The Planning Inspectorate
Yr Arolygiaeth Gynllunio

REPORT on the IMPLICATIONS for EUROPEAN SITES

Proposed Hornsea Project Three Offshore Wind Farm

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

Planning Inspectorate Reference: EN010080

21 February 2019

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1 INTRODUCTION

1.1 Background

1.1.1 Ørsted (the Applicant) has applied to the Secretary of State for a development consent order (DCO) under section 37 of the Planning Act 2008 (PA2008) for the proposed Hornsea Project Three Offshore Wind Farm (the application). The Secretary of State 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 Secretary of State as to the decision to be made on the application.

1.1.2 The relevant Secretary of State is the competent authority for the purposes of the Habitats Directive[1] and the Habitats Regulations[2] and the Offshore Marine Regulations[3] for applications submitted under the PA2008 regime. The findings and conclusions on nature conservation issues reported by the ExA will assist the Secretary of State in performing his 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, up to Deadline 6 of the Examination (8 February 2019) in relation to potential effects to European Sites[4]. It is not a standalone document and should be read in conjunction with the Examination documents that are cited. 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 National Infrastructure Planning website at the following link:

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-000748-06%20-%20Hornsea%203%20Examination%20Library%20Published%20Version.pdf

1.1.4 It is issued to ensure that interested parties including the statutory nature conservation bodies, namely the Joint Nature Conservation Committee (JNCC), Natural England (NE) and Scottish Natural Heritage (SNH) are consulted formally on Habitats Regulations matters. This process may be

[1] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (as codified) (the 'Habitats Directive').

[2] The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations).

[3] 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).

[4] The term European Sites in this context includes Sites of Community Importance (SCIs), Special Areas of Conservation (SACs) and candidate SACs, Special Protection Areas (SPAs), possible SACs, potential SPAs, Ramsar sites, proposed Ramsar sites, and any sites identified as compensatory measures for adverse effects on any of the above. For a full description of the designations to which the Habitats Regulations apply, and/ or are applied as a matter of Government policy, see PINS Advice Note 10.

relied on by the Secretary of State for the purposes of Regulation 63(3) of the Habitats Regulations and Regulation 28(4) of the Offshore Marine Regulations. Following consultation, the responses will be considered by the ExA in making their recommendation to the Secretary of State and made available to the Secretary of State along with this report. The RIES will not be revised following consultation.

1.1.5 The applicant has identified potential impacts on European sites in other EEA States[5] [**APP-051** and **APP-052**]. Only UK European sites are addressed in this report.

1.2 Documents used to inform this RIES

1.2.1 The Applicant's DCO application concluded that there is the potential for likely significant effects on 16 European sites and therefore provided a Report to Inform Appropriate Assessment (the RIAA) [**APP-051**] and with accompanying annexes [**APP-052**, **APP-053** and **APP-054**].

1.2.2 In response to s51 advice from the Inspectorate, the Applicant provided an updated version of Table 9.1 of the RIAA [**AS-002**] because the original version did not include all the relevant text and a set of screening and integrity matrices [**AS-004**]. The matrices were also submitted again at Examination Deadline 1 [**REP1-187**].

Examination

1.2.3 For those European sites and qualifying features where the Applicant's conclusions have been disputed or queried during the Examination, the matrices have been updated by the ExA, with the support of the Environmental Services Team of the Planning Inspectorate using the documents listed below. The revised matrices are included as Annexes 3 and 4 of this report.

1.2.4 The document and hearing recordings referred to in this report are listed in Annex 2 below.

1.3 Structure of this RIES

1.3.1 The remainder of this report is as follows:

- **Section 2** identifies the European sites that have been considered within the DCO application and during the examination period, up to 8 February 2019. It provides an overview of the issues that have emerged during the examination.
- **Section 3** identifies the European sites and qualifying features screened by the applicant for potential likely significant effects, either alone or in-combination with other projects and plans. The section also identifies where Interested Parties have disputed the Applicant's conclusions,

[5] European Economic Area (EEA) States.

together with any additional European sites and qualifying features screened for potential likely significant effects during the examination.

- **Section 4** identifies the European sites and qualifying features which have been considered in terms of adverse effects on site integrity, either alone or in-combination with other projects and plans. The section identifies where Interested Parties have disputed the applicant's conclusions, together with any additional European sites and qualifying features considered for adverse effects on integrity during the examination.
- **Annex 1** summarises the outcome of the Applicant's screening exercise for likely significant effect and the degree of agreement with Interested Parties.
- **Annex 2** lists the documents and hearing evidence referred to in this report.
- **Annexes 3 and 4** comprise matrices for those European sites and qualifying features for which the Applicant's conclusions were disputed in relation to potential likely significant effects and adverse effects on the integrity of European sites. They summarise the evidence submitted by the Applicant and Interested Parties up to 8 February 2019.

2 OVERVIEW

2.1 European Sites Considered

2.1.1 The project is not connected with or necessary to the management for nature conservation of any of the European sites considered within the applicant's assessment [**APP-051**].

2.1.2 The Applicant undertook an initial Habitats Regulations Assessment (HRA) screening exercise which is reported in **APP-052**. As the final design of the Proposed Development has yet to be finalised, the zone of influence associated with the development was defined on the basis of design parameters which were stated to represent the maximum adverse scenario for each parameter. Decommissioning impacts were assumed to be similar to those predicted for construction. Sites which could be affected by the Proposed Development were initially identified using the criteria listed in Table 5.1 of **APP-052**. These sites are listed in Tables 5.15 and 5.16 of **APP-052**.

2.1.3 Following a change to the proposed offshore cable route, the screening exercise was subsequently updated to include the Greater Wash SPA [**APP-051** and **APP-053**].

2.1.4 The European sites that could be affected by the Proposed Development are listed in Tables 5.15 and 5.16 of the Applicant's HRA Screening Report [**APP-052**]. The Applicant has also considered the potential for effects on the Greater Wash SPA in Annex 2 of the RIAA [**APP-053**]. The potential for likely significant effects was only considered further where a potential pathway for effects could be identified for individual site features.

2.1.5 Section 3.4 of the RIAA [**APP-051**] reports on the reasoning and evidence the Applicant relied on to identify the sites and features for which likely significant effects could not be excluded. The outcome of this screening exercise and the degree of agreement with Interested Parties is reported in Annex 1 of this report. Table 3.1 below lists the sites and features for which the Applicant identified likely significant effects. While no specific additional sites were identified, Interested Parties raised various concerns as to whether the assessment was sufficient to identify all the relevant sites and features (see section 3 of this report for further detail).

2.1.6 For the purposes of this report, effects have not been reported for the Flamborough Head and Bempton Cliffs SPA as this has now been superseded by the confirmation of the Flamborough and Filey Coast SPA.

2.2 HRA Matters Considered During the Examination

2.2.1 NE has raised concerns about the adequacy of the baseline data used to inform the assessment of offshore ornithology, particularly in relation to the number of months for which baseline data was collected and whether the Applicant's approach sufficiently captures the variability in bird numbers between different years. [**REP 1-211**]. It has also queried whether the proportion of the Digital Aerial Survey (DAS) transect is

sufficient and the inclusion of boat-based observations to generate density estimates for use in collision risk modelling (CRM) [**REP1-211** and **REP1-212**]. The Royal Society for the Protection of Birds (RSPB) has raised similar concerns [**RR-113** and **REP1-111**].

2.2.2 The Applicant advised that the DAS collected data over a 20 month period and that data were only consequently present for a single year between December and March. In the Applicant's view, there is no indication that the array area is of particular importance to birds and that variability during these months is likely to be more limited in any event than during the two breeding seasons covered by the DAS [**REP1-122** and **REP1-131**]. The Applicant has maintained that analysing the additional data collected during the DAS so that 20% rather than 10% of the sample area is used would not necessarily increase the precision of estimates of bird numbers. The sample area covered is equivalent to that used in other offshore wind farm assessments and in their view adequately captures inter-annual variability [**REP1-141**, **REP1-131**, **REP3-004** and **REP4-096**]. The Applicant has queried as to whether NE has requested this level of precision for other wind farm assessments [**REP4-096** and **REP5-008**]. They point out that a number of other offshore wind farm assessments have not had a full two years of ornithological data but NE has still accepted the validity of such data and come to a judgement on likely significant effects [**REP1-141**, **REP4-096** and **REP5-008**].

2.2.3 NE and the RSPB have consistently maintained their concerns regarding the adequacy of the baseline data and pointed to evidence of considerable variation in bird numbers during the winter months and high densities of non-breeding species [**REP3-075**, **REP2-026**, **REP4-130** and **REP4-137**, **REP6-076**, **REP6-077**]. NE has argued that there were specific reasons why it accepted less than 2 years of baseline data in other cases [**REP4-130**] although the Applicant has disputed the validity of this reasoning [**REP5-008**].

2.2.4 With regard to the months where 2 years of baseline data has been collected, NE has advised that it is not clear if the use of the DAS results from 20% of the survey area would achieve the target levels of precision. If this were the case, the baseline data for that period would be acceptable to NE [**REP4-130**]. The RSPB agree that the DAS data would be adequate under these circumstances but reiterate the need for 2 years of data as a minimum [**REP4-137**].

2.2.5 Other significant points which have been discussed in the examination include (see the footnotes to the matrices in Annexes 3 and 4 of this report for document references):

- Collision risk modelling (particularly in relation to the gannet and kittiwake features of the Flamborough and Filey Coast SPA) – choice of Band model and evidence supporting the Applicant's parameterisation of the model;
- Assessment of displacement impacts (particularly in relation to the gannet and auk species which are features of the Flamborough and Filey Coast SPA);

- The approach to in combination assessment for effects on seabird features, particularly in relation to the Flamborough and Filey Coast SPA);
- Baseline data for the offshore cable route through The Wash and North Norfolk Coast SAC and the North Norfolk Sandbanks and Saturn Reef SAC;
- Effects from cable burial and protection on the reef and sandbank features of The Wash and North Norfolk Coast SAC and the North Norfolk Sandbanks and Saturn Reef SAC;
- In combination effects from underwater noise during construction on the harbour porpoise population of the Southern North Sea SCI; and
- Mitigation measures proposed for the pink-footed goose population of the North Norfolk Coast SPA/Ramsar site.

3 LIKELY SIGNIFICANT EFFECTS

3.0.1 The Applicant has described how they have determined what would constitute a 'significant effect' within the RIAA [**APP-051**]. This follows EC guidance on habitats assessment (EC Guidance document: 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2000)' and EC Guidance document: 'Assessment of plans and projects significantly affecting Natura 2000 sites (2001)').

3.0.2 The Applicant has addressed potential in-combination effects within the RIAA [**APP-051**]. The plans and projects that have been included in the in combination assessment carried out by the Applicant are listed in the following tables in the RIAA:

- Tables 5.12, 5.13 and 5.14 – plans and projects for in-combination assessment of effects on the North Norfolk Sandbanks and Saturn Reef SAC for Annex I habitat features;
- No projects were identified which could lead to in-combination effects on The Wash and North Norfolk SAC;
- Tables 6.23 and 6.30 - plans and projects for in-combination assessment for the marine mammal SAC features (The Wash and North Norfolk SAC, the Humber Estuary SAC/Ramsar site, Berwickshire and North Northumberland SAC and the Southern North Sea SCI);
- Table 7.31 – plans and projects for in-combination assessment for the offshore ornithological features (the Greater Wash SPA, Flamborough Head and Filey Coast SPA, Coquet Island SPA, Farne Islands SPA and Forth Islands SPA); and
- Table 8.3 – plans and projects for in-combination assessment of onshore European/Ramsar sites (Norfolk Valley Fens SAC, Wensum River SAC, North Norfolk Coast SAC, North Norfolk Coast Ramsar site, Norfolk Valley Fens SAC, North Norfolk Coast SPA and North Norfolk Coast Ramsar site).

3.0.3 As a result of the screening assessment, the Applicant concluded that the project is **likely to give rise to significant effects (LSE)**, either alone or in combination with other projects or plans, on the qualifying features of the European sites listed below in Table 3.1. While none of the Interested Parties disputed that the project is likely to give rise to significant effects on the sites and features listed in Table 3.1, they did disagree with a number of points about the Applicant's conclusions on LSE.

3.0.4 Annex 1 of this report summarises the outcome of the screening assessment reported in the Applicant's RIAA [**APP-051**] and the degree of agreement with Interested Parties. For those sites where the Applicant's conclusions were disputed, matrices are provided in Annex 3 which list the evidence provided by the Applicant and Interested Parties.

3.0.5 In addition to the points covered in the matrices for specific sites, more general concerns have been raised. NE has advised that it has general concerns about the conclusions on LSE because of the issues it has have with the adequacy of the baseline data and the Applicant's approach to assessment of impacts, particularly in relation to offshore ornithology and benthic ecology site features [**REP1-211**].

3.0.6 NE raised a number of concerns about the scope of the Applicant's in-combination assessment. It queried whether the assessment has considered the cumulative effects of the different construction phases of the Proposed Development, particularly in relation to effects on benthic ecology receptors [**REP1-212**].

3.0.7 In relation to offshore ornithology, NE have advised that where a population may be exposed to multiple risks (for instance gannet may experience impacts from both collision related mortality and displacement) the combined impact should be assessed. They also raised a number of concerns about the approach to in-combination assessment for seabirds as follows:

- choice of Band model used in the assessment;
- application of correction factors to existing collision figures for projects to represent lower nocturnal activity factors;
- reduction in collision risk figures for projects based on the assumption that the number of consented turbines would have lower impacts than the number considered in the original assessment for the projects;
- use of correction factors to adjust collision figures for projects based on "as built" versus consented turbine layouts.
- exclusion of impacts from some offshore wind farms classed as Tier 2 or Tier 3;
- the apportioning of birds to the Flamborough and Filey Coast SPA during the breeding season by the different offshore wind farm projects;
- the use of a qualitative approach to assessing displacement, particularly in relation to the guillemot and razorbill features of the Flamborough and Filey Coast SPA]; and
- the use of the Population Viability Analysis (PVA) models originally developed for the assessment of in-combination effects on the Flamborough and Filey Coast SPA populations for the Hornsea Two offshore wind farm [**REP1-211**].

3.0.8 The RSPB has also raised concerns about the use of the PVA as it has only been run over 25 years rather than the 35 years of the lifetime of the Proposed Development [**RR-113**]. The model has since been run for the full lifetime of the proposal with a different parameterisation which has satisfied the RSPB's concerns in these respects [**REP1-135**].

3.0.9 NE also queried the Applicant's approach to concluding that LSE would occur only where a predicted impact amounts to a 1% or more of the baseline mortality level for a feature of a SPA [**REP1-211**] (although they

also advised that this can be a useful approach to identifying where further investigation is required [**REP-212**]. It also expressed concerns that the Applicant's approach in **APP-52** to determining LSE because, in NE's view, conclusions about LSE were reached before consideration of the effects from the potential interactions with other plans or projects [**REP1-211** and **REP3-075**].

3.0.10 The Wildlife Trusts (TWT) requested that effects from fishing activity should be included in the in-combination assessment rather than in the baseline data for the assessment [**RR-047** and **REP1-023**].

Table 3.1: Sites/features for which the Applicant has identified likely significant effects

Name of European Site	Features for which likely significant effects have been identified
Berwickshire and North Northumberland Coast SAC	Grey seal
Coquet Island SPA	Part of assemblage qualifying feature: fulmar
Farne Islands SPA	Part of assemblage qualifying feature: fulmar
Forth Islands SPA	Part of assemblage qualifying feature: fulmar
Flamborough and Filey Coast SPA	Breeding population & part of seabird assemblage qualifying features: gannet
	Breeding population & part of seabird assemblage qualifying features: kittiwake
	Part of assemblage qualifying feature: herring gull
	Breeding population & part of assemblage qualifying feature: puffin
	Breeding population & part of seabird assemblage qualifying features: guillemot
	Breeding population & part of seabird assemblage qualifying features: razorbill
Greater Wash SPA	Breeding population: Sandwich tern
	Non-breeding: red-throated diver
	Migratory species: common scoter
Humber Estuary SAC and Ramsar site	River lamprey
	Sea lamprey

	Grey seal
North Norfolk Coast SAC	Coastal lagoons
	Perennial vegetation of stony banks
	Mediterranean and thermos-Atlantic halophilous scrub
	Embryonic shifting dunes
	Shifting dunes along the shoreline with *Ammophila arenaria*
	Fixed coastal dunes (grey dunes)
	Humid dune slacks
	Otter
	Petalwort
	Pink-footed goose (non-breeding)
North Norfolk Coast Ramsar site	Ramsar criterion 1 – one of the largest expanses of undeveloped coastal habitat in Europe
	Ramsar criterion 2 – supports at least 3 Red Data Book and 9 nationally scarce vascular plants, one British Red Book lichen and 38 British Red Data Book invertebrates
	Ramsar criterion 5 – overwintering bird assemblage
	Ramsar criterion 6 – passage population of knot, over-wintering population of dark-bellied Brent goose, knot, pink-footed goose, pintail and wigeon
Norfolk Valley Fens SAC	Alkaline fens
	Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae

	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)
	European dry heaths
	Molinia meadows with calcareous, peaty or clayey-silt laden soils
	Northern Atlantic wet heaths
	Semi-natural dry grasslands and scrubland facies
	Narrow-mouthed whorl snail
North Norfolk Sandbanks and Saturn Reef SAC	Sandbanks which are slightly covered by water all the time
	Reefs
River Wensum SAC	Watercourses of plain to montane levels
	Desmoulin's whorl snail
	White-clawed crayfish
	Brook lamprey
	Bullhead
The Southern North Sea SCI	Harbour porpoise
The Wash and North Norfolk Coast SAC	Sandbanks which are slightly covered by seawater all the time
	Reefs
	Harbour seal
	Otter

3.1 Summary of HRA Screening outcomes during the examination

3.1.1 The Applicant's screening exercises is reported in the RIAA and associated annexes [**APP-051** to **APP-054**]. Of the sites that were screened, the Applicant concluded that significant effects were likely for 15 European sites and their qualifying features (Table 3.1). Interested Parties raised general concerns about the exercise because of the identified issue about the baseline data and assessment of impacts presented by the Applicant. They disputed the Applicant's conclusions on LSE for 6 sites.

3.1.2 Revised screening matrices have therefore been produced for these European sites and their qualifying features by the Planning Inspectorate (see Annex 3).

4 ADVERSE EFFECTS ON INTEGRITY

4.1 Conservation Objectives

4.1.1 The conservation objectives for all of the European sites taken forward to Appropriate Assessment and discussed in this section of the report were provided by the applicant with their DCO application [**APP-051**]. NE have also provided links to conservation objectives and advice packages for the sites for which it has concerns [**REP1-213**].

4.2 The Integrity Test

No Adverse Effects on Site Integrity

4.2.1 The Applicant concluded that the project would not adversely affect the integrity of the European sites and features in Table 4.1 below.

4.2.2 Table 4.1 below identifies those sites and features where the Applicant's conclusion of no adverse effect on site integrity is disputed by Interested Parties during the course of the Examination, at the time of writing. Where disputes remain, matrices have been prepared for the relevant sites and features (see Annex 4 of this report).

4.2.3 NE has advised that because of its concerns about the baseline data and the approach to the assessment of in combination impacts on seabirds, it is unable to agree that all the sites likely to experience significant effects have been identified. It has also advised that it is unable to exclude adverse effects on the integrity of any SPA where these are a feature. It is unable to conclude beyond reasonable scientific doubt that the conservation objectives of designated sites would not be hindered as a result of the proposal [**REP1-211**]. NE has maintained this position throughout the examination (up to deadline 6).

4.2.4 NE/JNCC has also advised that because of their concerns with the Applicant's evidence on the baseline data and nature of impacts from the Proposed Development on benthic ecology, they are unable to agree that achievement of the conservation objectives of North Norfolk Sandbanks and Saturn Reef SAC and The Wash and North Norfolk Coast SAC would not be affected.

Alternatives and IROPI

4.2.5 In further written questions [**PD-012**] the ExA raised whether there was a need to consider alternatives and imperative reasons of overriding public interest (IROPI) under the HRA process in relation to any of the features for which an adverse effect on integrity has been identified or which remains uncertain. The information provided by the Applicant in response to the ExA's questions is available in 'Appendix 63 - Detailed response to the Examining Authority's Q2.2.7 and Q2.2.44' [**REP4-082**] and also in [**REP5-008**] and [**REP5-018**]. NE's response to the question is available in its response to the ExA's further written questions, [**REP4-130**].

Table 4.1: The Applicant's shadow appropriate assessment and degree of agreement with Interested Parties

Features	Potential Adverse Effect on Integrity?	Agreed with SCNB and other relevant parties?	Comments
Berwickshire and North Northumberland Coast SAC			
Grey seal	No [**APP-051**, sections 6.5 & 6.7]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
Humber Estuary SAC			
Grey seal	No [**APP-051**, sections 6.5 & 6.7]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
North Norfolk Coast SAC			
Coastal lagoons	No [**APP-051**, section 8.5.3]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
Fixed dunes with herbaceous vegetation (grey dunes).	No [**APP-051**, section 8.5.3]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
Embryonic shifting dunes	No [**APP-051**, section 8.5.3]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
Humid dune slacks	No [**APP-051**, section 8.5.3]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced

Features	**Potential Adverse Effect on Integrity?**	**Agreed with SCNB and other relevant parties?**	**Comments**
Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*).	No [**APP-051**, section 8.5.3]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
Perennial vegetation of stony banks.	No [**APP-051**, section 8.5.3]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)	No [**APP-051**, section 8.5.3]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
Otter	No [**APP-051**, section 8.6.4]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
Petalwort	No [**APP-051**, section 8.6.4]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
North Norfolk Sandbanks and Saturn Reef SAC			
Sandbanks which are slightly covered by water all the time	No [**APP-051**, sections 5.6 & 5.9]	No [**RR-097**, sections 5.3 & 5.4]	See Stage 2 Matrix 1
Reefs	No [**APP-051**, sections 5.6 & 5.9]	No [**RR-097**, sections 5.3 & 5.4]	See Stage 2 Matrix 1

Features	Potential Adverse Effect on Integrity?	Agreed with SCNB and other relevant parties?	Comments
Norfolk Valley Fens SAC			
Alkaline fens	No [**APP-051**, section 8.5.1]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae	No [**APP-051**, section 8.5.1]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)	No [**APP-051**, section 8.5.1]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
European dry heaths	No [**APP-051**, section 8.5.1]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced

Features	**Potential Adverse Effect on Integrity?**	**Agreed with SCNB and other relevant parties?**	**Comments**
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	No [**APP-051**, section 8.5.1]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
Northern Atlantic wet heaths with *Erica tetralix*	No [**APP-051**, section 8.5.1]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)	No [**APP-051**, section 8.5.1]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
Narrow-mouthed whorl snail	No [**APP-051**, sections 8.6.2 & 8.9]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
Desmoulin's whorl snail	No [**APP-051**, sections 8.6.2 & 8.9]	Initially disputed by NE [**RR-097**, section 5.5]	No Stage 2 matrix produced

Features	Potential Adverse Effect on Integrity?	Agreed with SCNB and other relevant parties?	Comments
		but then agreed following clarification from the Applicant [**REP1-218**]	
River Wensum SAC			
Watercourses of plain to montane levels with the *Ranunculion fluviatalis* and Callichtro-Batrachion vegetation	No [**APP-051**, section 8.5.1]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
Desmoulin's whorl snail	No [**APP-051**, sections 8.6.3 & 8.9]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
White-clawed (or Atlantic stream) crayfish	No [**APP-051**, section 8.6.3]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
Brook lamprey	No [**APP-051**, section 8.6.3]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed	No Stage 2 matrix produced

Features	**Potential Adverse Effect on Integrity?**	**Agreed with SCNB and other relevant parties?**	**Comments**
		following clarification from the Applicant [**REP1-218**]	
Bullhead	No [**APP-051**, section 8.6.3]	Initially disputed by NE [**RR-097**, section 5.5] but then agreed following clarification from the Applicant [**REP1-218**]	No Stage 2 matrix produced
Southern North Sea SCI			
Harbour porpoise	No [**APP-051**, sections 6.5 & 6.7]	No [**RR-097,** section 5.5, **REP1-022**, **REP1-023**]	
The Wash and North Norfolk Coast SAC			
Sandbanks which are slightly covered by water all the time	No [**APP-051**, sections 5.5 & 5.8]	No [**RR-097**, sections 5.3 & 5.4, **RR-085**, **RR-047**]	See Stage 2 Matrix 3
Reefs	No [**APP-051**, sections 5.5 & 5.8]	No [**RR-097**, sections 5.3 & 5.4, **RR-085, RR-047**]	See Stage 2 Matrix 3
Harbour seal	No [**APP-051**, sections 6.5 & 5.8]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced

Features	**Potential Adverse Effect on Integrity?**	**Agreed with SCNB and other relevant parties?**	**Comments**
Otter	No [**APP-051**, section 8.6.4]	No specific objections raised by SNCB or other IPs	
<u>Coquet Island SPA</u>			
Fulmar (part of seabird assemblage)	No [**APP-051**, sections 7.5.3 & 7.7.3]	No [**REP1-211**, section 9]	See Stage 2 Matrix 4
<u>Flamborough and Filey Coast SPA</u>			
Gannet (breeding & part of assemblage feature)	No [**APP-051**, sections 7.5.2 & 7.7.2]	No [**RR-097**, section 5.2, **REP1-211**, section 9, **RR-113**]	See Stage 2 Matrix 6
Kittiwake (breeding & part of assemblage feature)	No [**APP-051**, section 7.5.2	No [**RR-097**, section 5.2, **REP1-211**, section 9, **RR-113**]	See Stage 2 Matrix 6
Razorbill (breeding & part of assemblage feature)	No [**APP-051**, sections 7.5.2 & 7.7.2]	No [**RR-097**, section 5.2, **REP1-211**, section 9, **RR-113**]	See Stage 2 Matrix 6
Guillemot (breeding & part of assemblage feature)	No [**APP-051**, sections 7.5.2 & 7.7.2]	No [**RR-097**, section 5.2, **REP1-211**, section 9, **RR-113**]	See Stage 2 Matrix 6
Herring gull (part of assemblage feature)	? Identified as subject to LSE in **APP-052** but not specifically referenced in **APP-051**	No [**RR-097**, section 5.2, **REP1-211**, section 9, **RR-113**]	See Stage 2 Matrix 6

Features	**Potential Adverse Effect on Integrity?**	**Agreed with SCNB and other relevant parties?**	**Comments**
Puffin (part of assemblage feature)	No [**APP-051**, sections 7.5.2 & 7.7.2]	No [**RR-097**, section 5.2, **REP1-211**, section 9, **RR-113**]	See Stage 2 Matrix 6
Fulmar (part of assemblage feature)	No [**APP-051**, sections 7.5.2 & 7.7.2]	No [**RR-097**, section 5.2, **REP1-211**, section 9, **RR-113**]	See Stage 2 Matrix 6
Farne Islands SPA			
Fulmar (part of assemblage feature)	No [**APP-051**, sections 7.5.4 & 7.7.4]	No [**RR-097**, section 5.2, **REP1-211**, section 9]	See Stage 2 Matrix 5
Forth Islands SPA			
Fulmar (part of assemblage feature)	No [**APP-051**, sections 7.5.5 & & 7.7.5]	No specific objections from SNH [**AS-015**] although NE has highlighted potential concerns [**REP1-213**]	No Stage 2 matrix produced
Greater Wash SPA			
Red-throated diver	No [**APP-051**, sections 7.5.1 & 7.7.1]	No [**RR-097**, section 5.2, **REP1-211**, section 9]	See Stage 2 Matrix 7
Common scoter	No [**APP-051**, sections 7.5.1 & 7.7.1]	No [**RR-097**, section 5.2, **REP1-211**, section 9]	See Stage 2 Matrix 7

Features	**Potential Adverse Effect on Integrity?**	**Agreed with SCNB and other relevant parties?**	**Comments**
Sandwich tern	No [**APP-051**, section 7.5.1	No [**RR-097**, section 5.2, **REP1-211**, section 9]	See Stage 2 Matrix 7
North Norfolk Coast SPA			
Pink-footed goose (non-breeding)	No [**APP-051**, section 8.7.2]	No [**RR-097**, section 5.6]	See Stage 2 Matrix 8
Humber Estuary Ramsar site			
Grey seal	No [**APP-051**, sections 6.5 & 6.7]	No specific objections raised by SNCB or other IPs	No Stage 2 matrix produced
North Norfolk Coast Ramsar site			
Ramsar criterion 1: Coastal habitat types	No [**APP-051**, section 8.5.4]	No specific concerns raised by SNCB or other IPs	No Stage 2 matrix produced
Ramsar criterion 2: Supports at least 3 British Red Data Book (BRDB) and 9 nationally scarce vascular plants, one BRDB and 38 BRDB invertebrates	No [**APP-051**, section 8.5.4]	No specific concerns raised by SNCB or other IPs	No Stage 2 matrix produced
Ramsar criterion 5: Assemblages of	No [**APP-051**, section 8.7.3]	No [**RR-097**, section 5.6, **RR-113**]	No Stage 2 matrix produced

Features	**Potential Adverse Effect on Integrity?**	**Agreed with SCNB and other relevant parties?**	**Comments**
international importance – species with peak counts in winter - waterfowl			
Ramsar criterion 6 – species populations occurring at levels of international importance Species with peak counts in winter: - pink-footed goose	No [**APP-051**, section 8.7.3]	No [**RR-097**, section 5.6, **RR-113**]	No Stage 2 matrix produced

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ANNEX 1: SUMMARY OF THE APPLICANT'S SCREENING EXERCISE AND DEGREE OF AGREEMENT WITH INTERESTED PARTIES

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
<u>Berwickshire and North Northumberland Coast SAC</u>			
Grey seal	Yes [**REP1-187**, Matrix 2.7] NB The references in the matrix footnotes do not appear to be correct.	No specific objections raised by SNCB or other IPs	Yes
<u>Haisborough, Hammond and Winterton SAC</u>			
Sandbanks which are slightly covered by water all the time	No [**APP-052**, section 6.2 & **REP1-187**, Matrix 2.33]	No specific objections raised by SNCB or other IPs	No
Reefs	No [**APP-052**, section 6.2 & **REP1-187**, Matrix 2.33]	No specific objections raised by SNCB or other IPs	No
<u>Humber Estuary SAC</u>			
River lamprey	No [**APP-052**, Table 6.2]	No specific objections raised by SNCB or other IPs	No
Sea lamprey	No [**APP-052**, Table 6.2]	No specific objections raised by SNCB or other IPs	No

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Grey seal	Yes [**APP-052**, Tables 6.6 - 6.10, 6.13 – 6.19]	No specific objections raised by SNCB or other IPs	No
Inner Dowsing, Race Bank and North Ridge SAC			
Sandbanks which are slightly covered by water all the time	No [**APP-052**, section 6.2 & **REP1-187**, Matrix 2.43]	No specific objections raised by SNCB or other IPs	No
Reefs	No [**APP-052**, section 6.2 & **REP1-187**, Matrix 2.43]	No specific objections raised by SNCB or other IPs	No
North Norfolk Coast SAC			
Coastal lagoons	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Fixed dunes with herbaceous vegetation (grey dunes).	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Embryonic shifting dunes	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Humid dune slacks	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*).	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Perennial vegetation of stony banks.	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Otter	Yes [**APP-051**, Table 3.9]	No specific objections raised by SNCB or other IPs	Yes
Petalwort	Yes [**APP-051**, Table 3.9]	No specific objections raised by SNCB or other IPs	Yes
North Norfolk Sandbanks and Saturn Reef SAC			
Sandbanks which are slightly covered by water all the time	Yes [**APP-052**, Table 6.1]	No specific objections raised by SNCB or other IPs	Yes

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Reefs	Yes [**APP-052**, Table 6.1]	No specific objections raised by SNCB or other IPs	Yes
<u>Norfolk Valley Fens SAC</u>			
Alkaline fens	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
European dry heaths	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Northern Atlantic wet heaths with *Erica tetralix*	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Narrow-mouthed whorl snail	Yes [**APP-052**, Table 5.13]	No specific objections raised by SNCB or other IPs	Yes
Desmoulin's whorl snail	Yes [**APP-052**, Table 5.13]	No specific objections raised by SNCB or other IPs	Yes
River Wensum SAC			
Watercourses of plain to montane levels with the *Ranunculion fluviatalis* and Callichtro-Batrachion vegetation	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	Yes
Desmoulin's whorl snail	Yes [**APP-052**, Table 5.13]	No specific objections raised by SNCB or other IPs	Yes

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
White-clawed (or Atlantic stream) crayfish	Yes [**APP-052**, Table 5.13]	No specific objections raised by SNCB or other IPs	Yes
Brook lamprey	Yes [**APP-052**, Table 5.13]	No specific objections raised by SNCB or other IPs	Yes
Bullhead	Yes [**APP-052**, Table 5.13]	No specific objections raised by SNCB or other IPs	Yes
Southern North Sea SCI			
Harbour porpoise	Yes [**APP-052**, Tables 6.4, 6.7 - 6.11 and 6.14 – 6.19]	No – the approach to the in-combination assessment has been queried by TWT [**RR-047**, **REP1-023**] and the RSPB [**REP1-108, REP1-111**]	Yes
The Wash and North Norfolk Coast SAC			
Sandbanks which are slightly covered by water all the time	Yes [**APP-052**, Table 6.1]	No specific objections raised by SNCB or other IPs.	Yes
Mudflats and sandflats not covered by seawater at low tide	No [**REP1-187**, Matrix 2.95]	No specific objections raised by SNCB or other IPs	No

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Large shallow inlets and bays	No [**REP1-187**, Matrix 2.95]	NE do not agree that this feature should be excluded [**REP1-214**, **REP6-051**].	No
Reefs	Yes [**APP-052**, Table 6.1]	No specific objections raised by SNCB or other IPs.	Yes
Salicornia and other annuals colonising mud and sand	No [**REP1-187**, Matrix 2.95]	No specific objections raised by SNCB or other IPs	No
Atlantic salt meadow	No [**REP1-187**, Matrix 2.95]	No specific objections raised by SNCB or other IPs	No
Mediterranean and thermo-Atlantic halophilous scrub	No [**REP1-187**, Matrix 2.95]	No specific objections raised by SNCB or other IPs	No
Coastal lagoons	No [**REP1-187**, Matrix 2.95]	No specific objections raised by SNCB or other IPs	No
Harbour seal	Yes [**APP-052**, Table 5.13]	No specific objections raised by SNCB or other IPs	Yes

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Otter	Yes [**APP-052**, Table 5.13]	No specific objections raised by SNCB or other IPs	Yes
<u>The Broads SAC</u>			
Otter	No. Listed in **APP-052** as subject to LSE but excluded in Matrix 2.11 of **REP1-187** following refinement of the onshore cable route	No specific objections raised by SNCB or other IPs	No
Desmoulin's whorl snail	No. Listed in **APP-052** as subject to LSE but excluded in Matrix 2.11 of **REP1-187** following refinement of the onshore cable route	No specific objections raised by SNCB or other IPs	No
Little whirlpool ram's-horn snail	No. Listed in **APP-052** as subject to LSE but excluded in Matrix 2.11 of **REP1-187** following refinement of the onshore cable route	No specific objections raised by SNCB or other IPs	No
Fen orchid NB The Annex I habitats which are also	No. Listed in **APP-051** as subject to LSE but excluded in Matrix 2.11	No specific objections raised by SNCB or other IPs	No

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
qualifying features of this site are not referred to in the Applicant's documents	of **REP1-187** following refinement of the onshore cable route		
<u>Alde-Ore Estuary SPA</u>			
Lesser black-backed gull (breeding) NB The other features of the SPA are not referred to in the Applicant's documents	No [**APP-051**, section 3.4.4]	No specific objections raised by SNCB or other IPs	No
<u>Broadland SPA</u>			
Breeding season			
Bittern	No [**APP-52**, paragraphs 6.2.371 – 6.2.383]	No specific objections raised by SNCB or other IPs	No
Marsh harrier	No [**APP-52**, paragraphs 6.2.371 – 6.2.383]	No specific objections raised by SNCB or other IPs	No
Overwintering			

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Bewick's swan	No [**APP-52**, paragraphs 6.2.371 – 6.2.383]	No specific objections raised by SNCB or other IPs	No
Bittern	No [**APP-52**, paragraphs 6.2.371 – 6.2.383]	No specific objections raised by SNCB or other IPs	No
Hen harrier	No [**APP-52**, paragraphs 6.2.371 – 6.2.383]	No specific objections raised by SNCB or other IPs	No
Ruff	No [**APP-52**, paragraphs 6.2.371 – 6.2.383]	No specific objections raised by SNCB or other IPs	No
Whooper swan	No [**APP-52**, paragraphs 6.2.371 – 6.2.383]	No specific objections raised by SNCB or other IPs	No
Migratory species (Article 4.2) – overwintering			
Gadwall	No [**APP-52**, paragraphs 6.2.371 – 6.2.383]	No specific objections raised by SNCB or other IPs	No
Shoveler	No [**APP-52**, paragraphs 6.2.371 – 6.2.383]	No specific objections raised by SNCB or other IPs	No

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Wigeon	No [**APP-52**, paragraphs 6.2.371 – 6.2.383]	No specific objections raised by SNCB or other IPs	No
Coquet Island SPA			
Fulmar (part of seabird assemblage)	Yes [**APP-051**, Table 3.7]	No specific objections raised by SNCB or other IPs	No
Puffin (part of assemblage feature)	No [**REP4-081**]	No – NE has highlighted potential concerns about auk species on the Northumberland coast [**REP3-075**]	No
Breeding populations of Sandwich tern, common tern, Arctic tern and Roseate tern	No [**REP1-187**, Matrix 2.135]	No specific objections raised by SNCB or other IPs	No
Farne Islands SPA			
Fulmar (part of assemblage feature)	Yes [**APP-051**, Table 3.7]	No specific objections raised by SNCB or other IPs	Yes
Guillemot (part of assemblage feature)	No [**REP4-081**]	No – NE has highlighted potential concerns about auk	No

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
		species on the Northumbland coast [**REP3-075**]	
Puffin (part of assemblage feature)	No [**REP4-081**]	No – NE has highlighted potential concerns about auk species on the Northumbland coast [**REP3-075**]	No
Breeding populations of Sandwich tern, common tern, Arctic tern and Roseate tern	No [**REP1-187**, Matrix 2.135]	No specific objections raised by SNCB or other IPs	No
<u>Flamborough and Filey Coast SPA</u>			
Breeding			
Gannet	Yes [**APP-052**, paragraph 5.3.27]	No – NE has raised queries about the assessment of prey availability and the assessment of lighting effects [**REP1-212, REP3-075**]	Yes

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Kittiwake	Yes [**APP-052**, paragraph 5.3.28]	No – NE has raised queries about the assessment of prey availability and the assessment of lighting effects [**REP1-212, REP3-075**]	Yes
Razorbill	Yes [**APP-052**, paragraph 5.3.29] Only for non-breeding season [**APP-51**, paragraph 3.4.4.8 & **APP-054**, section 1.3.5]	No – the RSPB dispute the exclusion of the breeding population [**RR-113, REP1-111**] NE have raised queries about the assessment of prey availability and the assessment of lighting effects [**REP1-212, REP3-075**] and the exclusion of breeding razorbill [**REP1-207**]	Yes (non-breeding season only)
Guillemot	Yes [**APP-052**, paragraph 5.3.28] Only for non-breeding season [**APP-51**, paragraph 3.4.4.8 &	No – the RSPB dispute the exclusion of the breeding population [**RR-113, REP1-111**] NE have raised queries	Yes (non-breeding season only)

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
	APP-054, section 1.3.5]	about the assessment of prey availability and the assessment of lighting effects [**REP1-212, REP3-075**] and the exclusion of breeding guillemot [**REP1-207**]	
Seabird assemblage			
Herring gull (part of assemblage feature)	Yes [**APP-052**, Table 6.24] but for non-breeding season only.	No - NE has identified potential LSE [**REP1-212**]. NE has also raised queries about the assessment of prey availability and the assessment of lighting effects [**REP1-212, REP3-075**]	Yes
Puffin (part of assemblage feature)	Yes [**APP-052**, paragraph 5.3.31]	No - NE has identified potential LSE [**REP1-212**]. NE has also raised queries about the assessment of prey availability and the assessment of lighting	Yes

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
		effects [**REP1-212, REP3-075**]	
Fulmar (part of assemblage feature)	Yes [**REP1-187**, Matrix 2.153] In-combination only	No - NE has identified potential LSE [**REP1-212**]. NE has also raised queries about the assessment of prey availability and the assessment of lighting effects [**REP1-212, REP3-075**]	Yes
Forth Islands SPA			
Fulmar	Yes [**APP-052**, paragraph 5.3.26]	No specific objections raised by relevant SNCB or other IPs	Yes
Razorbill	No [**REP4-081**]	No specific objections raised by relevant SNCB or other IPs	No
Guillemot	No [**REP4-081**]	No specific objections raised by relevant SNCB or other IPs	No
Puffin	No [**REP4-081**]	No specific objections raised by relevant SNCB or other IPs	No

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
<u>Greater Wash SPA</u>			
Red-throated diver	Yes [**APP-052**, paragraph 5.3.19]	No specific objections raised by SNCB or other IPs	Yes
Common scoter	Yes [**APP-052**, paragraph 5.3.19]	No specific objections raised by SNCB or other IPs	Yes
Little gull	No [**APP-053**, paragraph 1.4.1.6]	No – NE have raised concerns about the assessment [**REP1-211**]	No
Sandwich tern	Yes [**APP-053**, paragraphs 1.4.1.3 - 4]	Yes – NE have identified potential LSE [**REP1-212**]	Yes
Common tern	No [**APP-053**, paragraph 1.4.1.5]	No – NE have identified potential LSE **[REP1-212**]	No
Little tern	No [**APP-053**, paragraph 1.4.1.2]	No – NE have identified potential LSE [**REP1-212**]	No
<u>North Norfolk Coast SPA</u>			

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Avocet (breeding)	No. Identified as being subject to LSE in **APP-051** and **APP-052** although the footnotes in Matrix 2.181 in **REP1-187** state that no LSE have been identified as no supporting habitat has been identified within the zone of influence of the Proposed Development.	No specific objections raised by SNCB or other IPs	No
Bittern (breeding)	No - see entry against avocet	No specific objections raised by SNCB or other IPs	No
Common tern (breeding)	No [**APP-052**, paragraph 3.4.4.7]	No – NE have identified potential LSE [**REP1-212**]	No
Little tern (breeding)	No [**APP-052**, paragraph 3.4.4.7]	No – NE have identified potential LSE [**REP1-212**]	No
Sandwich tern (breeding)	No [**APP-052**, paragraph 3.4.4.7]	No – NE have identified potential LSE [**REP1-212**]	No

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Marsh harrier (breeding)	No - see entry against avocet	No specific objections raised by SNCB or other IPs	No
Montagu's harrier (breeding)	No - see entry against avocet	No specific objections raised by SNCB or other IPs	No
Wigeon (Non-breeding)	No - see entry against avocet	No specific objections raised by SNCB or other IPs	No
Pink-footed goose (non-breeding)	Yes [**APP-051**, Table 3.7]	No specific objections raised by SNCB or other IPs	Yes
Red knot (non-breeding)	No, see entry against avocet	No specific objections raised by SNCB or other IPs	No
<u>Broadland Ramsar site</u>			
Ramsar criterion 2: - Calcareous fens with *Cladium mariscum* - Alkaline fens - Alluvial forests with *Alnus glutinosa* & *Fraxinus excelsior*	No [**REP1-187**, Matrix 2.215]	No specific objections raised by SNCB or other IPs	No

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Ramsar criterion 2: - Desmoulin's whorl snail - Otter - Fen orchid	No. Listed as subject to LSE in **APP-052**, Table 5.13 but excluded in Matrix 2.215 of **REP1-187**]	No specific objections raised by SNCB or other IPs	No
Ramsar criterion 6: Qualifying species/populations (as identified at designation). Species with peak counts in winter: - Bewick's swan - Wigeon - Gadwall	No [**REP1-187**, Matrix 2.216]	No specific objections raised by SNCB or other IPs	No
Species populations identified subsequent to designation for possible future consideration under criterion 6 Species with peak counts in winter: - Pink-footed goose,	No [**REP1-187**, Matrix 2.216]	No specific objections raised by SNCB or other IPs	No

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
- Greylag goose			
<u>Humber Estuary Ramsar site</u>			
River lamprey	No [**APP-052**, Table 6.2]	No specific objections raised by SNCB or other IPs	No
Sea lamprey	No [**APP-052**, Table 6.2]	No specific objections raised by SNCB or other IPs	No
Grey seal	Yes [**APP-052**, Tables 6.6 - 6.10, 6.13 – 6.19]	No specific objections raised by SNCB or other IPs	Yes
<u>North Norfolk Coast Ramsar site</u>			
Ramsar criterion 1: Coastal habitat types	Yes [**APP-051**, Table 3.8]	No specific objections raised by SNCB or other IPs	No
Ramsar criterion 2: Supports at least 3 British Red Data Book (BRDB) and 9 nationally scarce vascular plants, one BRDB and 38 BRDB invertebrates	Yes [**APP-051**, paragraph 8.5.4.6]	No specific objections raised by SNCB or other IPs	Yes

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
Ramsar criterion 5: Assemblages of international importance – species with peak counts in winter - waterfowl	Yes (pink-footed goose only) [**APP-052**, paragraph 6.2.409, **REP1-187**, Matrix 2.181]	No specific objections raised by SNCB or other IPs	Yes
Ramsar criterion 6 – species populations occurring at levels of international importance Species regularly supported during the breeding season: - Sandwich tern - Common tern - Little tern Species with peak counts in spring/autumn: - Red knot (wintering) Species with peak counts in winter: - Pink-footed goose,	Yes (pink-footed goose only) [**APP-052**, paragraph 6.2.409 **REP1-187**, Matrix 2.181]	No specific objections raised by SNCB or other IPs	Yes

Features*	**Screening result*: LSE alone or in combination?**	**Agreed with SCNB and other relevant parties?**	**Included in Applicant's assessment of integrity**
- Dark-bellied Brent goose - Eurasian wigeon - Northern pintail			
Species/populations identified subsequent to designation for possible future consideration under criterion 6: Species with peak counts in spring/autumn: - Ringed plover - Sanderling - Bar-tailed godwit	Yes [**APP-052**, paragraph 6.2.409]	No specific objections raised by SNCB or other IPs	Yes

* Where the features listed in the Applicant's HRA documents and matrices do not match the features listed in the conservation objectives published by NE, the features listed in the conservation objectives have been used.

ANNEX 2: DOCUMENTS USED TO INFORM THE RIES

Application documents	
Examination library reference	**Document title**
APP-027	Draft Development Consent Order including draft Deemed Marine Licences
APP-035	Consultation report Annex 1 – evidence plan
APP-051	Habitats regulations assessment report to inform appropriate assessment
APP-052	Report to inform appropriate assessment Annex 1 - HRA screening report
APP-053	Report to inform appropriate assessment Annex 2 – Additional Special Protection Areas screening exercise
APP-054	Report to inform appropriate assessment Annex 3 – Phenology, connectivity and apportion for features of FFC SPA
APP-058	Environmental statement Volume 1 Chapter 3: Project description
APP-061	Environmental statement Volume 2 Chapter 1: Marine processes
APP-062	Environmental statement Volume 2 Chapter 1: Benthic ecology
APP-063	Environmental statement Volume 2 Chapter 3: Fish and shellfish ecology
APP-064	Environmental statement Volume 2 Chapter 4: Marine mammals
APP-065	Environmental statement Volume 2 Chapter 5: Offshore ornithology
APP-075	Environmental statement Volume 3 Chapter 3: Ecology and nature conservation

APP-085	Environmental statement Volume 4 Annex 3.1 – Subsea noise technical report
APP-086	Environmental statement Volume 4 Annex 3.2 – Dredging and disposal (site characterisation)
APP-083	Environmental statement Volume 3 Chapter 11 Inter-related effects (onshore)
APP-096	Environmental statement Volume 4 Annex 5.1: Enhancement, mitigation and monitoring commitments
APP-101	Environmental statement Volume 5 Annex 1.1: Marine processes technical report
APP-102	Environmental statement Volume 5 Annex 2.1: Benthic ecology technical report
APP-105	Environmental statement Volume 5 Annex 3.1: Fish and shellfish technical report
APP-107	Environmental statement Volume 5 Annex 5.1: Baseline characterisation report
APP-108	Environmental statement Volume 5 Annex 5.2: Analysis of displacement impacts on seabirds
APP-109	Environmental statement Volume 5 Annex 5.3: Collision risk modelling
APP-110	Environmental statement Volume 5 Annex 5.4: Data hierarchy report
APP-137	Environmental statement Volume 6 Annex 3.9 Onshore ornithology - wintering and migratory birds
APP-179	Outline code of construction practice
APP-180	Outline ecological management plan
APP-182	In principle monitoring plan
Additional submissions	

AS-002	Report to inform appropriate assessment (supplementary document provided in response to s51 advice from the Inspectorate)
AS-003	Relationship between design parameters draft Development Consent Order and environmental statement
AS-004	HRA screening matrices
AS-015	Email from Scottish Natural Heritage (in response to the ExA's invitation to become an 'other person'.
Relevant representations	
RR-085	Marine Management Organisation
RR-097	Natural England
RR-035	Norfolk County Council
RR-113	The Royal Society for the Protection of Birds
RR-047	The Wildlife Trusts
RR-016	Whale and Dolphin Conservation
Written representations	
<u>From the Applicant</u>	
REP1-122	Response to the ExA's written questions
REP1-187	Appendix 1 to deadline 1 submission – Habitats Regulations Assessment screening and integrit y matrices
REP1-180	Appendix 2 to deadline 1 submission – in-principle monitoring plan V2.0
REP1-169	Appendix 3 to deadline 1 submission – age class data
REP1-148	Appendix 4 to deadline 1 submission – Analysis of precaution in cumulative and in combination assessments – as-built scenarios

REP1-140	Appendix 5 to deadline 1 submission – The Wash and North Norfolk Coast SAC - baseline and impacts of cable installation
REP1-138	Appendix 6 to deadline 1 submission – cable protection in designated sites
REP1-139	Appendix 7 to deadline 1 submission – alternative approach to sourcing cumulative and in combination collision risk estimates
REP-141	Appendix 8 to deadline 1 submission – baseline characterisation sensitivity testing
REP1-135	Appendix 9 to deadline 1 submission – population viability analysis
REP1-188	Appendix 10 to deadline 1 submission – collision risk modelling. updates to species-specific parameters – clarification note
REP1-183	Appendix 11 to deadline 1 submission – sandwave clearance clarification note
REP1-189	Appendix 12 to deadline 1 submission – collision risk modelling. Herring gull – clarification note
REP1-179	Appendix 14 to deadline 1 submission – a review of precaution in the marine mammal response
REP1-181	Appendix 15 to deadline 1 submission – in-principle Southern North Sea SCI site integrity plan
REP1-174	Appendix 16 to deadline 1 submission – response to ExA question Q1.15.3
REP1-178	Appendix 17 to deadline 1 submission – response to ExA question Q1.2.103
REP1-158	Appendix 37 to deadline 1 submission – response to ExA question Q1.4.19
REP1-151	Appendix 39 to deadline 1 submission – ornithology survey data coverage figures

REP1-143	Appendix 40 to deadline 1 submission – paper by Furness R.W. *et al* (Environmental Impact Assessment review 73, 2018, 1-6)
REP1-149	Appendix 41 to deadline 1 submission – paper by Skov H. *et al* (ORJIP Bird collision and avoidance study. Final report – April 2018)
REP1-144	Appendix 42 to deadline 1 submission – paper by Cleasby I.R. *et al* (RSPB research report 63)
REP1-142	Appendix 44 to deadline 1 submission – outline code of construction practice (Rev 1)
REP1-147	Appendix 46 to deadline 1 submission: Outline ecological management plan
REP1-005	Appendix 49 to deadline 1 submission: Applicant's response to ExA question Q1.2.79
REP1-131	Comments on the relevant representations
REP1-133	Development Consent Order
REP1-201	Statement of Common Ground between Hornsea Project Three (UK) Ltd and Eastern Inshore Fisheries and Conservation Authority
REP1-218	Statement of Common Ground between Hornsea Project Three (UK) Ltd and Natural England
REP1-219	Statement of Common Ground between Hornsea Project Three (UK) Ltd and Whale and Dolphin Conservation
REP1-224	Statement of Common Ground between Hornsea Project Three (UK) Ltd and the Marine Management Organisation
REP1-227	Statement of Common Ground between Hornsea Project Three (UK) Ltd and The Wildlife Trusts and Norfolk Wildlife Trust
REP2-004	Comments on written representations and responses
REP2-005	Comments on responses to the Examining Authority's written questions

REP2-012	Draft Statement of Common Ground between Hornsea Project Three and the Royal Society for the Protection of Birds
REP2-017	Appendix 5 to deadline 2 submission – seabird flight height trial report
REP2-018	Appendix 6 to deadline 2 submission – estimating seabird flight height using LiDAR
REP2-019	Appendix 7 to deadline 2 submission – RSPB seabird tracking study at the Flamborough and Filey Coast
REP2-020	Appendix 8 to deadline 2 submission – Race Bank sandwave recovery report
REP2-023	Appendix 12 to deadline 2 submission – memorandum of understanding between the Hornsea Project Two and Natural England
REP3-003	Written summary of oral case put at Issue Specific Hearing 1
REP3-004	Written summary of oral case put at Issue Specific Hearing 2
REP3-007	Statement of Common Ground between Hornsea Project Three and the Royal Society for the Protection of Birds
REP3-014	Appendix 5 to deadline 3 response – report by Adrian Judd, Cefas 2011
REP3-015	Appendix 6 to deadline 3 response – marine monitoring handbook
REP3-016	Appendix 7 to deadline 3 response – S. Gubbay, JNCC 2007
REP3-017	Appendix 8 to deadline 3 response – Ware S.J. and Kenny A.J. 2011
REP3-018	Appendix 9 to deadline 3 response – McGregor *et al* 2018 Marine Scotland
REP3-019	Appendix 10 to deadline 3 response – JNCC report no. 548 Parsons *et al* 2015
REP3-020	Appendix 11 to deadline 3 response - JNCC Report no 500 Wilson *et al*. 2014

REP3-021	Appendix 12 to deadline 3 response - collision risk model Band 2012
REP3-022	Appendix 13 to deadline 3 response – figures to the Applicant's response to Examining Authority's question Q1.2.46 (REP1-122)
REP3-024	Appendix 15 to deadline 3 response - The Wash and North Norfolk Coast SAC in combination Assessment
REP3-025	Appendix 16 to deadline 3 response - ornithology roadmap with Natural England for the examination phase
REP3-026	Appendix 17 to deadline 3 - age class data
REP4-003	Revised draft Development Consent Order - clean
REP4-004	Revised draft Development Consent Order – tracked changes
REP4-011	Comments on written representations and responses submitted by Interested Parties at deadline 3
REP4-012	Response to the Examining Authority's further written questions
REP4-018	Statement of Common Ground between Hornsea Project Three (UK) Ltd and the Marine Management Organisation
REP4-022	Appendix 1 to deadline 4 response - outline Ecological Management Plan
REP4-023	Appendix 2 to deadline 4 response - outline Code of Construction Practice
REP4-027	Appendix 6 to deadline 4 response - Moray West OWF application
REP4-030	Appendix 9 to deadline 4 response - Booth et al, 2017
REP4-031	Appendix 10 to deadline 4 response - Brandt et al, 2018
REP4-032	Appendix 11 to deadline 4 response - Nabe-Nielsen et al, 2018
REP4-033	Appendix 12 to deadline 4 response - Scheidat et al, 2011

REP4-034	Appendix 13 to deadline 4 response - Wisniewska et al, 2016
REP4-035	Appendix 14 to deadline 4 response - Bowgen and Cook, 2018
REP4-036	Appendix 15 to deadline 4 response - Furness 2015
REP4-037	Appendix 16 to deadline 4 response - Cook et al, 2014
REP4-038	Appendix 17 to deadline 4 response - Dierschke and Garthe 2006
REP4-039	Appendix 18 to deadline 4 response - Garthe and Huppop 2004
REP4-040	Appendix 19 to deadline 4 response - Lawson et al, 2016
REP4-041	Appendix 20 to deadline 4 response - Masden 2015
REP4-042	Appendix 21 to deadline 4 response - Wade et al, 2016
REP4-043	Appendix 22 to deadline 4 response - Desholm 2005
REP4-044	Appendix 23 to deadline 4 response - Welcker et al, 2017
REP4-045	Appendix 24 to deadline 4 response - Cook et al, 2018
REP4-046	Appendix 25 to deadline 4 response - Parry 2015
REP4-047	Appendix 26 to deadline 4 response - Sotheran et al, 2017
REP4-048	Appendix 27 to deadline 4 response - Pennycuick et al, 1987
REP4-049	Appendix 28 to deadline 4 response - summary of positions in relation to collision mortality for the SPA populations of gannet and kittiwake
REP4-050	Appendix 29 to deadline 4 response - supplementary advice on Conservation Objectives for NNSSR SAC, JNCC 2017
REP4-051	Appendix 30 to deadline 4 response - detailed response to the Examining Authority's question Q2.2.20
REP4-064	Appendix 44 to deadline 4 response - detailed response to the Examining Authority's question Q2.2.68

REP4-065	Appendix 45 to deadline 4 response - detailed response to the Examining Authority's question Q2.2.65
REP4-066	Appendix 46 to deadline 4 response - in-principle Southern North Sea SCI Site Integrity Plan: V2.0
REP4-067	Appendix 47 to deadline 4 response - in-principle monitoring plan V3.0
REP4-069	Appendix 49 to deadline 4 response – Roulund et al, 2019a
REP4-070	Appendix 50 to deadline 4 response – Roulund et al, 2019b
REP4-081	Appendix 62 to deadline 4 response - detailed response to the Examining Authority's question Q2.2.34
REP4-082	Appendix 63 to deadline 4 response - detailed response to the Examining Authority's questions Q2.2.7 and Q2.2.44
REP4-083	Appendix 64 to deadline 4 response - Dogger Bank Creyke Beck Examining Authority's recommendation report
REP4-084	Appendix 65 to deadline 4 response - Dogger Bank Creyke HRA report
REP4-085	Appendix 66 to deadline 4 response - Hornsea Project Two Examining Authority's Recommendation Report
REP4-086	Appendix 67 to deadline 4 response - Hornsea Project Two HRA Report
REP4-087	Appendix 68 to deadline 4 response - East Anglia Three HRA Report
REP4-088	Appendix 69 to deadline 4 response - Norfolk Vanguard Offshore Ornithology Chapter
REP4-089	Appendix 70 to deadline 4 response - Inch Cape Scoping Opinion (Ornithology)
REP4-090	Appendix 71 to deadline 4 response - Natural England Response to Hornsea Two Deadline 5
REP4-092	Appendix 73 to deadline 4 response - detailed response to the Examining Authority's questions Q2.2.30 and Q2.2.39

REP4-096	Appendix 77 to deadline 4 response - detailed response to the Examining Authority's question Q2.2.3
REP4-097	Appendix 78 to deadline 4 response – clarification of biotope classification within North Norfolk Sandbanks and Saturn Reef SAC
REP5-010	Appendix 2 – Preliminary trenching assessment
REP5-008	Comments on Interested Parties' responses to the Examining Authority's second written questions submitted at deadline 4.
REP5-011	Appendix 3 to deadline 5 response – outline cable specification and installation plan
REP5-012	Appendix 4 to deadline 5 response – second issue specific hearing clarification in relation to offshore ornithology
REP5-013	Appendix 5 to deadline 5 response – confirmation of migratory seabirds considered in migratory collision risk modelling
REP5-014	Appendix 6 to deadline 5 response – apportioning immature auks to colonies
REP5-018	Appendix 10 to deadline 5 response – Habitats and Wild Bird Directives: guidance on application of article
REP5-019	Appendix 11 to deadline 5 response – MarESA summaries EpusOborApri and PoVen biotopes
REP5-020	Appendix 12 to deadline 5 response – ornithology roadmap with Natural England for the examination phase (ver. B)
REP6-010	Written summary of Applicant's oral case put at Issue Specific Hearing 5
REP6-018	Appendix 4 to deadline 6 response – Rock protection decommissioning methods
REP6-019	Appendix 5 to deadline 6 response – Comments on condition assessment for The Wash and North Norfolk Coast SAC
REP6-020	Appendix 6 to deadline 6 response – Offshore ornithology hearing clarifications – cumulative and in combination assessment methods and age class data

REP6-021	Appendix 7 to deadline 6 response – Johnson and Cook 2016
REP6-022	Appendix 8 to deadline 6 response – Smart Wind and Forewind 2014 report
REP6-023	Appendix 9 to deadline 6 response – Trinder, 2017
REP6-024	Appendix 10 to deadline 6 response – Horsewill and Robinson 2015
REP6-025	Appendix 11 to deadline 6 response – Aitken et al 2014
REP6-026	Appendix 12 to deadline 6 response – Preliminary trenching assessment
REP6-027	Appendix 13 to deadline 6 response – Ornithology roadmap with Natural England for the examination phase (Ver.C)
REP6-028	Appendix 14 - Warwick-Evans et al., 2018
REP6-029	Appendix 15 - Pennycuick 1997
REP6-030	Appendix 16 - Johnston et al., 2014 with corrigendum
REP6-031	Appendix 17 - Garthe et al., 1999
REP6-032	Appendix 18 - Duant et al 2002
REP6-033	Appendix 19 - Alerstam et al., 2007
REP6-034	Appendix 20 - Graham et al., 2018
REP6-035	Appendix 21 - Brassuer et al., 2015
REP6-036	Appendix 22 - Marine Mammal Hearing Clarifications
REP6-040	Appendix 26 - Outline Ecological Management Plan
REP6-041	Appendix 27 - Forsythe et al., 1995
REP6-042	Appendix 28 - Position of the Applicant in relation to collision risk modelling
REP6-043	Appendix 29 - Applicants interpretation of Natural England's position in relation to collision risk modelling

From the Eastern Inshore Fisheries Conservation Authority	
REP1-118	Written representation
REP1-126	Response to the ExA's written questions
From the Marine Management Organisation	
REP1-094	Response to the ExA's written questions
REP1-095	Written representation
REP3-092	Post-hearing submission including written submission of oral cases and comments on the revised draft DCO
REP3-094	Comments on in-principle monitoring plan
REP4-125	Response to the Examining Authority's further written questions and further information requested by the Examining Authority
REP4-126	A synthesis of current knowledge on the genesis of the Great Yarmouth and Norfolk Bank Systems - Cooper 2008
REP5-029	Deadline 5 submission
REP6-072	Written representation
REP6-073	Post-hearing submissions including written submissions of oral cases
From Natural England	
REP1-212	Annex A of deadline 1 response: Schedule of Natural England's response to Examining Authority's first round of written questions
REP1-209	Annex B of deadline 1 response: Natural England's detailed comments on the Development Consent Order and Deemed Marine Licences
REP1-211	Annex C of deadline 1 response: Natural England detailed advice on ornithology
REP1-210	Annex D1 of deadline 1 response: Natural England advice on The Wash and North Norfolk Coast SAC clarification note

REP1-216	Annex D2 of deadline 1 response: Natural England and the Joint Nature Conservation Committee (JNCC) advice on the cable protection clarification note
REP1-215	Annex D3 of deadline 1 response: NE and JNCC advice on sandwave clearance clarification note and other relevant documentation on sandwave levelling
REP1-217	Annex D4 of deadline 1 response: JNCC and Natural England advice on offshore benthic ecology
REP1-214	Annex D5 of deadline 1 response: NE and JNCC comments on the benthic sections of the HRA revised in light of further information
REP1-125	Annex D6 of deadline 1 response: NE and JNCC detailed comments on Vol 5 Annex 2.3 – MCZ assessment
REP1-117	Annex D7 of deadline 1 response: Detailed comments on ES benthic characterisation of the nearshore cable corridor
REP1-114	Annex E of deadline 1 response: Additional comments on marine mammals
REP1-204	Annex F of deadline 1 response: Documentation submitted by the Applicant to Natural England post submission of the relevant representation
REP1-205	Annex G of deadline 1 response: Summary of relevant representations
REP1-206	Annex H of deadline 1 response: Response to relevant representations submitted by other parties
REP1-207	Annex H of deadline 1 response: Summary of written representations
REP1-208	Natural England offshore wind cabling: Ten years experience and recommendations
REP1-213	Written representation
REP2-028	Comments on deadline 1 responses
REP3-073	Method statement for ornithological, marine mammal and marine mega fauna survey

REP3-074	Post-hearing submissions including written submissions of oral cases – Issue Specific Hearing 1
REP3-075	Post-hearing submissions including written submissions of oral cases – Issue Specific Hearing 2 part 1 - ornithology
REP3-076	Post-hearing submissions including written submissions of oral cases – Issue Specific Hearing 2 part 2 – benthic ecology
REP3-077	Post-hearing submissions including written submissions of oral cases – Issue Specific Hearing 2 part 2 – benthic Annex 2 2B response on REP2-004
REP3-078	Post-hearing submissions including written submissions of oral cases – Issue Specific Hearing 3
REP3-112	Issue Specific Hearing 2 - clarification of SPA and SAC features as requested
REP4-130	Deadline 4 Submission - response to the Examining Authority's further written questions, further information requested by the Examining Authority and Appendix
REP4-131	Raw GIS data delivered from the CEND 22/13 survey
REP4-132	Reef polygon and point layers
REP4-140	North Norfolk Sandbanks and Saturn Reef SCI CEND 22/13 AND 23/13 Cruise report
REP5-026	Updated Appendix 3 to NE's written summary on ISH 2 ornithology: pers comm from RSPB colony managers regarding Flamborough and Filey Coast SPA breeding seasons
REP6-047	ISH5 Annex A - Natural England's Comments on REP 4-097 Biotope Clarification paper as requested at ISH 5
REP6-048	ISH 5 Annex B - Natural England's comments on REP5 – 010 Preliminary Trenching Assessment (PTA)

REP6-049	ISH 5 Appendix C- Natural England Comments on REP5 – 011- Appendix 3 Cable Specification Installation Plan (CSIP)
REP6-050	ISH 5 Annex D- Natural England Comments on REP4-012 pg 43 onwards Applicants response to ExA Q2.2.46 in relation to MEEB
REP6-051	ISH 5 Annex E- Natural England's comments on REP3 – 024 Appendix 15 The Wash and North Norfolk Coast (W&NNC) SAC In combination
REP6-052	ISH5 Annex F - Natural England's Response to the Applicant's response to ExA Q2.2.25
REP6-053	ISH5 Annex G- Natural England's Comments on the Applicant's response to ExA Q2.2.38
REP6-054	ISH 5 Annex H - Natural England's Response to REP5-014
REP6-055	Written Submission of Representations at Issue Specific Hearing 5 - Offshore Ecology
REP6-057	ISH6 Annex B- Natural England's Comments on REP4-023 Code of Construction Practice Rev.2
<u>From the Royal Society for the Protection of Birds</u>	
REP1-111	Response to the ExA's written questions
REP2-025	Comments on responses to the Examining Authority's written questions
REP2-026	Report on seabird tracking fieldwork
REP3-100	Written representation

REP3-101	Guillemot, razorbill and kittiwake phenology 2016-17
REP4-137	Response to the Examining Authority's further written questions and Appendix
REP6-076	Written submission
REP6-077	Appendix 3.2 – Collision risk modelling: update and clarification
From The Wildlife Trusts	
REP1-017	Response to the ExA's written questions Appendix 49
REP1-023	Written representation
REP4-119	Response to the Examining Authority's further written questions
REP4-120	Supporting evidence 1
REP4-121	Supporting evidence 2
REP6-068	Post-hearing submission and further comments
From Whale and Dolphin Conservation	
REP1-020	Response to the ExA's written questions
REP1-022	Written representation
REP4-117	Response to the Examining Authority's further written questions
REP4-118	Responses to further information requested by the Examining Authority
Recordings of Issue Specific Hearings	
EV-012	Recording of Issue Specific Hearing – 4 December 2018
EV-013	Recording of Issue Specific Hearing – 5 December 2018
EV-021	Recording of Issue Specific Hearing – 29 January 2019

ANNEX 3: STAGE 1 MATRICES: SCREENING FOR LIKELY SIGNIFICANT EFFECTS

Stage 1 Matrices: Screening for Likely Significant Effect

Annex 1 of the RIES identifies the European sites and features for which the Applicant's conclusions were disputed by Interested Parties. Revised screening matrices have been produced by the Inspectorate for those sites.

Key to Matrices:

✓	Likely significant effect cannot be excluded
×	Likely significant effect can be excluded
?	Conclusions are disputed or unclear
C	construction
O	operation
D	decommissioning

Information supporting the conclusions is detailed in footnotes for each table with reference to relevant supporting documentation.

Where an impact is not considered relevant for a feature of a European Site the cell in the matrix is formatted as follows:

n/a

Stage 1 Matrix 1: Coquet Island SPA

Distance to array area: 283 km

Distance to cable route: 288 km

European site feature	**Effects on integrity**											
	Collision risk			**Barrier effects**			**Displacement**			**In combination effects**		
	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern (breeding)		×a			×a			×a			×a	
Common tern- (breeding)		×a			×a			×a			×a	
Roseate tern (breeding)		×a			×a			×a			×a	
Sandwich tern (breeding)		×a			×a			×a			×a	
Assemblage during breeding season,		×?c			×?c			✓b			✓b	

including puffin and fulmar												

Notes

a. No direct or indirect effects is anticipated on the SPA with regard to collision, displacement or barrier effects as the site is not directly affected by the Proposed Development (paragraph 5.13, [**APP-052**]) or within mean-max foraging range of breeding bird features (paragraphs 5.3.23 – 33, [**APP-052**]). No direct or indirect effects are predicted in the non-breeding season due to impacts associated with the construction, operation or decommissioning of the Proposed Development (section 1.4.2, [**APP-053**]).

b. The Proposed Development lies within the mean-max foraging range of fulmar which is a part of the non-assemblage feature.

c. No direct or indirect impacts are predicted due to impacts from the Proposed Development as there is no pathway for effects (section 7.5.3, [**APP-051**]). NE has raised concerns about the potential impacts on auk species during the non-breeding season [**REP3-075**]. The Applicant has maintained its position that LSE can be excluded [**REP4-081**].

Stage 1 Matrix 2: Farne Island SPA

Distance to array: 304 km

Distance to cable route: 308 km

European site feature	**Effects on integrity**											
	Collision risk			**Barrier effects**			**Displacement**			**In combination Effects**		
	C	O	D	C	O	D	C	O	D	C	O	D
Arctic tern (breeding)		×a			×a			×a			×a	
Roseate tern (breeding)		×a			×a			×a			×a	
Sandwich tern (breeding)		×a			×a			×a			×a	
Common tern (breeding)		×a			×a			×a			×a	
Assemblage feature during breeding season including puffin, guillemot and fulmar		×a			×a			✓?b			✓?b	

Notes

a. No direct or indirect effects is anticipated on the SPA with regard to collision, displacement or barrier effects as the site is not directly affected by the Proposed Development (paragraph 5.3.18 [**APP-052**]) or within mean-max foraging range of breeding bird features (paragraphs 5.3.23 – 33, [**APP-052**]). No direct or indirect effects are predicted in the non-breeding season due to impacts associated with the construction, operation or decommissioning of the Proposed Development (section 1.4.2, [**APP-053**]).

b. The Proposed Development lies within the mean-max foraging range of fulmar which is a part of the non-assemblage feature. NE have raised concerns about the potential impacts on auk species during the non-breeding season [**REP3-075**]. The Applicant has maintained its position that LSE can be excluded [**REP4-081**].

Stage 1 Matrix 3: Flamborough and Filey Coast SPA

Distance to array area: 149 km

Distance to cable route: 152 km

European site features	**Likely effects of NSIP**																	
	Changes to prey availability			**Disturbance**			**Collision risk**			**Barrier**			**Displacement**			**In combination**		
	C	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**
Breeding:																		
Gannet	×?a,m		×?a,m	×b		×b		✓f			×?i,m			×?b			×l	
Kittiwake	×?a,m		×?a,m	×b		×b		✓d			×?i,m			×b			×l	
Razorbill	×?a,m		×?a,m	✓?c		✓?c		×e			×?i,m			✓?j			×l	
Guillemot	×?a,m		×?a,m	✓?c		✓c		×e			×?i,m			✓?j			×l	
Assemblage:	×?a,m																	
Herring gull	×?a,m		×?a,m	×b		×b		?g			×?i,m			×b			×l	
Puffin	×?a,m		×?a,m	✓?c		✓?c		×e			×?i,m			✓j			×l	
Fulmar	×?a,m		×?a,m	×b		×b		×h			×?i,m			×?b			×l	
Razorbill	×?a,m		×?a,m	✓?c		✓?c		×e			×?i,m			✓?j			×l	

Guillemot	×?a,m		×?a,m	✓?c		✓?c		×e			×?i,m			✓?j			×l	
Gannet	×?a,m		×?a,m	×b		×b		✓f			×?i,m			✓k			×l	
Kittiwake	×?a,m		×?a,m	×b		×b		✓d			×?i,m			×b			×l	

Notes

a. Changes to prey availability during construction and decommissioning is likely to have minimal impacts on these features as they are likely to be near the limit of their foraging areas during the breeding season. The distribution of seabirds across the wider area indicated that those that are displaced due to direct impacts would be able to relocate to other suitable foraging areas in response to any changes in local prey distribution (section 6, [**APP-052**]).

b. These features were characterised as having a low sensitivity to disturbance and therefore no LSE is predicted (section 6, [**APP-052**]). NE does not agree with exclusion of LSE from displacement effects because the Proposed Development is within foraging range of the SPA and because of their concerns about the adequacy of the baseline survey data [**REP1-212**].

c. These species were considered to be sensitive to disturbance effects and as such there is potential for LSE on these features (section 6, [**APP-052**]). For guillemot and razorbill, the Applicant has concluded that this only applies to the populations during the non-breeding season. Razorbill and guillemot are not predicted to make regular foraging trips into the array area ([**APP-054**], sections 1.3.5 and 1.3.6 respectively). The RSPB agree that the birds present in the array area during the breeding season are most likely to be non-breeding individuals but state that a significant proportion would go on to form part of the breeding population at the SPA as it is the nearest breeding colony [**REP1-111** and **RR-113**]. NE has similar concerns [**REP1-207**]. NE has emphasised the potential connectivity between the Proposed Development and the SPA in the breeding and non-breeding seasons for puffin [**REP1-212**].

d. Kittiwake was rated as being of relatively high vulnerability to collision impacts by the Applicant, due to the proportion of flights likely to occur at potential risk height and percentage of time in flight, including at night. Figure 5.11 of [**APP-**

052] shows limited connectivity between the SPA and the array area, however given the vulnerability of kittiwake to collision impacts, there is potential for LSE.

e. These species are not vulnerable to collision and therefore no LSE is predicted (section 6, [**APP-052**]).

f. Gannet was ranked high to moderate in terms of vulnerability to collisions by the Applicant. Figure 5.9 of [**APP-052**] shows the foraging range for gannet and limited connectivity between the SPA and the array area. Given the vulnerability of gannet to collision impacts and the overlap of foraging range with the array area a potential for LSE on this species is identified.

g. Herring gull is considered to be of high vulnerability to collision impacts due to its prevailing flight height and flight agility. Figure 5.15 presents the mean-maximum and maximum foraging ranges and there is no prospect of interaction with the Proposed Development in the breeding season [**APP-052**]. Herring gull has not been found to occur in notable numbers in the Hornsea Zone in the non-breeding season [**APP-107**]. NE do not agree that LSE can be excluded as in its view there is potential connectivity between the herring gull population of the FFC SPA and the Proposed Development during the non-breeding season [**REP1-212**].

h. Fulmar was considered to be of particularly low risk to collision. The Applicant noted that no individuals would be expected to fly between 20m and 150m (representing the potential collision height range). Therefore no LSE is predicted with respect to operational collision (section 6, [**APP-052**]).

i. The duration, magnitude and extent of impact resulting from barrier effects on the SPA qualifying species are assessed as being unlikely to compromise the conservation objectives of any designated SPA (section 6, [**APP-052**]).

j. These species were deemed to be of medium vulnerability to displacement by the Applicant. Due to connectivity with the Proposed Development there is potential for LSE. See comments under footnote c above. The RSPB and NE have raised concerns about the exclusion of LSE on breeding razorbill and guillemot (see [**RR-113**, **REP1-111** and **REP3-007**] and [**REP3-075**] respectively).

k. Despite the wide foraging range of the species the Applicant relied upon studies that have shown that gannets in flight strongly avoid wind farms, albeit within relatively close to turbines (within 500m). JNCC and Natural England guidance

suggest using a range of displacement values for this species from 0 to 100% when assessing displacement effects. Gannet is be highly sensitive to displacement but the Applicant noted that there was only limited connectivity with gannets from the SPA with the Proposed Development (section 6, [**APP-052**]).

l. LSE has been identified for the Proposed Development alone and therefore there is potential for in combination operational effects to occur.

m. NE has queried if the Applicant's approach to assessing habitat loss and prey availability is sufficient. NE agrees that a qualitative assessment is adequate for the purposes of considering barrier effects. It has also queried the assessment of lighting effects [**REP1-212** and **REP3-075**]. The Applicant has maintained that prey availability and lighting effects have been adequately considered (see [**REP3-004**] and [**REP5-012**] respectively).

Stage 1 Matrix 4: Greater Wash SPA

Distance to array area: 106 km

Distance to cable route: 0 km

European site features	**Likely effects of NSIP**																				
	Changes to prey availability			**Disturbance**			**Habitat loss**			**Collision risk**			**Barrier**			**Displacement**			**In combination**		
	C	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**
Common tern	×?a	×a	×a	×?a	×?a	×?a	×?a	×?a	×?a	×a	×a	×a	×a	×a	×a	×?a	×?a	×?a	×a	×a	×a
Sandwich tern	✓c	✓c	✓c	✓c	✓c	✓c	×?a	×?a	×?a	×a	×a	×a	×a	×a	×a	×?a	×?a	×?a	✓c	✓c	✓c
Little tern	×?a	×a	×a	×?a	×?a	×?a	×?a	×?a	×?a	×a	×a	×a	×a	×a	×a	×?a	×?a	×?a	×a	×a	×a
Red-throated diver	×a		×a	✓b		✓b											✓b				
Little gull	×a	×a	×a	×a	×a	×a	×a	×a	×a	×a	×a	×a	×a	×a	×a	×a	×a	×a			
Common scoter	×a		×a	✓b		✓b											✓b				

Notes

a. No LSEs are anticipated with regard to changes to prey availability, disturbance, habitat loss, collision risk, barrier effects or displacement to tern species during construction/decommissioning or operation phases of the Proposed Development (Table 6.21, [**APP-052**]. The array area would be located beyond the SPA boundary (106 km) and beyond the foraging range of any tern species therefore collision risk is not considered to lead to LSE on these species (paragraph 6.2.127, [**APP-052**]). The tern species, in particular little tern, were not considered to have a high sensitivity to disturbance or displacement (paragraph 6.2.128, [**APP-052**]). Cable laying activity may result in disturbance regarding seabird prey, particularly concerning red-throated diver and common scoter through noise from cable laying and increased suspended sediment (paragraphs 6.2.133 and 6.2.140, [**APP-052**]) but these effects are predicted to be minimal (paragraphs 6.2.133 and 6.2.141, [**APP-052**]). NE dispute the exclusion of LSE from disturbance/displacement for all the tern species because the maximum design envelope for the Proposed Development overlaps with the boundary of the SPA. The cable corridor may also overlap with key SPA areas used by the birds. There may also be indirect effects on prey availability associated with laying of the offshore cable [**REP1-212**]. NE has also raised concerns about the appropriateness of the population size used in the migratory seabird assessment for little gull [**REP1-211**]. The Applicant has provided an additional screening document at deadline 4 in response to these concerns [**REP4-081**].

b. Potential LSEs are anticipated concerning disturbance to red-throated diver and common scoter during construction/decommissioning activity due to the SPA being located within the boundary of the cable corridor. Common scoter are considered particularly vulnerable to disturbance from ship traffic (paragraph 6.2.138, [**APP-052**]). As a result of disturbance from construction activity, indirect habitat loss may occur to both species. Potential LSEs during operation, causing displacement of red-throated diver and common scoter are anticipated (Table 6.21, [**APP-052**]). Displacement effects associated with wind farm development are species, season and site-specific. Due to the close proximity of the cable corridor and the high sensitivity of these species there is potential for displacement [paragraphs 6.2.135 – 136 and 6.2.142 – 143, [**APP-052**]).

c. There is a potential overlap between the foraging areas of Sandwich tern and the offshore cable route [**APP-053**].

Stage 1 Matrix 5: North Norfolk Coast SPA

Distance to array area: 128 km

Distance to cable route: 0.3 km

European site features	**Likely effects of NSIP**											
	Permanent habitat loss			**Accidental pollution events**			**Temporary habitat disturbance/displacement**			**In combination**		
	C	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**
Breeding												
Avocet	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a
Bittern	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a
Common tern	×?b	×?b	×?b	×?b	×?b	×?b	×?b	×?b	×?b	×?b,e	×?b,e	×?b,e
Little tern	×?b	×?b	×?b	×?b	×?b	×?b	×?b	×?b	×?b	×?b,e	×?b,e	×?b,e
Sandwich tern	×?b	×?b	×?b	×?b	×?b	×?b	×?b	×?b	×?b	×?b,e	×?b,e	×?b,e
Marsh harrier	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a
Montagu's harrier	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a
Non-breeding												
Wigeon	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a

Pink-footed goose	✓c	✓c	✓c	✓d	✓d	✓d	✓c	✓c	✓c	✓c	✓c	✓c
Red knot	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a	?a

Notes

a. Identified as being subject to LSE in [**APP-051**] and [**APP-052**] although the footnotes in Matrix 2.181 in [**REP1-187**] state that no LSE have been identified as no supporting habitat has been identified within the zone of influence of the Proposed Development. The Applicant has confirmed that Montagu's harrier has been screened out [**REP5-012**].

b. LSE on these species was excluded because in the Applicant's view, no connectivity has been identified between the foraging areas of common tern and little tern colonies in the SPA and the Proposed Development (section 6, [**APP-052**], [**APP-053** and **REP4-081**]. NE dispute the exclusion of LSE from disturbance/displacement for these species because the maximum design envelope for the Proposed Development overlaps with the boundary of the SPA. The cable corridor may also overlap with key areas used within the SPA by the birds. There may also be indirect effects on prey availability associated with laying of the offshore cable [**REP1-212**].

c. LSE is identified for this species in [**APP-051**] and [**APP-052**].

d. LSE is identified for this species in [**APP-051**] and [**APP-052**].

e. In combination effects have been excluded [**REP4-081**]

Stage 1 Matrix 6: Southern North Sea SCI

Distance to array area: 2 km

Distance to cable route: 0 km

European site features	**Likely effects of NSIP**											
	Behavioural disturbance/physical injury			**Changes to water quality**			**Changes in prey availability**			**In combination**		
	C	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**
Harbour porpoise	✓a,e	×e,f,h	✓e	×c✓b	×c✓b	×c✓b	×d	×d	×d	✓g	✓g	✓g

Notes

a. It is considered that there is potential for connectivity between underwater noise during construction of the Proposed Development and harbour porpoise associated with the SCI, due to the close proximity of the array area (2km).

b. Potential effects have been identified through the RIAA (section 3.4.3, [**APP-051**]).

c. Taking into account the localised and intermittent nature of construction activities as well as the relatively wide foraging and distribution range of marine mammal species, no LSE has been identified in relation to increased suspended sediments (section 6.2, [**APP-052**]).

d. Potential LSEs on harbour porpoise were identified in relation to changes in prey availability during construction/decommissioning [**APP-052**, Table 6.13]. However, through consultation on the Scoping Response and Evidence Plan it was agreed that this impact would be considered further pending outcomes of investigations into marine processes effects. No significant effect has been identified within the marine processes assessment or the fishing and

shellfish ecology assessment (see [**APP-061**] and [**APP-063**] respectively) so effects on prey availability have been screened out (section 3.4.3, [**APP-051**]).

e. No LSE was predicted for vessel noise and collision during screening (section 6.2, [**APP-052**]) but following discussions with the marine mammals Expert Working Group, it was agreed that these effects should be assessed further (section 3.4.3, [**APP-051**]).

f. With regard to electro-magnetic fields, any effects would be very localised and short-term (paragraphs 6.2.88 – 6.2.90, [**APP-052**]).

g. An LSE is predicted for these features from the Proposed Development alone and therefore further assessment of in combination impacts is required. TWT requested that effects from fishing activity should be included in the in combination assessment rather than in the baseline data for the assessment [**RR-047** and **REP1-023**]. TWT also stated that it had received assurances through verbal discussion with the Department of the Environment, Food and Rural Affairs (DEFRA) that fishing would be included in future in combination assessments for offshore wind farms [**REP1-117**]. In response to a question from the ExA, TWT stated that including fishing in the in combination assessment would not be double counting because if fishing were part of the baseline it would mean that there was no impact on the environment as a result of fishing activity [**REP4-119**]. The RSPB agree with TWT that fishing activity should be included in the in combination assessment. In its view, including fishing as part of the baseline assumes that the pressure is constant and the same on a year-on-year basis; this is supported by the fact that different catch limits are set each year [**REP1-108** and **REP1-111**]. The Applicant has maintained the position that effects from fishing are adequately captured in the baseline and also stated that it is not possible to determine what the baseline conditions would be without the impacts from fishing so there is no way of undertaking such an assessment [**REP1-131**]. NE, in response to a question from the ExA, advised that while the assessment of fishing activity is likely to be included in the baseline characterisation, there may be occasions when effects from fishing activity should be considered in an in combination assessment, given its variable, mobile nature. However, NE also advised that in the context of the draft conservation objectives for the Southern North Sea SCI it is not aware of any recent changes that would affect the level of fishing activity within the site although they would look to fisheries managers to provide more definitive advice [**REP4-130**]. The Applicant welcomed this advice from NE [**REP5-008**].

h. No LSE has been identified from operation noise as studies have shown to date that significant behavioural responses are unlikely to occur (section 6.2, [**APP-052**]).

Stage 1 Matrix 7: The Wash and North Norfolk Coast SAC (Annex 1 Habitat Features)

Distance to array area: 120 km

Distance to cable route: 0 km

European site features	**Likely effects of NSIP**											
	Changes to habitat			**Changes to water quality**			**Changes to physical processes**			**In combination**		
	C	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**
Sandbanks which are slightly covered by sea water all the time	✓a,c	✓a,b,g	✓a	✓d	✓d	✓d	✓e	✓e	✓e	✓a,c,e	✓b,e	✓a,c
Mudflats and sandflats not covered by seawater at low tide	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f
Large shallow inlets and bays	×?f	×?f	×?f	×?f	×?f	×?f	×?f	×?f	×?f	×?f	×?f	×?f

Reefs	✓a,c	✓a,b,g	✓a	✓d	✓d	✓d	✓e	✓e	✓e	✓a,c,e	✓b,e	✓ac
Salicornia and other annuals colonizing mud and sand	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f
Coastal Lagoons	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f	×f

Notes

a. Potential for LSE in terms of temporary habitat loss/disturbance due to significant overlap between European site (and assumed presence of qualifying features) and Hornsea Three offshore cable corridor. No overlap with the array area (Tables 5.2 and 6.1, [**APP-052**])**.**

b. Potential LSE in terms of permanent long-term habitat loss and colonisation of hard structures during the operation phase (see Table 6.1, [**APP-052**]). Significant overlap between European site (and assumed presence of qualifying features) and potential Zone of Influence (ZOI) for suspended sediment in the Hornsea Three offshore cable corridor. No overlap with the array area (Tables 5.2 and 6.1, [**APP-052**]).

c. With regard to water quality the North Norfolk Sandbanks and Saturn Reef SAC is located within the ZOI of increased suspended sediment concentrations and potential sediment re-deposition, therefore potential for LSE is anticipated (Tables 5.2 and 6.1, **APP-052**].

d. No LSE was predicted for accidental pollution events during the HRA Screening Phase (section 6.2**,** [**APP-052**]), however following consultation with the Expert Working Group it was agreed that potential effects of accidental pollution should be assessed in the RIAA [**APP-051**].

e. Potential for LSE resulting in changes to hydrodynamic and wave regime to Annex 1 Habitats during the operation phase (Tables 5.2 and 6.1, **APP-052**]. Significant overlap between European site (and assumed presence of qualifying features) and the offshore corridor search area. Minor overlaps with the array area.

f. It was agreed through the Evidence Plan process that there is no impact pathway between Hornsea Three and the following features of the Wash and North Norfolk Coast SAC; coastal lagoons, Mediterranean and thermos-Atlantic halophilous scrubs (*Sarcocornetea fruticose*), Atlantic salt meadows (*Glauco-Puccinllietalia maritimae*), Salicornia and other annuals colonizing mud and sand , large shallow inlets and bays and Mudflats and sandflats not covered by seawater at low tide. These habitats are not present within the ZOI of Hornsea Three and therefore no potential LSE has been identified. Following the Applicant's submission of additional baseline data () NE do not agree that this feature should be excluded [**REP1-214**, **REP6-051**].

g. Potential for LSE in relation to colonisation of hard structures and INNS due to the partial overlaps of the European site (and assumed presence of qualifying features) with the Hornsea Three offshore cable corridor.

ANNEX 4: STAGE 2 MATRICES: ADVERSE EFFECT ON INTEGRITY

Stage 2 Matrices: Adverse Effect on Integrity

This annex of the RIES identifies the European sites and features for which the Applicant's conclusions with regards to adverse effects on integrity were disputed by Interested Parties. Therefore revised integrity matrices have been produced by the Planning Inspectorate.

Key to Matrices:

✓	Likely significant effect cannot be excluded
×	Likely significant effect can be excluded
?	Conclusions are disputed
C	construction
O	operation
D	decommissioning

Information supporting the conclusions is detailed in footnotes for each table with reference to relevant supporting documentation.

Where an impact is not considered relevant for a feature of a European Site the cell in the matrix is formatted as follows:

n/a

Stage 2 Matrix 1: North Norfolk Sandbanks and Saturn Reef SAC

Distance to array area: 9 km

Distance to cable: 0 km

European site features	**Effects on integrity**											
	Changes to habitat			**Changes to water quality**			**Changes in physical processes**			**In combination Effects**		
	C	O	D	C	O	D	C	O	D	C	O	D
Sandbanks which are slightly covered by water all the time	×?a,c	×?a,e, g	×a,c	×i	×i	×i		×?j		×?k	×?k	×?k
Reefs	×?b,d	×?b,f, h	×b,d	×i	×i	×i		×?j		×?k	×?k	×?k

Notes

As the design of the Proposed Development has yet to be finalised, the Applicant has based its assessment on maximum design parameters which are intended to represent the worst-case scenario for each aspect of the development. The MMO [**RR-085**] and NE [**RR-097** and **REP1-214**] queried apparent discrepancies between the worst-case scenarios defined in the ES and the DCO/DML. The Applicant has provided clarification on this point [**AS-003** and **REP1-131**]. NE and the MMO remain concerned about the definition of the worst-scenario for cable protection and this point is discussed further below.

NE/JNCC have raised queries about the Applicant's evidence on the baseline data for the site, particularly the biotopes that have been used [**REP1-217**]. The Applicant maintains that its approach is robust [**REP1-122** and **REP2-004**] and has provided further clarification on this point [**REP4-097**]. The clarification note does not resolve NE/JNCC's concerns [**REP6-047**].

a. No indication that temporary habitat/loss as a result of site preparation and cable burial would affect the ability of SAC conservation objectives to be achieved or lead to adverse changes to physical structure, biological or community structure of typical species that are representative of the feature (paragraphs 5.6.1.4 – 9 and 5.6.1.18 (construction/decommissioning) and paragraphs 5.6.2.40 – 43 (operation/maintenance) of **APP-051**]. This conclusion is disputed.

NE have raised concerns about the Applicant's assessment of sandwave clearance impacts [**RR-097** and **REP1-217**]. They advise that the sandbank feature has a 'restore' objective, the achievement of which could be affected by the Proposed Development [**RR-097**, **REP1-212**, **REP1-217**]. NE does not agree that the evidence provided by the Applicant demonstrates that recovery after sandwave levelling would be complete [**REP1-212** and **REP1-217**]. The MMO has also expressed concerns [**RR-085**]. The Applicant has submitted further information on sandwave clearance and feature recovery [**REP1-183** and **REP2-020**] and maintains that its assessment is robust [**REP1-131**, **REP1-183** and **REP2-004**]. NE disputes the Applicant's interpretation of the data and its applicability to the SAC [**REP1-215** and **REP6-055**]. The Applicant maintains that the data used is from situations which are comparable to those at the SAC [**REP1-183**, **REP2-004**, **REP3-004** and **REP4-012**] and the definition of the worst-case scenario is robust [**REP5-008**]. The MMO accepts that the sandwave clearance and cable protection notes demonstrate that the affected habitats could recover [**REP1-095**].

NE has queried the Applicant's assumptions about the ability to successfully bury cables based on experience with other offshore wind farms and the likelihood that remedial works would be required [**RR-097**, **REP1-208**, **REP3-076**, **REP4-130** and **REP6-055**]. Both NE and TWT question the exclusion of adverse effects on integrity from temporary disturbance of the seabed during the operation and maintenance phase [**REP1-212** and **REP1-017**].

NE has requested that a Cable Burial Risk Assessment (CBRA) is carried out before consent is finalised [**REP3-076** and **REP4-130**] to avoid unacceptable effects on the SAC. The Applicant has stated that the use of a CBRA and Cable Specification Installation Plan (CSIP) post-consent would be based on detailed investigations and would maximise the chances of successful burial [**REP1-131** and **REP2-004**]. The MMO has indicated that they are content for the CBRA to be secured through the DCO/DML and delivered post-consent [**REP4-125**].

The Applicant has provided a Preliminary Trenching Assessment (PTA) [**REP5-010** and **REP6-026**] and an outline CSIP [**REP5-011**]. It has also committed to having an Ecological Clerk of Works (ECoW) to provide a co-ordinated approach to the delivery of mitigation [**REP4-012**]. NE advised that they are still reviewing the PTA but do not feel that it or the CSIP resolves its concerns about the Applicant's assessment [**REP6-048** and **REP6-049**].

b. No indication that temporary habitat/loss would affect the ability of SAC conservation objectives to be achieved or lead to adverse changes to physical structure, biological or community structure of typical species that are representative of the feature (paragraphs 5.6.1.10 – 14 and 5.6.1.15 - 18 (construction/decommissioning) and paragraphs 5.6.2.40 – 43 (operation/maintenance) of [**APP-051**]). This conclusion is disputed.

See footnote a for details of the concerns around cable burial that could affect this feature. In addition, NE advise that the reef feature has a 'restore' objective, the achievement of which could be affected by the Proposed Development. NE/JNCC do not agree with the Applicant's approach to the assessment of impacts on the reef feature [**RR-097**, **REP1-212** and **REP1-217**]. The Applicant and NE/JNCC do not agree on the appropriate methods and interpretation of reef features, particularly what qualifies as 'established' reef which constitutes part of the biogenic reef feature (see [**REP1-217**], [**REP3-076**], [**REP3-077**] and [**REP1-222**], [**REP1-131**], [**REP2-004**], [**REP4-012**] respectively). The MMO also disagrees with the Applicant's approach [**RR-085**, **REP1-095**]. NE/JNCC have limited confidence that the reef feature would recover [**REP1-214**]. The Applicant maintains that its assessment is robust and note that biogenic reef has not been recorded during baseline surveys of the section of the cable corridor within the SAC [**REP1-131**].

Given the concerns about the definition and mapping of the reef feature, NE/JNCC query whether it would be possible to avoid the reef feature through micro-siting of the cable. They do not consider that routing the cable through areas of lower quality reef is acceptable as these areas still form part of the feature which is managed as the reef feature [**REP1-212**, **REP1-214**, **REP1-217**, **REP3-076** and **REP3-077**]. The Applicant has stated that micro-siting is an established technique for offshore industries [**REP2-004**, **REP3-004** and **REP4-12**]. NE/JNCC agree that this is a standard mitigation measure but argue that this does not automatically make them suitable for use in the SAC [**REP3-076** and **REP3-077**].

NE/JNCC are also concerned that reef may establish across the cable corridor which would then be disturbed by works during the operation and maintenance phase [**REP1-214**]. The Applicant has advised that they would try to minimise impacts to any reefs which develop [**REP2-004**].

c. No indication that temporary increases in suspended sediments/smothering would adversely affect the environmental quality, environmental processes and extent of the feature or lead to adverse changes to physical structure, biological or community structure of typical species that are representative of the feature (paragraphs 5.6.1.19 – 28, [**APP-051**]).

d. No indication that temporary increases in suspended sediments/smothering would adversely affect the environmental quality, environmental processes and extent of the feature or lead to adverse changes to physical structure, biological or community structure of typical species that are representative of the feature (paragraphs 5.6.1.19 – 28, [**APP-051**]).

e. No indication that permanent/long-term habitat loss as a result of cable protection would adversely affect the achievement of the SAC conservation objectives or lead to adverse changes to physical structure, biological or community structure of typical species that are representative of the feature (paragraphs 5.6.2.1 – 11, **APP-051**].

NE initially queried whether the Applicant's assumption about the maximum design parameter for cable protection within designated sites represents the worst-case scenario [**RR-097** and **REP1-217**]. Following the Applicant's submission of a clarification note on cable protection [**REP1-138**], NE was then able to agree that the overall figure (10% of the cable route in designated sites) was conservative but did not agree that it is acceptable impact in a designated site because of the effect on the 'maintain' conservation objective for the SAC features [**REP1-216** and **REP3-076**]. They do not agree that the analysis in [**REP1-138**] is relevant to the Proposed Development [**REP1-216**]. The Applicant has maintained that the evidence submitted is robust and applicable to the SAC [**REP1-138** and **REP4-012**]. The MMO accepts the 10% figure as appropriate but has highlighted other projects which have required substantially more cable protection [**REP1-095** and **REP3-092**]. The MMO has also advised that if the volume of cable protection detailed in the DMLs is not used during construction then they would expect to see a separate marine licence application for any remedial protection works during the operational phase. The MMO does not feel it is possible to fully assess the impacts on designated sites over the lifetime of the Proposed Development [**REP6-073**]. The Applicant maintains that its definition of the worst-case scenario in relation to cable protection is robust [**REP1-122**, **REP1-131** and **REP5-008**]. The Applicant acknowledges

that cable protection could act as a barrier to reef establishment in small areas but also note evidence that *Sabellaria spinosa* can colonise artificial habitats [**REP2-004**].

NE and the MMO have also raised queries about the worst-case scenario defined for the replenishment of cable protection (see [**REP1-214**], [**REP1-217**], [**REP4-130**], [**REP6-055**] and [**REP6-073**]). NE questioned whether there is any evidence available to support the Applicant's view that sensitive cable and scour protection would be effective [**RR-097**, **REP1-216** and **REP1-217**]. The Applicant maintains that the measures would be effective [**REP1-131**, **REP1-138** and **REP2-004**]. At deadline 4, the Applicant offered a commitment to decommission rock protection within designated sites [**REP4-012**]. NE welcomes the Applicant's commitment to removing cable and scour protection from the SAC at the decommissioning stage but highlight that in its experience it may not possible to do this without damaging the SAC features [**REP6-055**]. The Applicant provided information on the feasibility of decommissioning rock protection at deadline 6 [**REP6-018**].

f. No indication that permanent/long-term habitat loss as a result of cable protection would adversely affect the achievement of the SAC conservation objectives or lead to adverse changes to physical structure, biological or community structure of typical species that are representative of the feature (paragraphs 5.6.2.1 – 11, [**APP-051**]). This conclusion is disputed. See footnotes b and e for comments.

g. Provided the designed-in mitigation measures outlined within Table 4.6 in [**APP-051**] are followed there is no indication that effects from the colonisation of hard structures and invasive non-native species would affect the achievement of the SAC conservation objectives or lead to adverse changes to physical structure, biological or community structure of typical species that are representative of the feature (paragraphs 5.6.2.12 – 23, [**APP-051**]). NE accept this conclusion [**REP1-212**].

h. Provided the designed-in mitigation measures outlined within Table 4.6 in [**APP-051**] are followed there is no indication that effects from the colonisation of hard structures and invasive non-native species would affect the achievement of the SAC conservation objectives or lead to adverse changes to physical structure, biological or community structure of typical species that are representative of the feature (paragraphs 5.6.2.12 – 23, [**APP-051**]). NE and the MMO accept this conclusion [**REP1-212** and **REP1-094** respectively].

i. Provided published guidelines, best working practices and the mitigation measures outlined in Table 4.5 of [**APP-051**] are followed, the risk of an accidental spill is extremely low. In the event of a spill, the volume of potential contaminants would be small and rapidly dispersed to concentrations below which deleterious effects would not be expected. There is no indication that an accidental pollution event of the type assessed would lead to anything other than a very minor temporary reduction in environmental quality. It would not lead to a reduction in habitat extent. There is no indication that an accidental spill would lead to adverse changes to physical structure, biological or community structure of typical species that are representative of the feature (paragraphs 5.6.1.29 – 35 (construction/decommissioning) and 5.6.2.44 – 50, **APP-051**]). NE accepts this conclusion [**REP1-212**].

j. No indication that changes in physical processes would adversely affect the achievement of the conservation objectives with regard to the environmental quality, environmental processes and extent of the feature. No indication that there would be adverse changes to physical structure, biological or community structure of typical species that are representative of the feature (paragraphs 5.6.2.24 – 39, [**APP-051**]). This point is disputed, see comments under footnote a above.

k. No indication that there are any potential in combination impacts with other plans or projects that would lead to adverse change to the physical structure, diversity, community structure or typical species that are represent of the features (paragraphs 5.9.1.1 – 5.9.3.10, [**APP-051**]). This conclusion is disputed.

NE queried whether the assessment adequately considers the combined effects of the different phases of the Proposed Development as they are not convinced that features would recover completely before the next impact occurs [**RR-97**, **REP1-212**, **REP1-217**, **REP4-130** and **REP6-055**]. The Applicant maintains that the consideration of the cumulative effects across the lifetime of the Proposed Development is robust [**REP1-122**, **REP2-004** and **REP4-012**]. The Applicant has advised that in combination effects for the reef feature have been excluded because no reef was recorded in the SAC in the baseline surveys and mitigation can be put in place which would address any impacts from the Proposed Development [**REP1-122**].

Stage 2 Matrix 2: Southern North Sea SCI

Distance to array area: 2 km

Distance to cable route: 0 km

European site feature	**Effects on integrity**											
	Behavioural disturbance/physical injury			**Changes to water quality**			**Changes in prey availability**			**In combination Effects**		
	C	O	D	C	O	D	C	O	D	C	O	D
Harbour porpoise	×?a,b, c,d	×?d	×?a,b, d	×?e	×?e	×?e				×?f,g	×?f,g	×?f,g

Notes

a. Given the impact ranges presented (Table 6.11, [**APP-051**]), alongside the adoption of standard mitigation (JNCC soft start protocol), the risk of Permanent Threshold Shift (PTS) to any harbour porpoise as a result of exposure to piling noise is negligible. There is no indication of that the potential for lethality/injury and hearing impartment effects associated with underwater noise from piling activities would lead to a reduction in the viability of the species. There is no indication that this impact would adversely affect any other factors required to ensure that favourable conservation status is maintained (paragraphs 6.5.2.45 – 49, [**APP-051**]). Whale and Dolphin Conservation (WDC) do not agree that following the JNCC guidance on 'soft start' procedures would avoid PTS [**REP1-022** and **REP4-117**]. NE has advised that the JNCC guidance is out of date and alternative approaches should be considered [**REP1-212** and **REP4-130**]. The Applicant has maintained that this is the best guidance available to them at present but the Marine Mammal Management Protocol (MMMP) which would deliver measures to avoid injury, would be informed by the best guidance available at the time of writing [**REP1-122**, **REP2-004**, **REP5-008** and **REP6-010**]. WDC have advised that they think that the MMMP should include a number of specific measures including the use of mitigation measures that are known to be effective

and argue that adverse effects on integrity cannot be excluded until the details of the MMMP are finalised [**REP1-122**]. NE agree with the Applicant's position that effects from the Proposed Development alone would not lead to adverse effects on the integrity of the SCI [**RR-097** and **REP1-213**].

b. The maximum spatial overlap of the effective deterrence range (26 km as advised by the SNCBs), both for a one-off effect and a seasonal effect is well below specified thresholds. There is no indication that the potential for behavioural effects associated with underwater noise on the feature would lead to significant disturbance of the species or any adverse effect on the other factors required to ensure that favourable conservation status is maintained (paragraphs 6.5.2.61 – 72, [**APP-051**]). WDC does not agree that adequate baseline data has been provided for the harbour porpoise population or underwater noise levels [**REP1-022**, **REP1-227** and **REP4-117**]. The Applicant is of the view that the baseline data is adequate and in line with SNCB guidance [**REP1-122**, **REP1-131**, **REP4-012** and **REP6-036**]. WDC has stated that evidence shows that harbour porpoise do not return after noise disturbance [**REP4-117** and **REP4-118**]. The Applicant does not agree that this is the case [**REP1-131**, **REP2-004**, **REP4-012**, **REP6-034** and **REP6-036**]. NE agrees with the Applicant's position that effects from the Proposed Development alone would not lead to adverse effects on the integrity of the SCI [**RR-097** and **REP1-213**] although it has queried whether the worst-case scenario should have allowed for the likelihood of more piling in the summer months, rather than being spread equally across the whole year [**RR-097** and **REP4-130**]. The Applicant disputes this point [**REP5-008**]. The MMO has advised that an additional condition should be added to Schedule 11 of the dDCO which would require piling to cease until the MMMP was updated, if initial noise monitoring recorded noise levels that were significantly different to those assessed in the ES [**REP3-092, REP5-029** and **REP6-73**]. NE support this position [**REP4-130**]. The Applicant does not agree with the need for any new conditions on the DML [**REP5-008**].

c. Unexploded ordinance (UXO) detonation would result in a single pulse of sound and based on data gathered on Hornsea Project One and only a small number of UXO are anticipated to require detonation. A UXO specific Marine Mammal Management Protocol would be developed for the Proposed Development and agreed with the MMO and statutory consultees, in line with European Protected Species guidance, which would reduce the risk of injury to negligible. For behavioural effects the one-off disturbance events fall below the thresholds for significant disturbance effects. There is no indication that the potential for injurious or behavioural effects associated with underwater noise generated by UXO

clearance would lead to a reduction in the viability of the species or adversely affect supporting habitats and processes relevant to the species or its prey (paragraphs 6.4.2.107 – 124, [**APP-051**]). TWT noted that UXO clearance had been assessed but remain concerned about the potential impacts [**REP1-227**].

d. There is a high likelihood of avoidance from both increased vessel noise and collision risk but a high potential for recovery (less than 1 year) for increased noise, and medium potential for recovery for collision risk (paragraphs 6.5.2.132 – 150 and 6.5.2.154, [**APP-051**]). WDC is concerned about the assessment of the effects of vessel-related disturbance [**REP1-122**]. The Applicant has responded that the assessment is adequate and in line with SCNB guidance [**REP2-005**].

e. As part of the project design, a Marine Pollution Contingency Plan (MPCP would be developed as outlined in Table 4.6 of [**APP-051**] which would include measures to follow published guidelines and best working practice for the prevention of pollution events. Accidental release of contaminants would be strictly controlled and an emergency plan would also be put in place in the unlikely event of an incident. No indication that effects associated with accidental pollution events would lead to a reduction in the viability of the feature or its supporting habitats and processes. No indication that there would be adverse effect on any other factors which are required to ensure that the site is maintained in favourable condition (paragraphs 6.5.2.158 – 164, [**APP-051**]).

f. With the implementation of the measures in Table 4.6 of [**APP-051**], there is no indication that the potential for in combination auditory injury and hearing impairment effects associated with underwater noise would lead to a reduction in the viability of the species or adversely impact the supporting habitats and processes relevant to the feature or its supporting prey. With regard to the spatial extent of any potential impact and the very low likelihood of exceeding the 20% threshold, there is no indication that the potential for in combination behavioural effects associated with underwater noise would lead to significant disturbance of the species or adversely impact the supporting habitats and processes relevant to this species and its prey. Due to the temporary nature of the activity there is no indication that effects would result in a permanent shift in the population or the distribution of the features within the SCI in the long term (section 6.7.2, [**APP-051**]). NE did not agree with the scope of the Applicant's assessment. NE advises that cable and pipeline installations may require UXO detonations and should be included in the in combination assessment [**RR-097**]. NE also

advises that the Applicant has not assessed the combined impact from activities associated with the Proposed Development such as piling and UXO clearance [**RR-097**]. The Applicant maintains that the assessment is both adequate and precautionary [**REP2-004** and **REP2-005**]. The MMO acknowledge that UXO clearance would be expected to form part of a separate marine licence when detailed information is available post-consent [**REP6-072**].

NE does not agree that adverse effects from integrity from in combination effects with the construction of other offshore wind farms can be excluded [**RR-097** and **REP1-213**]. They advocate the use of a Site Integrity Plan (SIP) but do not agree that the versions submitted by the Applicant [**REP1-181** and **REP4-066**] are adequate [**REP1-213**, **1-212**, **REP4-130** and **REP6-057**]. NE and the MMO advise that the SIP should include explicit details of the mitigation measures proposed [**REP4-130** and **REP6-072**]. The MMO advise that agreement of the final SIP should take place at least 6 months prior to commencement of any activities likely to impact on the SNCI unless otherwise agreed [**REP6-072**]. The MMO also advises that as there is an increasing level of noise-generating activities within the SCI, additional mitigation measures and co-operation across the industry is likely to be required [**REP6-073**]. NE remain concerned about the lack of a mechanism to enable to consideration of multiple SIPs [**REP4-130** and **REP6-055**].

TWT and WDC also disagree with the Applicant's conclusion on in combination noise effects. They do not agree with the method or scope of the Applicant's assessment of in combination effects (see [**REP1-023**], [**REP1-027**] and [**REP1-022**], [**REP4-117**] respectively). They do not agree with the approach to cumulative underwater noise management advocated by the SNCBs [**REP1-023** and **REP4-119**] and suggest that instead noise limits should be set which should not be exceeded during piling [**REP1-017**, **REP1-023** and **REP4-119**]. The Applicant maintains that its assessment is adequate and in line with SNCB guidance [**REP2-004**]. In response to a question from the ExA, the Applicant has provided an updated assessment [**REP4-065**]. TWT is concerned that monitoring and mitigation of underwater noise would be inadequate unless they are undertaken at a strategic level, supported by a levy on industry [**REP1-117** and **REP1-023**]. WDC also disputes the adequacy of the noise monitoring proposals [**REP1-022**]. TWT states there is not enough detail in the draft SIP [**REP4-119**] and are also concerned about the lack of a mechanism for co-ordinating multiple SIPs. TWTadvocates a strategic solution [**REP6-068**].

WDC advocates either foundations which require no piling or seasonal restrictions to piling, scheduling of piling to reduce cumulative effect, the use of noise reduction at source and the use of any other noise-reduction technologies which become available in future [**REP1-020**, **REP1-022** and **REP1-219**]. WDC welcomes the SIP but are concerned that it does not include what it considers to be proven mitigation methods [**REP4-117**]. They also recommend that it should include modelling of the effectiveness of proposed methods [**REP4-119**].

The Applicant argues that there is already a high degree of precaution built into the assessment [**REP1-179**] and no effects on integrity are predicted. However, it is not certain what other activities may occur during the construction period and the SIP is intended to mitigate any potential in combination effects that could arise [**REP5-008**]. The SIP cannot be finalised until project design is finalised. Potential mitigation measures that could be considered are listed in the in-principle SIP and include measures such as non-piled foundations and scheduling of piling but the Applicant seeks to maintain a flexible approach until it is clear what the extent and nature of mitigation would need to be [**REP2-004**, **REP2-005** and **REP5-008**].

g. No indication that in combination effects associated with increased vessel traffic would lead to a reduction in the viability of the feature or adversely impact the supporting habitats and processes relevant to this species or that effects would result in a permanent shift in the distribution of the feature within the SCI. No indication that in combination effects would adversely affect any other factors required to ensure that the site is maintained in favourable condition (paragraphs 6.7.2.39 – 64, [**APP-051**]). TWT advise the use of a different metric for the assessment of cumulative shipping effects [**REP1-23**]. The Applicant has advised that this metric cannot be used because there is not sufficient information available about vessel movements for other projects [**REP1-227**]; TWT acknowledge that it can only be used as a strategic approach [**REP4-119**]. NE is satisfied with the qualitative approach to in combination assessment [**REP4-130**].

Stage 2 Matrix 3: The Wash and North Norfolk Coast SAC

Distance to array area: 120 km

Distance to cable route: 0 km

European site features	**Effects on integrity**											
	Changes to habitat			**Changes to water quality**			**Changes in physical processes**			**In combination Effects**		
	C	O	D	C	O	D	C	O	D	C	O	D
Sandbanks which are slightly covered by water all the time	×?a,c	×?a,f,i	×?a,c	×e	×e	×e		×?j		×?k	×?k	×?k
Reefs	×?b,d	×?b,g,h	×?b,d	×e	×e	×e		×?j		×?k	×?k	×?k

Notes

NE, the MMO and TWT expressed concerns about the adequacy of the baseline description of the SAC habitats [**REP1-117, RR-085**, **RR-047**, **REP1-0117** and **REP1-023**]. The Applicant has undertaken additional survey work [**REP1-140**]; the MMO [**REP1-095**] accept that the data is adequate for the purposes of characterising the habitats present. Whilst NE agrees that they are adequate for an ES, it does not agree that they are adequate to carry out HRA [**REP6-055**]. The Applicant has maintained that the baseline data is robust [**REP1-122**, **REP1-131**, **REP2-004**, **REP3-004** and **REP5-008**]. NE has advised that the assessment should be against the individual features rather than the whole site [**REP1-210**]. In the Applicant's view this is has been done through the assessment of effects on different biotopes [**REP1-122**, **REP1-131** and **REP2-004**] but it has also provided revised in combination assessments which consider effects on the sub-features of the sandbank feature

[**REP1-178** and **REP3-024**]. NE has also advised that an updated condition assessment was published for the SAC in January 2019 which reflected the pressures on the SAC from fisheries and cabling [**REP6-055**]. The Applicant has considered the implications of the updated condition assessment but concluded that it does not affect the outcomes of the assessments in documents [**APP-051**, **REP1-178** and **REP3-024**].

As the design of the Proposed Development has yet to be finalised, the Applicant has based its assessment on maximum design parameters which are intended to represent the worst-case scenario for each aspect of the development. The MMO [**RR-085**] and NE [**RR-097**] queried apparent discrepancies between the worst-case scenarios defined in the ES and the DCO/DML. The Applicant has provided clarification on this point [**AS-003** and **REP1-131**]. However, NE and the MMO remain concerned about the definition of the worst-scenario for cable protection and this point is discussed further below.

a. No indication that temporary habitat loss/disturbance as a result of pre-construction sandwave clearance and cable burial would adversely affect the achievement of the SAC conservation objectives with regard to the extent and distribution, supporting processes, structure and function of the feature. No indication that there would be an adverse change to the biological diversity or community structure of typical species representative of the feature (paragraphs 5.5.1.2 – 5.5.1.13 (construction/decommissioning) and 5.5.2.33 – 35 (operation/maintenance), [**APP-051**]).

NE does not agree with the Applicant's approach to the assessment because it advises that the assessment of effects should be against the sub-features of the sandbank feature [**RR-097**]. They do not agree that the Applicant has collated sufficient baseline data to allow the assessment of impacts [**RR-097** and **REP1-210**]. The Applicant has submitted further information on sandwave clearance and feature recovery [**REP1-183** and **REP2-020**] but NE disputes the Applicant's interpretation of the data and its applicability to the SAC [**REP1-215** and **REP6-055**]. The Applicant maintains that the data used is from situations which are comparable to those at the SAC [**REP1-183**, **REP2-004** and **REP3-004**] and the definition of the worst-case scenario is robust [**REP5-008**]. The MMO accepts that the sandwave clearance and cable protection notes demonstrate that the affected habitats could recover [**REP1-095**].

NE have queried whether the Applicant's assumptions about the ability to successfully bury cables based on its experience with other offshore wind farms and the likelihood that remedial works would be required [**RR-097**, **REP1-208**, **REP3-076**, **REP4-130** and **REP6-055**] and evidence presented to the Expert Working Group on the cable corridor geology [**RR-097**]. TWT has expressed similar concerns [**RR-047**, **REP1-017, REP1-023** and **REP6-068**]. NE has requested that a Cable Burial Risk Assessment (CBRA) is carried out before consent is finalised [**REP3-076** and **REP4-130**] to avoid

unacceptable effects on the SAC. The Applicant has stated that the use of a CBRA and Cable Specification Installation Plan (CSIP) post-consent would be based on detailed investigations and would maximise the chances of successful burial [**REP1-131** and **REP2-004**]. The MMO has indicated it is content for the CBRA to be secured through the DCO/DML and delivered post-consent [**REP4-125**].

The Applicant has provided a Preliminary Trenching Assessment (PTA) [**REP5-010** and **REP6-026**] and an outline CSIP [**REP5-011**]. The Applicant has also committed to having an ECoW to provide a co-ordinated approach to the delivery of mitigation [**REP4-012**]. TWT welcome the PTA and the CSIP but still require further information to allay its concerns [**REP6-048**]. NE advised that they are still reviewing the PTA but do not feel that it or the CSIP addresses its concerns about the Applicant's assessment [**REP6-048** and **REP6-049**].

b. No indication that temporary habitat loss/disturbance would adversely affect the achievement of the SAC conservation objectives with regard to the extent and distribution, supporting processes, structure and function of the feature. No indication that there would be an adverse change to the biological diversity or community structure of typical species representative of the feature (paragraphs 5.5.1.2 – 5.5.1.13 (construction/decommissioning) and 5.5.2.33 – 35 (operation/maintenance), [**APP-051**]). NE notes that while the additional 2018 surveys show no evidence of biogenic reef, it still advises that it is necessary to consider the 'maintain' conservation objective for this feature [**REP1-214**]. The absence of reef habitat during the survey does not mean it has been proved beyond reasonable scientific doubt that biogenic reef features could develop [**REP3-076**].

c. No indication that temporary increases in suspended sediments/smothering would adversely affect the ability for the conservation objectives of the SAC to be achieved with regards to the extent and distribution, supporting processes, structure and function of the feature. No indication that there would be an adverse change to the biological diversity or community structure of typical species representative of the feature (paragraphs 5.5.1.14 – 18, [**APP-051**]).

d. No indication that temporary increases in suspended sediments/smothering would adversely affect the ability for the conservation objectives of the SAC to be achieved with regards to the extent and distribution, supporting processes, structure and function of the feature. No indication that there would be an adverse change to the biological diversity or community structure of typical species representative of the feature (paragraphs 5.5.1.14 – 18, [**APP-051**]).

e. Provided published guidelines, best working practices and the mitigation measures outlined in Table 5.4 of **APP-051** are followed, the risk of an accidental spill is extremely low. In the event of a spill, the volumes of potential contaminants released would be small and rapidly dispersed to concentrations below which adverse effects would be expected. No indication that accidental pollution events would affect the extent the extent and distribution, supporting processes, structure and function of the feature. No indication that there would be an adverse change to the biological diversity or community structure of typical species representative of the feature (paragraphs 5.5.1.19 – 21 (construction/decommissioning) and 5.5.2.37 – 43 (operation/maintenance), [**APP-051**]).

f. No indication that localised permanent/long term habitat loss as a result of cable protection would affect the achievement of the SAC conservation objectives with regards to the extent and distribution, supporting processes, structure and function of the feature. No indication that there would be an adverse change to the biological diversity or community structure of typical species representative of the feature (paragraphs 5.5.2.1 – 9, [**APP-051**]).

NE initially queried whether the Applicant's assumption about the maximum design parameter for cable protection within designated sites represents the worst-case scenario [**RR-097**]. Following the Applicant's submission of a clarification note on cable protection [**REP1-138**], NE was then able to agree that the overall figure (10% of the cable route in designated sites) was conservative but it does not agree that it is acceptable impact in a designated site because of the effect on the conservation objective to 'maintain' the SAC features [**REP1-216** and **REP3-076**]. NE does not agree that the analysis in **REP1-138** is relevant to the Proposed Development [**REP1-216**]. The Applicant has maintained that the evidence submitted is robust and applicable to the SAC [**REP1-138** and **REP4-012**]. The MMO accepts the 10% figure as appropriate but has highlighted other projects which have required substantially more cable protection [**REP1-095** and **REP3-092**]. The MMO has also advised that if the volume of cable protection detailed in the DMLs is not used during construction then they would expect to see a separate marine licence application for remedial cable protection during the operational phase. The MMO do not feel it is possible to fully assess the impacts on designated sites over the lifetime of the Proposed Development [**REP6-073**]. The Applicant maintains that its definition of the worst-case scenario in relation to cable protection is robust [**REP1-122**, **REP1-131** and **REP5-008**].

NE and the MMO have also raised queries about the worst-case scenario defined for the replenishment of cable protection [**REP4-130**, **REP6-055** and **REP6-073**]. NE and TWT questioned whether there is any evidence available to support the Applicant's view that sensitive cable and scour protection would be effective [**RR-097**, **REP1-216**, **REP3-76** and **REP1-**

023]. The Applicant maintains that the measures would be effective [**REP1-131**, **REP1-138, REP2-004**]. At deadline 4, the Applicant offered a commitment to decommission rock protection within designated sites [**REP4-012**]. NE welcomes the Applicant's commitment to removing cable and scour protection from the SAC during the decommissioning stage but highlights that it may not possible to do this without damaging the SAC features [**REP6-055**]. The Applicant provided information on the feasibility of decommissioning rock protection at deadline 6 [**REP6-018**].

g. No indication that localised permanent/long term habitat loss as a result of cable protection would affect the achievement of the SAC conservation objectives with regards to the extent and distribution, supporting processes, structure and function of the feature. No indication that there would be an adverse change to the biological diversity or community structure of typical species representative of the feature (paragraphs 5.5.2.1 – 9, [**APP-051**]. This conclusion is disputed, see comments under footnotes b and f.

h. Provided the designed in mitigation outlined within Table 4.6 of [**APP-051]** is followed, there is no indication that the colonisation of hard structures or introduction of invasive non-native species would affect the extent and distribution, supporting processes, structure and function of the feature. No indication that there would be an adverse change to the biological diversity or community structure of typical species representative of the feature (paragraphs 5.5.2.10 -22, [**APP-051**]). NE [**REP1-212**] and the MMO [**REP1-094**] accept this conclusion.

i. Provided the designed in mitigation outlined within Table 4.6 of [**APP-051**] is followed, there is no indication that the colonisation of hard structures or introduction of invasive non-native species would affect the extent the extent and distribution, supporting processes, structure and function of the feature. No indication that there would be an adverse change to the biological diversity or community structure of typical species representative of the feature (paragraphs 5.5.2.10 -22, [**APP-051**]). NE [**REP1-212**] and the MMO [**REP1-094**] accept this conclusion.

j. No indication that changes in physical processes would affect the extent and distribution, supporting processes, structure and function of the feature. No indication that there would be an adverse change to the biological diversity or community structure of typical species representative of the feature (paragraphs 5.5.2.23 – 32, [**APP-051**]). This conclusion is disputed – see comments under footnotes a and f.

k. No plans or project that have been identified within the SAC that may contribute to cumulative temporary habitat loss/disturbance, temporary increases in suspended sediment, permanent/long-term habitat loss or changes to physical processes with the Proposed Development (section 5.8, [**APP-051**]). This conclusion is disputed.

NE queried whether the assessment adequately considers the combined effects of the different phases of the Proposed Development as it is not convinced that features would recover completely before the next impact occurs [**RR-97**, **REP1-212**, **REP4-130**, **REP6-055**]. NE has also queried whether the in combination assessments includes the Race Bank marine licence applications [**REP1-214**]. TWT has also raised concerns about the scope of the in combination assessment [**REP1-017**]. The Applicant has maintained that it has assessed the combined effects of the phases of the development [**REP1-131**, **REP2-004**, **REP1-178** and **REP5-008**] but has also submitted a revised in combination assessment at deadline 3 [**REP3-024**]. This has not fully resolved NE's concerns [**REP6-051**].

Stage 2 Matrix 4: Coquet Island SPA

Distance to array area: 283 km

Distance to cable route: 288 km

European site feature	**Effects on integrity**											
	Collision risk			**Barrier effects**			**Displacement**			**In combination Effects**		
	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar								×?a,c			×?b,c	

Notes

a. Fulmar was considered to have a very low vulnerability to displacement from offshore wind farms. Due to the negligible proportion of the population affected by displacement and the insignificant increase in background mortality it is assessed there would be no adverse effect on the integrity of the population as a result of displacement during operation/maintenance (paragraphs 7.5.3.4 – 12, [**APP-051**]).

b. There is little quantitative information on the potential displacement of fulmar from other wind farm projects that may act in combination with the Proposed Development. However, the Proposed Development is considered unlikely to materially alter the current in combination displacement impact for fulmar at the SPA. There is no indication that, at the level of mortality predicted to arise from the Proposed Development, there would be an adverse effect on integrity (paragraphs 7.7.3.1 – 2, [**APP-051**]).

c. NE have advised that because of its concerns about the baseline data and the Applicant's approach to the assessment of impacts, they are unable to conclude beyond reasonable scientific doubt that the conservation objectives of designated sites would not be hindered as a result of the Proposed Development (section 9, [**REP1-211**]).

Stage 2 Matrix 5: Farne Island SPA

Distance to array: 304 km

Distance to cable route: 308 km

European site feature	**Effects on integrity**											
	Collision risk			**Barrier effects**			**Displacement**			**In combination Effects**		
	C	O	D	C	O	D	C	O	D	C	O	D
Fulmar								×?a,c			×?b,c	

Notes

a. Fulmar was considered to have a very low vulnerability to displacement from offshore wind farms. Due to the negligible proportion of the population affected by displacement and the insignificant increase in background mortality it is assessed that there is no adverse effect on the integrity of the population as a result of displacement during operation/maintenance (paragraphs 7.5.4.9 – 12, [**APP-051**]).

b. There is little quantitative information on the potential displacement of fulmar from other wind farm projects that may act in combination with the Proposed Development. However, the Proposed Development is unlikely to contribute a significant amount of additional mortality relative to the amount that may already occur for projects that may act in combination. The displacement mortality predicted for the Proposed Development is considered unlikely to alter the current in combination displacement impact for this feature of the SPA (paragraphs 7.7.4.1 – 2, [**APP-051**]).

c. NE has advised that because of its concerns about the baseline data and the Applicant's approach to the assessment of impacts, it is unable to conclude beyond reasonable scientific doubt that the conservation objectives of designated sites would not be hindered as a result of the Proposed Development (section 9, [**REP1-211**]).

Stage 2 Matrix 6: Flamborough and Filey Coast SPA

Distance to array area: 149 km

Distance to cable route: 152 km

European site features	**Likely effects of NSIP**																	
	Changes to prey availability			**Disturbance**			**Collision risk**			**Barrier**			**Displacement**			**In combination**		
	C	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**
Breeding:																		
Gannet								×?g						×?h,o			×?i,j,o	
Kittiwake								×?a									×?b	
Razorbill				×?c,		×?c								×?c,o			×?d	
Guillemot				×?e		×?e								×?e,o			×?f	
Assemblage:																		
Puffin				×?k		×?k								×?k,o			×?l,o	
Fulmar														×?m,o			×?n,o	
Razorbill				×?c		×?c								×?c,o			×?d,o	
Guillemot				×?e		×?e								×?e,o			×?f,o	

Gannet								×?g,o						×?h,o,p			×?i,j,o	
Kittiwake								×?a,o									×?b,o	

Notes

NE and the RSPB have raised over-arching concerns about the Applicant's baseline data which appear to be applicable to all the species which are features of the SPA. These concerns and the Applicant's response are described in detail in section 2.2 of this report and are not repeated here.

NE and the RSPB have raised concerns about the definition of the breeding season used in the Applicant's assessment and its effect on apportioning effects to the SPA bird populations (see [**REP1-211**], [**REP1-212**] and [**REP3-075**] for NE's responses and [**RR-113**], [**REP1-111**], [**REP4-137**] and [**REP6-076**] for the RSPB responses). They advise that the breeding season should be defined using the results of site-specific monitoring at the colonies within the SPA [**REP3-075**, **REP4-137, REP5-027** and **REP6-052**]. The Applicant has maintained its position on the basis that the Proposed Development is located 150 km from the SPA and that extending the breeding season to cover the period advised by NE and the RSPB could lead to inclusion of immature/non-breeding birds that are not associated with the SPA breeding colonies. They also note that there is limited connectivity between the array area and the SPA [**REP1-122**, **REP1-131**, **REP3-101**, **REP4-012** and **REP5-008**].

NE do not agree with the approach used by the Applicant for apportioning of breeding adults presented for gannet, kittiwake and puffin and also have concerns about the lack of apportioning for immature/non-breeding guillemot and razorbill during the breeding season [**REP1-211** and **REP1-212**]. The RSPB has also raised concerns about the apportioning of effects [**RR-113** and **REP6-076**]. They have requested a breakdown of the at-sea age class data used by the Applicant [**REP1-211**]. The Applicant has sought to provide the data [**REP1-169** and **REP3-026**] but the parties have not been able to agree the exact nature of the data required [**REP3**-**075, REP4-012** and **REP6-020**]. The Applicant has provided an updated apportioning exercise for immature/non-breeding individuals of auk species [**REP5-014**]. NE agrees that the proposed approach is reasonable but notes that a precautionary approach would be to assume 100% of immature birds are from the SPA [**REP6-054**].

The Applicant submitted a collision risk assessment based on its preferred approach and collision risk and displacement impact assessment based on its interpretation of NE's position at deadline 4 [**REP4-049**]. NE disagree that [**REP4-049**] reflects its position [**REP6-055**]. At deadline 6, in response to a request from the ExA, the Applicant provided a summary of CRM based on its preferred parameters [**REP6-042**] and inputs and one based on those advised by NE [**REP6-043**].

a. Due to the low percentage of the SPA population affected by collision and the small increase in background mortality it is assessed that there is no adverse effect on integrity of the feature population of the SPA as a result of collision-related mortality. It should also be noted that the predicted collision rates are considered precautionary due to the likely presence of a significant number of non-breeding adult birds in the observed population in the array area (paragraphs 7.5.2.51 – 54, [**APP-051**]). NE and the RSPB disagree with this conclusion as they disagree with the Applicant's choice of Band model, the parameters used in the Band model, notably the avoidance rates, the use of Nocturnal Activity Factors (NAF), flight height, flight speed and the methods used to calculate monthly density estimates (see [**REP1-211**], [**REP1-212**], [**REP3-075**], [**REP4-130**] and [**REP6-055**] for NE's responses and [**REP1-111**], [**REP2-025**], [**REP4-137**] and [**REP6-076**] for the RSPB's responses). The RSPB disagree with the mean-maximum foraging distance used by the Applicant and the approach used to apportioning effects on kittiwake [**REP1-111** and **REP6-076**]. They advocate the use of an apportioning approach advised by SNH [**REP4-137**].

The Applicant has maintained its position regarding the parameters and choice of Band model [**REP1-122**, **REP1-131**, **REP1-188**, **REP2-004**, **REP2-017**, **REP2-018**, **REP3-004**, **REP4-012**, **REP5-008** and **REP6-010**].

NE and the RSPB also dispute whether the Applicant's assessment has adequately captured the degree of uncertainty and variability around the predictions of collision-related mortality and whether the evidence sufficiently captures the degree of uncertainty associated with the predictions from the collision risk modelling (see [**REP1-211**], [**REP1-212**] and [**REP3-75**] for NE's responses and [**REP1-111**], [**REP2-025**] and [**REP4-137**] for the RSPB's responses). The Applicant has maintained the position that its analysis does take account of the degree of uncertainty associated with the modelling outputs [**REP1-122**, **REP3-004** and **REP5-008**].

b. PVA modelling indicates that the resulting levels of in combination mortality predicted in Table 7.39 of [**APP-051**] would not be sufficient for the population to decline below the SPA citation numbers for this species. This level of in combination mortality does not include consideration of as-built scenarios (Table 7.37, [**APP-051**]) or NAF (Table 7.38, [**APP-051**]) which if taken into account, further reduce the in combination collision risk. No indication that the level of mortality in

combination mortality over the lifetime of the Proposed Development is likely to lead to a population which would affect the conservation status of the SPA (see paragraphs 7.7.2.25 – 38, [**APP-051**]). NE raised concerns about the in combination assessment and the PVA [**REP1-211**]. The Applicant submitted a revised PVA at deadline 1 [**REP1-135**] but this did not allay NE's concerns [**REP3-075**]. The RSPB has also queried the conclusions of [**REP1-135**] in relation to the productivity figures used and the interpretation of the outputs [**REP2-025**].

As described above, the Applicant has also carried out an assessment of in combination effects which applies correction factors to allow for the differences between projects as they were assessed in the project applications and how they would actually be constructed ("as built") (Table 7.34, [**APP-051**]) and also applies a NAF (Table 7.35, [**APP-051**]). At deadline 1 they submitted further analysis [**REP1-148** and **REP1-139**]. The RSPB also disagree with the analysis presented in [**REP1-139**] and [**REP1-148**] [**REP2-025**]. NE does not agree with the CRM results presented in [**REP1-139**] or the analysis in **REP1-148** [**REP3-075**] as it requires additional information which the Applicant contends has not been required for other offshore wind farms. NE acknowledges that is asking for more information than in previous projects but other projects have not presented revised collision risk figures [**REP3-075**]. NE does not feel that the Applicant's approach is justified and queries the assumptions it is based on [**REP6-055**]. The RSPB also queries whether the approach of seeking to exploit any free 'headroom' is in line with the site's conservation objectives [**REP2-025**]. The Applicant has maintained that this is a valid approach [**REP4-012** and **REP6-020**].

c. No predicted displacement mortality of breeding adult razorbill originating from the SPA due to the Proposed development in any biological season (section 7.5, [**APP-051**]). In addition, any impact on immature birds associated with the SPA is likely to be negligible due to the low level of mortality predicted in all seasons (see paragraphs 7.5.2.77 – 89, [**APP-051**]).

d. No predicted morality of breeding adult razorbill and only a negligible predicted mortality for immature razorbill associated with the breeding colony as a result of displacement by the Proposed Development in any biological season. The Proposed Development would not materially affect the current predicted in combination impact for razorbill from the SPA (paragraph 7.7.2.40, [**APP-051**]). NE queried why the in combination assessment for this species was qualitative [**REP1-211**].

e. Negligible loss of breeding adult originating from the SPA as a result of displacement by the Proposed Development. In addition, any impact on immature birds associated with the SPA is likely to be negligible due to the low level of mortality predicted in all seasons and the Biologically Defined Minimum Population Scale population to which effects can be apportioned (paragraphs 7.5.2.90 – 102, [**APP-051**]).

f. The Proposed Development is predicted to contribute a negligible number of breeding adults to the total number of breeding adult birds impacted by displacement mortality with any contribution from the Proposed Development occurring in the non-breeding season only. No indication that, at the level of mortality predicted to arise from the Proposed Development in combination with other projects, the population is likely to decline over a period of 35 years such that the feature would no longer be considered in favourable condition (paragraphs 7.7.2.41 – 58, [**APP-051**]). NE and the RSPB do not agree with this conclusion, see comments under footnote a.

g. Due to the low percentage of the SPA population affected by collision and the small increase in background mortality it is assessed that there is no adverse effect on integrity of the feature population of the SPA (paragraphs 7.5.2.32 - 35, [**APP-051**]). NE disagree with this conclusion, see comments under footnote a above. The RSPB agree that there would not be any adverse effects on integrity for gannet alone [**REP3-007**].

h. Due to the low percentage of the SPA population affected by displacement (with no SPA birds affected in the pre- and post-breeding seasons), the small increase in background mortality and the extensive foraging range of gannet, it is assessed that there would be no adverse effect on integrity of the population of the SPA (paragraphs 7.5.2.36 – 41, [**APP-051**]).

i. The Proposed Development contributes to less than 3% of the in combination collision risk total for gannet at the SPA (section 7.7, [**APP-051**]). PVA modelling indicates that the resulting levels of in combination mortality predicted in Table 7.36 of **APP-051** would be insufficient for the population to decline below the SPA citation numbers for this species. This level of in combination mortality does not include consideration of as-built scenarios [Table 7.34, **APP-051**] or NAF [Table 7.35, **APP-051**] which if taken into account, further reduce the in combination collision risk. No indication that in combination mortality levels would cause the population to decline over the lifetime of the Proposed Development such that the conservation status of the SPA would be affected (paragraphs 7.7.2.3 – 16, [**APP-051**]). NE and the RSPB do not agree with this conclusion, see comments under footnote b.

j. An in combination displacement impact of 14 birds for gannet would not adversely affect the integrity of the SPA. PVA modelling indicates that the resulting levels of in combination mortality would be insufficient for the population to decline below the SPA citation numbers for this species over a period of 35 years (paragraphs 7.7.2.17 – 24, [**APP-051**]). NE advised that as gannets are exposed to both collision risk and displacement effects the combined impact should be assessed [**REP1-211**]. NE and the RSPB do not agree with this conclusion, see comments under footnote b.

k. No predicted mortality of breeding adult puffin and only a negligible predicted mortality for immature puffin associated with the breeding colony at the SPA as a result of displacement by the Proposed Development in any biological season (paragraphs 7.5.2.60 – 68, [**APP-051**]).

l. No predicted mortality for breeding adult puffin and only a negligible predicted mortality for immature puffin associated with the breeding colony at the SPA as a result of displacement by the Proposed Development in any biological season. The Proposed Development would not materially affect the current predicted in combination impact for puffin from the SPA (paragraph 7.7.2.39, [**APP-051**]). NE queried why the in combination assessment for this species was qualitative [**REP1-211**]. The Applicant submitted a revised PVA at deadline 1 [**REP1-135**]. NE and the RSPB do not agree with this conclusion, see comments under footnote b.

m. Fulmar is considered to have a very low vulnerability to displacement from offshore wind farms. Due to the low percentage of the SPA population affected by displacement and the small increase in background mortality it is assessed that there would be no adverse effect on the integrity of the fulmar population of the SPA as a result of displacement (paragraphs 7.5.2.12 – 20, [**APP-051**]). The RSPB agree with this conclusion for fulmar alone [**REP3-007**].

n. The displacement mortality predicted for the Proposed Development is considered unlikely to materially alter the current in combination displacement impact for fulmar at the SPA (paragraphs 7.7.2.1, [**APP-051**]). NE queried why the in combination assessment for this species was qualitative [**REP1-211**].

o. NE does not agree with the methodology used to assess displacement impacts, particularly the monthly estimates of abundance, the calculation of seasonal mean peaks (linked to the concerns about the definition of breeding seasons), the use of different mortality rates for different seasons, reliance on a single displacement rate and inclusion of immature individuals [**REP1-211, REP1-212**, **REP1-213** and **REP3-075**]. The RSPB also has concerns about the way that displacement impacts have been calculated [**REP2-025**]. The Applicant maintains its position that its approach is appropriate and follows SNCB guidance [**REP1-131**, **REP2-004** and **REP3-004**].

Stage 2 Matrix 7: Greater Wash SPA

Distance to array area: 106 km

Distance to cable route: 0 km

European site features	**Likely effects of NSIP**																				
	Changes to prey availability			**Disturbance**			**Habitat loss**			**Collision risk**			**Barrier**			**Displacement**			**In-combination**		
	C	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**
Sandwich tern	×?e		×?e	×?f		×?f											×?c		×?g	×?h	×?g
Red-throated diver				×?a		×?a											×?c		×?g	×?h	×?g
Common scoter				×?b		×?b											×?d		×?i	×?j	×?i

Notes

The RSPB has raised concerns about the baseline data used for the offshore cable corridor [**REP1-111**] but NE does not share these concerns [**REP1-212**].

a. The assessment indicates that disturbance from construction and decommissioning activities would be likely to have no adverse effects on red-throated diver populations of the Greater Wash SPA due to the limited temporal span and localised effects of the export cable installation combined with relatively low densities of red-throated diver along the export cable route (paragraphs 7.5.1.22 – 7.5.1.32, [**APP-051**]). The RSPB raised concerns about potential disturbance from support

vessels during operation of the Proposed Development [**REP1-111**] but has subsequently agreed no adverse effects on integrity but note emerging evidence about the impacts of wind farms on this species [**REP3-007** and **REP4-137**]. NE identified the potential for adverse effects on the integrity of this feature [**REP1-213**] and has also advised that they cannot they are unable to conclude beyond reasonable doubt that the conservation objectives of designated sites would not be hindered as a result of the Proposed Development (section 9, [**REP1-211**]).

b. The assessment indicates that disturbance/displacement from construction and decommissioning activities would likely have no adverse effect on the integrity of the common scoter population of the Greater Wash SPA as effects from the installation of the export cable would be localised with an extremely low level of interaction between the export cable route and areas of high densities of common scoter [7.5.1.12 – 7.5.1.18, [**APP-051**]). The RSPB accept this conclusion [**REP3-007**]. See RSPB and NE comments under footnote a.

c. The assessment indicates that displacement in the operational phase is likely to be at a significantly lower level of magnitude to that of the construction phase as the level of activity associated with the export cable is significantly reduced. Compared to the level of disturbance already considered to be part of the baseline environment it is considered extremely unlikely that maintenance activities would result in any increase in disturbance and there would likely be no adverse effects on the integrity of the red-throated diver population of the Greater Wash SPA [7.5.1.33 – 7.5.1.35, [**APP-051**]). The RSPB accept this conclusion [**REP3-007**]. See NE comments under footnote a.

d. The assessment indicates that disturbance/displacement from operation and maintenance activities would be unlikely to have adverse effects on the integrity of common scoter populations of the Greater Wash SPA when compared to the levels of disturbance already considered to be part of the baseline environment [7.5.1.19 – 7.5.1.21, [**APP-051**]). See RSPB and NE comments under footnote a.

e. The assessment indicates that changes to prey availability caused by construction and decommissioning activities would cause no adverse effects on the integrity of Sandwich tern populations and insignificant effects on its prey resources in the Greater Wash SPA since there is a limited temporal span and localised level effect of export cable installation and relatively low usage of the export cable route by Sandwich tern (paragraphs 7.5.1.40 – 7.5.1.43, [**APP-051**]). NE has raised concerns about the potential effects on this species [**REP3-075**].

f. The assessment indicates that disturbance/displacement from construction and decommissioning activities would have no adverse effects on the Sandwich tern population of the Greater Wash SPA since it is considered a species with low sensitivity to vessel and helicopter disturbance that is tolerant of human activities at sea. Hornsea Three export cable construction activities are highly unlikely to impact areas of dense Sandwich tern populations from the breeding colony at Blakeney Point with foraging areas protected as part of the Greater Wash SPA (paragraphs 7.5.1.36 – 7.5.1.39, [**APP-051**]). The RSPB accept this conclusion [**REP3-007**]. NE has raised concerns about the potential effects on this species [**REP3-075**].

g. The assessment indicates that displacement from construction and decommissioning activities in combination with other plans and projects would cause no adverse effect on the integrity of the red-throated diver population of the SPA due to the limited temporal span and localised effect of the installation of the export cable, combined with the relatively low densities of red-throated diver along the cable route (paragraphs 7.7.1.1 – 7.7.1.6, [**APP-051**]). The RSPB accept this conclusion [**REP3-007**]. See NE comments under footnote a.

h. The assessment indicates that displacement from operational and maintenance activities in combination with other plans and projects would cause no adverse effects on the integrity of the red-throated diver population of the Greater Wash SPA as it is anticipated that these vessel movements would largely occur within areas already substantially utilised by vessels (paragraphs 7.7.1.7 – 7.7.1.12, [**APP-051**]). The RSPB accept this conclusion [**REP3-007**]. See NE comments under footnote a.

i. The assessment indicates that there is no adverse effect on the integrity of the common scoter population of the Greater Wash SPA from disturbance due to construction and decommissioning activities in combination with other plans and projects. This is due to the localised nature of the effects of the export cable combined with the low level of interaction between the export cable route and dense common scoter populations (paragraphs 7.7.1.13 – 7.7.18, [**APP-051**]). The RSPB accept this conclusion [**REP3-007**]. See NE comments under footnote a.

j. The assessment shows that displacement from operational and maintenance activities in combination with other plans and projects indicate no adverse effects on the integrity of the common scoter population of the Greater Wash SPA as it is anticipated that these vessel movements would largely occur within areas already substantially utilised by vessels (paragraphs 7.7.1.19 – 7.7.1.24, [**APP-051**]). The RSPB accept this conclusion [**REP3-007**]. See NE comments under footnote a.

k. The Applicant states that there are no projects that would act in combination with Hornsea Three in relation to impacts that may affect the Sandwich tern feature of the Greater Wash SPA. As such, Sandwich tern is screened out of the in combination assessment [**REP4-081**]. NE has raised concerns as to the adequacy of the Applicant's in combination assessment [**REP3-075**].

Stage 2 Matrix 8: North Norfolk Coast SPA/Ramsar

Distance to project array area: 128 km

Distance to cable route: 0.32 km

European site feature	**Effects on integrity**											
	Changes to habitat			**Release of contaminants**			**Invasive species**			**In combination Effects**		
	C	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**
Pink-footed goose (part of assemblage feature)	×a, b, c	×f	×a, b, c	×d	×d	×d	×e	×e	×e	×g	×g	×g

Notes

a. The assessment indicates that there would be no adverse effects on the population and distribution of the pink-footed goose as the proposed route of the Hornsea Three onshore cable corridor would avoid permanent habitat loss within the North Norfolk Coast SPA and the permanent footprint within the functional linked land area is not likely to be significant with respect to the total land area of functionally linked sugar beet land available (paragraphs 8.7.2.1 – 8.7.2.4, [**APP-051**]).

b. The assessment indicates that there would be no adverse effects on the population and distribution of pink-footed goose and site integrity due to temporary habitat loss because the species is highly mobile in response to changes in food availability and has capacity to take advantage of food resources within a wide area including sugar beet fields beyond that area influenced by the Hornsea Three onshore cable corridor (paragraphs 8.7.2.5 – 8.7.2.6, [**APP-051**]). The RSPB state that the data for measuring displacement effects is inadequate since the surveys were conducted more than years ago

[**REP1-111**]. NE has also queried whether the potential energetic costs of foraging at greater distances from their roosts have been considered [**REP3-074**].

c. If construction works take place outside November and to January inclusive, it is the Applicant's view that there would be no disturbance impact pathway on pink-footed goose and there would be no adverse effect on site integrity. If construction works take place on functionally linked sugar beet fields between November and January inclusive, the application of a pink-footed goose management plan, together with industry best practice guidance in respect of light and noise mitigation measures, would avoid or minimise the risk of disturbance to functionally linked sugar beet fields used for foraging (paragraphs 8.7.2.7 – 8.7.2.19, [**APP-051**]). NE and the RSPB do not agree with the Applicant's position. The RSPB state that there is no evidence to support claims that works taking place in winter months would not cause significant effects [**REP5-027**], that a draft timetable of works should include monitoring surveying for wintering pink-footed goose populations in the Outline Environmental Management Plan (OEMP) until mitigation plans state they are no longer required [**REP2-012**, **REP5-027**] and that a Draft Management Plan must include training on disturbance risk for all construction staff [**REP5-027**]. NE also specify that mitigation plans must take seasonal changes in presence, abundance and distribution into account to ensure mitigation is satisfactory [**REP3-074**]. The RSPB disagree that the 12 months specified by the Applicant is long enough to secure mitigation measures before construction commences to ensure it can be carried out effectively [**REP1-111**]. NE agree that 12 months is acceptable but wishes to be consulted 12 months prior to construction commencing to ensure that mitigation is sufficient and can be implemented effectively [**REP1-207** and **REP1-213**]. It is within their remit to sign off such mitigation plans relating to SPA features before mitigation can be implemented [**REP3-074**]. The RSPB and NE are also concerned that any delays to construction could cause additional adverse significant effects [**REP3-007** and **REP3-074** respectively]. NE retains some concerns about the plan [**REP6-057**].

The Applicant did not provide a detailed version of the management in the application documents; the Outline Code of Construction Practice (OCoCP) and OEMP both referred to the plan which would be developed post-consent when the design of the Proposed Development was finalised [**REP3-003**]. However, NE raised stated that, without seeing an in-principle version of the plan, they could not be sure that adverse effects on integrity would be avoided [**REP3-074**]. The RSPB also raised concerns about the way the management plan was secured through the OCoP [**REP1-111**]. The Applicant has updated the OCoCP to include a more detailed version of the management plan and to try to address NE and the RSPB's concerns [**REP4-023** and **REP6-014**]. The RSPB however still retains some concerns [**REP5-027**].

d. Proposed design measures would avoid accidental pollution and pollution control measures would minimise the residual risk within the functionally linked sugar beet fields. The employment of an ECoW would ensure compliance with the OEMP and CoCP (Code of Construction Practice) and therefore no adverse effect on site integrity would occur with respect to the population and distribution of the qualifying features, the physical, chemical or biological supporting processes associated with the site and which help to support and sustain its qualifying features and the extent, distribution, structure and function of their supporting habitats and the extent, distribution, structure and function of their supporting habitats [for construction/decommissioning activities see paragraphs 8.7.2.20 – 8.7.2.22 and for operation/maintenance impact see paragraphs 8.7.2.28 – 8.7.2.30, [**APP-051**].

e. The proposed application of a biosecurity protocol would minimise the risk of introducing or spreading invasive non-native plant or animal species within the functionally linked sugar beet fields and adjacent wet habitats. An ECoW would ensure compliance with the OEMP and CoCP therefore, no adverse effect on site integrity would occur with respect to the population and distribution of the qualifying features, the supporting process and the extent, distribution, structure and function of their supporting habitats (paragraphs 8.7.2.23 – 8.7.2.24, [**APP-051**]).

f. The proposed design and operational measures would avoid any temporary habitat loss and disturbance within the North Norfolk Coast SPA site and would avoid or minimise temporary habitat loss and disturbance in functionally linked sugar beet fields used for foraging. Taking into account the proposed mitigation and the fact that the majority of pink-footed geese were recorded more than 500m from the Hornsea Three onshore cable corridor, no adverse effect on site integrity would occur with respect to the population and distribution of pink-footed goose (paragraphs 8.7.2.25 – 8.7.2.27, [**APP-051**]). The RSPB disagree that there would be no adverse effects on site integrity of the North Norfolk Coast SPA in relation to the pink-footed goose as co-operation of landowners or farmers involved in as-yet unspecified mitigation plans must be agreed and secured for it to be successful [**REP2-012**]. The RSPB also considers that survey information on the pink-footed goose populations should be outlined in this mitigation plan [**REP2-012** and **REP3-007**] and highlights that the Applicant needs to ensure that there is sufficient additional refuge away from the works of the Hornsea Three Project [**REP2-012** and **REP3-007**] with which NE agrees [**REP3-074**]. The RSPB also disagrees with the proportion of the area allocated post-harvest of sugar beet (functionally linked foraging land) within the ZOI [**REP5-027**].

g. No impact pathway has been identified between impacts from Hornsea Three alone and other developments on functionally linked habitats of the North Norfolk Coast SPA (section 8.9, [**APP-051**]).