qualifying features. By Deadline 5 of the Examination, the IPs did not dispute the Applicant's conclusion of no LSE on these European sites and their qualifying features during the Examination.
- 2.4.2 The Applicant concluded LSE on 51 European sites (see RIAA [APP-059], HRA Screening Matrices [REP4-009], and HRA Integrity Matrices [REP4-011]). These sites are discussed further in Section 3 to this report.

### **3 ADVERSE EFFECTS ON INTEGRITY**

#### **3.1 Conservation Objectives**

3.1.1 The Conservation Objectives for the European sites and qualifying features for which LSE was identified by the Applicant at the point of the DCO application were included within the RIAA (Sections 6 to 9) [APP-059]. Information on the baseline and current conservation status was also provided in the RIAA at Sections 6 to 9 [APP-059].

#### **3.2 The Applicant's assessment**

3.2.1 The European sites and qualifying features for which LSE were identified were further assessed by the Applicant to determine if they could be subject to AEOI from the Proposed Developments, either alone or in combination. The outcomes of the Applicant's assessment of effects on integrity are provided in Sections 6 to 9 of the RIAA and summarised in Section 10 of that document [APP-059]. A total of 31 European sites in England/English waters and 20 European sites in Scotland/Scottish waters were carried forward by the Applicant to consideration of AEOI [APP-059, REP4-009], as identified in Annex 2 to this RIES.

##### **Mitigation measures**

3.2.2 The Applicant's RIAA [APP-059] identified both embedded and additional mitigation measures secured to avoid or reduce impacts to European sites in Sections 6 to 9 of the RIAA. These were considered in the Applicant's assessment of AEOI [APP-059]. A Schedule of Mitigation and Mitigation Routemap [APP-282] was provided with the DCO application, which detailed how and where these mitigation measures are secured within the Draft DCO (dDCO) [APP-024] (NB. latest version of the dDCO is [REP5-005]).

[RIES-Q6: To the Applicant – the ExA notes that the Schedule of Mitigation and Mitigation Routemap \[APP-282\] has not been updated since the application was submitted. The Applicant is requested to update this Routemap to reflect the latest mitigation measures within the dDCO by the end of the Examination.](#)

##### **The Applicant's conclusion on AEOI**

3.2.3 The Applicant's RIAA [APP-059] concluded that AEOI on European sites could be excluded, both from the Proposed Developments alone and in combination, for all European sites and qualifying features assessed, except for three European sites and certain qualifying features.

3.2.4 The Applicant concluded that AEOI could not be excluded to the following European sites and features from the Proposed Developments in combination with other projects and plans:

- North Norfolk Coast SPA - Sandwich tern
- Greater Wash SPA – Sandwich tern

- FFC SPA - kittiwake

3.2.5 The Applicant's conclusion on AEOI was summarised at Table 10-1 of the RIAA [APP-059] and presented in the HRA Integrity Matrices [APP-061] (latest version [REP4-011]).

### 3.3 Examination matters

3.3.1 Matters raised in the Examination to date, or for which the ExA seeks clarity in relation to AEOI are summarised by receptor group in Tables 3-1 to 3-4 below.

3.3.2 NE stated in its RR [RR-063] that based on the information submitted with the DCO application, it was not satisfied that it could be excluded beyond reasonable scientific doubt that the Proposed Developments would have an AEOI alone or in combination on the integrity of the following European sites:

- Inner Dowsing, Race Bank and North Ridge SAC;
- SNS SAC;
- The Wash and North Norfolk Coast SAC;
- FFC SPA;
- Greater Wash SPA;
- North Norfolk Coast SPA and Ramsar;
- Alde-Ore Estuary SPA and Ramsar; and
- Outer Thames Estuary SPA.

3.3.3 NE provided a Risk and Issues Log to the Examination at Deadline 1 [REP1-138] to track progress made on outstanding risk and issues through the Examination using a RAG scale (red, amber, yellow, green and purple). This log was updated at Deadline 2 [REP2-064] and again at Deadline 3 [REP3-146]. At Deadline 4, NE stated [REP4-049] unless there are fundamental changes made within a named document or plan, its positions included within its Risk and Issues Log are unlikely to change. NE provided an updated Risk and Issues Log at Deadline 5 [REP5-093].

3.3.4 The Applicant and NE were asked in the ExA's Second Written Questions (WQ2) [PD-012] (question Q2.14.1.1) to provide a joint position in relation to their conclusions of AEOI and the requirement for HRA derogation and Compensatory Measures for European sites. This was provided at Appendix B.2 of the Applicant's 'Appendix B - Supporting documents to the Applicant's Responses to the Examining Authority's Second Written Questions' [REP3-103], which included tables summarising positions in respect of offshore SPAs and Ramsar (Section 2), offshore Annex I habitats of SACs (Section 3), and Onshore European sites (Section 4). Additionally, NE provided an overview of its final positions on the potential for AEOI on key seabird species in its 'Appendix B1 - Natural England's Offshore Ornithology Position' submitted at Deadline 5 [REP5-091]. The ExA's

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understanding of the latest positions in respect of matters relating to AEOI on European sites are identified in Tables 3-4, 3-2, and 3-1 of this RIES.

- 3.3.5 Appendix B.2 [REP3-103] stated that a position statement between the Applicant and NE for marine mammal SACs would be provided at either Deadline 5 or 6, due to the submission at Deadline 3 of the Applicant's Marine Mammals Technical Note and Addendum [REP3-115], which provided updated assessments for the SNS SAC (harbour porpoise), The Wash and North Norfolk Coast SAC (harbour seal) and the Humber Estuary SAC (grey seal). NE had not yet reviewed this technical note. It was confirmed that following review of this document, NE anticipated being able to provide an updated position on conclusions.
- 3.3.6 A position statement between the Applicant and NE in respect of marine mammal European sites was not provided at Deadline 5. Table 3-3 of this RIES summarises the ExA's understanding of the latest positions in respect of matters relating to AEOI on marine mammal SACs.

***RIES-Q7: To the Applicant and NE – please provide a position statement for the marine mammal SACs and their qualifying features. Please provide any comments on the matters in Table 3-3 to clarify the ExA's understanding, where you consider this to be inaccurate/contain omissions.***

**Onshore HRA matters**

- 3.3.7 During the Examination, NE [RR-063] raised concerns with the Applicant's assessment, and in particular the securing of mitigation measures, for the following European sites and qualifying features:
- River Wensum SAC - White-clawed crayfish, brook lamprey and bullhead
  - North Norfolk Coast SPA and Ramsar – pink-footed goose
- 3.3.8 Table 3-1 below summarises the ExA's understanding of matters raised during the Examination in relation to AEOI of onshore European sites and the latest positions of the Applicant and NE.

**Table 3-1: Matters raised in the Examination to date in relation to the Applicant's assessment of AEOI (alone and in-combination) on onshore European sites**

ID	Qualifying feature(s) / matter	Details of matter/understanding of latest position	ExA observation/question
<b>River Wensum SAC</b>			
3-1-1	White-clawed crayfish, brook lamprey and bullhead - indirect effects on these qualifying features in the boundary and/or within ex-situ habitats/ functionally linked land of the SAC arising from geology / contamination and groundwater /hydrology	<p>The Applicant submitted at Deadline 2 a RIAA (onshore) Technical Note [REP2-050] to provide an assessment of AEOI for the white-clawed crayfish, brook lamprey and bullhead qualifying features of the River Wensum SAC. The assessment concluded that, taking account of the mitigation measures secured in the updated Outline Ecological Management Plan (OEMP) (latest version [REP3-068]) and the updated Outline Code of Construction Practice (CoCP) (latest version [REP5-029]), there would no AEOI to this SAC and its qualifying features. The Applicant proposes to develop a Bentonite Breakout Plan (BBP) to be included in the final CoCP (which is secured by DCO Requirement 19 of the dDCO [REP5-005] and must accord with the Outline CoCP [REP5-029]). The Applicant [REP3-107] stated the BBP would be informed by further detailed design and surveys including hydro-fraction survey at all drill sites. A site-specific risk assessment would then be undertaken as part of the post-consent detailed design process.</p> <p>NE [REP3-147] stated in its response to the ExA's WQ2 that following receipt of the RIAA (onshore) Technical Note it is content that the Applicant has now screened all relevant features of this SAC. NE [REP3-147] also advised</p>	<p>Matter not yet resolved.</p> <p><a href="#"><u><b>RIES-Q8(a): To NE - Can NE confirm whether the updated OEMP [REP3-068] and updated Outline CoCP [REP5-029] satisfy its request for further information to be provided in the OLEMS.</b></u></a></p> <p><a href="#"><u><b>RIES-Q8(b): To NE: Does NE consider the necessary mitigation is adequately secured through the dDCO (current version [REP5-029]) and is NE of the view that an AEOI can be excluded to the SAC and its qualifying features?</b></u></a></p>

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ID	Qualifying feature(s) / matter	Details of matter/understanding of latest position	ExA observation/question
	<p>effects during the construction phase</p>	<p>that "<b><i>provided mitigation is agreed and secured in the DCO and Outline Code of Construction Practice in the form in the form of sediment management, pollution prevention and bentonite breakout plans. Then we are likely to reach agreement with the Applicant's conclusion that an AEoI can be ruled out in respect of all affected onshore environmental assets.</i></b>"</p> <p>The joint position statement between the Applicant and NE [REP3-103] submitted in response to the ExA's WQ2 question Q2.14.1.1 [PD-012] stated that the Applicant's conclusion of no AEoI to these qualifying features was still to be confirmed (TBC) by NE.</p> <p>NE's Risk and Issues Log Update at Deadline 3 [REP3-146] requested further information in the Outline Landscape and Ecology Management Strategy (OLEMS) regarding monitoring for bentonite breakout to address its concerns.</p> <p>The ExA notes that NE [RR-063, REP4-049] has strongly advised that the Applicant's Landscape Management Plan (LMP) and Ecological Management Plan (EMP) be combined into a single OLEMS document. The Applicant indicated [REP1-034] that it does not intend to combine the LMP and EMP. The Applicant also stated at Deadline 5 [REP5-056] that it has engaged with the local authorities and following those discussions and based on experience of previous projects, its preference is to keep the LMP and EMP separate.</p>	



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ID	Qualifying feature(s) / matter	Details of matter/understanding of latest position	ExA observation/question
		<p>NE's latest Risk and Issues Log Update at Deadline 5 [REP5-093] states that NE welcomes the commitment in the updated CoCP (Deadline 3 [REP3-065]) that in the event of a bentonite breakout it would be notified within 24 hours. NE [REP5-093] repeated its advice that an outline BBP be submitted to the Examination and requested to be a named consultation body, along with the Environment Agency.</p> <p>The Applicant at Deadline 5 [REP5-065] reiterated its previous comments at Deadline 3 and considered it had addressed NE's concerns. The Applicant [REP5-065] stated that the OEMP [REP3-068] and OLMP [REP5-031] include a range of best available techniques and precautionary methodology and that a BBP, as required by the CoCP, would be developed prior to construction and be informed by further detailed design and surveys.</p>	
<b>North Norfolk Coast SPA and Ramsar</b>			
3-1-2	Pink-footed goose - direct effects on wintering birds present in ex-situ habitats/ functionally linked land of the SPA and	<p>The Applicant [APP-059] concluded there would be no AEoI to the pink-footed goose feature of the SPA and Ramsar on the basis of the mitigation measures presented in the OEMP (latest version [REP3-068]) and the Outline CoCP (latest version [REP5-029]).</p> <p>NE [RR-063] in its RR stated that it is developing standard advice for mitigation measures to be adopted to mitigate disturbance impacts to pink-footed goose of the</p>	<p>Matter not yet resolved.</p> <p><a href="#"><u><i>RIES-Q9: To the Applicant and NE – please provide an update with regards to the discussions concerning pink-footed goose mitigation measures and how these are to be</i></u></a></p>

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ID	Qualifying feature(s) / matter	Details of matter/understanding of latest position	ExA observation/question
	Ramsar and mitigation	<p>SPA/Ramsar and would work with the Applicant during the Examination to get this secured in the dDCO.</p> <p>At Deadline 3, NE [REP3-146] confirmed that it is still working with Applicant to agree appropriate mitigation for pink-footed geese. NE have requested a requirement in the dDCO or Condition in DML to ensure enforcement of the mitigation. NE [REP3-147] confirmed that <i>"on the proviso that a pink-footed geese mitigation plan is agreed and secured in the DCO, then we are likely to reach agreement with the Applicant's conclusion that an AEoI can be ruled out in respect of all affected onshore environmental assets."</i></p> <p>The joint position statement between the Applicant and NE [REP3-103] stated that the Applicant's conclusion of no AEoI to these European sites in respect of pink-footed geese was still TBC by NE.</p> <p>The ExA's WQ3 [PD-017] requested an update on the ongoing dialogue regarding pink-footed goose mitigation. At Deadline 5 [REP5-094], NE confirmed that it continues to engage with the Applicant in providing advice to formulate a pink-footed geese management plan. The Applicant also confirmed at Deadline 5 [REP5-049] that discussions on this matter are ongoing.</p>	<p><i><u>secured. Could the Applicant confirm whether amendments are required to the dDCO to secure such measures. Does NE agree that there would be no AEoI to this feature of the SPA and Ramsar?</u></i></p>

**Offshore Annex 1 Habitat matters**

- 3.3.9 During the Examination, NE [RR-063] raised concerns with the Applicant's assessment of the following European sites and qualifying features, and requested further evidence be provided:
- The Wash and North Norfolk Coast SAC – Sandbanks which are slightly covered by seawater all of the time
  - Inner Dowsing, Race Bank and North Ridge SAC – Sandbanks which are slightly covered by seawater all of the time
- 3.3.10 Table 3-2 below summarises matters raised during the Examination in relation to AEOI of offshore Annex 1 Habitat European sites and the ExA's understanding of the latest positions of the Applicant and NE.

**Table 3-2: Matters raised in the Examination to date in relation to the Applicant's assessment of AEoI (alone and in-combination) to Offshore Annex 1 habitat European sites**

ID	Qualifying feature / matter	Details of matter/understanding of latest position	ExA observation/ question
<b>The Wash and North Norfolk Coast SAC</b>			
3-2-1	Sandbanks which are slightly covered by seawater all of the time - Changes to tidal currents affecting Suspended Sediment Concentrations (SSC)	<p>In its RR, NE [RR-063] was of the view that AEoI could not be ruled out on this SAC on the basis of the information submitted with the DCO application. NE advised that that further evidence be provided to support the Applicant's conclusion of no LSE.</p> <p>The ExA asked the Applicant in its WQ2 [PD-012] to provide the necessary evidence requested by NE in respect of this SAC or provide reasoned argument as to why further evidence is unnecessary.</p> <p>In response, the Applicant [REP3-101] confirmed that it had considered LSE to the Inner Dowsing, Race Bank and North Ridge SAC and The Wash and North Norfolk Coast SAC (potential for indirect effects) in its RIAA [APP-059] and concluded no AEoI. The Applicant sought to address NE's comments on marine processes and updated the Marine Processes Technical Note (Revision B) at Deadline 3 [REP3-093] following comments from NE Deadline 2 [REP2-062] on the first iteration of that document. Figure 10 of [REP3-093] presented the zone of potential influence on the tidal regime in the context of marine protected areas, including the SACs. The</p>	n/a - matter resolved. NE stated to agree no AEoI [REP3-103]

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ID	Qualifying feature / matter	Details of matter/understanding of latest position	ExA observation/question
		<p>Applicant also responded at Deadline 3 [REP3-107] on this matter.</p> <p>The Applicant [REP3-093] noted in Appendix B.2 of its 'Appendix B - Supporting documents to the Applicant's Responses to the Examining Authority's Second Written Questions' [REP3-103], that NE and the Applicant are now agreed that there would be no AEoI on the Annex 1 habitat features of The Wash and North Norfolk Coast SAC.</p>	
<b>Inner Dowsing, Race Bank and North Ridge SAC</b>			
3-2-2	Sandbanks which are slightly covered by sea water all the time – increased SSC and deposition; and changes in physical processes (affecting sediment supply)	<p>In its RR, NE [RR-063] was of the view that AEoI could not be ruled out on this SAC on the basis of the information submitted with the DCO application. NE advised that that further evidence be provided to support the Applicant's conclusion.</p> <p>NE [RR-063] identified that the WCS for changes in SSC due to seabed preparations for foundation installations would be with Gravity Base Structures (GBS), and that the discharge of dredged sediments would lead to elevated SSCs and sediment plumes. NE stated that there is a chance that sediments disturbed during construction of the SEP array, would enter the Inner Dowsing, Race Bank and North Ridge SAC (within 10km tidal excursion). NE noted that the predicted deposition footprint had not been provided for discharge of dredged material at the sea surface and near the</p>	n/a – matter resolved. NE stated to agree no AEoI [REP3-103]

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<b>ID</b>	<b>Qualifying feature / matter</b>	<b>Details of matter/understanding of latest position</b>	<b>ExA observation/ question</b>
		<p>seabed and therefore advised that predicted deposition footprints from the sea surface and near seabed discharges of dredged material at the SEP array be provided within an updated ES Chapter. This was to provide further information on the potential effects due to discharged dredged material at the SEP site.</p> <p>The ExA [PD-012] asked the Applicant in its WQ2 to provide the necessary evidence requested by NE in respect of this SAC or provide reasoned argument as to why further evidence is unnecessary.</p> <p>As for The Wash and North Norfolk Coast SAC above, the Applicant [REP3-101] stated that it has considered LSE to this SAC (potential for indirect effects) in its RIAA [APP-059] and concluded no AEOI. The Applicant sought to address NE’s comments on marine processes and updated the Marine Processes Technical Note (Revision B) at Deadline 3 [REP3-093] and responded at Deadline 3 [REP3-107] on this matter.</p> <p>The Applicant [REP3-093] noted in Appendix B.2 of its ‘Appendix B - Supporting documents to the Applicant’s Responses to the Examining Authority’s Second Written Questions’ [REP3-103], that NE and the Applicant are now agreed that there would be no AEOI on the benthic habitat features of the Inner Dowsing, Race Bank and North Ridge SAC.</p>	

### **Marine mammal HRA matters**

- 3.3.11 Table 3-3 below summarises matters raised during the Examination in relation to AEOI of European sites designated for marine mammal qualifying features and the ExA's understanding of the latest positions of the Applicant and NE.
- 3.3.12 In its RR, NE [RR-063] expressed concern that there remained significant uncertainties regarding the effects of construction noise on marine mammals, namely seals with respect to disturbance and impacts on prey availability. NE requested these uncertainties be addressed by the Applicant. NE considered the impacts to marine mammals, namely seals had been potentially underestimated, and the effects could be significant. NE expressed concern that the mitigation measures proposed in the MMMP and Site Integrity Plan (SIP) would contribute little to reducing these impacts as those measures are specifically designed to maintain the SNS SAC harbour porpoise disturbance thresholds or prevent injury, and are not intended to alleviate disturbance to seals or address issues of disturbance to the wider harbour porpoise population. NE stated that if significant impacts to marine mammals cannot be disproved then further mitigation measures, such as those that reduce noise levels, should be considered by the Applicant.
- 3.3.13 The Marine Management Organisation (MMO) in its RR [RR-053] commented on the Applicant's marine mammals ES Chapter and raised several points relating to the Applicant's assessment of disturbance, including using Temporary Threshold Shift (TTS)/fleeing response as a proxy for disturbance. The MMO did not consider it appropriate to use TTS-onset thresholds as a proxy for disturbance. The MMO [RR-053, REP3-133] also stated that whilst it agrees there are currently no agreed behavioural thresholds for marine mammals, it advised using a species-specific dose-response curves to assess disturbance from piling. The MMO [RR-053, REP1-116, REP3-078] also commented on the Applicant's dDCO/DML, Outline MMMP and In Principle SIP in respect of marine mammal matters. The MMO [REP3-078] confirmed in its draft SoCG with the Applicant that it defers to NE to comment on the Applicant's conclusions in the RIAA [APP-059]; however, it will maintain a watching brief on any HRA matters related to the DMLs.
- 3.3.14 In response to the concerns of NE and the MMO, the Applicant submitted at Deadline 3 a Marine Mammal Technical Note and Addendum [REP3-115]. The Applicant stated that this note [REP3-115] provides the following updates to its assessments:
- Updates to both grey seal and harbour seal baseline information (including updated density estimates and population estimates);
  - Updates to the assessment for disturbance to
    - (a) provide a review of the potential for disturbance to all assessed marine mammal species;
    - (b) take account of the worst-case disturbance ranges provided within the literature;

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- (c) provide population modelling to determine population level consequences of disturbance from piling;
  - (d) determine requirements for mitigation of disturbance; and
  - (e) provide updates to the assessment of disturbance from Acoustic Deterrent Devices (ADD) to incorporate actual required durations; and
  - Updates to the cumulative impact assessment to include:
    - (a) project specific data where available;
    - (b) an assessment of both geophysical and seismic surveys as a moving noise source;
    - (c) an assessment of the corrected number of vessels for the SEP and DEP construction scenario;
    - (d) population modelling to determine population level consequences of disturbance from piling at all included offshore wind farms;
    - (e) further consideration of the potential for cumulative disturbance at seal haul-out sites.
- 3.3.15 The note [REP3-115] also states it addresses the MMO's RR [RR-053], regarding an updated assessment of disturbance using the dose response curve approach. The Applicant concludes that the updated assessments using the dose response curve approach do not result in any changes to the relevant impact significances presented in ES Chapter 10 [APP-096] (see Section 4.1.2.2 of the ES).
- 3.3.16 By Deadline 4, NE [REP4-049] and the MMO [REP4-048] had not yet had the opportunity to provide a response to the Applicant's Marine Mammal Technical Note and Addendum [REP3-115]. Comments were anticipated to be submitted for Deadline 5/6.
- 3.3.17 At Deadline 5 NE stated [REP5-089] it is still reviewing the updated population modelling provided by the Applicant and would provide further comments on the outstanding issues at Deadline 6.
- 3.3.18 At Deadline 5, the MMO [REP5-080] provided comments on the Marine Mammal Technical Note and Addendum [REP3-115]. The MMO commented that it welcomed the use of the dose response approach for assessing disturbance and deferred to NE as the marine mammal specialists for comments on whether it was content with the Applicant's use of density estimates for harbour porpoise and seal species. The MMO had reviewed ES Appendix 10.2 [APP-192] and stated that the Sound Exposure Level (single strike) SELss contours at 5dB were not provided. The MMO requested that this information is provided for review, or a signpost provided to where the information could be located.



**Table 3-3: Matters raised in the Examination to date in relation to the Applicant's assessment of AEOI (alone and in-combination) to marine mammal SACs**

ID	Qualifying feature /matter	Details of matter/understanding of latest position	ExA observation/question
<b>Humber Estuary SAC</b>			
3-3-1	Grey seal – baseline and approach to reference population	<p>NE [RR-063](Point 66) identified concerns with regards to the seal baseline characterisation and the same approach being used to the ES, for which it had concerns (ie in relation to using August counts; mismatch between spatial scales of density and abundance and so underestimation of impacts). NE [RR-063](Point 67) also raised concerns the Applicant use of two different scales of reference population, one for the project alone against the local SAC and Management Unit (MU) population, and one for the project in-combination against the wider MU (termed the 'in-combination reference population'). NE raised concerns that this would result in no in-combination assessment against the local SAC population.</p> <p>The Applicant [REP2-051] initially responded to NE's Point 66 that any further assessments prior to construction for the final design, if required, would be based on the latest information and guidance at that time and this would include any updates to seal abundance, density, and reference populations. The Applicant [REP2-051] stated that NE's Point 67 would be addressed in Marine Mammal Technical Note to be submitted at Deadline 3.</p>	Matter not yet resolved. Detailed response from NE expected by Deadline 7.

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<b>ID</b>	<b>Qualifying feature /matter</b>	<b>Details of matter/understanding of latest position</b>	<b>ExA observation/ question</b>
		<p>The Applicant’s seal baseline and approach remained a matter of outstanding concern to NE by Deadline 3 [REP3-146]. The Applicant did however provide in its Marine Mammal Technical Note [REP3-115] updates to both grey seal and harbour seal baseline information (including updated density estimates and population estimates). The Applicant confirmed that Annex 2 to the note [REP3-115] provides an update to all assessments as provided within the RIAA Section 8 [APP-059] that rely on the grey seal or harbour seal density estimates and reference populations. Section 5.3.1 of the note [REP3-115] states that <i>“While there are some changes in the number of grey seal potentially at risk, due to both a change in density estimate and SAC population, there are no changes to the overall assessments of effect. Therefore, as assessed in RIAA Section 8.4.3, there is no potential for adverse effect on the integrity of the grey seal feature of the Humber Estuary SAC.”</i></p> <p>NE [REP4-049] had not yet had the opportunity to review the note by Deadline 4 and anticipated comments would be submitted at Deadline 5 or 6.</p> <p>At Deadline 5, NE [REP5-093] acknowledged that the Applicant had updated parts of its assessment as requested (eg updated at-sea seal density estimates). NE confirmed it would be providing a full response to the Applicant’s population modelling at Deadline 7. The ExA notes that NE’s comments at Deadline 5 [REP5-093] reference The Wash and North Norfolk Coast SAC</p>	

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<b>ID</b>	<b>Qualifying feature /matter</b>	<b>Details of matter/understanding of latest position</b>	<b>ExA observation/ question</b>
		and harbour seal feature; however, NE's RR [RR-063] directed also to the assessment of grey seal of the Humber Estuary SAC in the RIAA [APP-059] and the Applicant provided updates relating to grey seal in its Marine Mammal Technical Note [REP3-115]. The ExA therefore considered this as matter also relevant to the Humber Estuary SAC.	
3-3-2	Grey seal - potential disturbance effects of underwater noise during piling (construction) alone and in-combination	<p>NE [RR-063](Point 90) stated that the RIAA [APP-059] predicts that 382 grey seals, or 9.8% of the Humber Estuary SAC population, may be at risk of disturbance (based on TTS as a proxy) and that this is higher (almost double) the Applicant's threshold for a significant effect. NE stated that it considers it inappropriate to say that the MMMP will reduce the likelihood of disturbance to grey seals. NE was not satisfied that the mitigation will reduce the risk of a significant effect on the population and required further information from the Applicant to justify their assessment conclusion. NE requested that the Applicant should provide further information on the assessment of disturbance to grey seals of the Humber Estuary SAC during simultaneous piling, to demonstrate no AEOI.</p> <p>NE [RR-063](Point 93) also noted that the Applicant's in-combination assessment of potential disturbance in Table 8-47 of the RIAA [APP-059] predicted that up to 1,610 individual grey seals may be impacted. This is equivalent to 41.3% of the SAC, and 6.68% of the</p>	Matter not yet resolved. Detailed response from NE expected by Deadline 6.

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<b>ID</b>	<b>Qualifying feature /matter</b>	<b>Details of matter/understanding of latest position</b>	<b>ExA observation/ question</b>
		<p>wider reference population. NE did not agree that such numbers would not be significant and requested further evidence from the Applicant to demonstrate how this number of animal disturbed would not have an AEoI on the Humber Estuary SAC. NE requested the Applicant consider what appropriate mitigation could be secured at this stage to reduce the number of individuals which may be disturbed.</p> <p>At Deadline 2, the Applicant [REP2-051] responded to NE's concerns over the Humber Estuary SAC population of grey seals, stating that the approach to disturbance to grey seals and potential impacts on the Humber Estuary SAC would be addressed in the Marine Mammals Technical Note at Deadline 3.</p> <p>With regards to Point 93, the Applicant [REP2-051] maintained its position that measures to reduce the potential significant disturbance of harbour porpoise in the SNS SAC (through noise reduction or avoidance) could also reduce the potential for any significant disturbance in other marine mammal species. The Applicant stated that the total impact assumes that nine wind farms would be piling simultaneously, which is deemed highly unrealistic. The Applicant identified in the case of UXO (as a significant contributor to the in-combination total) it is highly likely that low order techniques would be required, making this an over-estimate. The Applicant also noted that the single biggest source of impact in the assessment (approximately 1/3 of the magnitude) is due to seismic</p>	

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		<p>survey which is ongoing and unrelated to offshore wind. The Applicant stated it would further consider the conclusions of the assessment in the Marine Mammals Technical Note at Deadline 3 and would present dose response curves for the relevant species.</p> <p>The Marine Mammals Technical Note and Addendum [REP3-115] confirmed that all assessments of disturbance to seal species have been updated using the updated density and population estimates as noted above. Section 5.4.1.2 of the note provided an updated in-combination assessment for this SAC from underwater noise, including: piling impacts with other OWFs; non-piling construction noise generating activities from other OWFs; noise from geophysical and seismic surveys at other OWFs; and overall cumulative disturbance.</p> <p>The Applicant's updated assessment results are included in the following tables of the note, with accompanying text:</p> <ul style="list-style-type: none"> <li>• Table 5-18: in-combination assessment for potential disturbance during piling at OWFs which could be piling at the same time as SEP and DEP;</li> <li>• Table 5-19 in-combination assessment for potential disturbance during the construction (other than piling) at OWFs at the same time as construction at SEP and DEP;</li> </ul>	

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		<ul style="list-style-type: none"> <li>• Table 5-20 in-combination assessment for the potential disturbance for OWF geophysical surveys at the same time as piling at SEP and DEP;</li> <li>• Table 5-21 in-combination assessment for the potential disturbance for seismic surveys at the same time as piling at SEP and DEP; and</li> <li>• Table 5-22 overall in-combination assessment for the potential disturbance from all underwater noise sources during piling at SEP and DEP (Worst-Case).</li> </ul> <p>Of the above, the Applicant concludes for Tables 5-19 to 5-21 that while the number of seals at risk of disturbance has increased under the updated assessments, there is no change to the overall assessment of effect as assessed within the RIAA [APP-059] and therefore, as noted in the RIAA, there is no potential for AEOI of the grey seal feature of the Humber Estuary SAC from these effects.</p> <p>In respect of Table 5-18, the Applicant concludes that under the in-combination scenario of single piling at all other OWFs, there is the potential for up to 13.62% of the Humber Estuary SAC grey seal population to be disturbed. For the worst-case in-combination scenario of simultaneous piling at the relevant projects, there is the potential for 17.4% of the Humber Estuary SAC population to be disturbed. The note stated that this represented a significant increase in the number of grey seal at risk of disturbance from disturbance at other OWFs when compared to the assessment</p>	

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		<p>provided within RIAA Section 8.4.3.4 [APP-059]. The Applicant stated that to determine the population level consequences of disturbance for grey seal at the Humber Estuary SAC, under the worst-case simultaneous piling scenario, population modelling has been undertaken (see Section 5.4.1.4 of the note [REP3-115]). The population modelling concludes no AEOI to the grey seal feature of the Humber Estuary SAC.</p> <p>For the overall in-combination disturbance effects (Table 5-22), the note concluded for grey seal associated with the Humber Estuary SAC, up to 3,465.8 individuals (or 22.4% of the SAC population) could be disturbed as a result of disturbance from underwater noise in-combination with other projects (Table 5-22 and Table 4-32). This is stated to be an increase in the number of grey seal at risk of disturbance in comparison to RIAA Section 8.4.3.4 (Table 8-74) [APP-059], and a decrease in the proportion of the SAC population at risk of disturbance. The Applicant explained that the likelihood of simultaneous piling and that in addition, with the implementation of any management measures for the SNS SAC, the potential impacts could be reduced and that any mitigation measures to reduce the disturbance of harbour porpoise in the project specific SIPs may also reduce the potential disturbance of grey seal. As noted above, further population modelling was</p>	

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		<p>undertaken by the Applicant, which concludes no AEOI to the grey seal feature of the Humber Estuary SAC.</p> <p>[REP3-115] stated that, while there were some changes predicted in the number of grey seals potentially at risk, due to both a change in density estimate and SAC population, no changes were had been made to the overall assessments of effect. The Applicant states that, as assessed in RIAA Section 8.4.3, there would be no potential for AEOI of the grey seal feature of the Humber Estuary SAC.</p> <p>At Deadline 5, NE [REP5-093] confirmed that the Applicant has undertaken population modelling (iPCoD) of the grey seal feature of this SAC alone and in-combination and acknowledged that the Applicant considers that no additional mitigation is required. NE [REP5-093] stated that they will defer responding on this matter to Deadline 6, pending further consideration.</p>	
3-3-3	Grey seal – impact pathway ‘impacts to habitats within the wider environment/ functionally linked habitats’	<p>NE [RR-063](Point 68) stated that an assessment of impacts to seal SACs should include impacts to functionally linked habitat in the wider environment that is used by the seal qualifying features. NE did not agree with the assessment of no LSE to the habitats of the qualifying features and considered they should be carried forward to an assessment of AEOI.</p> <p>At Deadline 1 [REP1-033, REP1-034, REP2-051] the Applicant responded to NE’s RR on this matter, stating</p>	<p>Matter not yet resolved.</p> <p><a href="#"><u><i>RIES-Q10a: To NE - Could NE confirm whether the Applicant’s response to this matter at Deadline 1 [REP1-034] addressed the point raised by NE that</i></u></a></p>



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		<p>that due to the distance of the Proposed Developments to the supporting habitats of the Humber Estuary SAC (59km), any potential for LSE was screened out in the HRA Screening Assessment [APP-060] and has not been considered further.</p> <p>The Applicant [REP1-033, REP1-034] stated that grey seal as a qualifying feature has been assessed for impacts outside the SAC including disturbance, vessel interactions and supporting habitat considerations (such as changes in prey availability). The Applicant confirmed that any clarifications or amendments to the existing assessment based upon NE's RR comments will be addressed in the Marine Mammals Technical Note submitted at Deadline 3.</p> <p>NE's latest Risks and Issues Log [REP3-146] stated that there had been no change on this matter at Deadline 3. The Applicant's Marine Mammals Technical Note and Addendum submitted at Deadline 3 [REP3-115] did not provide further commentary on this matter and the Applicant's HRA Screening Matrices [REP4-009] updated at Deadline 4 do not include this pathway of effect.</p> <p>NE's latest Risks and Issues Log [REP5-093] at Deadline 5 states that "<i>The Applicant has provided an updated assessment of barrier effects to seals which in part addresses out concerns.</i>"</p>	<p><i><a href="#">an assessment of impacts to seal SACs (Humber Estuary and The Wash and North Norfolk Coast SAC) should include impacts to functionally linked habitat in the wider environment that is used by the seal qualifying features?</a></i></p> <p><b><i><a href="#">RIES-Q10b: To NE - Noting that D16 in the latest Risk and Issues Log [REP5-093] (original Point 68 of NE's RR) identifies that the Applicant has in part addresses its concerns, could NE expand on its outstanding concerns.</a></i></b></p>

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3-3-4	Grey seal – impact pathway ‘barrier effects’	<p>NE [RR-063](Point 91)and [REP3-146] stated it does not agree with the Applicant’s reasoning in respect of the significance of barrier effects.</p> <p>The Applicant [REP2-051] responded with reference to the ES assessment, stating that the potential sensitivity of barrier effects from noise has been considered as ‘medium’ for seals and due to the nature of the impact there is unlikely to be any significant long-term impacts from any barrier effects, as any areas affected would be relatively small in comparison to their range.</p> <p>NE [REP1-038, REP2-064, REP3-146] maintained its request the Applicant update its assessment of barrier effects with information on movements (from telemetry data) and area lost due to the effects.</p> <p>In response, the Applicant [REP3-115] provided at Section 5.2 of its Marine Mammals Technical Note and Addendum an updated assessment of barrier effects to seals. The Applicant concludes that there would be no significant disturbance of grey seal and no AEoI of the Humber Estuary SAC in relation to the conservation objectives for grey seal due to potential barrier effects for SEP and DEP.</p> <p>NE’s latest Risks and Issues Log [REP5-093] at Deadline 5 states that “<i>The Applicant has provided an updated assessment of barrier effects to seals which in part addresses out concerns.</i>” The ExA notes that at</p>	<p>Unclear whether matter yet resolved.</p> <p><a href="#"><u><b>RIES-Q11: To NE – Can NE confirm whether the Applicant has satisfied its request for an updated assessment of barrier effects with information on movements (from telemetry data) and area lost due to effects. Please expand on any remaining concerns with the assessment of barrier effects.</b></u></a></p>

ID	Qualifying feature /matter	Details of matter/understanding of latest position	ExA observation/ question
		<p>D6 (Point 24) of NE’s latest Risk and Issues Log [REP5-093] in respect of the Applicant’s updated ES Chapter 10 (ie EIA matters), NE confirm that the Applicant has presented a more detailed assessment of barrier effects, including information on movements relative to SEP and DEP, with satisfies Point 24 of its RR [RR-063].</p>	
<b>The Wash and North Norfolk Coast SAC</b>			
3-3-5	Harbour seal – method for determining seal abundance	<p>See also point 3-3-1 of this RIES above.</p> <p>As for the Humber Estuary SAC at 3-3-1 above, NE [RR-063](Point 66 and 67)and [REP3-146] queried the methods used to determine seal abundance. NE expressed concerned that the number of harbour seals impacts had been underestimated and thus the impact on this SAC.</p> <p>In response, the Applicant [REP3-115] provided at Section 3 of its Marine Mammal Marine Mammals Technical Note and Addendum updated baseline information for seal species, including seal density estimates and seal population estimates. The Applicant confirmed that Annex 2 to the note [REP3-115] provides an update to all assessments as provided within the RIAA Section 8 [APP-059] that rely on the grey seal or harbour seal density estimates and reference populations. Section 5.3.2 of the note [REP3-115] states that “<i>While there are some changes in the number of harbour seal potentially at risk, due to both</i></p>	Matter not yet resolved. Detailed response from NE expected by Deadline 7.

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		<p><i>a change in density estimate and SAC population, there are no changes to the overall assessments of effect. Therefore, as assessed in RIAA Section 8.4.4, there is no potential for adverse effect on the integrity of the harbour seal feature of The Wash and North Norfolk Coast SAC."</i></p> <p>At Deadline 5, NE [REP5-093] acknowledged that the Applicant had updated parts of its assessment as requested (eg updated at-sea seal density estimates, updated haul-out count for this SAC, and application of correction factors). NE acknowledged the Applicant has assessed the impact to the SAC through population modelling and confirmed that it would be providing a full response to the Applicant's population modelling at Deadline 7.</p>	
3-3-6	Harbour seal – impact pathway 'impacts to habitats within the wider environment/ functionally linked habitats'	<p>See point 3-3-3 above, which also applies to harbour seal of this SAC.</p> <p>NE's latest Risks and Issues Log [REP3-146] stated that there had been no change on this matter at Deadline 3. The Applicant's Marine Mammals Technical Note and Addendum submitted at Deadline 3 [REP3-115] did not provide further commentary on this matter and the Applicant's HRA Screening Matrices [REP4-009] updated at Deadline 4 do not include this pathway of effect.</p> <p>NE's latest Risks and Issues Log [REP5-093] at Deadline 5 stated that "<i>The Applicant has provided an</i></p>	Matter not yet resolved. See question at 3-3-3 above.

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		<i>updated assessment of barrier effects to seals which in part addresses out concerns."</i>	
3-3-7	Harbour seal – impact pathway 'barrier effects'	<p>As point 3-3-4 above.</p> <p>The Applicant [REP3-115] concluded at Section 5.2 of its Marine Mammals Technical Note and Addendum there would be no significant disturbance of harbour seal and no AEoI of The Wash and North Norfolk Coast SAC in relation to the conservation objectives for harbour seal due to potential barrier effects for SEP and DEP.</p> <p>NE's latest Risks and Issues Log [REP5-093] at Deadline 5 states that "<i>The Applicant has provided an updated assessment of barrier effects to seals which in part addresses out concerns.</i>" The ExA notes that at D6 (Point 24) of [REP5-093] in respect of the Applicant's updated ES Chapter 10 (ie EIA matters), NE confirm that the Applicant has presented a more detailed assessment of barrier effects, including information on movements relative to SEP and DEP, with satisfies Point 24 of its RR [RR-063].</p>	Unclear whether matter yet resolved. See question at 3-3-3 above.
3-3-8	Harbour seal – assessment of disturbance from piling	<p>NE [RR-063](Point 95) and [REP3-146] advised the Applicant to provide an assessment of disturbance of harbour seals during piling, using the 25km disturbance range from Russell <i>et al</i> (2016).</p> <p>In response, the Applicant [REP2-051] confirmed it would address the approach to disturbance to harbour</p>	<p>Matter not yet resolved.</p> <p><a href="#"><i><b>RIES-Q12: To the Applicant – Can the Applicant respond to the request of NE</b></i></a></p>

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		<p>seals and potential impacts on the Wash and North Norfolk Coast SAC in a Marine Mammals Technical Note at Deadline 3.</p> <p>Section 5.1.2.2.2 of its Marine Mammal Marine Mammals Technical Note and Addendum [REP3-115] provided an updated assessment of disturbance piling. The note concluded that under the updated assessments of harbour seal associated with The Wash and North Norfolk Coast SAC, assuming a 25km disturbance range for each piling location, there is the potential for more than 5% of the SAC population to be disturbed from either piling at SEP, or from piling at SEP and DEP at the same time (Table 5-7). To further investigate the potential for AEoI on The Wash and North Norfolk Coast SAC, the Applicant utilised dose response curve assessments and population modelling. The note states that results of the dose response show that for the WCS, of 93 harbour seal being disturbed by piling at SEP and DEP (for either sequential or simultaneous piling), less than 2.4% of The Wash and North Norfolk Coast population would be disturbed. Therefore, the Applicant concludes there is no potential AEoI of The Wash and North Norfolk Coast due to piling-induced behavioural disturbance of harbour seal.</p> <p>NE [REP5-093] stated that the Applicant had presented an illustrative assessment of disturbance to seals at sea using a 25km disturbance distance, which partially addressed its concerns. NE stated that based on the additional approaches presented by the Applicant in</p>	<p><u><a href="#">[REP5-093] for further assessment of potential direct disturbance of a haul-out and breeding site at Blakeney Point. Please provide this assessment or provide further justification/ explanation of why this is not required.</a></u></p>

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		[REP3-115] there appears to be potential for direct disturbance to the harbour seal of The Wash and North Norfolk Coast SAC, specifically the haul-out site at Blakeney Point. NE requested further assessment of potential direct disturbance of a haul-out and breeding site at Blakeney Point.	
3-3-9	Harbour seal – in-combination assessment	<p>NE [RR-063](Point 67)[REP1-138, REP3-146] did not agree with the in-combination assessment method used by the Applicant for this SAC. NE advised the Applicant to undertake an in-combination assessment against the SAC population specifically.</p> <p>The Applicant [REP3-115] provided a response in its Marine Mammal Marine Mammals Technical Note and Addendum. This was informed by its updates to the harbour seal baseline and reference population. The Applicant [REP3-115] provided at Section 5, and specifically at Section 5.4.1.3, an updated in-combination assessment for this SAC from underwater noise, including: piling impacts with other OWFs; non-piling construction noise generating activities from other OWFs; noise from geophysical and seismic surveys at other OWFs; and overall cumulative disturbance.</p> <p>The Applicant’s updated assessment results are included in the following tables of the note, with accompanying text:</p>	Matter not yet resolved

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		<ul style="list-style-type: none"> <li>• Table 5-23: in-combination assessment for potential disturbance during piling at OWFs which could be piling at the same time as SEP and DEP</li> <li>• Table 5-24 in-combination assessment for potential disturbance during the construction (other than piling) at OWFs at the same time as construction at SEP and DEP</li> <li>• Table 5-25 in-combination assessment for the potential disturbance for OWF geophysical surveys at the same time as piling at SEP and DEP</li> <li>• Table 5-26 in-combination assessment for the potential disturbance for seismic surveys at the same time as piling at SEP and DEP</li> <li>• Table 5-27 overall in-combination assessment for the potential disturbance from all underwater noise sources during piling at SEP and DEP (Worst-Case)</li> </ul> <p>Of the above, the Applicant concludes for Tables 5-24 and 5-25 that while the number of seals at risk of disturbance has increased under the updated assessments, there is no change to the overall assessment of effect as assessed within the RIAA [APP-059] and therefore, as noted in the RIAA, there is no potential for AEOI of the harbour seal feature from these effects.</p> <p>The updated assessment provided in Table 5-23 [REP3-115], based on project-specific data and updated density and SAC population estimates</p>	



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		<p>concluded that under the scenario of single piling at all other OWFs, there is the potential for 163.3 harbour seal associated with The Wash and North Norfolk Coast SAC or up to 4.1% of the SAC population to be disturbed. Population modelling was undertaken to determine the population level consequences of disturbance to harbour seal of the SAC. The results of the population modelling, as provided in Section 4.1.2.3.3, showed that there would be no effect on the population of any of the modelled species. No mitigation for disturbance was therefore proposed or required for piling at SEP and DEP (Section 4.1.2.4).</p> <p>In respect of Table 5-26 (seismic surveys), the Applicant concludes that the updated assessment indicates a significant number of harbour seal associated with The Wash and North Norfolk Coast SAC could be disturbed due to seismic surveys taking place at the same time as piling at SEP and DEP. Population modelling has been undertaken for in-combination disturbance within the SAC, to determine whether there could be a population level consequence due to in-combination disturbance (see Section 5.4.1.4 of the note [REP3-115]). The population modelling concludes no AEoI to the harbour seal feature of this SAC.</p> <p>For the overall in-combination disturbance effects (Table 5-27), the note concludes for harbour seal associated with The Wash and North Norfolk Coast SAC, up to 553.4 individuals (14.0% of the SAC population) could be disturbed as a result of in-</p>	

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		<p>combination disturbance. This is an increase in the number of harbour seal at risk of disturbance in comparison to RIAA Section 8.4.4.4 (Table 8-84) [APP-059].The Applicant explains the precautionary approach regarding the seismic surveys and likelihood of simultaneous piling and also that with the implementation of any management measures for the SNS SAC, the potential impacts could be reduced and that any mitigation measures to reduce the disturbance of harbour porpoise in the project specific SIPs may also reduce the potential disturbance of harbour seal. As noted above, further population modelling was undertaken by the Applicant, which concludes no AEOI to the harbour seal feature of this SAC.</p> <p>The note [REP3-115] concludes that, as assessed in RIAA Section 8.4.3, there would be no potential for AEOI of the harbour seal feature of this SAC.</p> <p>NE [REP5-093] commented that the Applicant has undertaken an in-combination assessment against The Wash and North Norfolk Coast SAC population as requested. NE acknowledge that the results are significant in the Applicant's terms and therefore, the Applicant has undertaken population modelling, also against the SAC population. NE stated that it would provide a full response to this at Deadline 6, pending further consideration.</p>	

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<b>SNS SAC</b>			
3-3-10	Harbour porpoise - assessment of WCS: simultaneous piling	<p>NE [RR-063] (General and Point 74) requested clarification on the WCS in relation to the SNS SAC, in relation to simultaneous piling at DEP vs simultaneous piling across sites. NE also queried the number of piling days in the seasonal scenario, which was slightly lower than the WCS. NE stated that based on the information in Table 8-13, it appears that simultaneous piling at one site (ie SEP or DEP) is within the project envelope. Whilst simultaneous piling across sites may represent the worst-case spatial area, NE were of the view that it is unlikely to represent the worst-case spatial overlap with the SNS SAC because of the differing distances between the sites and the SNS SAC. Indeed, NE considered simultaneous piling at the DEP site would lead to greater overlap with the SNS SAC summer area than has been presented and would be the worst-case scenario. NE advised that this scenario, of simultaneous piling at DEP site, must be assessed as it is the worst-case. In this scenario consideration should be given to the maximum separation distance of such simultaneous piling, and whether a maximum separation distance should be considered to be secured as a mitigation measure, to reduce the Proposed Developments overall contribution to disturbance at the SNS SAC. Similarly simultaneous piling at DEP would also likely represent the worst-case overlap with the winter area of the SNS SAC.</p>	<p>Unclear whether matter is resolved.</p> <p><a href="#"><u><i>RIES-Q13: To NE - Point 74 of NE's RR [RR-063] does not specifically appear in NE'S Risk and Issues Log [REP5-093]. It is unclear if the clarification provided by the Applicant at Deadline 2 [REP2-051] and in the Marine Mammals Technical Note [REP3-115] with regards to simultaneous piling has addressed NE's concerns on this matter. Please can NE respond.</i></u></a></p>

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		<p>NE [REP3-146] requested the Applicant clarify whether simultaneous piling at one site is an option and if so, the impacts of such a scenario be assessed if it is the worst-case for some impact pathways eg confirm whether it would lead to a greater overlap with the SNS SAC. NE [REP3-143] also requested the Applicant consider committing to a maximum separation distance between piling that occurs on the same day.</p> <p>The Applicant [REP2-051] clarified in response that that simultaneous piling in either SEP or DEP is a potential option. The Applicant confirmed that modelling was undertaken for the NE and SE locations within DEP (See Appendix 10.2 - Underwater Noise Modelling Report [APP-192]) and that this can be applied to further inform the potential overlap with the SNS SAC for a simultaneous piling scenario. The Applicant intended to address this within the Marine Mammals Technical Note to be submitted at Deadline 3.</p> <p>The Applicant provided in its Marine Mammals Technical Note [REP3-115] at Section 5.1.2 'Assessments of Disturbance from Simultaneous Piling for the Southern North Sea SAC' in response to NE's RR [RR-063]. The Applicant stated that the assessments provide an update to account for the potential for two simultaneous piling events at DEP as being the worst-case, rather than one simultaneous piling event at SEP and DEP (as has been assessed in RIAA Section 8.4.1.1.1.1.2 [APP-059]). The approach</p>	

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		<p>to assessment is the same as provided in RIAA Section 8.4.1.1.1.2. The provided an assessment against the SNS SAC disturbance thresholds (of 20% on any given day and 10% on average over a season).</p> <p>The Applicant’s Marine Mammals Technical Note and Addendum [REP3-115] updated the spatial assessment for simultaneous piling with either two monopiles at DEP or two monopiles at SEP, so that the maximum area of disturbance within the SNS SAC would be 2.32% of the summer area due to two monopiles at DEP. The note stated that disturbance of harbour porpoise would not exceed 20% of the spatial component of the SNS SAC summer or winter area on any given day during simultaneous piling at SEP or DEP, or SEP and DEP (Table 5-1).</p> <p>The note [REP3-115] concluded there would be no significant disturbance and no AEOI of the SNS SAC in relation to the conservation objectives for harbour porpoise due to disturbance from piling during construction, for SEP or DEP, or SEP and DEP.</p> <p>The assessment also provided clarification on the disturbance overlap with the SNS SAC for one monopile at DEP, and for one monopile at SEP and DEP on the same day.</p> <p>At Deadline 5 and in response to the ExA’s WQ3 [PD-017] regarding piling controls, the Applicant [REP5-049] explained that it does not consider that a DML condition to prevent simultaneous piling between SEP</p>	

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		<p>and DEP and other consented offshore wind farms is necessary or appropriate. The Applicant explained that the SIP mechanism has been developed to specifically address the matter of piling between developments and avoid AEoI to the SNS SAC harbour porpoise feature. The Applicant stated that through the SIP mechanism, each project with potential to have an effect on the SNS SAC is required to develop a SIP to ensure that underwater noise impacts do not breach the threshold of effect. The Applicant stated that one method to achieve this is through scheduling of piling post-consent which would be managed by the MMO in consultation with NE and developers as part of the SIP process, and that the potential requirement for further noise mitigation systems would also be considered at this stage. The Applicant reiterated that the MMO were content with the SIP.</p> <p>The MMO [REP5-080] confirmed at Deadline 5 that it was satisfied that the SIP currently provides sufficient control over the timing and nature of noisy activities to ensure that the relevant in-combination disturbance impact thresholds for marine mammals would not be breached. The MMO stated it is satisfied that the SIP and the subsequent SIP process are enforceable, and therefore have no further comment on the document.</p> <p>The MMO [REP5-080] stated that the final SIP would be used to identify and assess any potential management or mitigation measures that could ensure no AEoI on the SNS SAC for the significant disturbance</p>	

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		<p>of harbour porpoise based on the final design of the Proposed Developments and considered that a Condition to the DML for the Proposed Developments of SEP and DEP would place an unfair burden on this project. NE also confirmed that it did not consider a need to include a Condition within the DMLs to prevent concurrent piling between the Proposed Developments and other consented offshore windfarms for marine mammals.</p> <p>Point 74 of NE's RR [RR-063] does not appear in NE'S Risk and Issues Log. It is unclear if the clarification provided by the Applicant at Deadline 2 [REP2-051] and in the Marine Mammals Technical Note [REP3-115] with regards to simultaneous piling has addressed NE's concerns on this matter. Please could NE respond.</p>	
3-10-11	Harbour porpoise – assessment of effects: seismic and geophysical sources (in-combination)	<p>NE [RR-063] (Point 85) advised that the Applicant include an assessment of seismic and geophysical sources should as mobile sources in the HRA.</p> <p>The Applicant [REP2-051] responded that its Marine Mammals Technical Note to be submitted at Deadline 3 would include consideration of geophysical and seismic surveys as a mobile source.</p> <p>The Marine Mammals Technical Note [REP3-115] included at Section 5.4.1 (Updates to In-Combination Assessment of Disturbance from Underwater Noise) consideration of noise sources from seismic and geophysical sources (at Section 5.1.1.2).</p>	Matter not yet resolved. Detailed response from NE expected by Deadline 7.

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		<p>The Applicant stated that the updated assessments show that for the seismic survey assessment, there is potential for the 20% spatial threshold to be breached within both the summer and winter area, without the inclusion of SEP and DEP (Table 5-15). However, the Applicant stated that it should be noted that the potential for seismic surveys to take place at the same time as SEP and DEP constructing is unknown, and this assessment is based on a generic approach only. Prior to piling at SEP and DEP, a project specific SIP would be implemented to ensure that the spatial thresholds are not breached. The Applicant concludes that with the use of appropriate management measures defined through the SIP process, and managed by the MMO, there would be no AEOI of the SNS SAC in relation to the conservation objectives for harbour porpoise as a result of in-combination disturbance effects from underwater noise due to construction activities (other than piling) for SEP and DEP in-combination with other plans and projects.</p> <p>No response on this matter was received from NE at Deadline 5, although the ExA notes that NE intend to provide comments on the Applicant's [REP3-115] at Deadline 6/7.</p>	
3-10-12	Harbour porpoise - disturbance effects from underwater noise during effects	NE [RR-063] (Point 72) requested assurance from the Applicant that the assumption of one location being complete per day is appropriate for pin piles, where four piles need to be installed with associated set up in	Unclear whether matter resolved  <a href="#"><u>RIES-Q14: To NE – Can NE confirm</u></a>



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	(SEP or DEP In Isolation) - seasonal average	<p>between. Furthermore, NE requested clarification on what is meant by a recovery day, what activity would occur on a recovery day? As these have been included as a day of disturbance in Table 8-19.</p> <p>The Applicant responded that it confirms that the assumption of one piled jacket foundation installation per day is appropriate. Installation of each pin pile is anticipated to take up to 3 hours, so for four pin piles this would be a total of up to 12 hours with a further 12 hours being sufficient for set up in between.</p> <p>In respect of recovery day, the Applicant [REP2-051] responded that this is derived from BEIS (2020)<sup>6</sup> 'The precise pile-driving schedules for all the wind farms are unknown and it is likely that some may undertake more pile-driving each month or season than would be predicted if an average was used. Furthermore, if pile-driving is not continuously undertaken on a daily basis, consideration of the recovery period is required as this increases the overall number of days during which the impacts from disturbance are predicted to occur'. The Applicant stated that this is therefore precautionary and a WCS that has been applied to the assessment.</p> <p>No response on this matter was received from NE at Deadline 5, although the ExA notes that this did not</p>	<p><a href="#"><i>whether the Applicant has addressed its concerns in its Deadline 2 response [REP2-051]. Please expand on any remaining concerns</i></a></p>

<sup>6</sup> BEIS (2020) *Record of the Habitats Regulations Assessment undertaken under Regulation 65 of the Conservation of Habitats and Species 2017, and Regulation 33 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. Review of Consented Offshore Wind Farms in the Southern North Sea Harbour Porpoise SAC.* September 2020. Department for Business, Energy and Industrial Strategy

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		persist in NE's updated Risk and Issues Log [REP5-093].	
3-3-13	Harbour porpoise – potential construction effects of any changes in prey availability due to underwater noise impacts (SEP and DEP in isolation)	<p>NE [RR-063] (Points 79, 80 and 81) raised several points concerning the Applicant's assessment of this matter. NE stated it would be beneficial for the Applicant to undertake a brief assessment of impacts to sandeel specifically, using appropriate assumptions about auditory and behavioural response. NE advised an assessment based on the larger distances as detailed in ES Chapter 10 should be undertaken against the various marine mammal sites. NE also commented that fish that do not show a fleeing capability will not benefit from measures such as ADDs or soft start and that there is little research to suggest that fleeing responses are prolonged and directional (ie away from noise). NE commented that the mitigation measures in the MMMP would have little benefit for prey species.</p> <p>The Applicant [REP2-051] responded that it considered its assessment of sandeel prey to be suitably precautionary and based on the worst-case. The Applicant stated that given the illustrative nature of the assessment and lack of any reliable quantitative methods to determine the magnitude of effect upon marine mammals, it did not consider that there is a requirement to update the assessment. The Applicant [REP2-051] stated that mitigation may reduce impacts upon fish dependent on the mitigation chosen, but its</p>	<p>Unclear whether matter resolved</p> <p><a href="#"><u><i>RIES-Q15: To NE – Can NE confirm whether the Applicant has addressed its concerns in its Deadline 2 response [REP2-051]. Please expand on any remaining concerns</i></u></a></p>

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		<p>assessment at Section 8.4.1.1.7.1 of the RIAA [APP-059] does not rely on the MMMP as mitigation to conclude no AEOI.</p> <p>No response on this matter was received from NE at Deadline 5, although the ExA notes that this did not persist in NE's updated Risk and Issues Log [REP5-093].</p>	
3-3-14	Harbour porpoise - seasonal averages used (including in-combination assessment)	<p>NE [RR-063](Point 84)[REP3-146] stated that the seasonal averages presented by the Applicant in its RIAA [APP-059] are not presented in the correct way as they do not represent the whole season. NE advised that the Applicant present an assessment of the disturbance due to piling across the whole season. This should be applied to all seasonal assessments undertaken but is of particular importance to the in-combination assessment (Table 8-53 of the RIAA).</p> <p>The Applicant [REP2-051] confirmed it would review seasonal averages and re-present within the Marine Mammals Technical Note to be submitted at Deadline 3, if required.</p> <p>The Applicant's [REP3-115] Marine Mammals Technical Note and Addendum (Section 5.4.1.1) stated that seasonal averages have been calculated by multiplying the average effect on any given day in each season by the proportion of days within the season on which piling could occur (ie taking into account the average of effect/ area of overlap with the SNS SAC and</p>	Matter not yet resolved. See Points 3-3-15 and 3-3-16 of this RIES below.

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		<p>number of days piling per season). The assessment as presented in RIAA Section 8.4.1.6.1 [APP-059] has been updated to reflect the noisy days for all activities throughout the full relevant season.</p> <p>For other OWFs, the updated assessment [REP3-115] assumes that all piling days would be in each season assessed, and therefore most have been assessed under both the summer in-combination scenario as well as the winter. The Applicant stated that as a worst-case, no allowance has been made for downtime as a result of technical issues and no assumptions have been made for reloading of piling vessels with foundations. The average seasonal overlaps with the SNS SAC summer and winter seasons are outlined in Table 5-14 [REP3-115].</p> <p>NE [REP5-089, REP5-093] confirmed that the Applicant has updated its assessment of in-combination seasonal disturbance to the SNS SAC, and that this shows an increased maximum and average in-combination overlap with the summer and winter area, with all scenarios exceeding the threshold. NE reiterated that it maintains its concerns around the SIP process and considers that the Applicant should commit to mitigation now in-principle, to reduce impacts and therefore the potential for AEOI in-combination. See also Points 3-3-15 and 3-3-16 of this RIES below for further discussion.</p>	

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3-3-15	Harbour porpoise – overall in-combination disturbance effects from all noise sources	<p>NE [RR-063] (Point 86) identified that Table 8-53 of the RIAA presents that the number of harbour porpoise potentially disturbed could exceed a significant effect in both EIA and HRA terms. NE stated that in terms of HRA, the Applicant has presented that 12.0% of the winter area of the SNS SAC could be subject to noise disturbance in an in-combination scenario over the season. This is in exceedance of the 10% threshold for significant disturbance over a season. NE acknowledged that the Applicant considers that the measures in the SIP will mitigate disturbance; however, NE disagree with this. NE therefore required further safeguards which ensure that a significant impact to the North Sea MU population will not occur. NE stated that the Applicant must present further information which demonstrates that a significant effect/AEoI could not occur on the harbour porpoise feature of the SNS SAC as a result of in-combination underwater noise. Specifically, what would happen in the event that there are multiple other OWF construction or noise producing projects proposed at the same time.</p> <p>In response, the Applicant [REP2-051] stated that it notes that the exceedance of the 5% threshold thresholds predicted by the underwater noise assessment from all sources, as summarised in Table 8-53 of the RIAA [APP-059] are in the absence of mitigation that would be implemented through the SIPs for all relevant projects. The Applicant considers</p>	Matter not yet resolved.

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		<p>the SIP to be the appropriate framework through which disturbance to the harbour porpoise feature of the SNS SAC should be mitigated.</p> <p>NE [REP1-138] (with reference to [RR-063] Points 83, 84 and 86) requested an updated assessment of in-combination seasonal disturbance to the SNS SAC to reflect all noisy activity is required.</p> <p>The Applicant’s Marine Mammals Technical Note and Addendum [REP3-115] (Section 5.4.1.1) provided an update to the in-combination assessment due to underwater noise at the SNS SAC. The same in-combination projects were included as those presented in the RIAA Section 8.4.1.6.1 [APP-059]. The project-specific data for other OWFs used to update the assessments is summarised in Table 5-12.</p> <p>The updated assessment in the note [REP3-115] summarises at Table 5-17 the potential in-combination effects from all potential noise sources during piling at SEP and DEP. The note concludes that under the updated assessments, there is the potential for up to 85.9% of the summer area, with a seasonal average of 70.4%, or up to 102.4% of the winter area, with a seasonal average of 71.9%, to be affected. Up to 39,959.2 harbour porpoise (11.5% of the North Sea MU reference population) could potentially be disturbed. The Applicant stated that with the development of project-specific SIPs to deliver the appropriate mitigation and management measures</p>	

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		<p>across projects and management by the MMO, there would be no significant disturbance and no AEOI of the Southern North Sea SAC in relation to the conservation objectives for harbour porpoise as a result of SEP and DEP in-combination with other plans and projects.</p> <p>The Applicant stated [REP3-115] that as both SEP and DEP are located outside of the SNS SAC summer and winter areas, there is the potential for several options to reduce the potential contribution to the underwater noise in-combination effects, for example: scheduling of piling based on specific locations within the SEP or DEP wind farm sites to avoid maximum overlap with seasonal areas, for example, piling at a location which could have potential overlap with the winter area during the summer period.</p> <p>The Applicant confirmed that to further understand the implications of in-combination wind farm piling on the harbour porpoise population, population modelling has been undertaken (at Section 5.1.2.4 of the note [REP3-115]).</p> <p>As per Point 3-3-14 above, NE [REP5-089, REP5-093] confirmed that the Applicant has updated its assessment of in-combination seasonal disturbance to the SNS SAC, and that this shows an increased maximum and average in-combination overlap with the summer and winter area, with all scenarios exceeding the threshold. NE REP5-089, REP5-093] reiterated that it maintains its concerns around the SIP process and</p>	

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		<p>considers that the Applicant should commit to mitigation now in-principle, to reduce impacts and therefore the potential for AEOI in-combination. See also Points 3-3-16 of this RIES below.</p>	
3-3-16	Harbour porpoise - in-combination assessment and mitigation	<p>NE [REP3-146] requested the Applicant update its assessment of in-combination seasonal disturbance to this SAC to reflect all noisy activity that occur through the season. This may result in the area disturbed over a season increasing further. NE asked that the Applicant present further information which demonstrates that a significant effect/AEOI could not occur on the harbour porpoise feature of the SNS SAC as a result of in-combination underwater noise. Specifically, what would happen in the event that there are multiple other OWF construction or noise producing projects proposed at the same time.</p> <p>NE [RR-063] had overall concerns about the SIP process in that it is highly uncertain as to what other projects might eventually look to operate at the same time. Whether in a high activity scenario there would be sufficient capacity to allow all activities to occur as planned without exceeding daily and seasonal thresholds of the SAC even with the use of coordination. There should be consideration and acceptance that further mitigation measures may be required to reduce noise and disturbance if a situation where more activities are occurring in the SAC that expected.</p>	Matter not yet resolved.



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		<p>NE [RR-063, REP3-146] identified that there are additional mitigation measures available to the Proposed Developments and asked that the Applicant consider committing to these at this stage to minimise the risk of AEOI to the SAC from noise disturbance. NE expressed its significant concerns over the effectiveness of multiple SIPs to reduce the risk. In particular, it stated that the SIP has limited measures to mitigate exceedance of the seasonal threshold.</p> <p>See also point 3-3-14 and 3-3-15 above, the Applicant's [REP3-115] Marine Mammals Technical Note and Addendum (Section 5.4.1.1) states that with the use of appropriate mitigation and management measures defined through the SIP process, and managed by the MMO, there would be no AEOI on the SNS SAC in relation to the conservation objectives for harbour porpoise as a result of in-combination disturbance effects from underwater noise during piling at SEP and DEP and other offshore wind farms.</p> <p>At Deadline 5, NE [REP5-089, REP5-093, REP5-094] reiterated its concerns with regards to in-combination disturbance to the harbour porpoise feature of the SNS SAC and how this will be effectively mitigated. NE considered it likely that measures will need to be implemented to reduce the noise levels of individual projects (eg through the use of noise abatement systems) and/or limit the number of projects undertaking noisy works in the relevant season and area of the SNS SAC. NE [REP5-093] identified that the</p>	

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		<p>Applicant has referred to a potential mitigation measure, namely to undertake piling outside the relevant season and area of the SNS SAC. NE strongly advised that the Applicant commit to a mitigation measure such as this now, as this would reduce the risk to the project compared to delaying consideration of mitigation much closer to construction. NE commented that such a commitment would need to be secured through an appropriate condition or within outline mitigation documentation.</p> <p>NE [REP5-094] in its response to WQ3 stated that its confidence in the SIP process could be increased through greater regulatory control. NE explained that from its experience to date, HRAs on submitted SIPs are not carried out by the MMO. It considered that this would provide a further element of regulatory scrutiny and potentially identify additional mitigation. NE commented that alternative options could also be considered in the future, for example a cross-regulator Appropriate Assessment prior to the relevant season of the SNS SAC, which identifies all projects that will occur in the season and demonstrates that AEoI will not occur, with additional controls (where appropriate) placed on projects that submit applications for that relevant season but after the AA has been undertaken. However, NE recognised that the above is not in the gift of the Applicant.</p>	

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		<p>The Applicant [REP5-049] at Deadline 5 restated that the SIP is effective means of control.</p> <p>As noted above, the MMO [REP5-080] confirmed its view that the SIP currently provides sufficient control over the timing and nature of noisy activities to ensure that the relevant in-combination disturbance impact thresholds for marine mammals would not be breached.</p>	
3-3-17	Harbour porpoise - in-combination assessment other projects	<p>NE [RR-063] (General point) requested the Applicant clarify why only two other OWF were considered to have the potential to overlap with DEP and SEP. NE queried why Outer Dowsing OWF had not been considered as potentially overlapping with the Proposed Developments.</p> <p>The Applicant [REP2-051] responded that this comment was not correct as four other OWFs are considered for the summer period, including Outer Dowsing. Updated assessments for the summer area include Outer Dowsing OWF and are provided in the Marine Mammals Technical Note [REP3-115]. Explanation for the updated assessment areas is provided in Section 5.4.1.1 [REP3-115].</p> <p>No response on this matter was received from NE at Deadline 5, although the ExA notes that this did not persist in NE's updated Risk and Issues Log [REP5-093].</p>	<p>Unclear if matter resolved.</p> <p><a href="#"><u><i>RIES-Q16: To NE – Can NE confirm whether the Applicant has addressed its concerns in the Marine Mammals Technical Note [REP3-115]. Please expand on any remaining concerns</i></u></a></p>

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<b>Comments relevant to all three SACs – Humber Estuary SAC, The Wash and North Norfolk Coast SAC, and SNS SAC</b>			
3-3-18	Disturbance effects and use of MMMP and SIP as mitigation measures for disturbance	<p>NE [RR-063] stated that the construction of the Proposed Developments will cause disturbance that will have significant effects on harbour porpoise and seals, and that it disagreed with the Applicant's determination that established mitigation measures, namely the MMMP and the SIP, will reduce the risk of disturbance to all species and all designated site features. NE stated the lack of mitigation measures specifically targeting disturbance to marine mammals means there remains the potential for significant effects from disturbance to both seals and harbour porpoise at both EIA and HRA level, the risk of which is currently underestimated within the various assessments and documentation provided. NE recommend further assessment is given to the risk and significance of disturbance to harbour porpoise and seal species and recommend that further mitigations measures which reduce disturbance and sound propagation (ie sound abating measures, be retained as possible necessary options in the MMMP and SIP to reduce the effects of disturbance).</p> <p>In response to the RRs of NE [RR-063] and MMO [RR-053], the Applicant [REP2-051] (ID1, Table 1-1) explained that they did not intend to imply that the MMMP would be mitigation for disturbance effects. The Applicant stated that in the RIAA [APP-059] the</p>	<p>Further clarity sought by ExA on this matter</p> <p><a href="#"><u><i>RIES-Q17: To NE - Noting NE's response at Deadline 5 [REP5-094] to WQ3 Q3.12.2.4 and initial comments in its RR [RR-063], together with statements made in the Applicant's Marine Mammal Technical Note [REP3-115] that 'any mitigation measures to reduce the disturbance of harbour porpoise in the project specific SIPs may also reduce the potential disturbance of grey seal/harbour seal', does the matter of the use of the MMMP and SIP for disturbance also relate to the seal</i></u></a></p>

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		<p>assessments of disturbance for seals used TTS as a proxy. This assessment was considered together with the assessment of physical injury and auditory injury (Section 8.4.3.1.1 and Section 8.4.4.1.1) but was not separated and the Applicant acknowledged that they could have made clearer that the statement on mitigation is only intended to refer to injury. The Applicant therefore intended to re-present the information separately for injury and disturbance to clarify this point in a Marine Mammals Technical Note at Deadline 3 and because of the percentage of the grey seal potentially disturbed from the Humber Estuary SAC, this would also be given further consideration. The Applicant [REP2-051] also stated that they intended to undertake Population Consequences of Disturbance (PCoD) modelling to further investigate potential effects.</p> <p>The Applicant [REP2-051] stated that the In Principle SIP follows current guidance and thresholds and the SIP would be finalised prior to construction to take account of any guidance and requirements at that time, as well as the final design of the Proposed Developments. The Applicant stressed that confirmation of any measures that will be employed cannot be confirmed until the project design parameters are finalised. The Applicant stated that further assessment would be conducted prior to construction, based on the foundation type and installation method, to determine if there is the risk of</p>	<p><a href="#"><u>SACs (Humber Estuary SAC and The Wash and North Norfolk Coast SAC) or only the SNS SAC?</u></a></p>

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		<p>significant disturbance to marine mammals. This would then be used to determine if further mitigation measures which reduce sound propagation and disturbance are required. The Applicant confirmed this would all be done in consultation with NE during the pre-construction phase together with consultation in developing the final MMMP and SIP prior to construction.</p> <p>NE [REP5-094] in response to the ExA's WQ3 [PD-019] Q3.12.2.4 stated that confidence in the SIP process could be increased through greater regulatory control. NE [REP5-094] stated that the outline mitigation in the draft MMMP is sufficient to reduce the risk of injury to marine mammals, which also reduces the risk of AEOI to marine mammal designated sites. NE stated that the draft MMMP does not, and is not meant to, include measures specifically aimed at reducing in-combination underwater noise disturbance and NE's concerns around AEOI were specifically due to in-combination underwater noise disturbance.</p> <p>NE [REP5-094] clarified in response to the ExA's WQ3 [PD-019] that, due to its reservations on the SIP, it is not confident that AEOI can be ruled out for the <b>harbour porpoise feature of the SNS SAC</b> due to potential in-combination seasonal disturbance. Harbour seal and grey seal are not features of the SNS SAC.</p>	

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3-3-19	Mitigation – vessel code of conduct/ management plan	<p>NE [RR-063] advised that a standalone vessel code of conduct/management plan be secured as a consent condition and that it contain appropriate measures for marine mammal mitigation.</p> <p>The Applicant’s response at Deadline 3 [REP3-107] to NE’s comments at Deadline 2 stated that NE had noted that the Vessel Code of Conduct formerly Annex 1 of the MMMP has been moved to the Outline Project Environmental Management Plan (OPEMP). Requirement for a final Project Environmental Management Plan (PEMP) would be secured through the conditions of the DMLs in the dDCO (Revision F) [REP3-009] (latest version is [REP5-005]), which ‘conditions’ the requirement for the Vessel Good Practice and Code of Conduct to Avoid Marine Mammal Collisions.</p> <p>No response on this matter was received from NE at Deadline 5, although the ExA notes that this did not persist in NE’s updated Risk and Issues Log [REP5-093].</p>	<p>Unclear if matter resolved</p> <p><a href="#"><u><i>RIES-Q18: To NE – Can NE confirm whether the Applicant has addressed its concerns in its Deadline 3 response [REP3-017]. Please expand on any remaining concerns</i></u></a></p>
3-3-20	Monitoring - Offshore In-Principle Monitoring Plan (OIPMP)	<p>NE [RR-063] considered the marine mammal section of the OIPMP [APP-289] provided with the DCO application lacked detail and wasn’t fit for purpose. More detail was requested.</p> <p>NE also commented on the OIPMP providing more advice at Deadline 1 [REP1-136]. NE were not supportive of the Applicant’s proposal to postpone</p>	Matter not yet resolved.

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		<p>fundamental discussions regarding the scope and purpose of the monitoring to the post consent phase.</p> <p>The Applicant [REP2-051] stated that it anticipated submitting an updated Offshore IPMP (OIPMP) [APP-289] version in response at Deadline 3.</p> <p>The updated OIPMP was submitted at Deadline 4 [REP4-014].</p> <p>NE provided a detailed response to the OIPMP [REP4-015] in Appendix A2 submitted at Deadline 5 [REP5-090] and referred the ExA to this in response to the ExA's Q3.12.2.6 [PD-019]. NE noted that the Applicant had provided further information in the OIPMP as specifically requested in relation to marine mammals (ie presenting updated conclusions from the RIAA and ES; assumptions and knowledge gaps). The Applicant had also presented options that would evidence the impacts to marine mammals, and also demonstrate the effectiveness of mitigation. NE stated that nevertheless, NE consider that that further detail is still required, as per its comments at Deadline 1 [REP1-136].</p>	



### **Offshore ornithology European sites**

3.3.19 NE [RR-063] in its RR identified concerns with the Applicant's AEOI conclusions in respect of the following SPA and Ramsar with offshore ornithology qualifying features:

- Alde-Ore Estuary SPA – lesser black-backed gull;
- FFC SPA – gannet, guillemot, razorbill;
- Greater Wash SPA – Sandwich tern, RTD;
- North Norfolk Coast SPA – Sandwich tern; and
- Outer Thames Estuary SPA – RTD.

3.3.20 The RSPB in its RR [RR-083] and WR [REP1-161] stated it had significant concerns regarding the findings of some of the impact assessments and as such consider that an AEOI on the following qualifying features of the FFC SPA, North Norfolk Coast SPA or Greater Wash SPA could not be ruled out. The RSPB identified concerns with the following sites and features from the Proposed Developments in-combination with other OWFs:

- FFC SPA
  - Kittiwake – collision mortality (in-combination);
  - Gannet – combined collision and displacement mortality (in-combination);
  - Guillemot – displacement mortality (in-combination);
  - Razorbill – displacement mortality (in-combination).
- North Norfolk Coast SPA
  - Sandwich tern – collision mortality (in-combination);
- Greater Wash SPA
  - Sandwich tern – collision mortality (in-combination); and
  - RTD – displacement (in-combination).

3.3.21 The RSPB stated that whilst it recognised that the individual contributions from the two extension projects alone may be less than some of the other OWF located nearby, this did not make their cumulative and in-combination impacts any less significant. The RSPB [RR-083][REP1-161] also raised various concerns with the Applicant's assessment methodologies.

### ***Applicant's updates submitted to the Examination in relation to offshore ornithology AEOI matters***

3.3.22 The Applicant submitted an Apportioning and HRA Updates Technical Note at Deadline 1 [REP1-057] at the request of NE who had identified at Appendix B of its RR [RR-063] that potential impacts should be re-estimated for the following populations:

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- Alde-Ore Estuary SPA – lesser black-backed gull (operational phase collision);
  - FFC SPA – gannet (operational phase displacement and collision);
  - FFC SPA – guillemot (operational phase displacement);
  - FFC SPA – kittiwake (operational phase collision);
  - FFC SPA – puffin (operational phase displacement);
  - FFC SPA – razorbill (operational phase displacement);
  - Greater Wash SPA – little gull (operational phase collision);
  - Greater Wash SPA – Sandwich tern (operational phase collision);
  - Greater Wash SPA – red-throated diver (construction phase displacement/ barrier effects and operational phase displacement);  
and
  - North Norfolk Coast SPA – Sandwich tern (operational phase collision).
- 3.3.23 In addition to these updates, [REP1-057] also included updated FFC SPA razorbill calculations following the identification of an error in the RIAA [APP-059] and revised Population Viability Analysis (PVA) results for gannet, kittiwake, guillemot and razorbill in respect of FFC SPA.
- 3.3.24 At Deadline 2, the Applicant submitted an update to the Apportioning and HRA Updates Technical Note (Revision B) [REP2-036] to include an assessment of the seabird assemblage feature of the FFC SPA, which was requested by NE.
- 3.3.25 The Applicant [REP4-013] confirmed in its HRA Updates Signposting Note that it is intended to update the Apportioning and HRA Updates Technical Note for Deadline 5 to seek to address comments received from NE [REP3-143] in its 'Natural England's Comments on the 13.3 Apportioning and Habitats Regulations Assessment Updates Technical Note Version B [REP2-036] and the 14.28 Auk Construction Phase Displacement Assessment (EIA Context) Technical Note [REP2-049]'.
- 3.3.26 An updated Apportioning and HRA Updates Technical Note (Revision C) [REP5-043] was submitted by the Applicant at Deadline 5, which included updated in-combination displacement values for guillemot of the FFC SPA (at Section 7.1.1) and razorbill (at Section 9.2.2) which included updated values for Hornsea Project Four (following NE standard and bespoke approaches), together with associated PVAs. The updated technical note also provided updated RTD operational displacement values, to account for buffer overlap areas where the effect of SEP would be greater than from existing OWFs (at Section 12.2.2). A Gannet and Auk Cumulative Displacement Updates Technical Note [REP5-063] was also provided by the Applicant to address requests of NE at Deadline 4.
- 3.3.27 At Deadline 5, NE submitted its Appendix B1 to provide an overview of its final positions on the potential for AEOI on key seabird species. Within this

Appendix, NE identified outstanding issues that could influence the values within the impact assessment and provided its position, where possible (at Table 1). NE also included an explanation of its approach to interpretation of predicted impacts and application of PVA, HPAI matters, methodologies, and in-combination assessment matters (see below). Table 2 of Appendix B1 provided NE's current position on the potential for AEoI for the projects alone (SEP, DEP), together (SEP and DEP) and in-combination with other plans and projects at Deadline 5.

- 3.3.28 the Applicant [REP5-049] and NE [REP5-091, REP5-094] confirmed agreement on the basis of the updated information presented in the Apportioning and HRA Updates Technical Note, that there would be no AEoI to the FFC SPA gannet qualifying feature, alone or in-combination with plans and projects. The Applicant is therefore no longer proposing CM for gannet (see Section 4 to this RIES).

***In-combination assessment and foreseeable plans and projects***

- 3.3.29 During the Examination, matters were raised by NE [RR-063] concerning information on foreseeable plans and projects not included in the Applicant's in-combination assessment. At Deadline 5 [REP5-091], NE identified that several North Sea OWF projects that as Tier 4 or 5 projects, should be included in the in-combination assessment where this would be meaningful. These included OWFs at scoping or PEIR stage of the DCO process, namely: Rampion 2, Five Estuaries, North Falls, Outer Dowsing, Dogger Bank South (two projects) and Dogger Bank D; and the Berwick Bank OWF in Scottish Waters (a Section 36 Application). Having reviewed the information available for these projects so far, NE considered that the only project for which sufficient data was available to carry out a quantitative assessment of impacts at the time of the Proposed Developments DCO submission was Rampion 2. Although even then, limited confidence could be placed on the impact assessment values as they had not been subject to detailed consultation. NE confirmed that the Applicant has considered all appropriate sets of plans and projects at this stage, as data for the aforementioned projects will not be available until after the end of Examination. However, NE stated that if this information become available prior to determination for the Proposed Developments of SEP and DEP, it may need to seek the incorporation of such data into any consultation request received from the SoSESNZ.
- 3.3.30 NE [REP5-091] flagged that one exception to the above is Berwick Bank OWF, as a Section 36 application since been submitted to Marine Scotland and data is therefore available. NE consider that any relevant impacts presented within the Berwick Bank application should be submitted to the Examination. NE did however, also confirm that based on recent submissions from Hornsea Project Four (which now includes Berwick Bank), the additional data from Berwick Bank would not affect the AEoI judgements NE has provided.

***Highly Pathogenic Avian Influenza (HPAI)***

- 3.3.31 In its RR, NE [RR-063] identified that it had formulated some initial guidance regarding the implications of HPAI for OWF impact assessments.

NE provided this as Appendix B2 to its RR. NE advised the Applicant considers potential implications of HPAI for the impact assessments and submits an update into the Examination. The RSPB in its RR [RR-083] suggested the robustness of bird populations to mortality has decreased following the outbreak of avian influenza. The RSPB flagged that, given the nature and scale of HPAI impacts, there may need to be a reassessment of whether SPA populations are in Favourable Conservation Status. The RSPB stated that with such uncertainty as to the future of these SPA populations, there is the need for a high level of precaution to be included in examination of impacts arising from the Proposed Developments.

- 3.3.32 At Deadline 1, the Applicant [REP1-033, REP1-034] noted NE's advice and stated that in light of this, it did not consider that updates to the assessments already presented are required; however, it would be guided by the ANCBs on how HPAI may need to be considered in future.
- 3.3.33 The ExA asked questions in its WQ2 [PD-012] about the discussions on HPAI at ISH5 [EV-076, EV-080], at which the Applicant stated that if HPAI had reduced the numbers of birds within the assemblage, there would logically be less birds to collide with the turbines and, as such, the collision risk would be lower, and the effects of any collision would be lesser upon the population. It was asserted NE agreed with that position. The ExA asked whether NE and the RSPB concurred with the Applicant's view.
- 3.3.34 The RSPB [REP3-162] responded that it accepted that reduction in bird numbers due to HPAI mortality may limit numbers of birds within a population, but the degree to which this will reduce collision impact will depend on the ability for a colony to compensate for these losses. The RSPB stated that whilst there may be fewer predicted collisions, it should also be noted that impacts of HPAI remain unknown and additional impacts during the 2023 season and beyond could occur. This would have the potential effect of depressing population numbers and limiting breeding success. If healthy birds continue to be killed this could exacerbate losses. Therefore, collision risk would continue to exert an impact on the populations and, if not alone, in-combination this could remain a significant impact. The RSPB asserted that the Applicant's view is therefore simplistic and that a precautionary approach must be taken regarding the effect of HPAI given the significant uncertainties that remain about the full impact it has had and continues to have on seabird populations and other marine wildlife.
- 3.3.35 NE [REP3-147] responded to WQ2 that in some instances there may be a difference between a reduced number of collisions and a reduction in the significance of the impact at the colony. NE assesses the impact (of collision caused mortality) at the colony in terms of how vulnerable a population is to additional mortality. If a population has been made extremely vulnerable (due to extensive HPAI mortality) then an AEoI conclusion would be reached with a much lower additional impact than compared to a healthy or increasing population. NE [REP3-147] stated in response to WQ2 Q2.12.1.2 that it has worked with the Applicant to set out an appropriate scope of works and have provided datasets to facilitate the submission of a HPAI report at Deadline 4. NE stated that it does not

expect the Applicant to revise any quantification of impact due to HPAI, instead it is asking that the HPAI impacts at a colony/species level are presented to contextualise the impact assessments.

- 3.3.36 NE [REP4-049] confirmed at Deadline 4 that it had set out an appropriate scope of work and provided datasets to facilitate the submission of an HPAI impact assessment report and that assuming this information is submitted by the Applicant at Deadline 4, NE aims to provide the majority of its positions at Deadline 5. At Deadline 4, the Applicant [REP4-042] provided a 'Review of 2022 Highly Pathogenic Avian Influenza (HPAI) outbreak on relevant UK seabird colonies' document.
- 3.3.37 The Applicant [REP4-042] concludes that available data for England indicate that for the majority of species, HPAI mortality recorded during 2022 is unlikely to affect the conclusions of the HRA assessment for the Proposed Developments. The Applicant did acknowledge that for many species the estimates available are likely to underestimate the actual mortality and that it will be several years before the full effects of HPAI on seabird populations are known. The Applicant stated that in relation to the Proposed Developments, the highest level of concern is considered to be in relation to Sandwich tern populations from Scolt Head, which is part of the North Norfolk Coast SPA and Greater wash SPA population. This is due to the proximity of the Proposed Developments to Scolt Head (and the conclusion of AEoI in relation to the in-combination effects), together with the high mortality at this colony reported during 2022. However, the Applicant considered it is also the case that any population reduction at the colony is likely to result in a proportionate reduction in effects (ie collision mortality). Therefore, it is unlikely that impacts from Proposed Developments (which in isolation are relatively small) would significantly interact with the effects of HPAI, and, based on the best available evidence relating to HPAI mortality, it is considered that there would be no change to the conclusions of the HRA.
- 3.3.38 At Deadline 5, NE [REP5-091] highlighted that the long-term impacts of the ongoing HPAI epidemic on the seabird SPA populations are presently unknown and thus there is considerable uncertainty regarding the likely population sizes and growth rates in the future. The future population size will have implications for the numbers of birds present in the SEP and DEP sites and the likely levels of impact arising from the Proposed Developments, and also the robustness of the population and therefore its resilience to impacts. NE has provided interim advice on HPAI, but stated nevertheless, it is challenging to provide advice on PVA outputs projecting population trends 35 years (ie lifespan of Proposed Developments) into the future in the absence of an understanding of the long-term impacts of this event, or how long HPAI will continue to impact seabirds. This does inevitably reduce the level of confidence in NE's integrity judgements.
- 3.3.39 Within its Appendix B1 submission at Deadline 5, NE [REP5-091] provided views on the implications of HPAI for key seabird features of SPA/Ramsar considered in the Applicant's HRA. These are summarised for those species, as relevant, in Table 3-4 below.

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3.3.40 The Applicant [REP4-042] reported that colony-specific HPAI data for Scotland has been sought from consultees in Scotland, but none have been received to date. The report summarises what is known about mortality from HPAI in Scotland and includes a summary of Scotland-wide mortality data for 2022 (not colony-specific) published by NS. No response from NS was received at Deadline 5.

***Summary of position relating to AEoI to offshore ornithology  
European sites***

3.3.41 The joint position statement between the Applicant and NE [REP3-103] recorded that except for those European sites identified in Table 1 of that document, an AEoI can be excluded for all other Offshore SPAs (including Ramsar with Migratory Waterbird Features at Potential Risk of Collision on Passage) considered in the Applicant's RIAA [APP-059]. No response was received from NS by Deadline 5.

3.3.42 The ExA's understanding of matters relating to offshore ornithology European sites and the latest position of the Applicant and NE is included at Table 3-4 below.

**Table 3-4: Matters raised in the Examination to date in relation to the Applicant's assessment of AEOI (alone and in-combination) to offshore ornithology European sites**

ID	Qualifying feature/ matter	Details of matter/understanding of latest position	ExA observation/ question
<b>Alde-Ore Estuary SPA and Ramsar</b>			
3-4-1	Lesser black-backed gull (breeding) – collision risk	<p>The Applicant [APP-059] concluded no AEOI alone or in-combination to this qualifying feature from collision risk. Following NE's [RR-063] comments concerning the Applicant's CRM, the Applicant provided an update in its Apportioning and HRA Updates Technical Note [REP1-057, REP2-036], including information in respect of lesser black-backed gull of this SPA.</p> <p>Following review of the Applicant's updates, NE [REP3-103, REP3-143] confirmed agreement with the Applicant's conclusion of no AEOI to this SPA from the Proposed Developments alone and that there would be no measurable contribution to in-combination. NE reiterated this view at Deadline 5 [REP5-091].</p> <p>NE [REP5-091] also confirmed that in respect of HPAI and following receipt of the Applicant's HPAI report [REP4-042], no mortality from HPAI has been recorded in data provided by NE within the Alde-Ore Estuary SPA population for 2022. Therefore, there is no current indication of an increased sensitivity of this colony to impacts, though any conclusion can only be drawn with low confidence.</p>	n/a – matter resolved. NE agree no AEOI, alone or in-combination [REP3-103, REP5-091]

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<b>ID</b>	<b>Qualifying feature/ matter</b>	<b>Details of matter/understanding of latest position</b>	<b>ExA observation/ question</b>
<b>FFC SPA</b>			
3-4-2	Gannet (breeding) – collision risk	<p>NE [RR-063] confirmed in its RR that providing there are no further significant changes to the collision and displacement figures provided for the Proposed Developments, it is likely to reach a conclusion of no AEOI for gannet of this SPA when considering the in-combination impact including SEP and DEP.</p> <p>NE [REP1-139] responded to the ExA’s WQ1 [PD-010] on this matter (Q1.14.1.5), summarising what might constitute significant changes to the modelling, the differences between EIA and HRA conclusions, and the approach taken for the Hornsea Project Four OWF Examination.</p> <p>The joint position statement between the Applicant and NE [REP3-103] at Deadline 3 states that it remains anticipated there will be no AEOI and thus the derogations are not anticipated to engaged and compensatory measures not anticipated to be required.</p> <p>At Deadline 5, NE [REP5-091] provided its position in respect of gannet at Section 10. NE noted that some corrections/updates will be required for the Applicant’s HRA update (eg assessment of Hornsea Project Four OWF for a range of mortality rates, and inclusion of changes in the CRM update [REP3-089]). NE expanded on its conclusions on AEOI to gannet from the Proposed Developments alone and in-combination and concluded that there would be no</p>	<p>n/a – matter resolved, although some corrections noted to be required.</p> <p>NE agree no AEOI, alone or in-combination with consented projects [REP5-091, REP5-094]</p>



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<b>ID</b>	<b>Qualifying feature/ matter</b>	<b>Details of matter/understanding of latest position</b>	<b>ExA observation/ question</b>
		<p>AEoI from the Proposed Developments alone (SEP, DEP) and together (SEP and DEP). NE [REP5-091, REP5-094] also advised that there is no AEoI from the Proposed Developments in-combination with currently consented projects.</p> <p>The Applicant [REP5-049] also confirmed the agreement of NE in its Deadline 5 submission.</p>	
3-4-3	Kittiwake (breeding) – collision risk	<p>The Applicant [APP-059] concludes no AEoI from the Proposed Developments alone but does conclude AEoI in-combination with other projects.</p> <p>During the Examination, the Applicant provided an update in its Apportioning and HRA Updates Technical Note [REP1-057, REP2-036], including information in respect of collision risk modelling and PVA for the kittiwake qualifying feature (at Section 7). Although the updates [REP1-057, REP2-036] resulted in a lower predicted collision mortality, it was considered that the level of mortality from the Proposed Developments in-combination with the other OWFs may still be sufficient to affect the potential for the 'restore' conservation objective for the SPA kittiwake population to be achieved. Thus, a conclusion of AEoI in-combination to this qualifying feature remained. The Applicant has engaged with the derogations for this site and feature and proposed compensatory measures (see Section 4 of this RIES).</p>	Applicant and NE agree potential for AEoI [REP3-103, REP5-091] – See Section 4 of this RIES

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		<p>The joint position statement between the Applicant and NE [REP3-103] agrees the potential for an AEoI to the FFC SPA in-combination due to collision risk to this qualifying feature. This position of agreement is reiterated in the Deadline 5 submissions of NE [REP5-091] and also highlighted a number of changes to be made to the Applicant’s HRA update, but that these did not affect the conclusion of AEoI to the kittiwake feature from the Proposed Developments in-combination.</p> <p>In respect of HPAI, NE [REP5-091] noted that a small number of mortalities were recorded at FFC SPA due to HPAI, but this may well under-estimate the likely impacts. Much higher mortalities were recorded at other colonies, such as the Farne Isles. NE stated that the current long-term implications for the FFC SPA are unknown.</p> <p>NE [REP5-091] advised, as per earlier submissions, that there would be no AEoI from the Proposed Developments alone (SEP, DEP) and together (SEP and DEP). NE [REP5-094] reiterated its advise that an AEoI from the Proposed Developments in-combination cannot be ruled out in light of the predicted collision impacts and the restore conservation objective. The current HPAI also adds further uncertainty to the long-term population status.</p>	

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<b>ID</b>	<b>Qualifying feature/ matter</b>	<b>Details of matter/understanding of latest position</b>	<b>ExA observation/ question</b>
3-4-4	Kittiwake and gannet (non-breeding) – apportioning	<p>NE [RR-063] raised concerns regarding the apportioning for kittiwake and gannet in the non-breeding season and requested corrected figures. The Applicant provided the correction in its Apportioning and HRA Updates Technical Note [REP1-057][REP2-036].</p> <p>It is noted that NE [REP4-143] having reviewed the Applicant’s updated Apportioning and HRA Updates Technical Note [REP2-036] stated there had been no change on this matter at Deadline 3.</p> <p>NE [REP3-143] confirmed agreement with the corrections at Deadline 3.</p>	n/a – matter resolved
3-4-5	Guillemot – operational phase displacement/ barrier effects	<p>The Applicant concludes no AEoI alone or in-combination; however, NE consider there will be an AEoI in-combination [REP3-103]. The derogations are engaged by the Applicant on a ‘without prejudice’ basis.</p> <p>NE [REP3-143][REP3-146] expressed various concerns with the method adopted to calculate impact assessment. NE recommend the Applicant adopt the approach taken on Hornsea Project Four OWF. NE [REP3-143] provided specific comments on the Applicant’s Apportioning and HRA Updates Technical Note (Revision B) [REP2-036] that it recommended be addressed. These included at points 7 to 10 of [REP3-143]:</p> <ul style="list-style-type: none"> <li>• A request to update guillemot estimates, and all relevant tables/displacement matrices to reflect</li> </ul>	<p>NE [REP5-091, REP5-094] position at Deadline 5 is that it cannot rule out AEoI in-combination with plans and projects. Awaiting updated assessment from Applicant at Deadline 5.</p> <p>Potential for AEoI in-combination (Applicant provided on a ‘without prejudice’ basis) [REP3-103] – See Section 4 of this RIES</p>

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ID	Qualifying feature/ matter	Details of matter/understanding of latest position	ExA observation/ question
		<p>the Hornsea Project Four OWF Submission and to present the two NE scenarios (Ørsted, 2023).</p> <ul style="list-style-type: none"> <li>• Provide an update or provide explanation as to the discrepancy in [REP2-036] that has resulted in upper impact ranges above that presented in the RIAA [APP-059].</li> <li>• provide tables that present increase in mortality rate and PVA outputs (median CGR and median GPS) that encompass the full range of estimated impact (including figures from Hornsea Project Four OWF derived using the 'NE bespoke' apportioning approach).</li> </ul> <p>The Applicant [REP4-031] noted NE's comments in this regard and confirmed it intends to address these in a further update to the Applicant's Apportioning and HRA Updates Technical Note to be submitted at Deadline 5.</p> <p>At Deadline 5, NE [REP5-091] confirmed its advice that there would be no AEoI to FFC SPA guillemot from the Proposed Developments SEP, DEP) and together (SEP and DEP). NE [REP5-091, REP5-094 ] stated that its current position is that AEoI cannot be ruled out for the guillemot feature of this SPA for effects in-combination with other plans and projects. NE confirmed it is awaiting an updated assessment of the in-combination totals from the Applicant, scheduled to be submitted at Deadline 5. NE stated it</p>	

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		<p>would confirm its position at Deadline 7 following review of the Applicant's submission.</p> <p>The Applicant provided an updated Apportioning and Habitats Regulations Assessment Updates Technical Note (Revision C) at Deadline 5 [REP5-043], which includes the presentation of updated in-combination displacement mortality and PVA values for guillemot (at Section 7.1.1) to reflect the most recent submissions by Hornsea Project Four OWF.</p>	
3-4-6	Razorbill - operational phase displacement/ barrier effects	<p>The Applicant concludes no AEoI; however, NE consider there will be an AEoI [REP3-103]. The derogations are engaged by the Applicant on a 'without prejudice' basis.</p> <p>NE [REP3-143][REP3-146] expressed various concerns with the method adopted to calculate impact assessment. NE recommend the Applicant adopt the approach taken on Hornsea Project Four OWF. NE [REP3-143] provided specific comments on the Applicant's latest Apportioning and HRA Updates Technical Note [REP2-036] that recommended these be addressed. These included the same points as for guillemot at 3-4-5 above.</p> <p>NE [REP3-143] recommended that razorbill in-combination totals are presented that include the two different NE variations for Hornsea Project Four OWF ('NE standard' and 'NE bespoke') and directed the Applicant to the post-examination submission in that regard.</p>	<p>NE [REP5-091, REP5-094] position at Deadline 5 is that it cannot rule out AEoI in-combination with plans and projects. Awaiting updated assessment from Applicant.</p> <p>Potential for AEoI in-combination (Applicant provided on a 'without prejudice' basis) [REP3-103] – See Section 4 of this RIES</p>

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<b>ID</b>	<b>Qualifying feature/ matter</b>	<b>Details of matter/understanding of latest position</b>	<b>ExA observation/ question</b>
		<p>The Applicant [REP4-031] noted NE’s comments in this regard and confirmed it intends to address these in a further update to the Applicant’s Apportioning and HRA Updates Technical Note to be submitted at Deadline 5.</p> <p>At Deadline 5, NE [REP5-091] confirmed its advice that there would be no AEoI to FFC SPA razorbill from the Proposed Developments SEP, DEP) and together (SEP and DEP). NE [REP5-091, REP5-094] stated that its current position is that AEoI cannot be ruled out for the razorbill feature of this SPA for effects in-combination with other plans and projects. NE confirmed it is awaiting an updated assessment of the in-combination totals from the Applicant, scheduled to be submitted at Deadline 5. NE stated it would confirm its position at Deadline 7 following review of the Applicant’s submission.</p> <p>The Applicant provided an updated Apportioning and Habitats Regulations Assessment Updates Technical Note (Revision C) at Deadline 5 [REP5-043], which includes the presentation of updated in-combination displacement mortality and PVA values for razorbill (at Section 9.2.2) to reflect the most recent submissions by Hornsea Project Four OWF.</p>	
3-4-7	Seabird assemblage – effects on abundance,	The position statement between the Applicant and NE [REP3-103] records that the Applicant concludes no AEoI on the seabird assemblage; however, the position of NE is TBC.	NE’s [REP5-091] position at Deadline 5 is that it cannot rule out AEoI in-combination with plans and

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<b>ID</b>	<b>Qualifying feature/ matter</b>	<b>Details of matter/understanding of latest position</b>	<b>ExA observation/ question</b>
	<p>diversity and supporting habitats due to collision risk (operation and maintenance) and disturbance/ displacement (construction and operation and maintenance) in-combination</p>	<p>The Applicant [REP3-103] states that where individual species compensatory measures are agreed to be appropriate, further compensation will not be needed for the assemblage.</p> <p>The RSPB [REP3-162] in response to the ExA's WQ2 stated that it did not agree that the seabird assemblage would remain intact given the impact on key features (kittiwake, gannet, guillemot and razorbill) that contribute to the assemblage feature.</p> <p>NE [REP3-143] stated that it was awaiting text that addressed its concerns around individual species impacts to ensure they incorporated the full range of possible impacts before it could comment on the seabird assemblage. The Applicant [REP4-031] confirmed it would be addressing these points in a further update to the Applicant's Apportioning and HRA Updates Technical Note to be submitted at Deadline 5.</p> <p>The Applicant provided an updated Apportioning and Habitats Regulations Assessment Updates Technical Note (Revision C) at Deadline 5 [REP5-043]. The Applicant's conclusion on the assemblage at Section 11 did not change.</p> <p>NE [REP5-091] stated at Deadline 5 that it is awaiting in-combination guillemot and razorbill updates in the HRA Apportioning and Habitats Regulations Assessment Updates Technical Note (Revision C) note to provide a position on in-combination impacts. NE confirmed it agreed with</p>	<p>projects. NE is awaiting update from Applicant at Deadline 5.</p>

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		<p>the Applicant’s conclusion, set out in HRA and Apportioning updates technical note (Revision B) that the effects from Proposed Developments alone (SEP, DEP) and together (SEP and DEP) would not result in an AEoI to the breeding seabird assemblage qualifying feature of the FFC SPA.</p>	
3-4-8	<p>Puffin (breeding) as a component of the seabird assemblage - operational phase displacement/ barrier effects</p>	<p>NE [RR-063] advised the Applicant that puffin, as a component of the FFC SPA seabird assemblage, needed to be considered as part of the assessment of impacts on the seabird assemblage.</p> <p>The Applicant [REP1-057][REP2-036] added puffin to its assessment and birds were apportioned for the breeding and non-breeding seasons in its Apportioning and HRA Updates Technical Note.</p> <p>NE’s updated Risk and Issues Log [REP3-146] at Deadline 3 recorded that NE welcomed the acknowledgement of potential connectivity between breeding puffin of the FFC SPA and the Proposed Developments. NE stated that whilst it did not agree with the method of calculation, it agreed that there would be no measurable contribution to in-combination puffin mortality from the Proposed Developments.</p> <p>The joint position statement between the Applicant and NE [REP3-103] records agreement that there would be no AEoI alone or in-combination. NE’s Deadline 5 submission reiterated its view that no measurable increase in FFC puffin mortality is</p>	<p>n/a – matter resolved. NE agree no AEoI [REP3-103, REP5-091]</p>



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		predicted to arise from the Proposed Developments alone	
<b>Greater Wash SPA</b>			
3-4-9	Sandwich tern (breeding) – collision risk	<p>The Applicant [APP-059] concludes no AEoI from the Proposed Developments alone but does conclude AEoI in-combination with other projects. The Applicant has engaged with the derogations for this site and feature and proposed compensatory measures.</p> <p>The joint position statement between the Applicant and NE [REP3-103] agrees the potential for an AEoI and the need to engage with the derogations. This position was reiterated at Deadline 5 by NE [REP5-091].</p>	Applicant and NE agree potential for AEoI [REP3-103, REP5-091] – See Section 4 of this RIES.
3-4-10	Common tern (breeding) – collision risk	The Applicant [APP-059] concludes no AEoI from the Proposed Developments alone or in-combination with other plans and projects. The joint position statement between the Applicant and NE [REP3-103] records that it is agreed that there would be no AEoI.	n/a – NE agree no AEoI [REP3-103]
3-4-11	Little gull (non-breeding) – collision risk	<p>The Applicant [APP-059] concludes no AEoI from the Proposed Developments alone or in-combination with other plans and projects.</p> <p>Following NE’s [RR-063] comments concerning the Applicant’s CRM, the Applicant provided an update in its Apportioning and HRA Updates Technical Note [REP1-057, REP2-036], including information in respect of little gull for this SPA (at Section 13).</p>	n/a – NE agree no AEoI [REP3-103, REP5-091]

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		The joint position statement between the Applicant and NE [REP3-103] records that it is agreed that there would be no AEOI either alone or in-combination. This position was reiterated by NE in its Deadline 5 response [REP5-091].	
3-4-12	Red-throated diver (RTD) (non-breeding) – construction phase displacement/ barrier effects	The Applicant concludes no AEOI alone or in-combination [APP-059]; however, NE does not agree an AEOI can be excluded in-combination with other projects [REP3-103]. Further discussion on avoidance/mitigation measures is stated to be required [REP3-103].	Matter not yet resolved
3-4-13	RTD (non-breeding) – operational phase displacement/ barrier effects	NE [RR-063] expressed increasing concern in relation to disturbance and/or displacement of RTD from the more persistent presence of infrastructure-related vessels making transits through diver SPA (eg due to OWF O&M requirements) and consider that these could make a meaningful contribution to in-combination effects on the SPAs. NE requested further investigation of all potential vessel movements within the Greater Wash SPA and the mitigation hierarchy be applied. NE stated permanent displacement effects arising from the presence of the SEP array also need consideration.	
3-4-14	RTD (non-breeding) – operational phase displacement/ barrier effects due to operation and maintenance vessel activity	Following NE’s comments, the Applicant updated its Apportioning and HRA Updates Technical Note [REP2-036] at Deadline 2 to include an updated Greater Wash SPA red-throated diver construction	

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		<p>phase displacement/ barrier effects assessment (Section 11.2.1).</p> <p>NE's [REP3-143] response to [REP2-036] noted that potential impacts from construction vessels transiting to and from the cable corridors had not been considered within the assessment, presumably due to the fact that the construction port(s) would not be confirmed until nearer the start of construction. However, it considered that since use of a port adjacent to either the Greater Wash SPA or Outer Thames SPA is plausible, some further consideration of the possible impacts from construction vessels transiting to and from the Export Cable Corridor (ECC) should be undertaken. NE [REP3-143] advised that the Applicant provide any available information relevant to potential impacts from construction vessels transiting to and from the ECC on the Greater Wash SPA and/or Outer Thames Estuary SPA. The Applicant [REP4-031] at Deadline 4 stated that it would review this information and if possible, address NE's comments in a further update to the Apportioning and HRA Updates Technical Note to be submitted at Deadline 5.</p> <p>NE [REP3-143] also identified a number of errors in the RTD assessment, which the Applicant [REP4-031] stated it would update in the further update to Apportioning and HRA Updates Technical Note to be submitted at Deadline 5.</p>	

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		<p>NE [REP3-143] commented that the in-combination assessment for the Greater Wash SPA did not include any attempt to quantify the level of displacement due to vessel activity associated with existing OWFs, both in terms of the construction phase and vessels associated with ongoing O&amp;M. NE was of the view that is additional data available on the impacts resulting from vessel activity associated with relevant existing OWFs, both in terms of mortality and the area subject to displacement, which would enable the Applicant to undertake a more quantitative assessment for the Greater Wash SPA. A link was provided. The Applicant [REP4-031] confirmed that it would review this information and if possible, address NE's comments in a further update to the Apportioning and HRA Updates Technical Note to be submitted at Deadline 5.</p> <p>NE [REP3-143] stated that in terms of consideration of the reduction in available habitat as a result of cable installation vessels, it felt there was not enough information provided to determine whether the Applicant's suggested WCS (concurrent construction of the export cables for the Proposed Developments) can be considered as such. It requested further justification. The Applicant [REP4-031] clarified in response that it has assumed that the sequential (and not concurrent) approach represents the WCS in respect of RTD. This is because the total duration of work is longer for the</p>	

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		<p>sequential scenario and that the displacement effect at any one location would be short-term, ie birds would return to affected area soon (within a few hours) after vessel departure.</p> <p>NE [REP3-143] raised some concerns over the validity of the method used to calculate the 'effective area' of displacement by scaling the area of effect proportionally according to the corresponding rate of displacement. NE stated it would welcome the presentation of figures for all approaches to calculating the area over which RTD are subjected to displacement. The Applicant [REP4-031] in response stated that it maintains that it is reasonable to use the displacement gradient as a proxy to understand the 'effective area' of displacement. However, the information presented in the Apportioning and HRA Updates Technical Note (Revision B) [REP2-036] has included both the total area and effective area calculations. The Applicant stated it would review NE's comments and, if appropriate, provide further clarification in the update to this technical note at Deadline 5.</p> <p>NE [REP3-143] reiterated its view that in light of the conservation objectives for the Greater Wash SPA, it considers that, whilst the Proposed Developments' contribution to these impacts is minimal, AEOI on the RTD feature of the SPA could be ruled out due to in combination displacement causing a significant reduction in the functional extent of the SPA</p>	

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		<p>available, which would modify the distribution of birds within those sites. NE [REP3-143] considered that adverse effects from the operational array would be avoided were all turbines to be located at least 10km from the SPA.</p> <p>At Deadline 4, NE [REP4-049] identified outstanding requirements including the need for a more quantitative assessment of in-combination impacts from vessel activity. NE stated that until these are addressed, it will not be able to provide definitive advice on the Applicant's in-combination assessments.</p> <p>At Deadline 5, the Applicant provided at Section 12.2.2 of its Apportioning and HRA Update (Revision C) [REP5-043] updated RTD operational displacement values, to account for buffer overlap areas where the effect of SEP would be greater than from existing OWFs. The Applicant's Appendix 3 'Area calculations used for red-throated diver displacement assessment' was updated for Revision C but not tracked. The Applicant [REP5-049] confirmed in response to the ExA's WQ3 [PD-017] that it has updated the displacement values to address NE's comment in [REP3-143] (at Table 12-4 of the technical note [REP5-043]). The Applicant stated that the values presented in the update are slightly increased from the Apportioning and Habitats Regulations Assessment Updates Technical Note (Revision B) [REP2-036] but have not affected the</p>	

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		<p>conclusions presented by the Applicant. The Applicant also provided mortality values for 1% and 10% in Tables 12-2 and 12-5 of the Apportioning and HRA Updates Technical Note (Revision C) [REP5-043].</p> <p>NE at Deadline 5 [REP5-091] stated that it was unable to rule out AEoI in-combination for the RTD of this SPA at this stage.</p> <p><b>Mitigation and monitoring</b></p> <p>With regards to avoidance/mitigation measures, the Applicant [REP1-017] stated at Deadline 1 that mitigation for RTDs is contained in the OPEMP.</p> <p>The ExA in its WQ2 [PD-012] asked NE and the RSPB whether do they considered the OPEMP to be sufficiently detailed to give you assurances that appropriate mitigation for RTD will be implemented.</p> <p>NE [REP3-147] responded that it anticipated that the Applicant will be submitting an updated OPEMP at Deadline 3 to which NE would respond at Deadline 4. NE highlighted its previous advice that the use of the best practice protocol, whilst welcome, may not remove the need for seasonal restrictions. The RSPB [REP3-162] stated in response that it was not yet able to comment on the OPEMP and would continue to review this and other relevant Examination documents and would provide comments at future deadlines, as appropriate. NE suggested that an AEoI</p>	

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		<p>could be avoided if all turbines at SEP were located at least 10km from the SPA [REP3-143, point 24].</p> <p>The Applicant submitted its updated OPEMP at Deadline 3 [REP3-060].</p> <p>The Applicant [REP4-031] in response to NE's comments on this matter in [REP3-143] maintained its conclusions within the Apportioning and HRA Updates Technical Note (Revision B) [REP2-036] of no AEoI of the RTD qualifying feature of the Greater Wash SPA (project-alone and in-combination). Therefore, considered no additional mitigation to be required. The Applicant stated it has committed to implementing a best practice protocol for avoiding disturbance to RTD as embedded mitigation (see the Outline PEMP (Revision C) [REP3-060]). The Applicant stated that the best practice protocol wording was further updated at Deadline 3 to adopt wording provided by NE to the Hornsea Project Four OWF, which was similar but not identical to the wording already proposed by the Applicant. The Applicant asserted that it has updated this wording in dialogue with NE and therefore considers that no further mitigation regarding construction and O&amp;M vessel movements is required.</p> <p>At Deadline 4, NE [REP4-049] stated it welcomed the adoption of the Best Practice Protocol in respect of RTD; however, it has outstanding concerns regarding displacement and thus wishes to discuss other mitigation measures, including seasonal restrictions.</p>	



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		<p>The Offshore IPMP (Revision B) [REP4-014] was updated at Deadline 4 to respond to NE comments at Deadline 1 and included the addition of RTD into the monitoring proposals (at Table 8).</p> <p>The ExA in its WQ3 [PD-017] asked the Applicant about measures for RTD. The Applicant [REP5-049] in response advised that it has scheduled a meeting with NE for 26 June 2023 to discuss matters relating to RTD and will aim to submit an update at D7, subject to the receipt of the required clarification.</p>	
<b>North Norfolk Coast SPA</b>			
3-4-15	Sandwich tern (breeding) – collision risk in-combination	<p>The Applicant [APP-059] concludes no AEoI from the Proposed Developments alone but does conclude AEoI in-combination with other projects. The Applicant has engaged with the derogations for this site and feature and proposed compensatory measures.</p> <p>The joint position statement between the Applicant and NE [REP3-103] agrees the potential for an AEoI and the need to engage with the derogations. This position was reiterated by NE at Deadline 5 [REP5-091]. NE confirmed its agreement that there would be no AEoI from the Proposed Developments alone (SEP, DEP) and together (SEP and DEP), but also reiterated its advice that an AEoI from the Proposed Developments in-combination cannot be ruled out. NE stated that it should be noted that the in-combination mortality presented may be an under-</p>	Applicant and NE agree potential for AEoI [REP3-103, REP5-091] – See Section 4 of this RIES.

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		<p>estimate due to the less precautionary flight speed used (see point 2-4-16 below), the limited projects considered to those within foraging range of the SPA, and the restore conservation objective (and considerable uncertainty regarding current trajectory of the population, due to part to HPAI).</p> <p>NE also provided a view on HPAI effects in its Deadline 5 submission [REP5-091]. NE confirmed that Sandwich terns were severely impacted by HPAI in 2022, with some of the key impacts at this SPA. NE considered the results to be underestimates. NE identified that at a wider population scale, the European Sandwich tern network estimated that around 30% of the adult breeding population of Sandwich tern in Europe was lost due to HPAI in 2022. NE stated that this indicates that the colony (and indeed the site network as a whole) may have increased sensitivity to other impacts, even taking into account that a reduction in the wider sandwich tern population would be expected to result in a proportionate reduction in any collision/displacement effects at the Proposed Developments of SEP and DEP.</p>	
3-4-16	Sandwich tern – colony data	NE [RR-063] stated that data it holds from the National Nature Reserve (NNR) manager for the colonies in question (Table 9-43 of the RIAA [APP-059]) present some discrepancies, mainly minor. NE stated that it had already provided the data to the Applicant. The key discrepancy is that there is	<a href="#"><i><b>RIES-Q19: To the Applicant – Can the Applicant respond to this matter raised by NE and clarify whether these data</b></i></a>

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		<p>productivity data for Scolt Head in the Seabird Monitoring Programme in 2019 (where the Table reads no data). NE advised the Applicant to update the figures - and explore whether the changes warrant an updated PVA.</p> <p>The Applicant [REP3-033 and REP3-034] responded at Deadline 1 stating that the corrected data was acknowledged and had been reviewed. The Applicant stated it had confirmed that these small discrepancies would make no appreciable effect on the PVA outputs.</p> <p>NE's [REP3-146] updated Risk and Issues Log at Deadline 3 stated there had been no change on this matter by Deadline 3 and requested the Applicant clarify that these data have been incorporated into the assessment. NE's Deadline 5 updated Risk and Issues Log [REP5-091] also records no change at Deadline 5.</p>	<p><u><a href="#">have been incorporated into the assessment.</a></u></p>
3-4-17	Sandwich tern – displacement	<p>NE [RR-063] in its RR confirmed that it accepted there is potential for sandwich tern to be displaced, and while it welcomed the review of possible evidence and the inclusion of this in the impact assessment, it did not consider the evidence base was sufficiently robust at this stage to incorporate Macro Avoidance into the collision risk assessment. NE stated it would base its conclusions on collision alone and displacement and collision together (but not with the inclusion of macro avoidance in the</p>	n/a – matter resolved

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		<p>collision assessment). However, it advised a change to the avoidance rate for Sandwich terns from 98% to 99% is the equivalent of the presented 98% figures with a 50% Macro Avoidance.</p> <p>The Applicant [REP1-057][REP2-036] provided within its Apportioning and HRA Updates Technical Note an update to the CRM omitting macro avoidance values. NE [REP3-146] confirmed its agreement that the updated CRM to address this matter.</p>	
3-4-18	Sandwich tern – collision risk modelling	<p>NE [RR-063] recommended the use of the published flight speed (Fijn and Gyimesi (2018)) of 10.3m/s, as opposed to the selected flight speed of Fijn and Collier (2020) at 8.3m/s used by the Applicant. NE advised the Applicant to refer to the new CRM parameter guidance (see Appendix B1 of NE’s RR) and present the CRM outputs using the parameters set out in the new guidance (including flight speed, but limited to a subset of mean values only (ie excluding models of outputs using the 95% Confidence Interval/Standard Deviations of key parameters).</p> <p>The Applicant responded to this advice in its Apportioning and HRA Updates Technical Note [REP1-057, REP2-036]. NE [REP3-146] confirmed that both sets of flight speed data were now provided as requested in [REP2-036].</p> <p>At Deadline 5, NE [REP5-091] expanded on the flight speeds used by the Applicant and how it considers</p>	n/a – matter resolved

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		the outputs when forming its position, confirming that it places stronger emphasis on outputs using Fijn and Gyimesi (2018). NE noted that in the case of in-combination CRM, the Applicant has only presented the Fijn and Collier (2020) flight speed option, which is the less precautionary option of the two. NE's Deadline 5 updated Risks and Issues Log [REP5-093] confirms, as per Deadline 3 version, that both sets of flight speeds were provided by the Applicant.	
3-4-19	Common tern (breeding) – collision risk	The Applicant [APP-059] concludes no AEoI from the Proposed Developments alone or in-combination with other plans and projects. The joint position statement between the Applicant and NE [REP3-103] records that it is agreed that there would be no AEoI.	n/a – NE agree no AEoI [REP3-103]
3-4-20	All qualifying migratory waterfowl (non-breeding): dark-bellied Brent goose, pink-footed goose, knot, wigeon and wildfowl assemblage – collision risk	The Applicant [APP-059] concludes no AEoI from the Proposed Developments alone or in-combination with other plans and projects. The joint position statement between the Applicant and NE [REP3-103] records that it is agreed that there would be no AEoI.	n/a – NE agree no AEoI [REP3-103]

ID	Qualifying feature/ matter	Details of matter/understanding of latest position	ExA observation/ question
<b>Outer Thames Estuary SPA</b>			
3-4-21	RTD (non-breeding) – construction and operational phase displacement/ barrier effects due to construction/ operation and maintenance vessel activity	<p>The Applicant [APP-059] concludes no AEoI from the Proposed Developments alone or in-combination with other plans and projects.</p> <p>NE [RR-063] expressed increasing concern in relation to disturbance and/or displacement of RTD from the more persistent presence of infrastructure-related vessels making transits through diver SPA (eg due to OWF O&amp;M requirements) and consider that these could make a meaningful contribution to in-combination effects on the SPAs. NE requested further investigation of all potential vessel movements within the Outer Thames Estuary SPA (and Greater Wash SPA above) and the mitigation hierarchy be applied. NE stated permanent displacement effects arising from the presence of the SEP array also need consideration.</p> <p>See point 3-4-12 to 3-4-14 above for points also relevant to the Outer Thames Estuary SPA.</p> <p>In respect of the RTD of the Outer Thames Estuary SPA, NE [REP3-143] stated that it is its view that mortality rates of 1% and 10% should be presented for the potential range of displacement effects on RTD.</p> <p>At Deadline 4, NE [REP4-049] identified outstanding requirements including the consideration of impacts from O&amp;M vessels based on mortality rates of 1% and 10% (rather than 1% only) for RTD within the</p>	Matter not yet resolved

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		<p>Outer Thames Estuary SPA. NE state that until these are addressed, NE will not be able to provide definitive advice on the in-combination assessments.</p> <p>The Applicant [REP4-031] stated at Deadline 4 that, as it had set out in its RIAA [APP-059] (Paragraph 1088), it maintains that 1% mortality is sufficiently precautionary and that there is no evidence to support the application of 10% mortality for birds displaced by O&amp;M vessels. The Applicant [REP4-031] stated this it can present the 10% mortality values in the update to the Apportioning and Habitats Regulations Assessment Updates Technical Note to be submitted at Deadline 5. This would be for information purposes only.</p> <p>The joint position statement between the Applicant and NE [REP3-103] at Deadline 3 recorded that further discussion on avoidance/mitigation measures is needed.</p> <p>At Deadline 5, NE [REP5-094] clarified that the potential impacts on the RTD feature of the Outer Thames Estuary SPA relate to vessels transiting through the SPA associated with i) the construction phase and ii) operations &amp; maintenance traffic. NE confirmed that it agrees that an AEoI can be ruled out from the Proposed Developments alone, but until further information regarding vessel movements is provided by the Applicant, NE is not able to advise whether there would be an AEoI in-combination with other plans and projects. NE acknowledges this</p>	

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		<p>information is scheduled to be submitted by the Applicant at Deadline 5.</p> <p>The Applicant in its Apportioning and HRA Update (Revision C) [REP5-043] provided at Section 12 number of clarifications regarding the assessment of effects on RTD from the Greater Wash SPA. The additions sought to provide clarification regarding the need for auxiliary vessels to transit to and from the export cable laying vessel during export cable installation. However, the Applicant [REP5-056] also acknowledged at Deadline 5 that it required further clarification from NE with regard to in-combination impacts from vessel activity on RTD. The Applicant [REP5-056] advised that it has scheduled a meeting with NE for 26 June 2023 to discuss matters relating to RTD and will aim to submit an update at D7, subject to the receipt of the required clarification.</p>	



### 3.4 Summary of Examination outcomes in relation to AEoI

3.4.1 Of the matters detailed in Tables 3-1 to 3-4 of this RIES, the Applicant agreed with NE during the Examination that an AEoI of the following European sites and features cannot be excluded:

- FFC SPA – kittiwake (breeding) – collision risk in-combination
- Greater Wash SPA – Sandwich tern (breeding) – collision risk in-combination
- North Norfolk Coast SPA – Sandwich tern (breeding) – collision risk in-combination

3.4.2 These sites and features were therefore the subject of a derogation case submitted by the Applicant during the Examination, as detailed in Section 4 of this RIES.

3.4.3 In its DCO application and throughout the Examination, the Applicant conclude no AEoI the following European sites and features, alone or in-combination. However, NE disagreed with the Applicant’s conclusion of no AEoI in-combination. A ‘without prejudice’ derogations case was submitted by the Applicant.

- FFC SPA – guillemot (non-breeding) – operational phase displacement/ barrier effects in-combination
- FFC SPA – Razorbill (non-breeding) – operational phase displacement/ barrier effects in-combination

3.4.4 At the point of issue of the RIES, the ExA understands that the Applicant’s conclusions of no AEoI are not yet agreed with the ANCB on the following sites and features, due to potential outstanding matters, as identified in Tables 3-1 to 3-4. Of the remaining outstanding matters detailed in Tables 3-1 to 3-4, the ExA seeks responses from the Applicant and the ANCB, where indicated.

- River Wensum SAC – white-clawed crayfish, bullhead, brook lamprey – construction phase risk of bentonite breakout.
- North Norfolk Coast SPA and Ramsar – pink-footed goose (non-breeding) – construction phase direct effects on wintering birds present in ex-situ habitats/functionally linked land to the SPA and Ramsar.
- Humber Estuary SAC – grey seal – construction phase disturbance in-combination (see Table 3-3).
- The Wash and North Norfolk Coast SAC – harbour seal – construction phase disturbance in-combination (see Table 3-3).
- SNS SAC – harbour porpoise – construction phase disturbance in-combination (see Table 3-3).

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- FFC SPA – guillemot and razorbill – operational phase collision risk in-combination effects.
- FFC SPA – seabird assemblage – operational phase collision risk in-combination effects.
- Greater Wash SPA – RTD (non-breeding) – construction and O&M phase displacement/barrier effects during construction and operation in-combination.
- Outer Thames Estuary SPA – RTD (non-breeding) – construction and O&M phase displacement/barrier effects during construction and operation in-combination.

## 4 DEROGATIONS

### 4.1 Overview

4.1.1 The Applicant submitted a derogation case with its application [APP-063] which related to:

- the kittiwake feature of the FFC SPA;
- the Sandwich tern feature of the North Norfolk Coast SPA; and
- the Sandwich tern feature of the Greater Wash SPA.

4.1.2 The Applicant considered that AEoI can be excluded for the gannet, guillemot and razorbill features of the FFC SPA but has also provided a 'without prejudice' derogations case for these features [APP-063]. By Deadline 5 of the Examination, NE [REP5-091, REP5-094] confirmed that on the basis of updates during the Examination that an AEoI could be ruled out for the gannet qualifying feature of the SPA.

### 4.2 Alternative Solutions

4.2.1 The Applicant has provided its 'no alternative solutions' case in section 4 of [APP-063]. It details the need for the Proposed Developments (Section 4.3). The objectives of the Proposed Developments are summarised in Table 4-1 and include the generation of low carbon electricity, maintaining a secure energy supply and optimising generation and export capacity while delivering employment and investment benefits in the Norfolk area.

4.2.2 Section 4.5 of [APP-063] reviews the long list of alternative solutions considered by the Applicant. These include a 'do nothing' option, alternative locations, changing the scale of the wind farm, alternative rotor designs and seasonal restrictions on turbine operations. The feasibility of the alternative solutions is reviewed in Sections 4.6 of [APP-063]. The Applicant concluded that there are no feasible alternative solutions.

### 4.3 IROPI Case

4.3.1 Section 5 of [APP-063] presents the Applicant's IROPI case. The Applicant considers that the need for "a *secure, diverse, affordable and resilient energy supply and meet decarbonisation targets*" makes delivery of the Proposed Developments imperative (Section 5.2). Sections 5.3 describes the public benefits from the Proposed Developments identified by the Applicant; Section 5.4 details the long-term nature of the project. Section 5.5 of [APP-063] provides the justification as to why the Applicant considers that benefits from the Proposed Developments outweighs the adverse effects on the features listed in above in Section 3.

### 4.4 Compensatory Measures

4.4.1 The details of the compensatory measures proposed by the Applicant were provided in Appendices to [APP-063]:

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- Appendix 1 Compensatory Measures Overview [APP-064];
  - Annex 1A Initial Review of Compensatory Measures for Sandwich Tern and Kittiwake [APP-065];
  - Annex 1B Sandwich Tern and Kittiwake Ecological Evidence [APP-066];
  - Annex 1C Initial Review of Compensatory Measures for Gannet, Guillemot and Razorbill [APP-067];
  - Appendix 2 Sandwich Tern Compensation Document [APP-069] ;
  - Annex 2A Outline Sandwich Tern Compensation Implementation and Monitoring Plan [APP-070];
  - Annex 2B Sandwich Tern Nesting Habitat Improvements Site Selection [APP-071];
  - Appendix 2 Kittiwake Compensation Document [APP-072]
  - Annex 3A Kittiwake Outline Compensation Implementation and Monitoring Plan [APP-073];
  - Appendix 4 Gannet, Guillemot and Razorbill Compensation Document [APP-074]
  - Annex 4A Outline Gannet, Guillemot and Razorbill Compensation Implementation and Monitoring Plan [APP-075]; and
  - Appendix 5 Derogation Funding Statement (Habitats Regulations and Marine and Coastal Act) [APP-076].
- 4.4.2 Updates and revisions were made to these documents during the Examination, as described in the sections below.
- 4.4.3 The Applicant also submitted an overview of the compensatory measures it had identified and the relevant delivery mechanisms in the 'Strategic and Collaborative Approaches to Compensation and Measures of Equivalent Environmental Benefit' [APP-084]. Measures could be delivered as part of the Proposed Developments, through partnerships with other offshore wind developers or through participation in strategic compensation projects or the Marine Recovery Fund (MRF).
- 4.4.4 The Applicant stated that the option for contributing to the Marine Recovery Fund or similar strategic fund could be used wholly or partly in place of the measures currently proposed [APP-069, APP-072]. The compensatory measures for Sandwich tern and kittiwake are secured through Schedule 17 of the dDCO [REP3-101, REP3-107, REP4-003]. Schedule 17 also makes provision for the project-led proposals to be replaced through contributions to a strategic compensation fund or through collaboration with other parties [REP1-031, REP3-101].
- 4.4.5 The RSPB [RR-083, REP1-161] raised overarching concerns about the level of detail provided on both the compensatory measures and delivery mechanisms. It considered that developing the detailed proposals should

not be left to the post-consent stage to ensure that the SoSESNZ has a full set of evidence on which to base his decision; as there is no specific mechanism currently available to deliver strategic compensation through prey enhancement the SoSESNZ should not place any weight on this proposal. It also considered that it is unsafe to assume that outline compensation measures can be translated into practical delivery measures at a later date.

- 4.4.6 In relation to the timescale for measures, the RSPB's position that the compensation measures should be functional before harm occurs and in place for the lifetime of the development plus the time that the affected seabird population to recover [REP1-161, REP3-162]. The Applicant noted that Schedule 17 of the dDCO secures the implementation timetable to be agreed with relevant stakeholders through the respective compensation plans [REP1-034].
- 4.4.7 In response to the ExA's question (Q2.14.1.4 [PD-012]), NE advised that if compensatory measures remain undetermined by the close of the Examination, it is highly likely that the SoSESNZ would not be able to conclude that compensatory measures could be secured [REP3-147]. The availability or otherwise of compensatory measures should not affect decisions on alternative solutions and IROPI; where there is uncertainty about the effectiveness of the measures this would require "*...provision at a higher impact:benefit ratio to take the increased level of risk into account*" [REP3-147].
- 4.4.8 The Applicant provided updates on the work it has done to progress strategic and collaborative compensatory measures, including discussions with other OWF developers [REP1-031, REP1-061, REP3-095, REP3-101].
- 4.4.9 NE raised concerns about the wording of Schedule 17, particularly in relation to the provisions which allow the replacement of project-led measures with strategic and collaborative approaches [RR-063, REP1-047]. The Applicant amended the wording of Schedule 17 to clarify the position [REP1-033]; NE remained concerned about the wording [REP2-060] and advised that any switch to strategic compensation should be subject to the approval of the SoSESNZ, in consultation with NE and Defra.
- 4.4.10 The Applicant maintained that the schedule wording adequately secures the compensatory measures [REP1-036, REP3-101, REP3-107]. The wording of the dDCO would preclude any switch to the use of strategic or collaborative compensation fund without the consent of the SoSESNZ [REP3-101, REP3-107, REP5-XXX].
- 4.4.11 The Applicant has also identified the potential for adaptive management measures to form part of the compensatory measures packages. NE raised concerns about the adequacy of the Applicant's approach to monitoring and the development of any necessary remedial measures [REP1-047, REP1-136, REP2-044]. The Applicant maintained that the Compensation Implementation and Monitoring Plans (CIMPs) developed at the post-consent stage would include details of monitoring and adaptive management [REP3-107] In response to a question from the ExA [PD-017], the Applicant advised [REP5-049] that it has revised the wording of Schedule 17 of the dDCO [REP5-005] and the without prejudice wording

[REP5-008] to clarify the obligations on it in relation to monitoring, reporting and adaptive management. This, in combination with the Offshore IPMP [REP4-043] is considered by the Applicant to adequately secure the delivery of adaptive management. NE (commenting on revision B of the IPMP [REP4-015]) did not consider that the wording of the text guaranteed that adaptive management will be undertaken [REP5-090].

- 4.4.12 The ExA [PD-012] queried in its WQ2 if 'buying in' was the final option on the table, how can the ExA have confidence that there would be a tangible and measurable compensation benefit arising. The Applicant [REP3-101] responded that dDCO Schedule 17 requires the consent of SoSESNZ before the Applicant would be able to make a financial contribution to the establishment of CM by another party in whole or in part and that this could also be used for adaptive management purposes. The Applicant stated that the SoSESNZ would be unlikely to consent this at the relevant time if it did not agree it would produce a tangible and measurable CM benefit. The Applicant considered that the provisions in the dDCO allowing it to make a contribution to collaborative measures makes the overall package of CM more robust.
- 4.4.13 The ExA queried whether the references in the Sandwich tern and kittiwake outline CIMPs to implementation could be equated to actions being completed [PD-017]. The Applicant advised that implementation should be interpreted as meaning 'put into effect' and this is supported by common practice in the planning and national infrastructure consenting regimes [REP5-049]. It noted that the undertaker would be required to notify the SoSESNZ on implementation of the measures which would give the SoSESNZ an opportunity to request the developer to take further steps if necessary.
- 4.4.14 NE [REP5 -094] stated that it is for the Applicant to define 'implementation' in its dDCO but the current wording of Schedule 17 [REP4-003] states that no operation of any turbine may begin until three full breeding seasons following implementation of the measures have elapsed. NE stated that depending on the definition of implementation it considers this may not be sufficient. NE considered that as a minimum, measures should be implemented two breeding seasons prior to first generation but this may need to be increased to up to four breeding seasons. In relation to kittiwake, NE referred to the previous decisions for Hornsea Project Three and other relevant OWF projects where it was determined that installation of the CM four full breeding seasons prior to operation was appropriate.

#### **Compensatory measures for Sandwich tern**

- 4.4.15 The Applicant initially identified the following measures [APP-069, APP-084]:
- Prey enhancement through sandeel stock recovery and sprat stock protection (delivered through participation in a strategic Government-led project).

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- Creation of new habitat/restoration of lost breeding range at Loch Ryan through provision of a floating pontoon or excavation of an inland pool (project-led).
  - Measures to improve breeding success at the Farne Islands SPA or Foulness SPA through changes to management (project-led).
- 4.4.16 The details of the proposed measures and associated monitoring would be provided in the Sandwich Tern CIMP. The CIMP would be produced post-consent; the information it would include is outlined in [APP-070].
- 4.4.17 In relation to the strategic compensation measures, NE advised that determining the required extent of these measures would be complex and referred to its own research report [REP1-139]. NE also suggested that a research project on sandwich tern prey species could also contribute to a package of compensatory measures for Sandwich tern [RR-063]. The Applicant considers that evidence shows that reducing fishing pressure on sandeel stocks would be the most effective compensatory measure [REP1-033, REP1-061]
- 4.4.18 NE [RR-063, REP1-139, REP1-047, REP3-146] and the RSPB [REP1-161] agreed that the construction of an inland pool at Loch Ryan could, in principle, provide compensation for the effects of the Proposed Developments but did not consider that the use of a pontoon was likely to be successful. The Applicant maintained that the use of a pontoon could be successful but decided, given the position of NE and the RSPB, not to pursue this measure any further [REP1-033, REP1-047, REP1-061, REP3-096]. However, in the event that the inland pool proposals failed, the pontoon option could be revisited [REP1-033].
- 4.4.19 The RSPB queried the suitability of the Loch Ryan site [RR-083, REP1-161]. Both NE [RR-063, AS-041, REP1-139, REP3-146] and the RSPB [RR-083, REP1-161] raised concerns about relying on one site, given the uncertainty that the species would re-colonise the site and the subsequent chick productivity. The Applicant advised that its site selection process had failed to identify any other suitable sites with suitable characteristics and the proposed Area of Search was the least environmentally constrained as agreed with the local authorities [REP1-033, REP1-034, REP3-096]. NE advocated delivering compensation through a package of measures rather than relying on individual measures which might not be successful [AS-041]. The Applicant maintained that measures at Loch Ryan alone provided sufficient compensation given that provision is also made for adaptive management in future if required [REP3-111].
- 4.4.20 NE considered that the scale of compensation required had not been clearly defined [RR-063, REP3-146]. It also raised concerns about the scale and design of the inland pool and islands [RR-063, REP1-139]. NE agreed that the proposals would be sufficient for an estimated impact of 28 birds per annum (95% CI of adult mortality from the Proposed Developments) but considered a more ambitious approach would reduce uncertainties by making the habitat more attractive [RR-063, REP1-138, REP1-139, REP1-047, REP3-146]. The RSPB also raised concerns about the pool/island proposal [REP1-161]

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- 4.4.21 In response to NE's request to define the scale of compensation required, the Applicant provided a 'Sandwich Tern – Quantification of Productivity Benefits Technical Note [REP1-058] which outlined its populations and productivity calculations for the Loch Ryan proposals. The Applicant submitted updated figures for the number of Sandwich tern affected by collision risk at Deadline 2 [REP2-036]. Table 4 of [REP3-096] presents the number of birds affected, based on the upper 95% confidence interval. It maintained that its proposals at Loch Ryan alone would deliver a greater quantity of compensation than that required by NE guidance [REP1-034, REP1-058, REP3-101, REP3-111, REP4-032].
- 4.4.22 The Applicant also noted the benefits of the proposals in restoring a breeding population on a site where it was historically present. By restoring lost breeding range, it is expected to provide greater resilience for the species as a whole [REP1-031, REP1-058, REP3-111, REP4-032].
- 4.4.23 The Applicant intends the Loch Ryan measures to be in place for two full breeding seasons before turbine operation begin and for the operational lifetime of the Proposed Developments [APP-069]. NE advised that given the uncertainties around colonisation and subsequent chick productivity, a 'mortality debt' could be incurred. It recommended that the calculations of the scale of compensation to be provided should take this into account [REP1-034, REP1-047, REP3-146, REP3-147].
- 4.4.24 The Applicant considered that the likely breeding numbers and productivity at Loch Ryan would be sufficient to make up for any small mortality debt [REP1-058, REP3-101, REP3-111, REP4-032]. It also stated that the assessments used to inform the compensatory measures requirement are highly precautionary so may over-estimate the number of birds that would actually be affected [REP1-034, REP1-058]. However, if necessary, the Applicant could extend the period over which active management is undertaken at the Loch Ryan site [REP4-028]. NE remained concerned that the Applicant had not sufficiently 'stress tested' the possibility of a mortality debt arising [REP5-093]. It welcomed the suggestion of extending the period of active management but requested that this commitment should be included in the CIMP.
- 4.4.25 The Applicant has provided updates of the work it had undertaken so far to deliver the Loch Ryan proposals, including engagement with landowners and the relevant local authorities and progress with design [REP1-031, REP1-033, REP1-061, REP3-096]. It noted that it had discussed elements of the design of the inland pool with NE [REP1-033, REP1-034].
- 4.4.26 The ExA [PD-012] queried whether the Applicant would or could exercise its CA powers if the necessary site is not secured prior to the close of the Examination. The Applicant [REP2-101] responded that it does not intend to use the powers under the PA2008 to acquire land for CM and its preference is to rely on voluntary agreement with landowners. It confirmed its efforts to date in its HRA Derogation and Compensatory Measures Update [REP2-095]. However, the Applicant advised that it is considering use of CA powers under the Electricity Act 1989.
- 4.4.27 At Deadline 4, the Applicant provided a King's Counsel (KC) [REP4-043] on its capacity to use the powers under the Electricity Act. The KC Opinion



stated that it agreed that the CA powers afforded to generation licence holders under the Electricity Act 1989 could be used to acquire land (or rights in land) necessary to undertake CM that are required to be offset adverse impacts from the development of a generating station. It agreed that the relevant undertakers for the Proposed Developments could use such powers to seek to acquire land at Loch Ryan (and also at Gateshead to undertake CM related to kittiwake).

- 4.4.28 NE emphasised its concerns about the lack of confirmed detail on the proposals and the likelihood that it would have to advise at the end of Examination “...that there is insufficient confidence that compensatory measures can be secured for Sandwich tern” [REP5-092, REP5-093].

**Q20. To the Applicant: The Applicant is requested to provide an update on the work that has been completed for the Loch Ryan Sandwich tern compensatory measures. What further actions are required to develop the package of proposals? Will these actions be completed by the close of the Examination?**

- 4.4.29 NE [RR-063, REP1-047], the RSPB [RR-083, REP3-162] and the National Trust [AS-042, REP1-134, REP2-046, REP5-088] raised concerns as to whether the Farne Islands SPA proposals could be viewed as additional to management measures already proposed for the SPA and therefore qualify as compensation. The National Trust provided a copy of the SPA draft management plan [AS-042]. The Applicant maintained that, since the Sandwich tern population has declined sharply, its proposals should be considered as additional to existing management measures [REP1-033, REP1-061, REP3-096].
- 4.4.30 The Applicant also referred to the Energy Security Bill Policy Statement [REP1-038] on Government intentions to widen the range of measures which could be treated as additional [REP1-033, REP1-034, REP1-061, REP3-096, REP3-111]. In response to a question from the ExA, the Applicant advised that it considers the Farne Islands Management Plan to be a government document and so within the scope of the Energy Security Bill Policy Statement [REP3-111, REP4-032]. The National Trust deferred the ExA to NE on this point [REP3-140, REP5-088]; the RSPB stated that the management plan should not be treated as a government document since it was held by a private landowner [REP3-162].
- 4.4.31 At Deadline 5, in response to further questions from the ExA, NE [REP5 - 094] confirmed that it anticipates signing off the Farne Islands NNR plan later this year, subject to resource constraints. NE [REP5 -094] clarified that NNR management plans have a legal element in that they form the SSSI consent notice that NE assesses prior to consenting management activities, but beyond that they do not have a legal status and as such are not generally considered a ‘government document’. NE advised that NNR management plans are not generally published, but they are available from NE under Freedom of Information or Environmental Information Regulation on request.
- 4.4.32 NE [RR-063, REP1-139, REP3-146, REP5-092], the RSPB [REP3-162] and the National Trust [RR-061, AS-042, REP2-046, REP3-040, REP3-141, REP4-024] also disputed the likely effectiveness and feasibility of the

Applicant's proposals for the Farne Island SPA. The National Trust also alluded to the effects of HPAI and noted this had not been referred to the application documentation [REP1-134]. It considered that resources should be diverted elsewhere [REP4-024] and confirmed at

- 4.4.33 The Applicant maintained that its measures would be effective [REP1-033, REP1-058, REP1-061, REP3-101, REP3-111] and are appropriately secured to allow the Sandwich tern Steering Group to decide the best approach to delivering the compensation [REP5-049]. However, it noted the concerns expressed by the National Trust in relation to the feasibility of delivering the measures at the Farne Islands. It is seeking to re-open discussions with the National Trust to determine what other measures may be feasible [REP4-028, REP5-049].
- 4.4.34 The National Trust advised that the Farne Islands are not available for the compensation measures proposed by the Applicant [REP5-088]. In response to a question from the ExA [PD-017], the Applicant advised that it did not intend to seek to acquire the Farne Islands, or any part of it through compulsory acquisition [REP5-049]. The National Trust noted that in the event that the Applicant sought to acquire the land which has been declared inalienable, a Special Parliamentary Procedure would be required [REP5-088]
- 4.4.35 At Deadline 5, NE [REP5-093, REP5-094] confirmed in response to the ExA's WQ3 [PD-017] that, as per the reasons set out in its RR [RR-063], it considers that the proposals for the Farne Islands do not provide meaningful benefits. NE stated it notes and supports the National Trust's observation in [REP3-140] that "*Available and suitable space for interventions on the Farne Islands is limited, as most of the area is keenly contested by breeding seabirds. The Sandwich tern nesting area is also very fragile due to puffin burrows.*" NE stated that even were the measure to have meaningful benefits, the proposed level of provision seems unachievable without potentially negative consequences, for example the loss of sandwich tern nesting space, including those areas envisaged to be restored by the management plan, and/or damage to puffin nesting habitat.
- 4.4.36 The Applicant maintained that its proposals would deliver effective compensatory measures [REP5-049]. However, it also notified the ExA of the development of an additional proposal, following a meeting with NE and the National Trust [REP5-049]. It is in the process of agreeing proposals to undertake rat eradication at Blakeney Point within the NNC SPA. Sandwich tern breeding has ceased at Blakeney Point and it is thought that this is connected to an increase in the rat population. The outline proposal entails convening an expert working group, including NE and the National Trust which would undertake investigative surveys, devise control methods and test/evaluate those methods [REP5-049].
- 4.4.37 The Applicant confirmed that it was not actively progressing any proposals relating to the Foulness SPA although it is keeping in contact with QinetiQ who manage the site on behalf of the Ministry of Defence [REP2-017, REP3-111].

### **Compensatory measures for kittiwake**

- 4.4.38 The Applicant initially identified the following measures [APP-072, APP-084]:
- Prey enhancement through sand eel stock recovery and sprat stock protection (delivered through participation in a strategic Government-led project).
  - Nest site improvements to enhance breeding success through provision ledges on buildings in Lowestoft or new faces on the Saltmeadows tower in Gateshead (project-led).
  - Construction of new artificial breeding sites onshore or offshore through collaboration with other offshore wind farm developers (as an alternative to nest site improvements).
- 4.4.39 The details of the proposed measures and associated monitoring would be provided in the Kittiwake CIMP. The CIMP would be produced post-consent; the information it would include is outlined in [APP-073]. As for Sandwich tern above, the compensatory measures for kittiwake are secured through Schedule 17 of the dDCO [REP5-005].
- 4.4.40 In relation to kittiwake CM, NE [RR-063] stated the CM proposals to address in-combination impacts on the kittiwake feature of FFC SPA are not without merit; however, it considered the provision of Artificial Nesting Structures (ANS) as proposed with the DCO application were likely to be of limited value in light of existing compensation commitments. NE advised the proposal required significant further development before it can be considered effective CM. NE recommended that the Applicant explore the potential for a 'rapid response' approach to dealing with negative urban interactions with local kittiwake partnerships as a potential avenue for compensation, and/or prioritise collaboration on an offshore ANS with other developers and bring forward a specific proposal regarding this.
- 4.4.41 NE [RR-063] in commenting on Schedule 17 of the dDCO stated there was no requirement for consultation with the proposed members of the Kittiwake Compensation Steering Group (KCSG) prior to submission. NE advised this be amended to include a requirement to consult the membership of the steering group prior to approval of the plans. Schedule 17 of the dDCO [REP5-005] sets out measures for engagement with the KCSG, including submission to, and approval by, the SoS of a plan of work for the KCSG prior to commencement of offshore works and consultation on the Kittiwake CIMP with the KCSG, prior to submission to the SoS for approval.
- 4.4.42 The RSPB raised concerns about the lack of detail in the Applicant's proposals to deliver nesting improvements. It also queried the adequacy of the evidence on the likely effectiveness of these measures, the lead-in time for delivery of the measures and the length of time the compensation would be in place [RR-083, REP1-161]. The Applicant provided updates on its proposals for providing nesting improvements [REP1-034, REP1-061, REP2-017, REP3-095]. It considers that there is an increasing demand for

additional or improved nesting provision for kittiwakes [REP1-055, REP2-017]. Measures would be in place for three breeding seasons before turbine operation begins [REP2-017].

- 4.4.43 In relation to the use of new breeding sites, the RSPB considered that although artificial nesting structures could be a compensatory measure, this is currently unproven [RR-083, REP1-161]. It also flagged potential legal uncertainty about re-purposing existing offshore structures for use as nesting sites [RR-083, REP1-161]. The Applicant advised that provision of nesting improvements was its preferred option and that the construction of breeding sites would only be pursued as part of a collaborative project [REP2-017].
- 4.4.44 Vattenfall [RR-119/120] advised that the Norfolk Boreas and Norfolk Vanguard OWF projects are planning to install kittiwake nesting structures on the Lowestoft proposal and noted the potential for interaction with the Applicant's proposals for delivering nesting improvements. It requested progress updates and suggested the possible sharing of data.
- 4.4.45 RWE Renewables noted that it is in discussion with the Applicant on developing a collaborative approach to developing compensatory measures for breeding kittiwake [RR-084].
- 4.4.46 The Applicant, at ISH1 [EV-011, EV-015] confirmed that artificial nesting sites for kittiwakes would be provided in one of three options:
- at Gateshead, Tyne and Wear;
  - at Lowestoft, Suffolk; or
  - by 'buying in' to another DCO's compensatory measures.
- 4.4.47 The Applicant [REP3-101] confirmed that modifications to the existing kittiwake tower at Gateshead represented the Applicant's preferred option for delivering nest site improvements to enhance breeding success. The Applicant provided update on the progress made so far at Deadlines 3 [REP3-095] and 5 [REP5-049] submitted at Deadline 3.

#### ***Gateshead site***

- 4.4.48 NE [RR-063] requested the Applicant submit a method to quantify benefit of the CM to kittiwake of the FFC SPA to evidence that the CM would be likely to maintain the coherence of the NSN. NE also requested that the Applicant consider the planning application by RWE Renewables Ltd (RWE) to construct an ANS in an industrial yard adjacent to the Saltmeadows tower and demonstrate that, in light of this proposal, there is sufficient capacity within the Tyne kittiwake population to accommodate both the Applicant's and RWE's proposals.
- 4.4.49 In response to NE's [RR-063] comments, the Applicant provided at Deadline 1 a 'Gateshead Kittiwake Tower Modification – Quantification of Productivity Benefits Technical Note' [REP1-055]. This note provided further information on the quantification of the productivity benefits afforded by the CM and clarification of the difference between the Applicant's proposals and those of other developers to install new ANS. It was provided in the context of the Applicant's proposal to modify the

existing kittiwake tower at Saltmeadows, Gateshead. The note concluded that there is existing and, at present, increasing demand for both the Applicant's and RWE's measures.

- 4.4.50 At Deadline 2, NE [REP2-061] stated it welcomed the submission of the [REP1-055] and [REP1-058] in respect of kittiwake CM and provided comments on these documents. NE stated that its advice to OWF developers has been that due to the number of projects already required to provide ANS along the East Anglian and North-East coastlines that further ANS should be located offshore rather than onshore. NE confirmed that this remains its general position but that having reviewed the Applicant's quantification of productivity note [REP1-055] it has reached the in-principle conclusion that in this instance, an onshore measure (ie (augmenting the existing Gateshead Saltmeadows tower on the Tyne with two new nest faces) has the potential to provide appropriate CM for the Proposed Developments. NE stated that this conclusion was subject to the Applicant provided more information on the structure design, more detailed understanding of the baseline for productivity in and around the existing tower, and more detailed stress-testing of the possible scenarios as regards to mortality debt.
- 4.4.51 In response to NE's comments, the Applicant [REP3-087/REP3-088] provided an updated 'Gateshead Kittiwake Tower Modification Quantification of Productivity Benefits (Revision B)'. In response to NE's point on structure design, the Applicant [REP3-087/REP3-088] confirmed it was aiming to submit outline designs of the structure to the Examination at Deadline 5. However, at Deadline 5, the Applicant advised that it is in the process of updating its concept design in response to feedback from Gateshead Council and expects to be able to submit the updated design before the end of the Examination [REP5-049]
- 4.4.52 The Applicant confirmed at Deadline 3 that it intends to submit a pre-application consultation request in May/June 2023 ahead of an anticipated application for planning permission in Q3 2023 to Gateshead Council (as relevant planning authority). The Applicant noted that Gateshead Council are also the owners of the kittiwake tower and the land on which it is located. The Applicant did not consider there to be any impediments to the necessary consents being obtained and included a letter of support from Gateshead Council in Annex 1 of the HRA Derogation and Compensatory Measures Update (Revision B) [REP3-095]. The Applicant informed the ExA that another OWF applicant, RWE have had their planning application for a kittiwake tower adjacent to Saltmeadows approved and have completed construction of that tower ahead of the 2023 breeding season.
- 4.4.53 The Applicant [REP3-101] advised that it had held a meeting with Gateshead Council in April 2023 to discuss the terms of an option/lease agreement. It did not see a barrier to leasing the site. The ExA [PD-012] requested details of the ANS design and any adaptations to support kittiwakes and auks, if appropriate in its WQ2. The Applicant [REP3-101] responded that it had provided a description of the outline design details of the Applicant's proposals at Gateshead at Section 4.3.2.1.3 of its HRA Derogation and Compensatory Measures Update (Revision B) [REP3-095] submitted at Deadline 3. The Applicant confirmed that its proposals at

Gateshead are specifically designed to enhance the breeding numbers and success of kittiwake and would therefore not attract or be suitable for auk species.

- 4.4.54 NE [REP5-092, REP5-093] highlighted its concern that the concept designs had not been provided to the Examination and requested that this be done as soon as possible. It also raise concerns about the illustrative designs already provided and whether they would optimise breeding success.
- 4.4.55 The ExA [PD-012] queried the implementation timetable for the kittiwake CM and when the measures would achieve their objectives in relation to the commencement of operation of the OWF. The Applicant [REP3-101] in response stated that the current indicative delivery programme for the modification of the Gateshead kittiwake tower is included at Section 4.3.2.1.5 of the HRA Derogation and Compensatory Measures Update [REP2-095].
- 4.4.56 In response to a question from the ExA [PD-017], the Applicant [REP5-049] advised that the tower could be designed to reduce transmission risk. In addition, it considered the risk of infection to be lower than in a natural colony because the size of the colony would be much smaller. The Applicant was not aware of any cases of HPAI at an existing kittiwake tower; Gateshead Council and the Ringing Group who monitor the Saltmeadows tower have advised the Applicant that no cases had so far occurred.
- 4.4.57 NE [REP5 -094] responded that it advises that the layout of Saltmeadows tower (a series of parallel, horizontal ledges on three faces) is designed to 'mimic' that of cliff ledges and is in an open-air environment. NE stated that on that basis it does not consider the provision of these artificial structures increases the risk of infection. NE confirmed that there is also the possibility to implement a disinfection regime pre-breeding at the artificial structure that would be hard or impossible to implement at most natural sites. In response to the query regarding data from ANS at Lowestoft, NE responded that it was still awaiting a response from its experts, but it is unlikely it would have data from 2022 at such a resolution that would inform this query.
- 4.4.58 ESC [REP5-068] stated that it defers to NE and other expert consultees on this matter and confirmed that it does not have any data regarding whether the ANS in Lowestoft have been subject to higher/lower of similar levels of mortality.

***Lowestoft site***

- 4.4.59 With regards to the Lowestoft site in Suffolk, East Suffolk Council (ESC) [RR-030, REP1-074, REP1-075] expressed its opposition to additional nesting sites within populated, sensitive, or urban areas (such as within Lowestoft) in order to minimise human interaction with nesting kittiwakes and to avoid further exacerbating the existing issues associated with nesting sites such as noise, smell and the accumulation of bird mess. ESC expressed concern that kittiwake CM were not being considered strategically given the expected quantity of projects expected to come forward in the region over the next decade. ESC raised queries around

should the Gateshead proposal not prove possible/preferred, whether Lowestoft would remain an option. Such a situation would be a concern to ESC.

- 4.4.60 The Applicant [REP1-033, REP3-101] confirmed it recognised the strong opposition from ESC to project-led delivery of nest site improvements to enhance kittiwake breeding success within Lowestoft town as it would be contrary to their strategic position. The Applicant stated that whilst it remained its view that its proposal for Lowestoft has strong ecological merit and is technically feasible, in light of ESC's view, and recognising the positive progress being made with respect to securing the option at Gateshead, the Applicant confirmed a decision was taken in December 2022 to not actively progress the option at Lowestoft further at this stage. The Applicant [REP3-101] expanded that despite this, were this option to be required in future, the information it included in its Appendix 3 Kittiwake Compensation Document [APP-072] notes that several suitable sites exist in Lowestoft and the selection of such sites would depend on discussions with the building owners and local authority.

#### **Compensatory measures for gannet, guillemot and razorbill**

- 4.4.61 For its 'without prejudice' compensatory measures, the Applicant initially identified the following measures for gannet [APP-074, APP-075]:

##### ***Gannet***

- 'Non like for like' compensation by enhancing the conservation of wintering and migrant waterfowl at Loch Ryan (project-led).
  - Bycatch reduction research proposal in southern Europe (either project-led or through collaboration with other offshore wind farm developers).
- 4.4.62 The Applicant's version of the Gannet, Guillemot and Razorbill Compensation Document [APP-074] and CIMP [APP-075] referred to the measures for gannet. As noted in section 3 above, the Applicant and NE were able to agree that AEoI of gannet could be excluded [REP5-049, REP5-091]. The Applicant submitted a revised version of its Guillemot and Razorbill Compensation Document [REP5-018] and Outline CIMP [REP5-019] which removed all references to gannet.
- 4.4.63 The RSPB did not consider that the 'non like for like proposals' for gannet to be compliant with the requirement to protect the coherence of the NSN for gannet [RR-083].

##### ***Guillemot and razorbill***

- 4.4.64 For its 'without prejudice' compensatory measures for the auk species, the Applicant initially identified the following measures [APP-074, APP-075]:
- Predator eradication from a breeding colony (in collaboration with other offshore wind farm developers).
  - Fishery bycatch prevention/reduction (either project-led or through collaboration with other offshore wind farm developers).

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- Prey enhancement, delivered through participation in a strategic government-led project potentially suitable measure for guillemot and razorbill.
- 4.4.65 The details of the proposed measures and associated monitoring would be provided in the Guillemot and Razorbill CIMP. The CIMP would be produced post-consent; the information it would include is outlined in [REP5-018].
- 4.4.66 The Applicant has provided draft wording to be used in the DCO to secure the compensatory measures in the event that the SoS considers that AEOI cannot be excluded for these features of the FFC SPA [REP1-005, REP2-011, REP5-008]. The wording includes an option for compensatory measures to be delivered through collaborative or strategic measures rather than project-led measures.
- 4.4.67 NE [RR-063, REP1-047] and the RSPB [RR-083, REP1-161] considered there was insufficient evidence to support the Applicant's proposals in relation to bycatch reduction. NE queried whether bycatch reduction in north east England offers sufficient benefit to provide compensation [RR-063, REP1-047, REP2-064]. The Applicant subsequently advised that, following discussions with fishers in the north east, it considered that there was little scope for reducing bycatch so it was now looking at bycatch reduction in south west England [REP1-034, REP1-036, REP1-061, REP2-017, REP3-021, REP3-095].
- 4.4.68 NE agreed that auk bycatch is at higher levels in the south west, as it is further from the FFC SPA colony, the level of connectivity is likely to be lower [REP5-092, REP5-093].
- 4.4.69 NE [RR-063, REP1-047, REP5-092, REP5-093] and the RSPB [RR-083, REP1-161] stated that they viewed the use of Looming Eye Buoys (LEBs) to represent an unproven technology. Both parties noted they had raised concerns about use of LEBs in the Hornsea Four OWF examination and provided the evidence submitted. NE also raised concerns about the Applicant's proposal to limit its baseline monitoring of bycatch to one year [REP1-047].
- 4.4.70 The Applicant suggested it was possible that it could supplement its own monitoring with baseline data collected by the Hornsea 4 offshore wind farm [REP3-021]. NE welcomed the Applicant's suggestion but advised that it did not address its concerns about the effectiveness of the measure [REP5-092, REP5-093]. It also noted that the baseline monitoring would commence before the post-consent version of the CIMP has been submitted and flagged the need to agree the baseline monitoring.
- 4.4.71 The Applicant advised that they were proposing a package of measures to reduce bycatch [REP1-047, REP3-021]. NE welcomed these proposals as part of the compensation package but advised that it did not address its concerns about the use of LEBs [REP5-092, REP5-093].
- 4.4.72 In response to a question from the ExA, the Applicant advised that the auk species were not at risk from collision but from displacement from the area of the Proposed Development. The use of LEBs around the Proposed



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Development would be likely to exacerbate displacement effects [REP3-101].

- 4.4.73 NE [RR-063, REP2-064] and the RSPB [RR-083, REP1-161] noted the lack of detail around the predator eradication proposals. Both parties advised that they queried the use of proposals to undertake rat eradication in Guernsey when it was proposed in the Hornsea 4 offshore wind farm examination. NE considered that given the compensation requirements of the Hornsea 4 OWF, it was unlikely that there would be an opportunity to deliver the scale of compensation required. The Applicant emphasised that this measure would only be delivered through collaborative or strategic work [REP1-033, REP1-034]; it provided updates on developing collaborative projects in [REP1-061 and REP3-095].
- 4.4.74 NE disagreed with the Applicant's approach to determining the extent of compensation required for guillemot [REP1-047]. The Applicant maintained that its approach is evidence-based [REP1-033, REP1-034]. It provided updates to its assessment of impacts on the auk species (including correction of an error relating to razorbill) in [REP1-057] and subsequently in [REP2-036/37]. NE had outstanding queries in relation to the assessments [REP3-143] which the Applicant has undertaken to address at Deadline 5 [REP4-031].
- 4.4.75 At Deadline 3 the Applicant provided an updated version of the Gannet, Guillemot and Razorbill Compensation Document [REP3-021/22] which refers to the updated assessments for guillemot and razorbill in [REP2-036]. It also confirmed the proposed change to bycatch reduction being delivered in the south west rather than the north east and how this work would be delivered. The Applicant noted NE and the RSPB's reservations about the proposals but contended its approach offered the best option for delivering bycatch reduction. [REP3-021]. The updated proposals are supported by Annex 4B Auk Bycatch Reduction Feasibility [REP3-023] which reviewed the feasibility of the Applicant's proposals.
- 4.4.76 At Deadline 5, NE advised that it was still not satisfied with the Applicant's calculation of displacement rates for guillemot and razorbill [REP5-092, REP5-093]. It considered that the calculations should consider adult auks which form part of the NSN network rather than those from the biogeographic population in general.

**ANNEX 1: EUROPEAN SITES (UK ONLY)  
CARRIED FORWARD TO THE  
INTEGRITY TEST STAGE BY  
APPLICANT**

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<b>European site</b>	<b>Qualifying features considered for AEOI</b>	<b>AEOI? Yes/No</b>
River Wensum SAC	Watercourses of plain to montane levels with R. fluitantis	No
	Desmoulin's whorl snail	No
	White clawed crayfish	No
	Bullhead	No
	Brook lamprey	No
Inner Dowsing, Race Bank and North Ridge SAC	Sandbanks which are slightly covered by sea water all the time	No
Southern North Sea SAC	Harbour porpoise	No
Moray Firth SAC	Bottlenose dolphin	No
Humber Estuary SAC	Grey seal	No
The Wash and North Norfolk Coast SAC	Sandbanks which are slightly covered by sea water all the time	No
	Harbour seal	No
Greater Wash SPA	Sandwich tern, breeding	Yes (in-combination)
	Common tern, breeding	No
	Red-throated diver, non-breeding	No
	Little gull, non-breeding	No
North Norfolk Coast SPA	Sandwich tern, breeding	Yes (in-combination)
	Common tern, breeding	No

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European site	Qualifying features considered for AEOI	AEOI? Yes/No
	Pink-footed goose, non-breeding	No
	Dark-bellied brent goose, non-breeding	No
	Wigeon, non-breeding	No
	Knot, non-breeding	No
	Waterbird assemblage	No
Outer Thames Estuary SPA	Red-throated diver, non-breeding	No
Breydon Water SPA	Bewick's swan, non-breeding	No
	Avocet, non-breeding	No
	Golden plover, non-breeding	No
	Lapwing, non-breeding	No
	Ruff, non-breeding	No
	Waterbird assemblage	No
The Wash SPA	Bar-tailed godwit, non-breeding	No
	Bewick's swan, non-breeding	No
	Black-tailed godwit, non-breeding	No
	Common scoter, non-breeding	No
	Curlew, non-breeding	No
	Dark-bellied brent goose, non-breeding	No
	Dunlin, non-breeding	No

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European site	Qualifying features considered for AEOI	AEOI? Yes/No
	Gadwall, non-breeding	No
	Goldeneye, non-breeding	No
	Grey plover, non-breeding	No
	Knot, non-breeding	No
	Oystercatcher, non-breeding	No
	Pink-footed goose, non-breeding	No
	Pintail, non-breeding	No
	Redshank, non-breeding	No
	Sanderling, non-breeding	No
	Shelduck, non-breeding	No
	Turnstone, non-breeding	No
	Wigeon, non-breeding	No
	Waterbird assemblage, non-breeding	No
Gibraltar Point SPA	Bar-tailed godwit, non-breeding	No
	Grey plover, non-breeding	No
	Sanderling, non-breeding	No
Humber Estuary SPA	Avocet, breeding and non-breeding	No
	Bar-tailed godwit, non-breeding	No
	Bittern, non-breeding	No

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European site	Qualifying features considered for AEOI	AEOI? Yes/No
	Black-tailed godwit, non-breeding	No
	Dunlin, non-breeding	No
	Golden plover, non-breeding	No
	Knot, non-breeding	No
	Redshank, non-breeding	No
	Ruff, non-breeding	No
	Shelduck, non-breeding	No
	Waterbird assemblage, non-breeding	No
Broadland SPA	Bewick's swan, non-breeding	No
	Gadwall, non-breeding	No
	Ruff, non-breeding	No
	Shoveler, non-breeding	No
	Whooper swan, non-breeding	No
	Wigeon, non-breeding	No
Ouse Washes SPA	Bewick's swan, non-breeding	No
	Black-tailed godwit, non-breeding	No
	Gadwall, breeding and non-breeding	No
	Garganey, breeding	No
	Pintail, non-breeding	No

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European site	Qualifying features considered for AEoI	AEoI? Yes/No
	Pochard, non-breeding	No
	Ruff, non-breeding	No
	Shoveler, non-breeding	No
	Teal, non-breeding	No
	Whooper swan, non-breeding	No
	Wigeon, non-breeding	No
	Waterbird assemblage, non-breeding	No
Minsmere-Walberswick SPA	Avocet, breeding	No
	European white-fronted goose, non-breeding	No
	Gadwall, breeding and non-breeding	No
	Shoveler, breeding and non-breeding	No
	Teal, breeding	No
	Breeding bird assemblage	No
Nene Washes SPA	Bewick's swan, non-breeding	No
	Black-tailed godwit, breeding and non-breeding	No
	Shoveler, breeding and non-breeding	No
	Teal, non-breeding	No
	Wigeon, non-breeding	No
Alde-Ore Estuary SPA	Lesser black-backed gull, breeding	No

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<b>European site</b>	<b>Qualifying features considered for AEOI</b>	<b>AEOI? Yes/No</b>
Flamborough and Filey Coast SPA	Kittiwake, breeding	Yes
	Gannet, breeding	No
	Guillemot, breeding	No
	Razorbill, breeding	No
Coquet Island SPA	Sandwich tern, breeding	No
	Common tern, breeding	No
	Arctic tern, breeding	No
Farne Islands SPA	Arctic tern, breeding	No
	Sandwich tern, breeding	No
	Guillemot, breeding	No
	Seabird assemblage, breeding (kittiwake, puffin)	No
St Abb's Head to Fast Castle SPA	Seabird assemblage, breeding (guillemot)	No
Forth Islands SPA	Gannet, breeding	No
	Lesser black-backed gull, breeding	No
	Puffin, breeding	No
Imperial Dock Lock, Leith SPA	Common tern, breeding	No
Fowlsheugh SPA	Guillemot, breeding	No
	Kittiwake, breeding	No
Ythan Estuary, Sands of Forvie and Meikle Loch SPA	Sandwich tern, breeding	No



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<b>European site</b>	<b>Qualifying features considered for AEOI</b>	<b>AEOI? Yes/No</b>
Troup, Pennan and Lion's Heads SPA	Kittiwake, breeding	No
	Guillemot, breeding	No
East Caithness Cliffs SPA	Guillemot, breeding	No
	Kittiwake, breeding	No
	Razorbill, breeding	No
North Caithness Cliffs SPA	Guillemot, breeding	No
Hoy SPA	Red-throated diver, breeding	No
Auskerry SPA	Arctic tern, breeding	No
Marwick Head SPA	Guillemot, breeding	No
West Westray SPA	Guillemot, breeding	No
Fair Isle SPA	Guillemot, breeding	No
Noss SPA	Gannet, breeding	No
	Guillemot, breeding	No
East Mainland Coast, Shetland SPA	Red-throated diver, breeding	No
Foula SPA	Guillemot, breeding	No
	Puffin, breeding	No
	Red-throated diver, breeding	No
Papa Stour SPA	Arctic tern, breeding	No
Ronas Hill – North Roe and Tingon SPA	Red-throated diver, breeding	No

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European site	Qualifying features considered for AEOI	AEOI? Yes/No
	Great skua, breeding (referred to in Table 10-1 but not Table 5-2 of the RIAA)	No
Hermaness, Saxa Vord and Valla Field SPA	Gannet, breeding	No
	Great skua, breeding (referred to in Table 10-1 but not Table 5-2 of the RIAA)	No
North Norfolk Coast Ramsar	Sandwich tern, breeding	Yes
	Common tern, breeding	No
	Pink-footed goose, non-breeding	No
	Dark-bellied brent goose, non-breeding	No
	Wigeon, non-breeding	No
	Knot, non-breeding	No
	Pintail, non-breeding	No
Breydon Water Ramsar	Bewick's swan, non-breeding	No
	Lapwing, non-breeding	No
	Waterbird assemblage	No
The Wash Ramsar	Bewick's swan, non-breeding	No
	Black-tailed godwit, non-breeding	No
	Curlew, non-breeding	No
	Dark-bellied brent goose, non-breeding	No

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European site	Qualifying features considered for AEOI	AEOI? Yes/No
	Dunlin, non-breeding	No
	Golden plover, non-breeding	No
	Grey plover, non-breeding	No
	Knot, non-breeding	No
	Lapwing, non-breeding	No
	Oystercatcher, non-breeding	No
	Pink-footed goose, non-breeding	No
	Redshank, non-breeding	No
	Ringed plover, non-breeding	No
	Sanderling, non-breeding	No
	Shelduck, non-breeding	No
Gibraltar Point Ramsar	Bar-tailed godwit, non-breeding	No
	Dark-bellied brent goose, non-breeding	No
	Grey plover, non-breeding	No
	Sanderling, non-breeding	No
Humber Estuary Ramsar	Bar-tailed godwit, non-breeding	No
	Black-tailed godwit, non-breeding	No
	Dunlin, non-breeding	No
	Golden plover, non-breeding	No

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European site	Qualifying features considered for AEOI	AEOI? Yes/No
	Knot, non-breeding	No
	Redshank, non-breeding	No
	Shelduck, non-breeding	No
	Waterbird assemblage, non-breeding	No
Broadland Ramsar	Bewick's swan, non-breeding	No
	Gadwall, non-breeding	No
	Shoveler, non-breeding	No
	Wigeon, non-breeding	No
Ouse Washes Ramsar	Bewick's swan, non-breeding	No
	Gadwall, breeding and non-breeding	No
	Pintail, non-breeding	No
	Shoveler, non-breeding	No
	Teal, non-breeding	No
	Whooper swan, non-breeding	No
	Wigeon, non-breeding	No
	Waterbird assemblage, non-breeding	No
Minsmere-Walberswick Ramsar	Avocet, non-breeding	No
	European white-fronted goose, non-breeding	No
	Gadwall, non-breeding	No

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European site	Qualifying features considered for AEOI	AEOI? Yes/No
	Shoveler, non-breeding	No
	Teal, non-breeding	No
Nene Washes Ramsar	Bewick's swan, non-breeding	No
	Black-tailed godwit, breeding and non-breeding	No
	Shoveler, breeding and non-breeding	No
	Whooper swan, non-breeding	No
Alde-Ore Ramsar	Lesser black-backed gull, breeding	No
Ythan Estuary, Sands of Forvie and Meikle Loch Ramsar	Sandwich tern, breeding	No

## **ANNEX 2: APPLICANT'S DOCUMENTS USED TO INFORM THE RIES**

Report on the Implications for European Sites for  
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The Applicant's HRA documents submitted with the DCO application:

- Report to Inform Appropriate Assessment (hereafter referred to as the 'RIAA') [APP-059]
  - Appendix 1 - Habitats Regulations Assessment Screening Report [APP-060] (hereafter referred to as the 'HRA Screening Assessment')
  - Appendix 2 - Habitats Regulations Assessment Screening Matrices [APP-061] (replaced at Deadline 4 [REP4-009])
  - Appendix 3 - Habitats Regulations Assessment Integrity Matrices [APP-062] (replaced at Deadline 4 [REP4-011])
- Habitats Regulations Derogation - Provision of Evidence [APP-063]
  - Appendix 1 - Compensatory Measures Overview [APP-064]
  - Annex 1A - Initial Review of Compensatory Measures for Sandwich Tern and Kittiwake [APP-065]
  - Annex 1B - Sandwich Tern and Kittiwake Ecological Evidence [APP-066]
  - Annex 1C - Initial Review of Compensatory Measures for Gannet Guillemot and Razorbill [APP-067]
  - Annex 1D - Record of HRA Derogation Consultation [APP-068]
  - Appendix 2 - Sandwich Tern Compensation Document [APP-069]
  - Annex 2A - Outline Sandwich Tern Compensation Implementation and Monitoring Plan [APP-070]
  - Annex 2B - Sandwich Tern Nesting Habitat Improvements Site Selection [APP-071]
  - Appendix 3 - Kittiwake Compensation Document [APP-072]
  - Annex 3A - Outline Kittiwake Compensation Implementation and Monitoring Plan [APP-073]
  - Appendix 4 - Gannet, Guillemot and Razorbill Compensation Document [APP-074] (updated at Deadline 3 [REP3-021] and replaced at Deadline 5 [REP5-017])

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- Annex 4A - Outline Gannet, Guillemot and Razorbill Compensation Implementation and Monitoring Plan [APP-075] (replaced at Deadline 5 [REP5-018])

The Applicant's HRA documents/updates submitted during the Examination:

- Deadline 1 Submission:
  - Gateshead Kittiwake Tower Modification – Quantification of Productivity Benefits Technical Note [REP1-055] (replaced at Deadline 3 [REP3-087])
  - Apportioning and Habitats Regulations Assessment Updates Technical Note [REP1-057] (updated at Deadline 2 [REP2-036] and replaced at Deadline 5 [REP5-043])
  - Sandwich Tern – Quantification of Productivity Benefits Technical Note [REP1-058] (replaced at Deadline 3 [REP3-088])
  - Marine Processes Technical Note [REP1-059] (replaced at Deadline 3 [REP3-093])
  - Habitats Regulations Assessment Derogation and Compensatory Measures Update [REP1-061] (replaced at Deadline 3 [REP3-095])
- Deadline 2 Submissions:
  - Apportioning and Habitats Regulations Assessment Updates Technical Note (Revision B) [REP2-036] (replaced at Deadline 5 [REP5-043])
  - Apportioning and Habitats Regulations Assessment Updates Technical Note (Revision B) (Tracked) [REP2-037] (replaced at Deadline 5 [REP5-044])
  - Report to Inform the Appropriate Assessment (RIAA) (onshore) Technical Note [REP2-050]
  - The Applicant's Responses on Relevant Representations: Natural England Marine Mammals (Appendix D) [REP2-051]



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- Deadline 3 Submissions:
  - Appendix 4 – Gannet, Guillemot and Razorbill Compensation Document (Revision B) [REP3-021] (replaced at Deadline 5 [REP5-017])
  - Appendix 4 - Gannet, Guillemot and Razorbill Compensation Document (Revision B) (Tracked) [REP3-022]
  - Annex 4B Auk Bycatch Reduction Feasibility Statement (Revision B) [REP3-023]
  - Any further information requested by the Examining Authority under Rule 17 of the Examination Rules – ES Chapter 20 - Onshore Ecology and Ornithology (Revision C) (Clean) [REP3-026]
  - Outline Ecological Management Plan (Revision C) (Clean) [REP3-068]
  - Gateshead Kittiwake Tower Modification – Quantification of Productivity Benefits Technical Note (Revision B) [REP3-087]
  - Gateshead Kittiwake Tower Modification – Quantification of Productivity Benefits Technical Note (Revision B) (Tracked) [REP3-088]
  - Sandwich Tern – Quantification of Productivity Benefits Technical Note (Revision B) [REP3-088]
  - Sandwich Tern – Quantification of Productivity Benefits Technical Note (Revision B) (Tracked) [REP3-092]
  - Marine Processes Technical Note (Revision B) (Clean) [REP3-093]
  - Habitats Regulations Assessment Derogation and Compensatory Measures Update (Revision B) [REP3-095]
  - Habitats Regulations Assessment Derogation and Compensatory Measures Update (Revision B) (Tracked) [REP3-096]
  - The Applicant's Responses to the Examining Authority's Second Written Questions [REP3-101]
  - Appendix B - Supporting documents to the Applicant's Responses to the Examining Authority's Second Written Questions [REP3-103]

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- The Applicant's comments on Natural England's Deadline 2 Submissions [REP3-107]
- Written Summary of the Applicant's Oral Submissions at Issue Specific Hearing 5 [REP3-111]
- Marine Mammals Technical Note and Appendix [REP3-115]
- Deadline 4 Submissions:
  - Appendix 2 - Habitats Regulations Assessment Screening Matrices (Revision B) (Clean) [REP4-009] (hereafter referred to as the 'HRA Screening Matrices')
  - Appendix 2 - Habitats Regulations Assessment Screening Matrices (Revision B) (tracked) [REP4-010]
  - Appendix 3 - Habitats Regulations Assessment Integrity Matrices (Revision B) (Clean) [REP4-011] (hereafter referred to as the 'HRA Integrity Matrices')
  - Appendix 3 - Habitats Regulations Assessment Integrity Matrices (Revision B) (tracked) [REP4-012]
  - Habitats Regulations Assessment Updates Signposting Note [REP4-013]
  - Review of 2022 Highly Pathogenic Avian Influenza (HPAI) outbreak on relevant UK seabird colonies [REP4-042]
- Deadline 5 Submissions:
  - Proposed Without Prejudice DCO Drafting (Revision C) (Clean) [REP5-008]
  - Proposed Without Prejudice DCO Drafting (Revision C) (Tracked) [REP5-009]
  - Appendix 4 Guillemot and Razorbill Compensation Document (Revision C) [REP5-017]
  - Annex 4A - Outline Guillemot and Razorbill Compensation Implementation and Monitoring Plan (Revision B) (Clean) [REP5-018]
  - Annex 4A - Outline Guillemot and Razorbill Compensation Implementation and Monitoring Plan (Revision B) (Tracked) [REP5-019]

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- Apportioning and Habitats Regulations Assessment Updates Technical Note (Revision C) (Clean) [REP5-043]
- Apportioning and Habitats Regulations Assessment Updates Technical Note (Revision C) (Tracked) [REP5-044]
- The Applicant's response to the Examining Authority's Third Written Questions [REP5-049]
- Supporting Documents for the Applicant's Responses to the Examining Authority's Third Written Questions [REP5-050]
- The Applicant's comments on Marine Management Organisation Deadline 4 Submission [REP5-053]
- The Applicant's Comments on Natural England Deadline 4 Submission [REP5-056]
- Gannet and Auk Cumulative Displacement Updates Technical Note [REP5-063]
- The Applicant's Response to Natural England's Risk and Issues Log Terrestrial Ecology [REP5-065]