The Planning Inspectorate

REPORT on the IMPLICATIONS for EUROPEAN SITES Proposed Hornsea Offshore Wind Farm (Zone 4) - Project Two

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

26 November 2015

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1.0 INTRODUCTION

Background

1.1 Optimus Wind Limited and Breesea Limited (jointly referred to as the applicant) have applied to the Secretary of State for a development consent order (DCO) under section 37 of the Planning Act 2008 (as amended) for the proposed Hornsea Offshore Wind Farm (Zone 4) Project Two (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.

1.2 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 Planning Act 2008 regime (as amended). The findings and conclusions on nature conservation issues reported by the ExA will assist the Secretary of State in performing their duties under the Habitats Regulations and the Offshore Marine Regulations.

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 examination deadline 5 (12 November 2015) in relation to potential effects to European Sites[4]. The RIES makes reference to examination documents in the Planning Inspectorate's document library. Each document is identified by a unique reference number in the document library. The RIES should be read in conjunction with these documents.

1.4 It is issued to ensure that interested parties including the statutory nature conservation bodies: Joint Nature Conservation Committee (JNCC), Natural England (NE) and Scottish Natural Heritage (SNH), are consulted formally on Habitats Regulations matters. This process may be relied on by the Secretary of State for the purposes of Regulation 61(3) of the Habitats Regulations and Regulation 25 of the Offshore Marine

[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 2010 (as amended) (the Habitats Regulations).

[3] The Offshore Marine Conservation (Natural Habitats, &c) Regulations 2007 (as amended) (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 Special Areas of Conservation (SACs) and candidate SACs, Special Protection Areas (SPAs), potential SPAs, Sites of Community Importance (SCIs), 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 and the Habitats Regulations Assessment Handbook (DTA Publications July 2014).

Regulations. Following consultation the responses will be considered by the ExA in making its recommendation to the Secretary of State and made available to the Secretary of State along with this report. The RIES is not revised following consultation.

European Sites not considered in this RIES

1.5 The applicant has identified potential impacts on European sites in other EEA States[5] (**APP-0171**). Following acceptance of the application for this project, the ExA took the decision to write to the Flemish Government and the governments of Belgium, Denmark, France, Germany, Iceland, Norway and the Netherlands to offer them 'other person' status in the examination (**PD-006**). The Danish government responded confirming that they wished to participate under the Espoo Convention and stating the relevant Danish authorities would respond by the 15 July 2015 (**REP1-09**). The Danish Nature Agency then confirmed in an email dated 7 July 2015 that they had no comments (**REP1-08**). No other responses have been received from the other EEA governments contacted as of 12 November 2015. Only UK European sites are considered further in this RIES.

Documents used to inform this RIES

1.6 The full list of documents used to inform the RIES is provided in Annex 5 of this report.

1.7 The applicant's DCO application concluded that there is the potential for likely significant effects on 9 UK European sites and therefore provided a Habitats Regulations Assessment (HRA) (**APP-0171** and **APP-0172**), together with a screening report (**APP-0174**), evidence plan (**APP-0173**) and screening and integrity matrices (**APP-0175**) with the DCO application.

1.8 Following acceptance the Planning Inspectorate provided advice to the applicant under section 51 of the Planning Act 2008 (**PD-002**). In response to this advice the applicant submitted updated screening and integrity matrices (**APP-0205**).

Examination

1.9 In response to the ExA's questions the applicant provided HRA addenda covering the Southern North Sea draft Special Area of Conservation (dSAC) (**REP4-037**) and the possible Greater Wash Special Protection Area (**REP4-41**). Updated screening and integrity matrices were submitted to the ExA at deadline 4 (20 October 2015) (**REP4-037**).

[5] European Economic Area (EEA) States.

1.10 For those European sites and qualifying features where the applicant's conclusions have been disputed or queried during the examination, following the submission of the applicant's updated matrices, 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 to this report.

Structure of this RIES

1.11 The reminder 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 12 November 2015. 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, 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** lists the sites and features covered by the applicant's HRA. It also shows which sites and features the applicant concluded would be likely to experience significant effects.
- **Annex 2** lists the plans and projects considered by the applicant's in-combination assessment.
- **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 12 November 2015.
- **Annex 5** lists the documents that have been used to inform this RIES.

2.0 OVERVIEW

European sites considered

2.1 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.

2.2 The applicant's HRA Report identified 77 European sites for which the UK is responsible for inclusion within the assessment. The applicant provided addenda to their HRA report at Deadline 4 for two additional potential European sites (**REP4-026** and **REP4-41**). **Annex 1** of this RIES summarises the sites included in the applicant's HRA.

2.3 The applicant's HRA screening report (**APP-0174**) explains the approach taken to identifying European sites likely to be significantly affected by the application. The effects considered in the screening report are based on the maximum adverse scenarios defined in the relevant chapters of the applicant's environmental statement (**APP-0174, paragraph 4.3.1**). The criteria used for the initial identification of sites are listed in Table 4.5 of the screening report. They include European sites and qualifying features within the potential zone of influence of project impacts (e.g. within the area that would be affected by an increase in suspended sediment) and sites with qualifying features with a mean maximum foraging or migratory range which overlaps with the application. The applicant also provided further explanation on their approach to deciding the scope of their HRA in their answer to the ExA's first round of questions (**REP1-051, EOO6(a)**).

2.4 It is not entirely clear how the applicant has identified the qualifying features of the Special Protection Areas (SPA) and Ramsar sites included in their HRA. In some cases the features used are those listed on the Natura 2000 data form on the JNCC website while in other cases they appear to have been derived from the SPA review features listed on the JNCC website, or a combination of both the Natura 2000 and SPA review features. In response to a question from the ExA at the Issue Specific Hearing (ISH) on 16 September 2015, NE has confirmed that they are satisfied that all the relevant designated sites and features have been sufficiently considered in the applicant's assessment (**REP3-033, paragraph 1.10**). NE and the applicant have agreed that the correct features for the Humber Estuary SAC, SPA and Ramsar site are listed in the applicant's screening matrices (**REP4-037, Tables 39c – 39c, 39d and 38a – 38d respectively**). SNH was invited to take part in the examination for this application by the ExA as an 'other person' (**PD-009**) but has not made any comments or representations.

2.5 NE wrote to the ExA on 10 September 2015 (**EV-021**) to draw their attention to the informal consultation that had begun on 7 September 2015 on the Greater Wash draft SPA. Part of the cable route for the application would run through the boundaries of the draft SPA as currently proposed. Although noting that the site would not become a material consideration for this application until formal consultation begins, NE recommended that the potential impacts should be considered in a draft HRA to 'future proof' against the risk of any permission being reviewed after the SPA has been classified. The applicant provided a shadow HRA screening for the draft Greater Wash SPA at examination deadline 4 (**REP4-041**).

2.6 In their relevant representation, NE highlighted the possibility that a formal consultation on SACs proposed to be designated for harbour porpoise would begin in summer 2015. They advised that once the formal consultation had begun, impacts on the proposed features of sites would become a material consideration in relation to the HRA of the application (**RR-021**, **paragraphs 4.2.2 – 4.2.3**). At the ISH on 16 September NE advised that the consultation was now expected in autumn 2015 but no specific timing had been confirmed (**REP-033, paragraph 1.63**). In response to a question from the ExA, drawing the applicant's attention to the approach taken by the Secretary of State on Dogger Bank Teesside A and B wind farm (**PD-016**), the applicant submitted a HRA Addendum for the Southern North Sea dSAC (**REP4-026**).

2.7 No other UK European site or site features were identified for inclusion in the HRA in the relevant representations from NE, the Royal Society for the Protection of Birds (RSPB), the Wildlife Trusts (TWT), Lincolnshire Wildlife Trust (LWT) or any other Interested Party.

Table 2.1: Additional potential European Sites identified by Interested Parties

Site name	**Features**
Greater Wash dSPA	Sandwich tern (breeding)
	Common tern (breeding)
	Little tern (breeding)
	Red-throated diver (non-breeding)
	Common scoter (non-breeding)
	Little gull (non-breeding)
Southern North Sea dSAC	Harbour porpoise

HRA matters considered during the examination

2.8 A major area of discussion has been the effects on breeding kittiwake, razorbill, guillemot, gannet, and fulmar associated with the Filey Coast and Flamborough pSPA. Concerns have been expressed by NE and the RSPB about the applicant's approach to assessing the collision risk and displacement effects on seabird populations. Key points of dispute are:

- Population estimates for baseline populations
- The proportion of birds at potential collision height
- Choice of avoidance rate for collision risk modelling
- Which version of the Band model should be used to model collision risk mortality
- Extent of the buffer area around the application site which should be considered in the assessment of displacement effects
- Appropriate mortality levels for displaced birds
- Whether displacement effects should be estimated on a monthly or annual basis
- Apportionment of effects to individual SPA colonies
- Approach to assessment of in-combination effects

2.9 With regard to the Humber Estuary SPA and Ramsar, concerns have been expressed by the RSPB about the potential for disturbance of waders and waterfowl during cable laying and future maintenance, alone and in combination with other plans and projects. NE also expressed concerns about disturbance during maintenance. NE's concerns have since been resolved through the applicant's commitment to the provision of an Intertidal Access Management Plan and amendments to the DCO (REP4-027).

2.10 NE also expressed concerns about the potential effects of access for maintenance on the terrestrial Annex I habitat features of the Humber Estuary SAC. These concerns have since been resolved through the applicant's commitment to the provision of an Intertidal Access Management Plan and amendments to the DCO (**REP4-027**).

3.0 LIKELY SIGNIFICANT EFFECTS

3.1 The applicant has described how they have determined what would constitute a 'significant effect' within their HRA report (**APP-0171**). 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)').

3.2 The applicant has addressed potential in-combination effects within their HRA report (**APP-0171, sections 5.4 - 5.9**). The approach used to assess in-combination effects has been based on the approach used in the applicant's environmental statement cumulative impact assessments (**APP-0171, paragraph 5.4.1**) so the selection of projects considered in the in-combination assessment varies according to the site features under consideration. The projects included in the in-combination assessment carried out by the applicant are listed in Annex 2 of this RIES.

3.3 The applicant assigned projects to 'tier 1' or 'tier 2'. Tier 1 projects included projects currently under construction, projects which have been consented but not implemented, projects submitted but not yet determined and projects which are currently operational but which were not operational when the baseline data for the application was collected. Tier 2 projects comprise all the projects included in tier 1 as well as those projects which are likely to come forward for consent (**APP-0171, paragraphs 5.4.1 – 5.4.5**).

3.4 The scope of the in-combination assessments for Flamborough Head and Bempton Cliffs SPA and Flamborough and Filey Coast pSPA were queried by NE and the RSPB. They were concerned that the applicant's approach to defining the project tiers had led to some projects being excluded which could have interacted with the application to lead to combined effects. They also disputed the way predicted collisions had been reduced in the applicant's assessment to take account of the fact that these projects will not build out to full capacity **(RR-021, Appendix 1** and **REP1-047, section 8**). NE agreed however that the addition of extra tiers was not a material concern (**REP1-040, EOO8**), although the RSPB maintained its concerns (**REP2-015, EOO8**)**.** The applicant submitted updated in-combination figures for gannet, kittiwake, guillemot, razorbill and puffin at Deadline 2a which included the projects NE had requested (**REF2A-016 – REP2A-020**). At Deadline 4, the applicant submitted an updated in-combination assessment for kittiwake which split the projects included in the assessment into 4 tiers (**REP4-039**). Although NE does not agree with the outcome of the kittiwake assessment they do agree with the projects included within it (**REP5-036, paragraph 3.68**). The RSPB do not agree that all the relevant projects have been included in the

applicant's assessment for in-combination effects on kittiwake (**REP5-037**).

3.5 As a result of their screening assessment, the applicant concluded that the project is **likely to give rise to significant effects**, either alone or in-combination with other projects or plans, on the qualifying features of the European sites listed below.

Table 3.1

European site	**Features for which applicant concluded LSE**
Berwickshire and North Northumberland Coast Special Area of Conservation (SAC)	Grey seal
Flamborough and Filey Coast pSPA *	Breeding: Kittiwake, razorbill, guillemot and gannet Assemblage (breeding): Puffin, razorbill, guillemot, gannet, kittiwake and fulmar
Flamborough Head and Bempton Cliffs SPA	Breeding: Kittiwake
Forth Islands SPA	Assemblage feature: Fulmar
Fowlsheugh SPA	Assemblage feature: Fulmar
Humber Estuary Ramsar	Coastal habitats and estuarine waters Grey seal Migrating river lamprey and sea lamprey Internationally important assemblage of waterfowl during the non-breeding season Internationally important populations of breeding, wintering and on passage waders and waterfowl
Humber Estuary SAC	Annex I coastal habitats and estuaries Migrating river lamprey and river lamprey Grey seal
Humber Estuary SPA	Article 4.1 qualification Breeding: Avocet and marsh harrier Winter: Bar-tailed godwit, hen harrier, avocet and golden plover Passage: Ruff Article 4.2 qualification (migratory species) Over-winter: Dunlin, knot, and redshank On passage: Dunlin, knot, black-tailed

	godwit and redshank Assemblage: Including dark-bellied brent goose, sanderling, dunlin, knot, ringed plover, oystercatcher, bar-tailed godwit, golden plover, grey plover, Teal, wigeon, mallard, turnstone, pochard, greater scaup, bittern, goldeneye, black-tailed godwit, curlew, whimbrel, ruff, avocet, greenshank and lapwing and redshank
The Wash and North Norfolk Coast SAC	Harbour seal
Southern North Sea draft SAC	Harbour porpoise

* The Flamborough and Filey Coast pSPA extends the Flamborough Head and Bempton Cliffs SPA boundary and the list of qualifying bird features.

Summary of the HRA Screening outcome during the examination

3.6 A total of 79 European sites (within the UK) were screened by the applicant prior to examination (Annex 1 of this RIES). Of these sites, the applicant concluded that significant effects were likely for 9 European sites and their qualifying features (Table 3a). The applicant also identified likely significant effects for the Southern North Sea draft SAC for harbour porpoise. The applicant's conclusions with regard to this site and the sites listed in Table 3a were not disputed by any interested parties.

3.7 The applicant concluded that likely significant effect could be excluded for the Greater Wash draft SPA alone and in combination with other plans or projects provided best practice and good practice protocols are implemented to avoid disturbance to birds from vessel movements (**REP4-041**). NE has suggested that possible impacts on rafting red-throated diver could be caused by increased vessel movements. They have suggested that this could be dealt with through a post-consent condition on marine licences; as there is at present no guarantee that the Greater Wash SPA will be classified, NE has advised that it is not appropriate to apply a condition to the DCO at this stage (**REP3-033**). They will provide their views on the applicant's shadow HRA for the Greater Wash possible SPA at Deadline 6 (**REP5-030, paragraph 3.3.5**). The RSPB disputes the applicant's conclusions with regard to the magnitude of displacement of red-throated divers and common scoter as a result of new vessel and helicopter movements. They also disagree that best practice and protocols would provide adequate mitigation unless all journeys were undertaken during the summer months when red-throated divers would not be present (REP5-037). A revised screening matrix has therefore been produced for this potential European site by the Planning Inspectorate (see Annex 3 of this RIES).

4.0 ADVERSE EFFECTS ON INTEGRITY

Conservation Objectives

4.1 The conservation objectives for the European sites assessed by the applicant at the point of the DCO application were included within the applicant's HRA report (**APP-0171**). NE has also provided links to conservation objectives for sites within England in their written representations (**REP1-037**). The two potential European sites, the Greater Wash possible SPA and the Southern North Sea draft SAC do not have conservation objectives as they have yet to go out to formal consultation.

The Integrity Test

No Adverse Effects on Site Integrity

4.2 The applicant concluded that the project will not adversely affect the integrity of the European sites and features listed in Table 4.1 below.

4.3 Table 4.1 below identifies where the applicant's conclusion of no adverse effect on site integrity in relation to the European sites and qualifying features listed is disputed by Interested Parties during the course of the examination, at the time of writing. Revised integrity matrices have been prepared by the Planning Inspectorate for those sites and features where the applicant's conclusion has been disputed.

4.4 With regard to effects on the integrity of Flamborough and Filey Coast pSPA and Flamborough Head and Bempton Cliffs SPA, NE raised concerns about the baseline data used in the applicant's assessments. These concerns related to the way population estimates had been derived, incomplete surveys and the attribution of unidentified species (**RR-021, paragraphs 4.1.2.2 – 4.1.2.4** and **Appendix 1, REP1-037, paragraphs 6.5.12 -6.5.33**). Following discussions with the applicant, NE was able to agree the approach to attribution of unidentified species (**REP1-037, paragraphs 6.5.30 – 6.5.33** and **REP1-103, paragraph 3.2.2**). The applicant provided additional information at examination Deadline 1 (**REP1-062** and **REP1-063**) and 2A (**REP2A-021**). NE and the RSPB were then able to agree that the baseline data was adequate for the purposes of the HRA (**REP2-036, paragraphs 3.2.2 – 3.2.6** and **REP3-030, paragraph 3.2.3**).

Alternative solutions

4.5 The RSPB advised in their relevant representations (**RR-028**) and written representations at deadline 1 (**REP1-047**) that they do not believe it is possible to conclude that there will be no adverse effect on the integrity of the Flamborough Head and Bempton Cliffs SPA and the Filey Coast and Flamborough pSPA. In their view this means that the issues of alternative solutions should be explored (**REP1-047, paragraph 9.4**). Section 9 of the RSPB's written representations (**REP1-047**) identifies and considers the alternative solutions that they feel should be considered by the ExA and the Secretary of State.

4.6 The applicant has stated that they do not consider there to be any potential for the application to have an adverse effect on the Flamborough and Filey Coast pSPA and therefore the issue of alternative solutions does not arise (**REP2-028**). At Deadline 5 however they did propose amendments to the project envelope to seek to reduce potential ornithological impacts. This would lead to an increase in the minimum wind turbine generator size from 5MW to 6MW and raising the hub height by 3.5m on a 6MW turbine.

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	No comments from relevant SNCB or other interested parties	
Flamborough and Filey Coast pSPA			
Gannet	No	No	NE do not accept the applicant's analysis but, using their preferred approach to assessing impacts on this species, have been able to reach a conclusion of no adverse effect on integrity alone and in combination with other plans or projects (**REP3-029**). The RSPB does not agree with the applicant's conclusions, for the project alone and in-combination (**REP5-037**).
Kittiwake	No	No	NE do not accept the applicant's analysis but, using their preferred approach to assessing impacts on this species, have been able to reach a conclusion of no adverse effect on integrity alone, subject to mitigation (**REP5-030**). However, at the time of writing NE was not able to conclude that there would be no adverse effects on integrity for the project

Features	**Potential Adverse Effect on Integrity?***	**Agreed with SCNB and other relevant parties?**	**Comments**
			in-combination (**REP5-36**). The RSPB does not agree with the applicant's conclusions, for the project alone and in-combination (**REP5-037**).
Guillemot	No	No	Comments as for gannet
Razorbill	No	No	Comments as for razorbill
Assemblage feature during breeding season	No	No	See comments above for guillemot, razorbill, gannet and kittiwake components of assemblage. The applicant has also concluded no adverse effects on integrity for fulmar and puffin, which are assemblage features. Fulmar have not been highlighted as a concern by NE or any other interested party. With regard to puffin, NE do not accept the applicant's analysis but, using their preferred approach to assessing impacts on this species, have been able to reach a conclusion of no adverse effect on integrity alone and in combination with other plans or projects (**REP3-029**). The RSPB does not agree with the applicant's conclusions, for the project alone and in-combination in relation to puffin (**REP5-037**).
<u>Flamborough Head and Bempton Cliffs SPA</u>			
Kittiwake	No	No	NE do not accept the applicant's analysis but

Features	Potential Adverse Effect on Integrity?*	Agreed with SCNB and other relevant parties?	Comments
			using their preferred approach to assessing impacts on this species have been able to reach a conclusion of no adverse effect on integrity alone, subject to mitigation (**REP5-030**). However, at the time of writing NE was not able to conclude that there would be no adverse effects on integrity for the project in-combination (**REP5-36**). The RSPB does not agree with the applicant's conclusions, for the project alone and in-combination (**REP5-037**).
Forth Islands SPA			
Fulmar	No	No comments from relevant SNCB or other interested parties	
Fowlsheugh SPA			
Fulmar	No	No comments from relevant SNCB or other interested parties	
Humber Estuary SAC			
Annex I habitats	No	Yes	NE initially expressed concerns about access during construction & operation, particularly in relation to the effects from separating the

Features	Potential Adverse Effect on Integrity?*	Agreed with SCNB and other relevant parties?	Comments
			application into two projects (**REP2-009, paragraph 2.4**). Following amendments to the DCO (**REP1-0101, paragraph 8.2.23**) by the applicant, provision of an Intertidal Clarification Note (**REP4-027**) and a commitment by the applicant to produce an Intertidal Access Management Plan, NE have agreed that there will be no adverse effects on integrity of the Annex I habitats alone or in combination with other plans or projects (**REP5-037,paragraph 2.34**)
River lamprey and sea lamprey	No	No comments from relevant SNCB or other interested parties	
Grey seal	No	Yes	NE are satisfied with the mitigation secured through the DCO/DMLs as this will ensure that construction works in the intertidal avoid the main seal pupping season and that measures in the Code of Construction Practice will minimise risks from collision with shipping during construction (**REP1-040, REP1-0101 & REP3-033**). TWT expressed concerns that unless the mitigation referred to in the applicant's HRA were expressly included in the outline Code of Construction Practice, the tests regarding likely significant effects and adverse effects

Features	Potential Adverse Effect on Integrity?*	Agreed with SCNB and other relevant parties?	Comments
			on integrity would not be met (**RR-029**). This appears to have been resolved through agreement with the applicant (**REP1-092**).
Humber Estuary Ramsar			
Habitats (estuarine waters, intertidal mud and sand flats, salt marshes and coastal brackish/saline lagoons)	No	Yes	It is assumed that NE's position on Annex I habitats for the Humber Estuary SAC also applies to the habitat features of the Humber Estuary Ramsar site.
River lamprey and sea lamprey	No	No comments from relevant SNCB or other interested parties	
Grey seal	No	Yes	It is assumed that NE and TWT's position on the grey seal feature of the Humber Estuary SAC also applies to the Humber Estuary Ramsar site.
Birds with peak counts in spring/autumn: Golden plover, knot, dunlin, black-tailed godwit and redshank	No	No	NE expressed concerns over potential disturbance to wintering birds from maintenance which have now been resolved (**REP5-030**). The RSPB expressed concerns about disturbance during construction and maintenance and the adequacy of the proposed mitigation which have not been resolved at the time of writing (**REP5-037**).
Birds with peak counts	No	No	NE expressed concerns over potential

Features	**Potential Adverse Effect on Integrity?***	**Agreed with SCNB and other relevant parties?**	**Comments**
in winter: Shelduck, golden plover, knot, dunlin, black-tailed godwit, bar-tailed godwit and redshank			disturbance to wintering birds from maintenance which have now been resolved (**REP5-030**). The RSPB expressed concerns about disturbance during construction and maintenance and the adequacy of the proposed mitigation which have not been resolved at the time of writing (**REP5-037**).
<u>Humber Estuary SPA</u>			
Breeding: Marsh harrier, avocet and hen harrier	No	No	NE expressed concerns over potential disturbance to wintering birds from maintenance which have now been resolved (**REP5-030**). The RSPB expressed concerns about disturbance during construction and maintenance and the adequacy of the proposed mitigation which have not been resolved at the time of writing (**REP5-037**).
Wintering: Bar-tailed godwit, golden plover, avocet, redshank and dunlin	No	No	NE expressed concerns over potential disturbance to wintering birds from maintenance which have now been resolved (**REP5-030**). The RSPB expressed concerns about disturbance during construction and maintenance and the adequacy of the proposed mitigation which have not been resolved at the time of writing (**REP5-037**).
On passage: Ruff, dunlin, knot, black-tailed godwit,	No	No	NE expressed concerns over potential disturbance to wintering birds from maintenance which have now been resolved

Features	Potential Adverse Effect on Integrity?*	Agreed with SCNB and other relevant parties?	Comments
sanderling and redshank			(**REP5-030**). The RSPB expressed concerns about disturbance during construction and maintenance and the adequacy of the proposed mitigation which have not been resolved at the time of writing (**REP5-037**).
Assemblage of species not otherwise listed: Teal, wigeon, mallard, turnstone, dark-bellied brent goose, ringed plover, oystercatcher, curlew, whimbrel, grey plover, greenshank and lapwing	No	No	NE expressed concerns over potential disturbance to wintering birds from maintenance which have now been resolved (**REP5-030**). The RSPB expressed concerns about disturbance during construction and maintenance and the adequacy of the proposed mitigation which have not been resolved at the time of writing (**REP5-037**).
River Derwent SAC			
River lamprey and sea lamprey	No	No comments from relevant SNCB or other interested parties	
The Wash and North Norfolk Coast SAC			
Harbour seal	No	No comments from relevant SNCB or other interested parties	
Southern North Sea dSAC			
Harbour porpoise	No	No	NE has agreed with the applicant's approach to assessment while noting that an updated

Features	Potential Adverse Effect on Integrity?*	Agreed with SCNB and other relevant parties?	Comments
			HRA will be required when the formal consultation on the dSAC begins (REP5-037). The Wildlife Trusts have also highlighted the need for an updated HRA once formal consultation begins. They also dispute the basis of the applicant's assessment (REP5-038).

*From applicant's HRA report (**APP-0171**) and integrity matrices (**REP4-037**).

ANNEX 1: SITES INCLUDED IN THE APPLICANT'S HRA

Sites included in the applicant's HRA

This table should be read in conjunction with the applicant's updated screening matrices version 3 (**REP4-037**). It should be noted that there are discrepancies between the applicant's matrices and HRA report; where this has been noted the features used in the applicant's HRA assessment have been relied on in compiling the table below.

European site	**Features for which applicant concluded LSE**	**Features for which applicant concluded no LSE**
Abberton Reservoir SPA		All features listed in the Stage 1 matrix
Abberton Reservoir Ramsar		All features listed in the Stage 1 matrix
Benfleet and Southend Marshes SPA		All features listed in the Stage 1 matrix
Berwickshire and North Northumberland Coast Special Area of Conservation (SAC)	Grey seal	Annex I habitat features
Blackwater Estuary SPA		All features listed in the Stage 1 matrix
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar		All features listed in the Stage 1 matrix

Breydon Water SPA		All features listed in the Stage 1 matrix
Broadland SPA		All features listed in the Stage 1 matrix
Buchan Ness to Collieston Coast SPA		All features listed in the Stage 1 matrix
Calf of Eday SPA		All features listed in the Stage 1 matrix
Cape Wrath SPA		All features listed in the Stage 1 matrix
Colne Estuary (Mid-Essex Coast Phase 2) SPA		All features listed in the Stage 1 matrix
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar		All features listed in the Stage 1 matrix
Coquet Island SPA		All features listed in the Stage 1 matrix
Cromarty Firth SPA		All features listed in the Stage 1 matrix
Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA		All features listed in the Stage 1 matrix
Crouch and Roach Estuaries Ramsar (Mid-Essex Coast Phase 3)		All features listed in the Stage 1 matrix
Deben Estuary SPA		All features listed in the Stage 1 matrix

Dengie (Mid-Essex Coast Phase 1) SPA		All features listed in the Stage 1 matrix
Dengie (Mid-Essex Coast Phase 1) Ramsar		All features listed in the Stage 1 matrix
Dogger Bank Site of Community Importance		All features listed in the Stage 1 matrix
Dornoch Firth & Loch Fleet SPA		All features listed in the Stage 1 matrix
East Caithness Cliffs SPA		All features listed in the Stage 1 matrix
East Sanday Coast SPA		All features listed in the Stage 1 matrix
Fair Isle SPA		All features listed in the Stage 1 matrix
Farne Islands SPA		All features listed in the Stage 1 matrix
Fetlar SPA		All features listed in the Stage 1 matrix
Firth of Forth SPA		All features listed in the Stage 1 matrix
Firth of Tay and Eden SAC		All features listed in the Stage 1 matrix
Firth of Tay & Eden Estuary SPA		All features listed in the Stage 1 matrix
Flamborough Head SAC		All features listed in the Stage 1 matrix
Flamborough and Filey Coast pSPA	Article 4.2 qualification (migratory species) Breeding: Kittiwake, razorbill, guillemot	Assemblage (breeding): Herring gull

	and gannet Assemblage (breeding): Puffin, razorbill, guillemot, gannet, kittiwake and fulmar	
Flamborough Head and Bempton Cliffs SPA	Article 4.2 qualification (migratory species) Breeding: Kittiwake	
Forth Islands SPA	Article 4.2 qualification Assemblage (breeding): Fulmar	Article 4.1 qualification Breeding: Arctic tern, common tern, roseate tern and Sandwich tern Article 4.2 qualification (migratory species) Breeding: Gannet, lesser black-backed gull, puffin and shag Assemblage (breeding): Razorbill, guillemot, gannet, kittiwake, herring gull, cormorant, puffin, lesser black-backed gull, shag, Arctic tern, common tern, roseate tern and Sandwich tern
Foula SPA		All features listed in the Stage 1 matrix
Foulness (Mid-Essex Coast Phase 5) SPA		All features listed in the Stage 1 matrix
Fowlsheugh SPA	Article 4.2 qualification Assemblage (breeding): Fulmar	Article 4.2 qualification (migratory species) Breeding: Guillemot and kittiwake Assemblage (breeding): Includes razorbill, herring gull, guillemot and kittiwake

Hamford Water SPA		All features listed in the Stage 1 matrix
Hermaness Saxa Vord & Valla Field SPA		All features listed in the Stage 1 matrix
Hornsea Mere SPA		All features listed in the Stage 1 matrix
Hoy SPA		All features listed in the Stage 1 matrix
Humber Estuary Ramsar	Ramsar criterion 1: Dune systems and humid dune slacks, estuarine waters, intertidal mud and sandflats, saltmarshes and coastal brackish/saline lagoons Ramsar criterion 3: Breeding colony of grey seals Ramsar criterion 8: Migrating river lamprey and sea lamprey Ramsar criterion 5: Internationally important assemblage of waterfowl during the non-breeding season Ramsar criterion 6: Species/populations occurring at levels of international importance. Species with peak counts in spring/autumn – golden plover, red knot, dunlin, black-tailed godwit and common redshank. Species with peak counts in winter – common shelduck, golden plover, knot, dunlin, black-tailed godwit, bar-tailed godwit and redshank	
Humber Estuary SAC	Estuaries	

	Mudflats and sandflats not covered by seawater at low tide Sandbanks which are slightly covered by sea water all the time Coastal lagoons Salicornia and other annuals colonising mud and sand Atlantic salt meadows Embryonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria Fixed dunes with herbaceous vegetation Dunes with Hippophae rhamnoides River lamprey Sea lamprey Grey seal	
Humber Estuary SPA	Article 4.1 qualification Breeding: Avocet and marsh harrier Winter: Bar-tailed godwit, hen harrier, avocet and golden plover Passage: Ruff Article 4.2 qualification (migratory species) Over-winter: Dunlin, knot and redshank On passage: Dunlin, knot, and redshank Assemblage: Including dark-bellied brent goose, sanderling, dunlin, knot, ringed	Article 4.1 qualification Breeding: Bittern and little tern Winter: Bittern Article 4.2 qualification (migratory species) Over-winter: Black-tailed godwit On passage: Black-tailed godwit

	plover, oystercatcher, bar-tailed godwit, golden plover, grey plover, teal, wigeon, mallard, turnstone, pochard, greater scaup, bittern, goldeneye, black-tailed godwit, curlew, whimbrel, ruff, avocet, greenshank and lapwing and redshank	
Inner Dowsing, Race Bank and North Ridge SAC		All features listed in the Stage 1 matrix
Inner Moray Firth SPA		All features listed in the Stage 1 matrix
Lindisfarne SPA		All features listed in the Stage 1 matrix
Loch of Strathbeg SPA		All features listed in the Stage 1 matrix
Marwick Head SPA		All features listed in the Stage 1 matrix
Medway Estuary and Marshes SPA		All features listed in the Stage 1 matrix
Minsmere and Walberswick SPA		All features listed in the Stage 1 matrix
Montrose Basin SPA		All features listed in the Stage 1 matrix
Moray and Nairn Coast SPA		All features listed in the Stage 1 matrix
Moray Firth SAC		All features listed in the Stage 1 matrices
North Caithness Cliffs SPA		All features listed in the Stage 1 matrix

North Norfolk Coast SPA		All features listed in the Stage 1 matrix
North Norfolk Coast SAC		All features listed in the Stage 1 matrix
North Norfolk Sandbanks and Saturn Reef cSAC		All features listed in the Stage 1 matrix
Northumbria Coast SPA		All features listed in the Stage 1 matrix
Noss SPA		All features listed in the Stage 1 matrix
Papa Stour SPA		All features listed in the Stage 1 matrix
Papa Westray SPA		All features listed in the Stage 1 matrix
River Derwent SAC		All features listed in the Stage 1 matrices
Ronas Hill – North Roe and Tingon SPA		All features listed in the Stage 1 matrix
Rousay SPA		All features listed in the Stage 1 matrix
St Abb's Head to Fast Castle SPA		All features listed in the Stage 1 matrix
Stour and Orwell Estuaries SPA		All features listed in the Stage 1 matrix
Sumburgh Head SPA		All features listed in the Stage 1 matrix
Thames Estuary and Marshes SPA		All features listed in the Stage 1 matrix
Thanet Coast and		All features listed in the Stage 1 matrix

Sandwich Bay SPA		
The Swale SPA		All features listed in the Stage 1 matrix
The Wash and North Norfolk Coast SAC	Harbour seal	Annex I habitats listed in the Stage 1 matrix
The Wash SPA		All features listed in the Stage 1 matrix
The Wash Ramsar		All features listed in the Stage 1 matrix
Troup Penan and Lion's Heads SPA		All features listed in the Stage 1 matrix
West Westray SPA		All features listed in the Stage 1 matrix
Ythan Estuary, Sands of Forvie and Meikle Loch SPA		All features listed in the Stage 1 matrix
Greater Wash draft SPA		All features listed in the Stage 1 matrix
Southern North Sea draft SAC	Harbour porpoise	

ANNEX 2 : PLANS AND PROJECTS INCLUDED IN THE APPLICANT'S IN-COMBINATION ASSESSMENT

Plans and projects included in the applicant's in-combination assessment

Annex I habitats in the Humber Estuary SAC	
Habitat loss/disturbance	Hornsea offshore wind farm Project One Able Marine Energy Park Phillips66 replacement pipeline
Migratory fish in the Humber Estuary SAC/Ramsar and River Derwent SAC	
Increased suspended sediment concentrations and sediment deposition	Licensed aggregate extraction areas (i.e., Area 514/2, 514/4, Area 197, Area 160/1, 106/2, 106/3 and Area 480); Application aggregate extraction areas (i.e., Area 514/1, Area 514/3, Area 493, Area 506 and Area 490) Consented offshore wind farm projects (i.e., Triton Knoll); Submitted offshore wind farm projects (i.e., Project One).
Electro-magnetic fields	Humber Gateway export route Lincs offshore wind farm Sheringham Shoal offshore wind farm Dudgeon East offshore wind farm Race Bank offshore wind farm Triton Knoll offshore wind farm Westermost Rough offshore wind farm Hornsea offshore wind farm project one
Marine mammals	

Impact of piling noise on seals	Hornsea offshore wind farm Project One Race Bank offshore wind farm Triton Knoll offshore wind farm East Anglia ONE offshore wind farm Dogger Bank Creyke Beck A and B offshore wind farm Dogger Bank Teesside A and B offshore wind farm East Anglia THREE offshore wind farm
Impacts of piling noise on harbour porpoise	Hornsea offshore wind farm Project One Race Bank offshore wind farm Westermost Rough offshore wind farm Triton Knoll offshore wind farm Dudgeon offshore wind farm East Anglia ONE offshore wind farm Dogger Bank Creyke Beck A and B offshore wind farm Blythe demonstration site Dogger Bank Teeside A and B offshore wind farm East Anglia THREE offshore wind farm
Fulmar	
Displacement effects	Hornsea offshore wind farm Project One Inch Cape offshore wind farm
Gannet	
Displacement effects	Dogger Bank Creyke Beck A and B offshore wind farm Dogger Bank Teeside A and B offshore wind farm Hornsea offshore wind farm Project One
Collision mortality	Aberdeen European Offshore Wind Deployment Centre Beatrice Demonstration Project

	Blyth Demonstration Project Dogger Bank Creyke Beck A and B offshore wind farm Dogger Bank Teeside A and B offshore wind farm Dudgeon offshore wind farm East Anglia ONE offshore wind farm Galloper offshore wind farm Greater Gabbard offshore wind farm Hornsea offshore wind farm project one Humber Gateway offshore wind farm Inch Cape offshore wind farm Kentish Flats Extension offshore wind farm Lincs offshore wind farm London Array offshore wind farm Moray Firth project one offshore wind farm Neart na Gaoithe offshore wind farm Race Bank offshore wind farm Seagreen Alpha offshore wind farm Seagreen Bravo offshore wind farm Sheringham Shoal offshore wind farm Teesside offshore wind farm Thanet offshore wind farm Triton Knoll offshore wind farm Westermost Rough offshore wind farm
Kittiwake	
Collision mortality (based on **REP4-039,Table 1.13**)	Blyth Demonstration Project Dogger Bank Creyke Beck Projects A and B offshore wind farm Dogger Bank Teesside Projects A and B offshore wind farm Dudgeon offshore wind farm Humber Gateway offshore wind farm

	Hornsea Project One offshore wind farm Lincs offshore wind farm offshore wind farm Teesside offshore wind farm Triton Knoll offshore wind farm Westermost Rough offshore wind farm
Guillemot	
Displacement effects	As for gannet collision mortality assessment plus the following offshore wind farms: LID6 London Array I and II
Razorbill	
Displacement effects	As for gannet collision mortality assessment plus LID 6 and London Array II
Puffin	
Displacement effects	As for razorbill displacement effects assessment

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

Stage 1 Matrices: Screening for Likely Significant Effect

This annex of the RIES identifies the European sites and features for which the applicant's conclusions were disputed by Interested Parties. Revised screening matrices have therefore been produced by the Planning Inspectorate.

Key to Matrices:

✓	Likely significant effect cannot be excluded
×	Likely significant effect can be excluded
?	Applicant's conclusion is 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 1 Matrix 1: Greater Wash draft Special Protection Area

Distance to offshore cable: 0 km

European site features	**Likely Effects of NSIP**														
	Collision			**Barrier**			**Displacement**			**Disturbance**			**In-combination Effects**		
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Red-throated diver (non-breeding)		×a			×a		?	×a	?	×?b	×?b	×?b	×?c	×?c	×?c
Little gull (non-breeding)		×d			×d			×d		×b	×b	×b	×c	×c	×c
Common scoter (non-breeding)		×a			×a		?	×a	?	×?b	×?b	×?b	×?c	×?c	×?c
Sandwich tern (breeding)		×a			×a			×a		×b	×b	×b	×c	×c	×c
Common tern (breeding)		×a			×a			×a		×b	×b	×b	×c	×c	×c
Little tern (breeding)		×a			×a			×a		×b	×b	×b	×c	×c	×c

Notes

a. The applicant states that there is no connectivity between the feature and subzone 2 of the Hornsea zone where the turbines are to be located (**REP4-041, paragraphs 1.4.7 – 1.4.9, 1.4.16 – 1.4.19 and 1.4.21 – 1.4.23)**.

b. The applicant states that only minimal disturbance on the SPA feature is anticipated, provided best practice measures and protocols are implemented to reduce disturbance of birds associated with vessel transit (**REP4-041, paragraphs 1.5.5 – 1.5.8)**. The RSPB dispute the applicant's conclusions on the grounds that diver density was shown to decline out to 4km from the Horns Rev wind farm footprint post-construction. In the RSPB's view new vessel and helicopter

movements could disturb red-throated divers and common scoter during construction, operation and decommissioning of the wind farm. The RSPB query whether the applicant's surveys are adequate to assess the impacts of the cable-laying works. They also state that it is the location of vessel movements that are most critical, rather than the volume of movements and that potentially a substantial area of the pSPA would not be available as habitat to red-throated divers. They do not agree that the use of best practice and protocols will be sufficient to avoid significant effects unless all journeys are undertaken during the summer months when divers would not be present. They acknowledge that this would not be practicable and suggest therefore that the applicant cannot rely on the use of best practice and protocols to conclude no likely significant effect (**REP5-037**).

NE advised that the only species of potential concern is red-throated diver. They state that the worst case scenario assumes the presence of rafting red-throated diver. If the SPA is classified then possibly all offshore wind farms would have a standard condition to avoid rafting birds when travelling from their operational port through the boundaries of the site. NE anticipates that this would be dealt with through a post-consent condition amendment on the marine licences. As there is no guarantee at present that the Greater Wash dSPA will be put forward to Europe as a classified SPA, NE do not believe that it would be appropriate to apply such a condition to the DCO now (**REP3-033, paragraph 1.58**). They will provide further comment on the applicant's shadow HRA screening assessment (**REP4-041**) at Deadline 6 (**REP5-030, paragraph 3.3.5**).

c. In the applicant's view there is no mechanism for effect on the feature of the possible SPA. Only minimal effects are identified as a result of the application alone (**REP4-041**). The RSPB dispute this conclusion on the basis that the points they have raised about red-throated diver and common scoter (see footnote b of this table) also preclude a conclusion of no likely significant effect in combination with other plans or projects (**REP5-037**).

d. Little gull has low sensitivity to displacement and barrier effects. Collision risk modelling predicted very low collision rates for this species (0.76 per annum at 98% avoidance rate) (**REP4-041, paragraphs 1.5.26 – 1.5.53**).

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
?	Applicant's conclusion is 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: Flamborough and Filey Coast pSPA

Distance to project: 100 km

Flamborough and Filey Coast pSPA									
European site features	**Likely Effects on NSIP**								
	Displacement			**Collision**			**In combination effects**		
	C	O	D	C	O	D	C	O	D
Gannet		×? c			× ?d			×? e,f	
Kittiwake					× ?g			×? h	
Guillemot		×? i						×? j	
Razorbill		×? k						×? l	
Breeding season assemblage including fulmar, gannet, kittiwake, guillemot, razorbill and puffin		×? a,c,i,k,m			×? d,g			×? b,e,f,h,j,l,n	

Notes

These footnotes should be read in conjunction with the summary of the various parties' positions on the baseline data used in the applicant's assessment in section 4 of the main RIES.

a. Based on a worst case assumption of 100% of the birds originating from the Flamborough and Filey Coast pSPA displacement analysis predicted a mortality of 8 fulmar during the breeding season (**APP-0171, Table 5-31**), based on a displacement rate of 30% and mortality rate of 2%. This represents 0.0032% of the pSPA assemblage feature. During the post-breeding season (September to October), displacement analysis predicted no mortality based on a displacement rate of 30% and mortality rate of 1%. During the post-breeding season (November) the mean peak population estimate within Subzone 2 and 2 km buffer was 57 individual fulmar (**APP-0171, Table 5-32**). Displacement analysis predicted a mortality of 0 fulmar during the non-breeding season based on a displacement rate of 30% and mortality rate of 1. In the pre-breeding season (December to March) displacement analysis predicted a mortality of 0 based on a displacement rate of 30% and mortality rate of 1% (**APP-0171, Table 5-33**). In the applicant's view the small number of mortalities predicted as a result of displacement and the precautionary nature of the assessment during the breeding season makes an adverse effect on the fulmar component of the Flamborough and Filey Coast pSPA assemblage feature unlikely. No comments on effects on fulmar have been made by any interested party.

b. In the applicant's view, using a precautionary breeding season predicted cumulative mortality of 15 birds (0.07% of the assemblage feature numbers) any increase in baseline mortality is likely to be sustainable. Outside of the breeding season a mortality of 2 birds represents less than 0.02% of the assemblage feature of the pSPA and therefore no adverse effect on integrity is predicted (**APP-0171, paragraphs 5.8.110 – 5.8.122**). No comments on fulmar have been made by any interested party.

c. The applicant's initial assessment concluded that no adverse effect on integrity would be caused to gannet from displacement-related mortality (**APP-0171, paragraphs 5.8.123 – 5.8.134**). NE disputed the way the applicant had apportioned effects to the SPA (**RR-021, Appendix 1**). They also advised that given the lack of empirical data to support different displacement and mortality rates at different times of the year, the same range of displacement and mortality rates should be applied across all seasons in the assessment and should be summed to give an annual figure (**REP1-037, paragraphs 6.5.71 – 6.5.74**). The RSPB also advised this (**REP3, table 3.3**). The RSPB also queried the justification for the applicant's choice of displacement mortality (**REP1-047, paragraph 6.11**). NE and the RSPB advised that a Population Viability Analysis (PVA) should be used to assess population-level effects (**RR-021, Appendix 1, REP1-040, EOO4, RR-028** and **REP1-047, paragraphs 7.1 – 7.47**). The applicant provided a PVA for both density-dependent and density-independent models (**REP2A-015**) and an updated note on apportioning effects for gannet (**REP2A-016**). Following the provision of the additional information, although NE and the applicant maintain different positions on the apportioning of species during the breeding season and displacement levels, NE concluded

that there would be no adverse effect on the integrity from displacement effects on gannet from the project alone (**REP3-029, paragraph 3.2.13,** and **REP3-035**). The RSPB have maintained their concerns about the selected displacement mortality values (**REP3-041, paragraphs 8.4.15 – 8.4.16**). They also have concerns about the applicant's PVA (**REP3-041, paragraphs 8.4.17 – 8.4.20, REP4-053, EOO16** and **REP4-054, paragraphs 26 – 29** and **62 – 72** and **REP5-037**). The RSPB also disagree with NE's position on displacement mortality and choice of PVA metric (**REP4-054, paragraphs 25 – 29** and **REP5-037**). The applicant disputes RSPB's choice of PVA metric (**REP2-028, section 4**). The RSPB do not agree with a conclusion of no adverse effect on integrity for gannet (**REP4-054, paragraph 46**).

d. The applicant's initial assessment concluded that no adverse effect on integrity would be caused to gannet from collision-related mortality (**APP-0171, paragraphs 5.8.135 – 5.8.146**). NE and the RSPB disputed the use of site-specific flight height data (**RR-021, Appendix 1, RR-028, REP1-037, paragraphs 6.5.34 -6.537, REP1-047, section 5, REP1-0103, table 3.1** and **REP2-036, table 3.1**), while the applicant maintained their position that this was preferable to the use of generic flight height data (**REP1-064, REP1-0103, table 3.1, REP2-028, section 3, REP2-036, table 3.1, REP3-014, paragraphs 2.18 – 2.30** and **REP3-030, table 3.1**). The applicant's choice of avoidance rate for the collision modelling and choice of Band model was disputed by NE and the RSPB (**RR-021, Appendix 1, RR-028, REP1-037, paragraphs 6.5.63 – 6.5.67, REP1-040, EOO4, REP1-047, section 5, REP2-015, EOO4, REP2-009, paragraph 2.17, REP2-036, table 3.2, REP3-029, table 3.2** and **REP3-030, table 3.2**). The applicant maintained their position on these points (**REP1-051, EOO4, REP1-077, REP2-028, section 3, REP2-036, table 3.2, REP2-016, REP3-014, paragraphs 2.18 – 2.30, REP3-029, table 3.1, REP3-030, table 3.2** and **REP5-030, table 3.2**). NE also raised concerns about the apportioning of effects across the seasons (**RR-021, Appendix 1, REP1-037, paragraphs 6.5.39 – 6.5.44**). Following provision of an updated note on apportioning effects by the applicant and updated PVA modelling, while NE maintained their position on the choice of flight height data, Band model and avoidance rate, they were able to undertake their own analysis of the figures and reach a conclusion of no adverse effect on integrity from the project alone (**REP3-029, paragraph 3.2.13** and **REP3-035**). The RSPB have concerns about the applicant's PVA (**REP3-041, paragraphs 8.4.17 – 8.4.20, REP4-053, EOO16** and **REP4-054, paragraphs 26 – 29** and **62 – 72** and **REP5-037**). They disagree with NE on the correct choice of avoidance rate for gannet and PVA metric (**REP4-054, paragraphs 25 - 26**). The applicant disputes RSPB's choice of PVA metric (**REP2-028, section 4**). The RSPB have maintained their position that they do not agree with a conclusion of no adverse effect on integrity (**REP-053, EOO16, REP4-054, paragraphs 39-46**).

NE and the RSBP advised that displacement and collision related mortality should be added together for gannet to give an annual figure for mortality (**RR-021, Appendix 1, REP3-029, table 4.1, REP3-030**, **table 3.3** and **REP3-033**). The applicant has maintained the position that this would be problematic and potentially involve double counting (**REP2A-016, paragraph 1.7.6, REP3-014, paragraph 2.39, REP3-029, table 4.1** and **REP3-030, table 3.3**). As noted above, NE undertook their own analysis of the applicant's data using their preferred approach (**REP3-035**) and were able to reach a conclusion of no adverse effect on integrity from the project alone.

The ExA asked for the views of the applicant, NE and the RSPB on recent research of impact of offshore wind farms on gannet populations (Cleasby et al, Journal of Applied Ecology, 2015, DOI: 1111/1365-2664.12529) at the ISH on 27 October 2015 (**EV-035 – 39**). NE noted that the study shows gannet fly higher during foraging compared with migratory flight; there are issues however with the methodology used in the study, including the use of only a very small sample of the study population, which need to be addressed in order to validate conclusions about the extent to which use of generic flight height data might be underestimating collision mortality (**REP5-036, paragraphs 2.18 – 2.24**). The applicant also raised queries about the conclusions of the paper in the light of concerns about the methodologies used in the study (**REP5-008, paragraphs 8.16 – 8.23**). The RSPB noted that this study uses measured collision heights and suggests that it shows that boat-based surveys underestimate the birds flying at potential collision height. They also state that an important conclusion of this paper is the differentiation of flight height and consequent collision risk into flight behaviours, commuting and foraging, and that foraging flights are more likely to occur further offshore (**REP5-037**).

e. The applicant's initial assessment concluded that no adverse effect on integrity would be caused to gannet from the combined effects of displacement (**APP-0171, paragraphs 5.8.147 – 5.8.161**). NE and the RSPB expressed concerns about the scope of the applicant's assessment, discrepancies between figures for different projects and the use of only 2 tiers in assessment (**RR-021, paragraphs 131-144, REP1-037, paragraph 6.5.87, REP1-047, section 8**). Following discussions with the applicant, NE agreed that they did not feel that restricting assessment to 2 tiers had serious implications for the assessment (**REP1-040, EOO8** and **REP1-051, EOO8**). The RSPB do not agree with the approach of using only tier 1 and tier 2 projects for the assessment (**REP2-015, EOO8**). The applicant provided an updated in-combination assessment for effects on gannet at Deadline 2a (**REP2A-016**). The information provided by the applicant has allowed NE to conduct their own analysis using their preferred approach and to reach a conclusion of no adverse effects in combination on gannet (**REP3-014, paragraph 2.9, REP3-029, paragraph**

3.2.13, REP3-035, REP3-033, paragraphs 1.34 – 1.39, REP5-030, paragraph 3.2.15). The RSPB maintain their position that adverse effects on integrity in combination with other plans or projects cannot be excluded (**REP5-037**).

f. The applicant's initial assessment concluded that no adverse effect on integrity would be caused to gannet from the combined effects of collision (**APP-0171, paragraphs 5.8.162 – 5.8.173**). NE and the RSPB expressed concerns about the scope of the applicant's assessment, discrepancies between figures for different projects and the use of only 2 tiers in assessment (**RR-021, paragraphs 4.1.6.1** and **131-144, REP1-037, paragraph 6.5.87, REP1-047, paragraph 5.10** and **section 8**). Following discussions with the applicant, NE agreed that they did not feel that restricting assessment to 2 tiers had serious implications for the assessment (**REP1-040, EOO8** and **REP1-051, EOO8**). The RSPB do not agree with the approach of only using tier 1 and tier 2 projects for the assessment (**REP2-015, EOO8**). The applicant provided an updated in-combination assessment for effects on gannet at Deadline 2a (**REP2A-016**). The information provided by the applicant has allowed NE to conduct their own analysis using their preferred approach and to reach a conclusion of no adverse effects in combination on gannet (**REP3-014, paragraph 2.9, REP3-029, paragraph 3.2.13, REP3-035, REP3-033, paragraphs 1.34 – 1.39, REP5-030, paragraph 3.2.15**). The RSPB maintain their position that adverse effects on integrity in combination with other plans or projects cannot be excluded (**REP5-037**).

g. The applicant's initial assessment of effects on kittiwake concluded that no adverse effects on integrity from the project alone were predicted (**APP-0171, paragraphs 5.8.174 – 5.8.185**). The comments from NE and the RSPB on the applicant's use of site-specific flight height data, choice of avoidance rates, choice of Band model and choice of PVA metric referred to under footnote d above also apply to kittiwake. Additional concerns were raised by NE and the RSPB on the following points:

- Proportion of birds at potential collision height recorded in the Hornsea 2 zone compared with other offshore wind farm projects (**RR-021, Appendix 1, REP1-047, paragraph 5.23, REP2-015, EOO2, REP3-30, table 3.1** and **REP5-036, paragraphs 3.38 – 3.42**). The applicant's position is that analysis of results from other offshore wind farms shows that the values used for the HRA fall within the ranges used by these projects (**REP4-039, section 1.6, REP4-040, REP5-008, paragraphs 8.9 – 8.11**).
- Choice of avoidance rate for use with the basic Band model for kittiwake **(RR-021, Appendix 1, REP1-040, EOO4, REP1-041, REP1-047, paragraphs 5.37 – 5.42, REP3-034** and **REP3-041, paragraphs 8.4.5 – 8.4.8**). The applicant's position is that the avoidance rate should be drawn from the BTO report 656 (**REP1-051, EOO4, REP4-039, paragraphs 1.8.1 – 1.8.9, REP4-040**).

- Decline of the kittiwake population at both the SPA and nationally (**REP1-047, paragraphs 2.5 – 2.6, REP3-034, REP4-048, section B** and **REP5-36, paragraphs 2.11 – 2.15**). The applicant does not agree that the SPA population is declining (**REP4-040** and **REP5-022**).
- Apportionment of kittiwake to the SPA population based on concerns about the definition of the breeding season and the proportion of adults in the population during the breeding season (**RR-021, paragraphs 45 – 48, REP1-037, paragraphs 6.5.46 – 6.5.54, REP1-0103, table 4.1, REP2-009, paragraphs 2.9 – 2.15, REP2-015, EOO2, REP3-029, table 3.6, REP3-30, table 3.4** and **REP4-048, section B**). NE and the applicant have reached agreement on the proportion of adults present during the breeding season (**REP5-030, paragraph 3.2.18** and **REP5-036, paragraph 3.58**). The RSPB have maintained their position (**REP4-054, EOO16).** The position of the applicant (**REP4-039, section 1.7**) and NE/RSPB on the definition of the breeding season has not changed (**REP5-036, paragraphs 3.47-3.51** and **REP5-037, Appendix**)
- NE and the RSPB advocate the use of a density-independent model in PVA (**REP3-033, paragraphs 1.30 – 1.32, REP4-54, paragraphs 62 - 72**. The applicant views a density-dependent model as more realistic (**REP3-014, paragraph 2.42, REP4-040**).

  The RSPB do not agree with the conclusion of no adverse effects on integrity from the project alone but are still considering the applicant's most recent submissions (**REP5-037**). NE and the applicant have agreed mitigation in the form of the removal of the 5MW wind turbine option and an increase in hub height by 3.5m on a 6MW turbine (**REP5-001, paragraphs 7.1 – 7.2** and **REP5-030, paragraph 3.2.19**). NE has undertaken an analysis of collision risk mortality using its preferred approach and based on the reduction in swept area is now able reach a conclusion of no adverse effect from the project alone (**REP5-036, paragraphs 3.65 – 3.66**).

h. The applicant's initial assessment of effects concluded no adverse effects on integrity from the project in combination with other plans and projects (**APP-0171, paragraphs 5.8.186 – 5.8.197**). NE and the RSPB expressed concerns about the scope of the applicant's assessment, discrepancies between figures for different projects and the use of only 2 tiers in assessment (**RR-021, paragraphs 4.1.6.1** and **131-144, REP1-037, paragraph 6.5.87, REP1-047, section 8**). The applicant provided an updated assessment at Deadline 4 which considered 4 tiers of projects (**REP4-039, section 1.11**). The applicant has commented on the consistency of NE's advice (compared with other wind farm examinations) (**REP4-040**). NE do not agree with the way the applicant has used tracking data to assess connectivity between the SPA and the project and the way breeding season collisions have been apportioned (**REP5-036, paragraphs 3.67 – 3.90)**. Based on their updated position (**REP5-036, table 4**), they do not agree with the

conclusion of no adverse effect on integrity. They note that there is considerable uncertainty around their preferred figure but do not think it is precautionary (**REP5-036, paragraphs 3.85 - 3.86**). This remains the case even after the mitigation referred to under footnote g is considered (**REP5-036, 3.88 – 3.90**). The RSPB did not agree with the conclusion of no adverse effect on integrity and do not think that all the relevant projects have been included in the applicant's assessment (**REP4-054, paragraphs 47 – 50, REP5-037**).

i. The applicant's initial assessment of effects on guillemot concluded no adverse effect on integrity from the project alone (**APP-0171, paragraphs 5.8.198 – 5.8.212**). NE and the RSPB queried the justification behind the choice of displacement levels and displacement-related mortality used in the applicant's assessment (**RR-021, paragraph 4.1.5.2, RR-028, REP1-047, paragraph 6.11** and **REP3-041, paragraphs 8.4.15 – 8.4.16**). NE and the RSPB both suggested that in view of the uncertainty about the nature of the impacts from displacement, the seasonal mortality predictions should be summed to give an annual figure which could then be used to model population level impact (**RR-021, Appendix 1, REP1-037, paragraph 6.5.72, REP1-040, EOO5, REP2-015, EOO5, REP1-103, table 3.3, REP2-036, table 3.3, REP3-030, table 3.3, REP3-033, table 3.3**). The applicant maintained the position that summing seasonal mortality impacts would be overly precautionary and likely to introduce an element of 'double counting' (**REP1-051, EOO5, REP1-103, table 3.3, REP2-016, EOO5, REP2-027, REP3-014, paragraph 2.38, REP3-030, table 3.3**). NE and the RSPB disputed the way the applicant had apportioned effects. This related both to the geographical scope of the assessment and to the assumptions about the distribution of immature birds during the breeding season (**RR-021, Appendix 1, RR-028, REP1-037 paragraphs 6.5.55 – 6.5.58, REP1-047, paragraph 6.12, REP2-009, paragraph 2.12, REP3-029, table 3.2,** and **REP3-030, table 3.4**). The applicant has maintained the position that the apportionment during the breeding season is appropriate (**REP3-029, table 3.2,** and **REP3-030, table 3.4**). NE and the RSPB advised that a Population Viability Analysis (PVA) should be used to assess population-level effects (**RR-021, Appendix 1, RR-028, REP1-040, EOO4** and **REP1-047, paragraphs 7.1 – 7.47**).

The applicant provided an updated apportioning note for guillemot (**REP2A-017**) and a PVA (**REP2A-015**) at Deadline 2a. Following this, although NE and the applicant maintained their positions regarding breeding season apportionment and displacement mortality values, NE have been able to undertake an analysis using their preferred approach and reach a conclusion of no adverse effects on integrity from the project alone (**REP3-014, paragraph 2.9, REP3-029, paragraph 3.2.13, REP3-036, REP5-030, paragraph 3.2.15**).

The RSPB raised concerns about the adequacy of the buffer used in the applicant's assessment (**RR-028**) but agreed with the applicant that their approach was in line with the guidance from the SNCBs and adequate for the HRA, even though it is not the RSPB's preferred approach (**REP3-030, paragraph 3.2.8**). The RSPB do not agree with NE's position on displacement level; NE view 70% displacement as the maximum level likely but the RSPB think it is plausible that the displacement could occur at higher rates and therefore see 70% as a reasonable value rather than a maximum (**REP3-014, paragraph 2.37** and **REP5-037**). They also disagree with NE on the appropriate PVA metric (**REP3-041, section 8.5** and **REP5-037**). Using the RSPB's preferred approach the PVA output shows a decline in the population so the RSPB does not support a conclusion of no adverse effect on integrity for the project alone (**REP4-054, paragraphs 51 – 53**).

j. The applicant's initial assessment concluded no adverse effects on integrity from the project in combination with other plans or projects (**APP- 0171, paragraphs 5.8.213 – 5.8.228**). NE and the RSPB expressed concerns about the population scales used, the geographical scope of the applicant's assessment, how projects were selected for inclusion in the assessment and whether NE's preferred range of displacement levels/mortality had been included in the assessment. They also expressed concerns about the scope of the applicant's assessment, discrepancies between figures for different projects and the use of only 2 tiers in assessment (**RR-021, Appendix 1, REP1-037, paragraph 6.5.87** and **REP1-047, section 8**). Following discussions with the applicant, NE agreed that they did not feel that restricting assessment to 2 tiers had serious implications for the assessment (**REP1-040, EOO8** and **REP1-051, EOO8**). The RSPB do not agree with the reliance on the tier 1 and tier 2 projects for the assessment (**REP2-015, EOO8**). The applicant provided an updated in-combination assessment for effects on guillemot at Deadline 2a (**REP2A-017**) and a PVA (**REP2A-015**). The information provided by the applicant has allowed NE to conduct their own analysis using their preferred approach and to reach a conclusion of no adverse effects in combination on gannet (**REP3-014, paragraph 2.9, REP3-029, paragraph 3.2.13, REP3-036, REP3-033, paragraphs 1.34 – 1.39, REP5-030, paragraph 3.2.15** and tables **3.2 and 3.3**). The RSPB maintain their position that adverse effects on integrity in combination with other plans or projects cannot be excluded (**REP5-037, paragraphs 51 - 52**).

k. The applicant's initial assessment concluded no adverse effects on integrity for razorbill from the project alone (**APP-0171, paragraphs 5.8.229 – 5.8.248**). The positions of the parties were as described for guillemot under footnote i above, but the following references apply:

- Applicant's updated apportioning note is **REP2A-019**
- NE's position on adverse effects on integrity is in **REP3-038**

- The RSPB's position on adverse effects on integrity is in **REP4-054, paragraphs 54 – 56.**

l. The applicant's initial assessment concluded no adverse effects on integrity from the project in combination with other plans or projects (**APP-0171, paragraphs 5.8.249 – 5.8.265**). The positions of the parties were as described for guillemot under footnote j above but the following references apply:

- Applicant's updated apportioning note is **REP2A-019**
- NE's position on adverse effects on integrity is in **REP3-038**
- The RSPB's position on adverse effects on integrity is in **REP4-054, paragraphs 54 – 56.**

m. The applicant's initial assessment concluded no adverse effects on integrity for puffin from the project alone (**APP-0171, paragraphs 5.8.266 – 5.8.279**). The positions of the parties were as described for guillemot under footnote i above, but the following references apply:

- Applicant's updated apportioning note is **REP2A-020**
- NE's position on adverse effects on integrity is in **REP3-037**
- The RSPB's position on adverse effects on integrity is in **REP4-054, paragraphs 57 – 59.**

n. The applicant's initial assessment concluded no adverse effects on integrity from the project in combination with other plans or projects (**APP-0171, paragraphs 5.8.280 – 5.8.289**). The positions of the parties were as described for guillemot under footnote j above but the following references apply:

- Applicant's updated apportioning note is **REP2A-020**
- NE's position on adverse effects on integrity is in **REP3-037**
- The RSPB's position on adverse effects on integrity is in **REP4-054, paragraphs 57 – 59.**

Stage 2 Matrix 2: Flamborough Head and Bempton Cliffs SPA

Distance to project: 100 km

European site feature	**Likely effects on NSIP**					
	Collision			**In-combination effects**		
	C	O	D	C	O	D
Kittiwake (breeding)		× ?a			×? b	

Notes

a. The applicant's initial assessment of effects on kittiwake concluded that no adverse effects on integrity from the project alone were predicted (**APP-0171, paragraphs 5.8.174 – 5.8.185**). The comments from NE and the RSPB on the applicant's use of site-specific flight height data, choice of avoidance rates, choice of Band model and choice of PVA metric referred to under footnote d of Stage 2 Matrix 1 also apply to kittiwake . Additional concerns were raised by NE and the RSPB on the following points:

- Proportion of birds at potential collision height recorded in the Hornsea 2 zone compared with other offshore wind farm projects (**RR-021, Appendix 1, REP1-047, paragraph 5.23, REP2-015, EOO2, REP3-30, table 3.1** and **REP5-036, paragraphs 3.38 – 3.42**). The applicant's position is that analysis of results from other offshore wind farms shows that the values used for the HRA fall within the ranges used by these projects (**REP4-039, section 1.6, REP4-040, REP5-008, paragraphs 8.9 – 8.11**).
- Choice of avoidance rate for use with the basic Band model for kittiwake **(RR-021, Appendix 1, REP1-040, EOO4, REP1-041, REP1-047, paragraphs 5.37 – 5.42, REP3-034** and **REP3-041, paragraphs 8.4.5 – 8.4.8**). The applicant's position is that the avoidance rate should be drawn from the BTO report 656 (**REP1-051, EOO4, REP4-039, paragraphs 1.8.1 – 1.8.9, REP4-040**).

- Decline of the kittiwake population at both the SPA and nationally (**REP1-047, paragraphs 2.5 – 2.6, REP3-034, REP4-048, section B** and **REP5-36, paragraphs 2.11 – 2.15**). The applicant does not agree that the SPA population is declining (**REP4-040** and **REP5-022**).
- Apportionment of kittiwake to the SPA population based on concerns about the definition of the breeding season and the proportion of adults in the population during the breeding season (**RR-021, paragraphs 45 – 48, REP1-037, paragraphs 6.5.46 – 6.5.54, REP1-0103, table 4.1, REP2-009, paragraphs 2.9 – 2.15, REP2-015, EOO2, REP3-029, table 3.6, REP3-30, table 3.4** and **REP4-048, section B**). NE and the applicant have reached agreement on the proportion of adults present during the breeding season (**REP5-030, paragraph 3.2.18** and **REP5-036, paragraph 3.58**). The RSPB have maintained their position (**REP4-054, EOO16).** The position of the applicant (**REP4-039, section 1.7**) and NE/RSPB on the definition of the breeding season has not changed (**REP5-036, paragraphs 3.47-3.51** and **REP5-037, Appendix**)
- NE and the RSPB advocate the use of a density-independent model in PVA (**REP3-033, paragraphs 1.30 – 1.32, REP4-54, paragraphs 62 - 72**. The applicant views a density-dependent model as more realistic (**REP3-014, paragraph 2.42, REP4-040**).

  The RSPB do not agree with the conclusion of no adverse effects on integrity from the project alone but are still considering the applicant's most recent submissions (**REP5-037**). NE and the applicant have agreed mitigation in the form of the removal of the 5MW wind turbine option and an increase in hub height by 3.5m on a 6MW turbine (**REP5-001, paragraphs 7.1 – 7.2** and **REP5-030, paragraph 3.2.19**). NE has undertaken an analysis of collision risk mortality using its preferred approach and based on the reduction in swept area is now able reach a conclusion of no adverse effect from the project alone (**REP5-036, paragraphs 3.65 – 3.66**).

b. The applicant's initial assessment of effects concluded no adverse effects on integrity from the project in combination with other plans and projects (**APP-0171, paragraphs 5.8.186 – 5.8.197**). NE and the RSPB expressed concerns about the scope of the applicant's assessment, discrepancies between figures for different projects and the use of only 2 tiers in assessment (**RR-021, paragraphs 4.1.6.1** and **131-144, REP1-037, paragraph 6.5.87, REP1-047, section 8**). The applicant provided an updated assessment at Deadline 4 which considered 4 tiers of projects (**REP4-039, section 1.11**). The applicant has commented on the consistency of NE's advice (compared with other wind farm examinations) (**REP4-040**). NE do not agree with the way the applicant has used tracking data to assess connectivity between the SPA and the project and the way breeding season collisions have been apportioned (**REP5-036, paragraphs 3.67 – 3.90)**. Based on their updated position (**REP5-036, table 4**), they do not agree with the

conclusion of no adverse effect on integrity. They note that there is considerable uncertainty around their preferred figure but do not think it is precautionary (**REP5-036, paragraphs 3.85 - 3.86**). This remains the case even after the mitigation referred to under footnote g is considered (**REP5-036, 3.88 – 3.90**). The RSPB did not agree with the conclusion of no adverse effect on integrity and do not think that all the relevant projects have been included in the applicant's assessment (**REP4-054, paragraphs 47 – 50, REP5-037**).

Stage 2 Matrix 3: Humber Estuary SPA / bird features of Humber Ramsar site

Distance to wind farm: 89 km

Distance to cable: 0 km

European site feature	**Likely effects on NSIP**					
	Disturbance			**In-combination effects**		
	C	O	D	C	O	D
Marsh harrier (breeding)	× h	?o	× h	× n	?o	× n
Avocet (breeding)	× h	?o	× h	× n	?o	× n
Hen harrier (wintering)	× h	?o	× h	× n	?o	× n
Bar-tailed godwit (wintering)	× f,?p	?o	× f,?p	× n,?p	?o	× n,?p
Golden plover (wintering)	× b	?o	× b	× n	?o	× n
Avocet (wintering)	× h	?o	× h	× n	?o	× n
Ruff (passage)	× h	?o	× h	× n	?o	× n
Dunlin (wintering)	× e, ?p	?o	× e?p	× n?p	?o	× n?p
Knot (wintering)	× c?p	?o	× c?p	× n?p	?o	× n?p

Shelduck (wintering)	× a	?o	× a	× n	?o	× n
Redshank (wintering)	× g	?o	× g	× n	?o	× n
Dunlin (passage)	× e?p	?o	× e?p	× n?p	?o	× n?p
Knot (passage)	× c?p	?o	× c?p	× n?p	?o	× n?p
Sanderling (passage)	× d?p	?o	× d?p	× n	?o	× n
Redshank (passage)	× g	?o	× g	× n?p	?o	× n?p
Wintering assemblage (species not otherwise listed): Teal, wigeon, mallard, turnstone, pochard scaup, dark-bellied brent goose, goldeneye, ringed plover, oystercatcher, curlew, whimbrel, grey plover, greenshank and lapwing	× ?p h,i,j,k,l,m	?o	× ?p h,i,j,k,l,m	× n?p	?o	× n?p

Notes

a. The applicant states that extensive areas of similar habitat exist in which the few birds present can forage beyond disturbance distance from the cable. Furthermore the majority of birds recorded were beyond the range at which noise

disturbance may result from the cable corridor and HDD compound (**APP-0171, paragraphs 5.9.48 and 5.9.56 – 5.9.57**).

b. The applicant indicates that research recommends avoidance of high level disturbance from construction works within 200m of golden plover. Site specific surveys recorded no golden plover within 200m of either the proposed area of the HDD compound or cable corridor (**APP-0171, paragraphs 5.9.63 – 5.9.64**).

c. Research suggests that high level disturbance from construction should be avoided within 100m of birds. Irrespective of the tidal state most birds were located over 300m from the proposed HDD compound and cable, beyond the distance where noise emissions and visual disturbance from cable installation are predicted to cause disturbance. Knot are naturally mobile foragers with extensive areas of habitat available to them outside the disturbed area; disturbance from the project may be intermittent and not across the whole cable corridor (**APP-0171, paragraphs 5.9.68 – 5.9.69**).

d. Sanderling are tolerant of moderate and high level disturbance events. The majority of the birds recorded within the study area were beyond the range at which noise and visual disturbance may result from the cable corridor and HDD compound. The applicant notes however that there has been a 37% decline in numbers of this species since designation which may be driven by site-specific pressures (**APP-0171, paragraphs 5.9.70 – 5.9.71**).

e. Site-specific surveys recorded peak numbers during the spring passage period of 1,300 birds. During high tide the birds were distributed on the upper shore. During other tide states the birds foraged mainly on the upper shore with limited usage of the cable landfall survey area at low tide. Far fewer birds are likely to be affected than the peak numbers recorded. Dunlin are very tolerant of moderate and high level visual disturbance, foraging extremely close to plant. Irrespective of tidal state most birds in the study area were recorded beyond the range at which noise and visual disturbance may result from the cable corridor and HDD compound. There are also extensive areas of similar habitat available to them beyond disturbance distance from the cable corridor (**APP-0171, paragraphs 5.9.72 – 5.9.73**).

f. Survey data suggest that this species uses the cable landfall survey area as the tide ebbs or when the upper intertidal flats are exposed during high tides. The principal roost of birds using the area is likely to be to the immediate north-west. Bar-tailed godwit are considered to be tolerant of moderate and high level visual disturbance events, with

research recommending avoidance of high level disturbance from construction works within 200m of birds. Given the limitations to the spatial extent of construction activities, far fewer bar-tailed godwit than the peak population estimates are likely to be affected by disturbance. Extensive areas of similar habitat exist in which birds can forage beyond disturbance distance from the cable corridor (**APP-017, paragraphs 5.9.76 – 5.9.77).**

g. Redshank are very tolerant of moderate and even high level visual disturbance events, with research recommending avoidance of high level disturbance from construction works within 100m of birds. They are though particularly sensitive to noise events especially in conjunction with visual events. The majority of birds in the cable landfall survey area were recorded beyond the range at which noise and visual disturbance may result from the cable corridor and HDD compound. Extensive areas of similar habitat exist in which birds can forage beyond disturbance distance. The applicant notes however that there has been a 31-42% decline in the numbers of this species in the SPA between the winters of 1984/85 and 2009/10 which may be driven by site-specific pressures (**APP-0171**, **paragraphs 5.9.82 – 5.9.83**).

h. Marsh harrier, teal, mallard, avocet, lapwing, ruff, whimbrel and greenshank were recorded within the period April to September, infrequently during baseline surveys and in very low numbers. Much greater expanses of more preferred foraging habitat exist elsewhere within the Humber Estuary and/or the adjacent terrestrial habitats than the cable landfall survey area. This combined with low abundance and frequency of birds in the cable landfall survey area, implies that these species are unlikely to be significantly affected by localised construction effects (**APP-0171, paragraph 5.9.84**).

i. The two flocks recorded by site-specific surveys, were located at a sufficient distance of the cable corridor and HDD compound on saltmarsh, their primary food resource. This combined with the comparatively low frequency of birds in the cable landfall survey area, implies that dark-bellied brent geese are unlikely to be significantly affected by localised construction effects (**APP-0171, paragraphs 5.9.54 – 5.9.55**).

j. Few ringed plover in the cable landfall survey area were recorded within 200m of the proposed HDD compound and, therefore, within range at which noise emission is predicted to cause displacement of birds. Ringed plover are very tolerant of moderate and high level visual disturbance events. Most ringed plover in the cable landfall survey area were recorded 100m beyond the cable corridor and at which noise and visual disturbance from cable installation may result. At distances of over 100m from activity, birds rarely show signs of a behavioural response, with avoidance of high level disturbance from construction works advised from within 50m of ringed plover. The applicant notes however that there

has been a 53-69% decline in numbers of ringed plover in the SPA between the winters of 1984/85 and 2009/10 which may be driven by site-specific pressures (**APP-0171, paragraphs 5.9.61 – 5.9.62**).

k. Distribution data suggest that the preferred habitats for this species within the cable landfall survey area were to the south and east of the cable corridor and largely outside the temporary working area. Oystercatchers are relatively tolerant of moderate and high level visual disturbance, with avoidance of high level disturbance from construction works advised from within 200m of birds. Site-specific surveys recorded few oystercatchers within 200m of either the proposed area of the HDD compound or cable corridor and, therefore, the range at which noise emission and visual disturbance is predicted to cause displacement of birds The applicant notes however that there has been a 53-69% decline in numbers of ringed plover in the SPA between the winters of 1984/85 and 2009/10 which may be driven by site-specific pressures (**APP-0171, paragraphs 5.9.58 – 5.9.60**).

l. Low numbers of curlew were recorded by the site-specific surveys throughout the survey period. The spatial distribution of birds recorded at high tide suggests a saltmarsh route in the cable landfall survey area over 500m from the cable corridor and HDD compound and other small congregations on the lower tidal levels. Curlew are considered to be wary of moderate and high level visual disturbance. Research recommends avoiding high level disturbance from construction works within 300m of the birds; responses to impulsive noise however only occur above 70 db(A). Noise emissions from the HDD compound is predicted in the worst case scenario to fall to below 70 db(A) at a 60m range. At any one time few individual curlew would be within the range at which noise and visual disturbance may result from the HDD compound and the cable corridor, the latter event likely to be intermittent and not from across the whole cable corridor. Extensive areas of similar habitat exist in which birds can forage beyond disturbance distance from the cable corridor (**APP-0171, paragraphs 5.9.78 – 5.9.81**).

m. Site-specific surveys recorded a peak number of 885 grey plover on spring passage in April. Larger numbers of grey plover were primarily recorded in the cable landfall survey area at high tides than at other times. Birds were mainly located on the upper shore outside the cable corridor. Grey plover are likely to avoid or be displaced from areas that are within 124m of construction activity. Research recommends that high level disturbance from construction activity should be avoided closer than 200m to grey plover. Virtually no birds in the study area were recorded within 200m of the proposed HDD compound. Irrespective of tidal state, most birds were recorded 125m beyond the cable corridor. There are extensive areas of similar habitat existing in which birds can forage beyond the disturbed area (**APP-0171, paragraphs 5.9.65 - 5.9.67**).

n. With regard to in-combination effects, the increased area of spatial disturbance due to simultaneous construction activity occurring across the intertidal and the increased duration of disturbance and displacement due to extended construction time on the intertidal are not anticipated to give rise to significant effects (**APP-0171, paragraphs 5.9.95 - 5.9.133**).

o. NE raised concerns about the potential for disturbance to be caused by access for cable maintenance during the winter months (**RR-021, paragraphs 5.5.2.1 – 5.5.2.2** and **REP1-037, paragraphs 6.6.35- 6.6.36).** The RSPB shares these concerns (**REP1-047, paragraph 10.2**). Following the provision of additional information by the applicant (**REP4-027**), commitments by the applicant to produce an intertidal management plan (**REP5-026, paragraph 2.2.2**) and amendments to the DCO, NE have confirmed that they are now satisfied that there would be no adverse effect on the integrity of the SPA alone or in combination with other plans or projects (**REP5-026, paragraph 2.4.1** and **REP5-036, paragraph 2.33**).

p. The RSPB has advised that they think the applicant's proposals will lead to an adverse effect on the integrity of the SPA both alone and in combination with the Hornsea One project because the intertidal construction period may be up to 5 years; combined with Hornsea One this could extend to 7 years (**REP1-047, paragraphs 10.1 – 10.8**, **REP2-015, Appendix 1** and **REP3-041, point 1**). They also highlight the proximity of the cable landfall route to important high tide roosts (**REP4-053, EL20**) although the applicant disputes this (**REP4-006, point EL20**). They suggest that this could be dealt with through an appropriate tidal height-related working restriction and then further reducing impacts through a reduction in the length of the working window (**REP2-015, Appendix 1, REP3-041, REP0-53, EL20** and **REP4-054, paragraphs 3 - 10**). The applicant has indicated that they do not think additional restrictions on the months that intertidal works can be carried out would be feasible (**REP3-013, paragraph 4.2**). NE also sought restrictions on working during high tides (**REP3-033, paragraph 1.3**). The applicant has proposed revisions to the Deemed Marine Licences (DML) A2 and B2 which NE agree provide sufficient protection to rule out adverse effects on the integrity of the SPA (**REP5-026, paragraph 2.5.1** and **REP5-036, paragraphs 2.31 – 2.32**). The RSPB will provide comment on the revised provision for Deadline 6 (**REP5-037**).

As the Intertidal Access Management Plan will not be drawn up until after the Secretary of State's decision on the application the RSPB do not feel that they have enough information to decide whether it will address their concerns (**REP5-036**).

The RSPB is concerned about condition 20(3) on DMLs A2 and B2 in the DCO submitted with the application (**APP-010**), which restricts working during the winter months unless otherwise agreed with NE and the MMO (**REP2-015, Appendix 1, REP3.41, paragraph 3.4.8**. The applicant's position is that condition 18(2) on DMLs A2 and B2 would not allow the approval of any works not in accordance with the environmental statement and they need the flexibility provided by this wording (**REP3-013, paragraph 4.6, REP4-006, EL17 and REP5-001, EL19**). The RSPB do not feel that works in the winter season have been included in either the environmental statement or the HRA (**REP3-41, paragraph 3.4.8, REP4-053, EL17** and **REP5-37**). The MMO have confirmed that they are content with the current wording of the condition but note that if such a proposal is likely then it would be more beneficial if this could be resolved prior to determination (**REP4, EL17**). NE have also agreed the wording of this condition (**REP1-0101, paragraph 9.2.13**).

The RSPB has highlighted concerns about the detail contained in the Outline Code of Construction Practice and suggested that the role of the ecological clerk of works should be described in it. They also suggest that the ecological clerk of works' role should include the ability to request a temporary suspension of work if significant disturbance was anticipated (**REP2-15, CL10, REP3-041, paragraph 3.4.8, REP4-053, CL26**). The applicant's position is that condition 10(2)(c)(viii) of DMLs A2 and B2 require the responsibilities to be specified in the project Environmental Management and Monitoring Plan (**REP3-013, paragraph 4.20** and **REP4-027**). NE has confirmed that they are satisfied with the scope of contents of the Code of Construction Practice (**REP4-048, CL26** and **DC34**). The MMO have also confirmed that they are satisfied with the scope of the Code of Construction Practice (**REP4-047, DC34**).

Stage 2 Matrix 4: Southern North Sea dSAC

European site feature	Likely effects on NSIP					
	Disturbance from underwater piling noise			In-combination effects		
	C	O	D	C	O	D
Harbour porpoise	x? a			x? b		

Notes

a. Following a request from the ExA (**PD-016**) the applicant has undertaken an assessment of the potential effects on the Southern North Sea draft SAC. They have used a similar approach to the one used by the Secretary of State for Energy and Climate Change in their HRA report for Dogger Bank Teesside offshore wind farm. As the site boundary and population numbers of the qualifying feature have not yet been made public the assessment has been based on the North Sea population level. The applicant has undertaken to update their assessment if necessary once the formal consultation report for the draft SAC has been published.

On the basis of the worst case scenario used in the applicant's HRA (**APP-0171**), the applicant has concluded that under the worst case scenario 3.46% of the population would be displaced (5% for concurrent piling). If a dose-response relationship is used, which the applicant views as more realistic, then 1.68% of the population would be displaced (2.89% for concurrent piling). The applicant concludes that although displacement would occur, harbour

porpoise range over large distances and there is a large extent of suitable habitat available to them in the North Sea (**REP4-026**).

NE has advised that on commencement of public consultation the dSAC would become a material consideration as a matter of government policy so an assessment of impacts would be carried out. They have confirmed that the information from the applicant's assessment would be robust enough to carry out HRA (**REP3-033, paragraphs 1.65 – 1.66**). They agree that it was appropriate for the applicant to follow the approach used in the Dogger Bank Teesside HRA but note that the assessment was undertaken using the North Sea Management Unit level. They state that an updated HRA will be required which considers impacts at a site level (**REP5-036, paragraphs 4.1 – 4.2**).

The Wildlife Trusts have advised that they do not consider pile driving without additional mitigation would be compatible with a SAC designation for harbour porpoise, in light of rulings from the European Court of Justice (**REP1-0109**). They do not agree with the approach taken in the applicant's shadow assessment as guidance from the European Commission states that any assessment of integrity should be considered at a site level (**REP3-042**, and **REP5-038**). They state that there is a high level of uncertainty around the baseline data for the population (**REP3-042, paragraph 2**), the use of a dose-response relationship, the behavioural effects on harbour porpoise from underwater noise (**REP3-042, paragraph 3**) and the availability of suitable habitat in the North Sea. In the light of this, given the high level of certainty for assessment of effects on European sites required by European case law, they disagree with the conclusion of no adverse effect on integrity (**REP5-038**).

Whale and Dolphin Conservation has requested that the potential harbour porpoise SAC be treated as a SAC for the purposes of this application. They raise concerns about the applicant's baseline data, the uncertainty about the effects of behavioural effects at a population level and the noise modelling approach used by the applicant, while noting that this is currently the only model available to developers (**REP1-0110**).

b. The applicant has undertaken an in-combination assessment using a similar approach to the one used in the Secretary of State HRA referred to in footnote a above but has amended the figures to reflect various changes to the projects included. They have calculated that the area of the North Sea likely to be affected at any one time is a maximum of 8.84%, which is less than the area identified in the Dogger Bank Teesside HRA. As the Dogger Bank Teesside HRA has

concluded no adverse effect on integrity, the applicant has reached the same conclusion for the Hornsea 2 in-combination assessment on the grounds that the area of habitat would be smaller. They note however that this approach may lead to an over-estimation of effects. In order to be consistent with the approach used for the Dogger Bank Teesside HRA they have also included projects which, in the applicant's view, lie outside the extent of likely movements of individuals present within the Hornsea project 2 zone (**REP4-026, paragraphs 5.2.1 – 5.2.8**).

The Wildlife Trusts state that there is even greater uncertainty around the assessment of cumulative effects than there is for the assessment of the project alone. They refer to a Dutch report 'Framework for assessing ecological and cumulative effects of offshore wind farms: cumulative effects of impulsive underwater sound on marine mammals' which calculates the potential reductions in North Sea porpoise populations between 2016 and 2022 as a result of the cumulative impacts of offshore wind farms. In the Wildlife Trusts' view, these combined reductions could significantly affect the harbour porpoise population (**REP5-038**).

ANNEX 5: DOCUMENTS USED TO INFORM THE RIES

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Application Documents

- 3.1 Draft Development Consent Order (**APP-010**)
- 7.1.3 Environmental Statement project description (**APP-027**)
- Environmental Statement topic chapters
  - 7.2.01 Marine processes (**APP-030**)
  - 7.2.02 Benthic sub tidal and intertidal ecology (**APP-031**)
  - 7.2.03 Fish and shellfish ecology (**APP-032**)
  - 7.2.04 Marine mammals (**APP-033**)
  - 7.2.05 Ornithology (**APP-034**)
  - 7.2.06 Commercial fisheries (**APP-035**)
  - 7.2.07 Shipping and navigation (**APP-036**)
  - 7.2.12 Inter-related effects offshore (**APP-041**)
  - 7.3.03 Ecology and nature conservation (**APP-044**)
  - 7.3.04 Intertidal ornithology (**APP-045**)
  - 7.3.12 Inter-related effects onshore (**APP-054**)
  - 7.4.3.2 Subsea noise technical report (**APP-056**)
  - 7.5.2.1 Benthic ecology technical report part 1 (**APP-078**)
  - 7.5.2.1 Benthic ecology technical report part 2 (**APP-079**)
  - 7.5.3.1 Fish and shellfish technical report (**APP-081**)
  - 7.5.4.1 Marine mammal technical report (**APP-082**)
  - 7.5.5.1 Ornithology technical report part 1 (**APP-083**)

[1] Within the examination library, the applicant is referred to as SMart Wind until Deadline 3. After this point, reflecting the change of ownership for the project, the applicant is referred to as DONG

  - 7.5.5.1 Ornithology technical report part 2 (**APP-084**)
  - 7.6.3.01 Terrestrial ecology survey figures and associated tables (**APP-0108**)
  - 7.6.3.02 Phase 1 intertidal sand dune and salt marsh habitat survey (**APP-0109**)
  - 7.6.3.08 Onshore bird survey (**APP-0115**)
  - 7.6.4.1 Intertidal bird survey (**APP-0116**)
- 12.6 HRA report part 1 (**APP-0171**)
- 12.6 HRA report part 2 (**APP-0172**)
  - 12.6.1 HRA evidence plan (**APP-0173**)
  - 12.6.2 HRA screening report (**APP-0174**)
  - 12.6.3 HRA screening and integrity matrices (**APP-0175**)
- 12.7 Statutory and Non-statutory Conservation etc. Sites Plan Onshore (**APP-0176**)
- 12.8 Statutory and Non-statutory Conservation etc. Site Plan Offshore (**APP-0177**)

Post-submission updates

- Appendix A Draft Development Consent Order (DCO) – version 2 (**APP-0181**)
- Appendix P HRA screening and integrity matrices (Version 2) (**APP-0205**)
- Appendix R Monopile suspended sediment and deposition assessment clarification note (**APP-0207**)
- Appendix S Jacket foundation scour assessment clarification notes (**APP-0208**)
- Appendix T Marine mammal decommissioning vessels clarification note (**APP-0209**)
- Appendix U Humber Estuary SAC temporary subtidal benthic habitat loss disturbance clarification note (**APP-0210**)
- Appendix W In-combination auk displacement clarification note (**APP-0212**)

Relevant representations

- Environment Agency (**RR-012**)
- Marine Management Organisation (**RR-018**)
- Natural England (**RR-021**)
- Royal Society for the Protection of Birds (**RR-028**)
- The Wildlife Trusts (**RR-029**)
- Whale and Dolphin Conservation (**RR-032**)

Local Impact Reports

- East Lindsey District Council (**LIR-003**)

Representations

Deadline 1

- Environment Agency response to Examining Authority's first written questions (**REP1-025**)
- Environment Agency written representation (**REP1-026**)
- Marine Management Organisation answers to Examining Authority's first written questions (**REP1-033**)
- Natural England written representation (**REP1-037**)
- Natural England response to the Examining Authority's first written questions (**REP1-040**)
- Natural England Joint response from the statutory nature conservation bodies to the Marine Scotland science avoidance rate review (**REP1-041**)
- Royal Society for the Protection of Birds written representation (**REP1-047**)
- Royal Society for the Protection of Birds response to the Examining Authority's first written questions (**REP1-049**)
- SMart Wind response to deadline I (**REP1-051**)
- SMart Wind Appendix A Draft Development Consent Order version 3 (**REP1-052**)
- SMart Wind Appendix J Collision risk modelling; addressing uncertainty clarification note (**REP1-061**)

- SMart Wind Appendix K Ornithological survey coverage baseline clarification note (**REP1-062**)
- SMart Wind Appendix L Offshore ornithology baseline data clarification note (**REP1-063**)
- SMart Wind Appendix M Applicant's extended response to EOO2 (**REP1-064**)
- SMart Wind Appendix O Multiphase construction schedule (**REP1-066**)
- SMart Wind Appendix R Appendix referred to in response to EL9 - most/least disruptive scenarios table (**REP1-069**)
- SMart Wind Appendix S Appendix referred to in response to EL12 – mitigation measures DCO requirements table (**REP1-070**)
- SMart Wind Appendix U Overview of management plans (**REP1-072**)
- SMart Wind Appendix V Enhancement, mitigation and monitoring commitments (Version 2) (**REP1-073**)
- SMart Wind Appendix X BTO research report no 656 – avoidance rates of collision between birds and offshore turbines (**REP1-075**)
- SMart Wind Appendix Y Joint response from SNCBs to Marine Scotland Science avoidance rate paper 25 November 2014 (**REP1-076**)
- SMart Wind Appendix Z Review of avoidance rates December 2014 (**REP1-077**)
- SMart Wind Appendix AA DEPONS status report on model development February 2015 (**REP1-078**)
- SMart Wind Appendix DDD Appendix referred to in response to EL4 – correspondence with Natural England (**REP1-0107**)
- The Wildlife Trusts written representation (**REP1-109**)
- Whale and Dolphin Conservation written representation (**REP1-0110**)

Deadline 2

- Environment Agency comments on the applicant's response to the Examining Authority's first written questions and update on written representations (**REP2-007**)
- Marine Management Organisation summary of oral representation made at ISH on 30 July 2015 (**REP2-008**)
- Natural England comments on written representations and response to the Examining Authority's first written questions; comments on the offshore ornithology clarification submitted by the applicant at deadline 1 and summary of oral representation made at the Issue Specific Hearing on 30 July 2015 (**REP2-009**)
- Royal Society for the Protection of Birds comments on the applicant's responses to the Examining Authority's first written questions (**REP2-015**)
- The applicant's response to deadline II (**REP2-016**)
- SMart Wind Appendix A Summary of oral case from DCO hearing 30 July 2015 (**REP2-017**)
- SMart Wind Appendix F Response to Whale and Dolphin Conservation's written representation (**REP2-024**)
- SMart Wind Appendix G Response to the Wildlife Trusts' written representation (**REP2-025**)
- SMart Wind Appendix I Applicant's response to Natural England's written representation (**REP2-027**)
- SMart Wind Appendix K Update to offshore ornithology baseline clarification note (**REP2-029**)
- SMart Wind Appendix L Marine processes clarification note (**REP2-030**)

Deadline 2a

- The applicant's response to deadline IIa (**REP2A-002**)
- SMart Wind Appendix A Draft Development Consent Order version 4 (**REP2A-003**)
- SMart Wind Appendix M MacArthur Green seabird PVA report August 2015 (**REP2A-015**)

- SMart Wind Appendix N Clarification note – apportioning of predicted gannet mortality to the Flamborough and Filey Coast pSPA population (**REP2A-016**)
- SMart Wind Appendix O Clarification note – apportioning of predicted guillemot mortality to the Flamborough and Filey Coast pSPA population (**REP2A-017**)
- SMart Wind Appendix P Clarification note – apportioning of predicted kittiwake mortality to the Flamborough and Filey Coast pSPA population (**REP2A-018**)
- SMart Wind Appendix Q Clarification note – apportioning of predicted puffin mortality to the Flamborough and Filey Coast pSPA population (**REP2A-019**)
- SMart Wind Appendix R Clarification note – apportioning of predicted razorbill mortality to the Flamborough and Filey Coast pSPA population (**REP2A-020**)
- SMart Wind Appendix S Clarification note – unidentified birds (**REP2A-021**)
- SMart Wind Appendix T Letter from the applicant to Natural England dated 26 July 2013 (**REP2A-022**)

Deadline 3

- Environment Agency summary of oral submissions made at the ISH 16 September 2015 (**REP3-001**)
- The applicant's response to deadline III (**REP3-004**)
- DONG Appendix I Summary of oral case for ISH 15 September 2015 (**REP3-013**)
- DONG Appendix J Summary of oral case for ISH 16 September 2015 (**REP3-014**)
- DONG Appendix L Comparison of flight height recording bands (**REP3-016**)
- DONG Appendix O Aquatic mammals noise exposure criteria, Southall et al (**REP3-019**)
- DONG Appendix P Temporary shift in masked hearing thresholds in harbour porpoise, Lucke et al (**REP3-020**)

- DONG Appendix Q Quantifying the effect of boat disturbance on bottlenose dolphin foraging activity, Pirotta et al (**REP3-021**)
- Marine Management Organisation summary of oral submissions for ISH 16 September 2015 (**REP3-031**)
- Natural England notes of Natural England/Renewables UK post consent monitoring seminar 18 March 2015 (**REP3-032**)
- Natural England Appendix 1 of written submission – update on ducting in the intertidal area (**REP3-033**)
- Natural England Appendix 2 of written submission for deadline 3 – HRA kittiwake collision impacts on Flamborough and Filey Coast pSPA (**REP3-034**)
- Natural England Appendix 3 of written submission for deadline 3 – HRA collision and displacement impacts for gannet on Flamborough and Filey Coast pSPA (**REP3-035**)
- Natural England Appendix 4 of written submission for deadline 3 – HRA guillemot displacement impacts on Flamborough and Filey Coast pSPA (**REP3-036**)
- Natural England Appendix 3 of written submission for deadline 3 – HRA razorbill displacement impacts on Flamborough and Filey Coast pSPA (**REP3-037**)
- Natural England Appendix 3 of written submission for deadline 3 – HRA puffin displacement impacts on Flamborough and Filey Coast pSPA (**REP3-038**)
- Royal Society for the Protection of Birds tide height correction note dated 11 September 2015 (**REP3-040**)
- Royal Society for the Protection of Birds summary of oral case from ISH 15 & 16 September 2015 (**REP3-041**)
- The Wildlife Trust summary of oral submissions made at the ISH 16 September 2015 (**REP3-042**)

Deadline 4

- DONG response to deadline IV (**REP4-006**)

- DONG Appendix A Draft Development Consent Order version 5 (**REP4-007**)
- DONG Appendix N Enhancement, mitigation and monitoring version 3 (**REP4-023**)
- DONG Appendix P In principle monitoring plan (**REP4-025**)
- DONG Appendix Q HRA addendum Southern North Sea dSAC (**REP4-026**)
- DONG Appendix R Intertidal clarification note (**REP4-027**)
- DONG Appendix BB HRA screening and integrity matrices (version 3) (**REP4-037**)
- DONG Appendix DD Kittiwake collision risk review (**REP4-039**)
- DONG Appendix EE Kittiwake clarification in response to EOO16 (**REP4-040**)
- DONG Appendix FF Possible Greater Wash SPA shadow HRA screening (**REP4-041**)
- Marine Management Organisation response to the Examining Authority's second written questions (**REP4-047**)
- Natural England response to the Examining Authority's second written questions (**REP4-048**)
- Royal Society for the Protection of Birds response to the Examining Authority's second written questions (**REP4-053**)
- Royal Society for the Protection of Birds written submission (**REP4-054**)

Deadline 5

- Applicant's response to deadline V (**REP5-001**)
- DONG Appendix G summary of oral case for ISH on 27 October 2015 (**REP5-008**)
- DONG Appendix U 'The Kittiwake' by Coulson (**REP5-022**)
- DONG Appendix X Outline ecological management plan – version 2 (**REP5-025**)
- DONG Appendix E draft Development Consent Order version 7 (**REP5-006**)

- DONG Appendix EE In-principle monitoring plan (**REP5-032**)
- Marine Management Organisation written summary of oral representations made at the ISH on 27 & 28 October 2015 (**REP5-035**)
- Natural England deadline 5 written submission (**REP5-036**)
- Royal Society for the Protection of Birds deadline V submission (**REP5-037**)
- The Wildlife Trusts comments on responses to the Examining Authority's second written question (**REP5-038**)

Statements of Common Ground

- SMart Wind Appendix NN Statement of Common Ground with the Environment Agency (**REP1-091**)
- SMart Wind Appendix OO Statement of Common Ground with the Wildlife Trusts and Lincolnshire Wildlife Trust (**REP1-092**)
- SMart Wind Appendix WW Statement of Common Ground with the Marine Management Organisation (**REP1-0100**)
- SMart Wind Appendix XX Statement of Common Ground with Natural England (all other matters) (**REP1-0101**)
- SMart Wind Appendix ZZ Statement of Common Ground with Natural England (Offshore Ornithology) (**REP1-0103**)
- SMart Wind Appendix P Statement of Common Ground with Whale and Dolphin Conservation (**REP2-034**)
- SMart Wind Appendix R Updated Statement of Common Ground with Natural England (Offshore Ornithology) (**REP2-036**)
- DONG Appendix Y Updated Statement of Common Ground with Natural England (Offshore Ornithology) (**REP3-029**)
- DONG Appendix Z Statement of Common Ground with the Royal Society for the Protection of Birds (**REP3-030**)

- DONG Appendix CC Statement of Common Ground between the applicant and Natural England – offshore ornithology (**REP5-030**)
- DONG Appendix Y Statement of Common Ground with Natural England – intertidal matters (**REP5-026**)

Hearing Documents

- ISH audio 15 & 16 October (**EV-011 – EV017**)
- ISH audio 27 October (**EV-035 – EV-039**)
- Letter from Natural England in relation to the Greater Wash SPA (**EV-021**)

Other Documents

- Letter to Scottish Natural Heritage (**PD-009**)
- Hornsea Project 2 first round of written questions (**PD-010**)
- Hornsea Project 2 amended second round of questions (**PD-017**)