THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

Outer Dowsing Offshore Wind Farm

Relevant Representations of Natural England

For:

The construction and operation of the Outer Dowsing Offshore Wind Farm located approximately 54km from the Lincolnshire Coast in the Southern North Sea.

Planning Inspectorate Reference: EN010130

13th June 2024

Contents

Natural England's Relevant Representations in respect of Outer Dowsing Offshore Wind Farm

PART I – OVERVIEW OF REPRESENTATIONS

1. Scope of Natural England's Advice

1.1. Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

1.2. Natural England's remit extends to the territorial sea adjacent to England, up to the 12 nautical mile limit from the coastline. The Examining Authority should note that pursuant to an authorisation made by the JNCC under the Natural Environment and Rural Communities Act 2006, Natural England is authorised to exercise the JNCC's functions as a statutory consultee in respect of applications for offshore renewable energy installations in offshore waters (0-200nm) adjacent to England.

1.3. This application is included in that authorisation and, therefore, Natural England will be providing statutory advice in respect of that delegated authority. However, JNCC retains responsibility as the statutory advisors for European offshore marine sites that are located outside the territorial sea and UK internal waters (i.e. more than 12nm offshore) and continues to provide Natural England advice on the significance of any potential impacts on interest features of those sites.

2. Approach to Relevant Representations

2.1 These representations contain a summary of what Natural England considers to be the main nature conservation, landscape and related issues with regards the Development Consent Order (DCO) application, as well as the Deemed Marine Licences (DML) contained therein and indicate the principal submissions that it wishes to make at this point.

2.2 In the interests of issue resolution Natural England has combined Relevant Representation and Written Representations within this response. This is to provide the detail on all issues as early as possible to allow more time for discussion and resolution. If required and appropriate Natural England will develop these points through further Written Representations or in response to Examiner's questions.

2.3 Owing to the relatively short consultation period to review the Applicant's submission documents, coupled with the complexity of the project development scenarios, Natural England may wish to revise our advice or add additional points. This may also arise if further information about the project becomes available. Therefore, we reserve the right to bring such matters to the Examining Authority's attention.

2.4 Please note that at Deadline 1 Natural England will submit a Risk and Issues log which will incorporate the comments we have made in this representation and track their resolution throughout the examination process. It is anticipated that this will continue to be submitted alongside our submissions during Examination and will reflect any progress in issue resolution following the Relevant Representations.

2.5 Natural England is keen to continuously improve our input into Examinations and would therefore welcome any feedback on our approach.

3. Engagement with the Applicant

3.1 Natural England has been working with the Applicant to provide pre-application advice and guidance on Outer Dowsing Offshore Wind Farm (OWF) since 2021. To assist developers, Natural England has also produced a series of documents to provide *'Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards'* for developments in English inshore and offshore waters. During the pre-application process we have advised that developers follow our Best Practice Advice and other guidance through the application and consenting process. The Evidence Plan Process (EPP) including Early Adopter Programme was completed as of 29th February 2024 at which point Natural England submitted a Principal Areas of Disagreement Summary Statement (PADSS) to the Planning Inspectorate which summarised Natural England's considerations of the EPP and the progress of the application up to point of submission.

3.2 Natural England has also been working with the Marine Management Organisation, and the Centre for the Environment, Fisheries and Aquaculture Science (CEFAS) to provide coordinated advice in relation to each of our remits.

3.3 At appropriate points in the Examination, Natural England will undergo discussions with the Applicant to seek to resolve these concerns and agree outstanding matters. We will update on progress via our Risk & Issues Log.

4. Structure of Natural England's Relevant Representations

4.1 The representations in Part II provide Natural England's statutory advice. They are set out as follows:

- **Section 5** identifies the designated sites and interest features potentially affected by this application.
- **Section 6** sets out the key outstanding environmental concerns which Natural England would like the Examining Authority to consider, through a colour-coded version PADSS.
- **Section 7 – Detailed Advice Appendices -** Natural England's detailed technical advice, where more detailed explanation of issues has been considered relevant, can be found in the technical Appendices A to I. These will include additional considerations beyond those raised in the PADSS that warrant consideration in the Examination.

4.2 Natural England advises that the matters set out in Part II of our relevant representations will require consideration by the Examining Authority as part of the examination process. The Examining Authority may wish to ensure that the matters set out in these relevant representations are addressed as part of the Examining Authority's first set of questions to ensure the provision of information early in the examination process.

4.3 It has not been possible for Natural England to provide our advice at relevant representation stage on some of the documents submitted as 'Additional Submissions' by the Applicant [AS-001, 002 and 003]. Therefore, Natural England intends to provide our detailed advice on each of the following documents listed below at Deadline 1:

- [AS-001] Ornithology Population Viability Analysis Parameter Log
- [AS-002] Offshore and Intertidal Ornithology Population Variability Analysis Parameter Log
- [AS-003] 6.3.7.1 Physical Processes Technical Baseline Rev: 2.0

In addition, we intend to provide further detailed advice to the Offshore in Principal Monitoring Plan [APP-276] at Deadline 1 or next most suitable deadline allowing time for further information to be provided by the Applicant to inform potential monitoring requirements.

- [APP- 276] 8.3 Offshore In Principal Monitoring Plan

4.4 Natural England is mindful of the recent decision for the Sheringham and Dudgeon Extension Project (SADEP). While some of the key decisions are reflected in our advice to the Development Consent Order (DCO), once our full review of the decision is complete, further advice reflecting the DCO may be provided at Deadline 1.

4.5 Throughout our advice, Natural England will be using colour coding to denote the level of potential risk or significance of impact associated with our comments. Full details of this are provided in Table 4.1 below.

4.6 Within Section 6 of these Relevant Representations, we have assigned a broad risk rating to each row of the PADSS to indicate the level of our concern. For each of the Appendices in Section 7 we provide a summary of the main concerns associated with the thematic area in question, followed by a table of detailed advice setting out all the salient issues we have identified. In both tables we have used the colour coding to give an indication of the level of risk associated with each of the points we raise.

Table 4.1 Natural England's risk rating with colour coding

Purple Note for Examiners and/or competent authority. May relate to DCO/DML.	
Red Natural England considers that unless these issues are resolved it will have to advise that (in relation to any one of them, and as appropriate) it is not possible to ascertain beyond reasonable scientific doubt that the project will not affect the integrity of an SAC/SPA and/or significantly hinder the conservation objectives of an MCZ and/or damage or destroy the interest features of a SSSI and/or comply fully with the Environmental Impact Assessment requirements. Addressing these concerns may require the following: • new baseline or survey data; and/or • significant revisions to baseline characterisation and/or impact modelling and/or • significant design changes; and/or • significant mitigation Natural England feels that issues given Red status are so complex, or require the provision of so much outstanding information, that they are unlikely to be resolved during the Examination without a fundamental change in approach.	
Amber Natural England does not agree with the Applicant's position or approach and consider that this could make a material difference to the outcome of the decision-making process for this project. Natural England considers that these matters may be resolved through: • provision of additional evidence or justification to support conclusions; and/or • revisions to impact assessment methodology and/or assessment conclusions; and/or • minor to moderate revisions to impact modelling; and/or • well-designed mitigation measures that are adequately secured through the draft DCO/dML and/or • amendments to draft plans If these issues are not addressed or resolved by the end of the Examination, then they may become a Red risk as set out above.	
Yellow Natural England doesn't agree with the Applicant's position or approach. We would ideally like this to be addressed but are satisfied that for this particular project it is unlikely to make a material difference to our advice or the outcome of the decision-making process. However, we reserve the right to revise our opinion should further evidence be presented. It should be noted by interested parties that just because these issues/comments are not raised as significant concerns in this instance, it should not be understood or inferred that Natural England would be of the same view in other cases or circumstances.	
Green Natural England is in broad agreement with the Applicant's approach and has no significant outstanding concerns. As above, we reserve the right to revise our opinion should new evidence be presented.	

PART II – NATURAL ENGLAND'S ADVICE

5. The Natural Features Potentially Affected by this Application

5.1 The designated sites and interest features included within Tables 5.1 and 5.2 are those which may be significantly affected by the proposed project, based on the information provided to date. It should be noted that this list may change if new evidence emerges during the Examination. Links have been provided to the citation, conservation objectives and supplementary advice for designated nature conservation sites. We have provided links, as these are large and live documents which are updated on a regular basis to incorporate the most up to date evidence. To avoid potentially out of date or inaccurate documents being referred to during the Examination we recommend that the links are utilised.

5.2 On the basis of the information submitted, Natural England is not satisfied that it can be excluded beyond reasonable scientific doubt that the project would have an adverse effect, either alone or in-combination, on the integrity of the SPAs, SACs and Ramsar sites presented in Table 5.1. Natural England is also concerned that the protected features of the SSSIs listed in Table 5.2 may be damaged or destroyed.

5.3 Our principal areas of disagreement with the Applicant's conclusions over specific ecological receptors, are presented in Table 6.1 and in more detail in receptor specific appendices.

Table 5.1 Designated Nature Conservation Sites

Site Name	Conservation advice	Features for which Outstanding Concerns Remain
Inner Dowsing, Race Bank and North Ridge SAC	Inner Dowsing, Race Bank and North Ridge SAC - UK0030370	• Reefs • Sandbanks which are slightly covered by sea water all the time
The Wash and North Norfolk Coast SAC	The Wash and North Norfolk Coast SAC - UK0017075	• Sandbanks which are slightly covered by sea water all of the time • Mudflats and sandflats not covered by seawater at low tide • Large shallow inlets and bays • Salicornia and other annuals colonising mud and sand • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Harbour Seal (*Phoca vitulina*)

Site Name	Conservation advice	Features for which Outstanding Concerns Remain
The Wash Ramsar	The Wash Ramsar - UK11072	• Saltmarshes • Estuaries • Major intertidal banks of sand and mud • Shallow water • Deep channels • Criterion 1 – Saltmarshes, major intertidal banks of sand and mud, shallow water, and deep channels • Criterion 3 – inter-relationship between saltmarshes, intertidal sand, mudflats, and estuarine waters • Criterion 5 – Bird assemblages of international importance • Criterion 6 – Bird species/ populations occurring at levels of international importance: Species with peak counts in spring/autumn: • Curlew (*Numenius arquata*) (breeding) Species with peak counts in winter: • Dark-bellied brent goose (*Branta bernicla bernicla*) • Pink-footed goose (*Anser brachyrhynchus*) • Golden plover (Pluvialis apricaria) • Lapwing (Vanellus vanellus)
Southern North Sea SAC	Southern North Sea MPA	• Harbour Porpoise (*Phocoena phocoena*)
Humber Estuary SAC	Humber Estuary SAC - UK0030170	• Grey Seal (Halichoerus grypus)

Site Name	Conservation advice	Features for which Outstanding Concerns Remain
Humber Estuary Ramsar	Humber Estuary Ramsar	• Grey Seal (Halichoerus grypus) • Golden plover (Pluvialis apricaria) • Pink-footed goose (*Anser brachyrhynchus*) • Dark-bellied brent goose (*Branta bernicla bernicla*) • Criterion 6 – species/populations occurring at levels of international importance: • Golden plover (Pluvialis apricaria)
Greater Wash SPA	Greater Wash SPA - UK9020329	• Common scoter (*Melanitta nigra*) • Red-throated diver (Gavia stellata) • Little gull (Hydrocoloeus minutus) • Common tern (*Sterna hirundo*) • Sandwich Tern (Thalasseus sandvicensis)
The Wash SPA	The Wash SPA - UK9008021	• Bewick's swan (*Cygnus columbianus bewickii*) (non-breeding) • Pink-footed goose (*Anser brachyrhynchus*) (non-breeding) • Dark-bellied brent goose (*Branta bernicla bernicla*) (non-breeding) • Common scoter (*Melanitta nigra*) (non-breeding) • Curlew (*Numenius arquata*) (non-breeding) • Common tern (*Sterna hirundo*) (breeding)

Site Name	Conservation advice	Features for which Outstanding Concerns Remain
		• Waterbird assemblage
Flamborough and Filey Coast SPA	Flamborough and Filey Coast SPA - UK9006101	• Gannet (Morus bassanus) • Black-legged kittiwake (*Rissa tridactyla*) • Guillemot (*Uria aalge*) • Razorbill (*Alca torda)* • Seabird assemblage (Breeding) including Puffin
Gibraltar Point SPA Gibraltar Point Ramsar	Gibraltar Point SPA - UK9008022 Gibraltar Point Ramsar - UK11027	Non-Breeding bird species • Sanderling *(Calidris alba)* (Non-breeding) • Bar-tailed godwit *(Limosa lapponica)* (Non-breeding) • Little tern (*Sternula albifrons*) (Breeding) Ramsar criterion 6: dark-bellied brent goose (*Branta bernicla bernicla*).
Humber Estuary SPA	Humber Estuary SPA - UK9006111	• Golden plover (Pluvialis apricaria) • Pink-footed goose (*Anser brachyrhynchus*) • Dark-bellied brent goose (*Branta bernicla bernicla*) • Golden plover *(Pluvialis apricaria)* (non-breeding) • Waterbird assemblage

Site Name	Conservation advice	Features for which Outstanding Concerns Remain
North Norfolk Coast SPA	North Norfolk Coast SPA - UK9009031	• Sandwich tern (Thalasseus sandvicensis) • Pink-footed goose (*Anser brachyrhynchus*) • Dark-bellied brent goose (*Branta bernicla bernicla*)
North Norfolk Coast Ramsar	North Norfolk Coast Ramsar - UK11048	• Pink-footed goose (*Anser brachyrhynchus*)
Berwickshire and North Northumberland Coast SAC	Berwickshire and North Northumberland Coast SAC	• Grey Seal (Halichoerus grypus)
Alde-Ore Estuary SPA & Ramsar	Alde-Ore Estuary SPA - UK9009112 Alde-Ore Estuary Ramsar - UK11002	• Lesser black-backed gull (*Larus fuscus*)
Coquet Island SPA	Coquet Island SPA - UK9006031	Seabird assemblage (breeding) including Puffin
Farne Islands SPA	Farne Islands SPA - UK9006021	• Guillemot (*Uria aalge*) (breeding) • Seabird Assemblage (Breeding)

Table 5.2 National Sites

Site Name	Conservation advice	Features for which Outstanding Concerns Remain
The Wash SSSI	The Wash SSSI - 1002591	As per SPA Above Breeding birds: • Common tern (*Sterna hirundo*) Non-breeding birds: • Bewick's swan (Cygnus columbianus bewickii) • Brent goose (dark-bellied) (*Branta bernicla bernicla*) • Common scoter (Melanitta nigra) • Curlew (Numenius arquata) • Golden plover (Pluvialis apricaria) • Pink-footed goose (*Anser brachyrhynchus*) • Whooper swan (*Cygnus cygnus*) • Harbour seal, (Phoca vitulina) • More than 20,000 Non-breeding waterbirds
Flamborough Head SSSI	Flamborough Head SSSI 1002289	As per SPA Above
Alde-Ore Estuary SSSI	Alde-Ore Estuary SSSI - 1003208	As per SPA Above
North Norfolk Coast SSSI	North Norfolk Coast SSSI - 1001342	As per SPA Above
Farne Islands SSSI	Farne Islands SSSI - 1000660	As per SPA Above
Coquet Island SSSI	Coquet Island SSSI - 1004492	As per SPA Above
Gibraltar Point SSSI	Gibraltar Point SSSI - 1004400	As per SPA Above Non-breeding birds: • Bar-tailed godwit *(Limosa lapponica)* • Brent goose (dark-bellied) (*Branta bernicla bernicla*) Features:

		• Assemblages of breeding birds - Sand-dunes and saltmarshes
Humber Estuary SSSI	Humber Estuary - 2000480 SSSI - 2000480	As per SPA Above Non-breeding birds: • Brent goose (dark-bellied) (*Branta bernicla bernicla*) • Curlew (Numenius arquata) • Golden plover (Pluvialis apricaria) • Lapwing (Vanellus vanellus) Marine Mammals: • Grey seal, (Halichoerus grypus) Features: • Assemblages of breeding birds - Lowland open waters and their margins
Saltfleetby to Theddlethorpe Dunes SSSI	Saltfleetby - Theddlethorpe Dunes SSSI - 1002613	Non-breeding birds: There are more than 20,000 non-breeding water birds, some include: • Brent goose (dark-bellied) (*Branta bernicla bernicla*) • Other features: Natterjack toad, (*Bufo calamita)* • Fixed dune grassland • Humid dune slacks • Littoral sediment • Sand dune; strandline, embryo and mobile dunes • SM4-28 – Saltmarsh
Sea Bank Clay Pits SSSI	Sea Bank Clay Pits SSSI - 1000382	• Eutrophic lakes • Invert. assemblage W2 mineral marsh and open water • Lowland fens, including basin, flood-plain, open water transition and valley fens.

Surfleet Lows SSSI	Surfleet Lows SSSI 1000524	• Lowland mire grassland and rush pasture

5.4 **Matrix to Determine Environmental Impact Assessment Effect Significance** -We acknowledge that a matrix approach to determining the significance of effects on ecological features, is commonly used. However, this method often relies on value- rather than evidence-based judgements. The subjective evaluation of magnitude of impact and sensitivity/importance of receptors through expert judgement has led to many impact magnitudes and receptor importance/sensitivities being downgraded across topics in the EIA. We also note that any effect that is concluded to be of moderate or major significance in the ES, is deemed to be 'significant' in EIA terms, whereas effects concluded to be of negligible or minor significance, are deemed 'not significant' in EIA terms. This cut-off could exclude any effect concluded to be less than moderate, in turn, this could lead to errors in assessing cumulative effects adequately.

5.5 **Protected Species** - An application for a European Protected Species and/or wildlife licence may be required for impacts on the following species:

- Harbour Porpoise
- Harbour Seal
- Grey Seal

- Bats
- Badger
- Otter
- Reptiles
- Water Vole
- Amphibians (including Great Crested Newt (GCN), common toad and smooth newt)

5.6 Draft Letters of No Impediment (LONI) for any protected species have not yet been issued to the Applicant. In order to issue a draft LONI, Natural England require a submission of a draft licence application and as yet Natural England not received one from the Applicant. We recommend that the Applicant contacts Natural England's wildlife licencing service as soon as possible with the required information. The current lead time for processing draft species licences, where no further clarification from the Applicant is required is 30 working days.

5.7 Should the DCO be granted, Natural England advises the Applicant progresses with a licence application (where required) at the earliest opportunity. For reference, Natural England has adopted standing advice for protected species which includes links to guidance on survey and mitigation.

5.8 **Other matters relating to Natural England's remit** – we advise that the following may be significantly affected by the proposed Outer Dowsing Offshore Wind project based on the information provided to date:

- **Fish and shellfish –** Natural England has concerns over project impacts on the identified suitable herring spawning grounds and preferential habitat for sand eels. Both species and their eggs are valuable food source for various designated features within the wider North Sea. We have concerns that changes caused by the project will have the impact of reducing prey availability in supporting habitat for designated features listed in Table 5.1. However, at this stage we defer our response on fish and shellfish to the technical expertise of CEFAS. We may provide further advice on review of stakeholder and Applicant responses throughout the examination process

- **Seascape and Landscape –** During the early stages of the evidence plan process, the project's maximum design scenario (MDS) reflected the level of uncertainty the project could commit to at that point of development. Based on the original MDS, Natural England had expressed concerns to the Applicant that the proposal would impact upon the special qualities of the Lincolnshire Wolds National Landscape. However, since we expressed this concern, the project's maximum design scenario has been revised. Therefore, based on the information submitted, Natural England has no remaining concerns on the impact the proposal will have on the special qualities of the Lincolnshire Wolds National Landscape or any other existing National Landscape or Heritage Coast destination. We may provide further advice on review of stakeholder and Applicant responses throughout the examination process
- **Biodiversity net gain (BNG) –** The Environment Act 2021 includes the requirement for NSIPs to deliver at least 10% increase in the pre-development biodiversity value of onsite terrestrial habitat (to mean low water which includes intertidal habitat). The Applicant should develop and present BNG proposals in adherence with well established BNG principles. BNG will apply to all terrestrial NSIP projects from November 2025.

- BS 8683:2021 Process for designing and implementing Biodiversity Net Gain
- CIEEM/IEMA/CIRIA good practice principles (2016) and guidance (2019).

6. Principal Areas of Disagreement Summary Statement (PADSS)

6.1 The Principal Areas of Disagreement Summary Statement (PADSS) presented in Table 6.1 should be read in conjunction with our Written Representations presented in Appendices A to I of these Relevant Representations. These provide further detail on the areas of disagreement as well as other areas of disagreement which require resolution. For ease of reference, we have added a RAG rating for each principal area. Please note that the PADSS is ordered by topic and not by priority.

Table 6.1 Natural England's Principal Areas of Disagreement Summary Statement (PADSS

Ref	The principal issue in question	The brief concern held by Natural England reported on in full in Written Representations	What needs to change, or be included or amended to overcome the disagreement?	Likelihood of the concern being addressed during Examination	RAG Status
Marine Physical Processes and Benthic Ecology					
NE1	*Sabellaria spinulosa* baseline data	Natural England has concerns with the sufficiency of the data in order to draw conclusions, with any confidence, as to the presence, extent and quality of Annex I biogenic reef (*Sabellaria spinulosa*).	Natural England advises the Applicant re-examines the existing data, analytical approach and methods which have been used to provide a baseline of the extent and distribution of Annex I *Sabellaria spinulosa* reef.	Uncertain	
NE2	Nearshore (depth of closure) area - cable protection	Natural England is unable to rule out impacts to The Wash and North Norfolk Coast SAC, The Wash SPA, The Wash Ramsar and The Wash SSSI. This is due to potential disruption of wave energy transmission, nearshore sediment pathways, and coastal morphology, due to the presence of cable protection within the shallow nearshore zone perpendicular to longshore sediment transport.	Natural England advises that cable protection should be avoided in shallow nearshore areas. We advise the Applicant should clarify the Maximum Design Scenario (MDS) for cable protection within shallow nearshore water and revisit their impact assessment conclusions.	Uncertain	
NE3	Inner Dowsing Race Bank North Ridge (IDRBNR)	There will likely be an AEoI to the IDRBNR Annex I '*Sandbanks which are slightly covered by sea water all*	Natural England advises the Applicant revisits the assumptions and assessment conclusions made. The Applicant must	Uncertain	

Ref	The principal issue in question	The brief concern held by Natural England reported on in full in Written Representations	What needs to change, or be included or amended to overcome the disagreement?	Likelihood of the concern being addressed during Examination	RAG Status
	SAC Site Integrity: Annex I Sandbank	*the time'* feature from the lasting habitat loss/change due to the placement of cable protection within IDRBR.	demonstrate the mitigation hierarchy has been fully explored to demonstrate that impacts are minimised.		
NE4	IDRBNR SAC Site Integrity: Annex I 'reefs' (*Sabellaria spinulosa*	Natural England is unable to advise that an AEoI for Annex I *Sabellaria spinulosa* reef interest feature can be ruled out due to habitat (and supporting habitat) loss/change from any placement of cable protection and disturbance during installation. There is an insufficient level of confidence in the baseline data to inform our advice.	Natural England advises the assumptions made by the Applicant to draw the conclusion of no AEoI on Annex I *Sabellaria spinulosa* reef features within IDRBNR are not scientifically robust and require revisiting in order that inconsistencies and contradictions between the evidence and conclusions presented are resolved.	Unlikely There is no guarantee this issue will be resolved within the examination timeframe.	
NE5	The Crown Estate Agreement for Lease	Natural England queries how the project will comply with the Export Cable Region Assessments that inform their seabed lease with The Crown Estate, given the identified AEoI.	We suggest that feedback is sought through the examination process from The Crown Estate who are obligated to ensure the outcomes of the Round 4 plan level HRA are upheld.	Unlikely	
NE6	"Without Prejudice" Benthic Compensation	Natural England cannot support the following proposed "Without Prejudice" Compensation Measures	Natural England believes that these approaches would not offset the predicted impacts on an interest feature and/or there is currently no delivery mechanism	Unlikely	

Ref	The principal issue in question	The brief concern held by Natural England reported on in full in Written Representations	What needs to change, or be included or amended to overcome the disagreement?	Likelihood of the concern being addressed during Examination	RAG Status
		• Alternative measures for Annex I sandbanks and Reef • Creation of Annex I reef as compensation for Annex I Sandbank Habitat • Anthropogenic Pressure Removal: Marine Debris and Awareness Campaign			
NE7	"Without Prejudice" Benthic Compensation	For all remaining "Without Prejudice" benthic compensation proposals not mentioned above, Natural England can see merit in their objectives. However, further progress is required on each measure to have confidence that they are achievable and would deliver effective compensation for project impacts.	Natural England advises that further work on each measure will be required during examination before we can advise on the suitablity.	Uncertain Further review is likely to be undertaken during examination and with no guarantee this issue will be resolved within the examination timeframe.	
Marine Mammals					
NE8	Southern North Sea SAC: effectiveness of	Natural England is concerned that the SIP process is being exclusively relied on to address in-combination	To provide greater confidence that in-combination noise levels can be kept below the thresholds, the Applicant should commit	Unlikely	

Ref	The principal issue in question	The brief concern held by Natural England reported on in full in Written Representations	What needs to change, or be included or amended to overcome the disagreement?	Likelihood of the concern being addressed during Examination	RAG Status
	the Site Integrity Plan (SIP) process	noise levels from multiple projects on SAC harbour porpoise in the post-consent phase.	to the use of Noise Abatement Systems. rather than rely on the SIP to address impacts on the SAC in the post-consent phase. This should be secured at the earliest opportunity.		
Ornithology					
NE9	Assessment Methodologies	We disagree with the methods used to calculate and describe the impacts to seabird species. In particular we have significant concerns over: • Apportioning of individuals to SPAs; • Bioseasons and their definitions; • Proportion of birds assessed as adults; • Baseline Mortality Calculations; • Calculations for scale of compensation required.	We have provided advice to the developer via the Section 42 consultation response, expert topic groups and a workshop held in January 2024 recommending approaches to take regarding these issues. The presented approaches departs from Natural England's (SNCB) standard advice. The issue can be addressed. We advise the Applicant applies our advice and presents assessments in line with this to.	Likely This is subject to the applicant presenting assessments that are in line with SNCB advice.	
NE10	Impacts on and proposed	Guillemot and Razorbill	Guillemot and Razorbill	Unlikely	

Ref	The principal issue in question	The brief concern held by Natural England reported on in full in Written Representations	What needs to change, or be included or amended to overcome the disagreement?	Likelihood of the concern being addressed during Examination	RAG Status
	compensation for Flamborough and Filey Coast Special Protection Area (FFC SPA) Guilemot and Razorbill	It is likely that NE will be unable to rule out an Adverse Effect on Integrity on FFC SPA Guillemot and Razorbill.High numbers of Auks will be impacted by the development. The departure from SNCB advice has led to attempts to apparently reduce the impacts, as presented. We welcome the applicant's approach to providing the 3 compensation measures relating to Auk species. There is a lack of clarity concerning mitigation for Auks. It is not clear how robustly Auks were factored in when designing the reduction of the array area and whether further reduction could be undertaken to reduce impacts. .	We stress that the applicant should present assessments undertaken in line with the SNCB advice and present the outputs of these, shifting focus from attempting to reduce impacted numbers. The proposed compensation measures will require substantial work to improve evidence and demonstrate viability and efficacy in order to demonstrate that the proposed measures can be secured and will prove to be ecologically robust. Further reduction fo the array area should be considered to reduce impacts to Auk species.	There is no guarantee this issue will be resolved within the examination timeframe.	

Ref	The principal issue in question	The brief concern held by Natural England reported on in full in Written Representations	What needs to change, or be included or amended to overcome the disagreement?	Likelihood of the concern being addressed during Examination	RAG Status
NE 11	Impacts on and proposed compensation for Flamborough and Filey Coast Special Protection Area (FFC SPA) Kittiwake	We cannot yet agree on conclusions made with regards to the level of impact upon Kittiwake, based upon the applicant's departure from the SNCB advised approach.	The applicant should present assessments based on the SNCB guidance and propose compensation at a suitable ratio for an agreed impact value based on SNCB advice.	Likely Subject to the applicant presenting assessment in line with SNCB advice and basing compensation upon agreed outputs.	
NE12	Impacts on Greater Wash SPA: Red throated diver	We have significant ongoing concerns regarding the impacts to red throated diver resulting from disturbance and displacement as a result of the construction and operation of the development within the Greater Wash SPA. This includes the proposed location of the Offshore Reactive Compensation Platform within the SPA.	The applicant should ensure that assessments are undertaken in line with SNCB guidance and present the impacts accordingly. The applicant should make efforts to further mitigate against these impacts.	Unlikely There is no guarantee this issue will be resolved within the examination timeframe.	
Onshore Ecology					
NE13	The Wash SPA and Ramsar Site Integrity:	Until two years of baseline onshore ornithology data are considered within both the Environmental impact	Natural England advises the Applicant submits an amended EIA and RIAA	Likely	

Ref	The principal issue in question	The brief concern held by Natural England reported on in full in Written Representations	What needs to change, or be included or amended to overcome the disagreement?	Likelihood of the concern being addressed during Examination	RAG Status
	Overwintering Annex I bird features	Assessment (EIA) and the Report to Inform the Appropriate Assessment (RIAA), Natural England cannot draw any conclusions on the proposed impacts to overwintering bird species, including the suitability of any mitigation measures to designated species of the Wash SPA and Ramsar using functionally linked land (FLL).	presenting their conclusions based on the completed two years of baseline data. We advise an Outline Annex I species mitigation management plan for designated features of the SPA is submitted into examination and agreed as part of the consent.	Providing our recommendations are followed.	
NE14	Horizontal Direction Drilling (HDD) at landfall	The landfall location at Anderby Creek, just North of Wolla Bank SSSI, has already experienced unforeseen complications and impacts from horizontal directional drilling operations during the Triton Knoll windfarm installation.	Natural England advises a more detailed plan of landfall construction methodology should be defined and submitted into examination.	Likely	
NE15	Sea Bank Clay Pits SSSI	Sea Bank Clay Pits SSSI is designated for hydrological features which may be susceptible to changes in the water table.	We advise that the Applicant should provide details of mitigation measures within a named plan, which is secured within the DCO.	Likely	
NE16	Soils and Best and Most Versatile Land	Natural England has concerns that without detailed site specific soil data and Agricultural Land Classification	We advise the EIA is updated to present further site specific information on detailed	Uncertain Until Natural England as seen	

Ref	The principal issue in question	The brief concern held by Natural England reported on in full in Written Representations	What needs to change, or be included or amended to overcome the disagreement?	Likelihood of the concern being addressed during Examination	RAG Status
		(ALC) classification, the project is unable to show how it avoids impacting best most versatile (BMV) land.	and semi-detailed ALC and soil function surveys. This site-specific detail informed through a site survey is required to assist the decision maker to reach a decision and apply the National Policy Statement for Renewable Energy Infrastructure (EN-3).	the updated information, we are unable to finalise our position.	
NE17	Protected Species Mitigation Licence	The Applicant has yet to seek Letters of No Impediment from the Natural England Wildlife Licencing Services (NEWLS) team for a draft protected species mitigation licence for Greater Crested Newt (GCN), Water Vole, Bats, Badger and Otter.	Natural England is unable to provide a position on the likelihood of a licence being granted without having reviewed a draft licence application. It should also be noted that Natural England is unable to comment on the need for a licence, this responsibility falls to the developer.	Uncertain Review is likely to be undertaken during examination. Should a species licence be submitted, there is no guarantee any issues arising will be resolved within the examination timeframe.	
DCO/DML					
NE18	Marine Recovery Fund	Natural England has concerned the compensation conditions related to	Natural England advises the DCO compensation conditions are amended to	Likely	

Ref	The principal issue in question	The brief concern held by Natural England reported on in full in Written Representations	What needs to change, or be included or amended to overcome the disagreement?	Likelihood of the concern being addressed during Examination	RAG Status
		the use of the Marine Recovery Fund or other third-party compensation options, are not sufficient to appropriately secure compensation and revision is needed.	make it clear what will be required when opting for a third-party option, making sure to address the need for monitoring and adaptive management measures.		
NE19	Compensation Schedules	The compensation schedules timing requirements are not sufficient. For Kittiwake they include three full breeding seasons and not four. For all other compensation plans they do not secure that the compensation will be in place and functioning prior to impact.	Natural England advises the DCO is amended to make it clear that compensation must be in place and functioning prior to operation.	Uncertain	

7. Detailed Advice Appendices

Natural England's detailed advice, where more detailed explanation of issues has been considered relevant, can be found in the following Appendices

- Appendix A - Development Consent Order, Deemed Marine Licence
- Appendix B - Marine Physical Processes
- Appendix C – Benthic and Intertidal Ecology
- Appendix D – Benthic Compensation
- Appendix E - Marine Mammals
- Appendix F – Offshore and Intertidal Ornithology
- Appendix G – Offshore Ornithology Compensation
- Appendix H - Onshore Ecology
- Appendix I – Onshore Ornithology

Table 7.1 List of Natural England comments that respond to confidential information submitted by the Applicant

Comment Reference	**Document Reference**
Appendix B - Marine Physical Processes	
B2	[APP-152] 6.3.7.3 Chapter 7 Appendix 3 Seabed Mobility Report [CONFIDENTIAL]
B13	
B14	
B15	
B17	
B18	
B21	
Appendix E - Marine Mammals	
E30 – Relates to table 10.4 which has some confidential text.	[APP-236] 7.1 Report to Inform Appropriate Assessment [CONFIDENTIAL]

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Appendix A to the Relevant and Written Representations of Natural England

Development Consent Order and Deemed Marine Licence

For:

The construction and operation of the Outer Dowsing Offshore Wind Farm located approximately 54km east of the Lincolnshire Coast in the Southern North Sea.

Planning Inspectorate Reference EN010130

13th June 2024

Appendix A – Development Consent Order / Deemed Marine Licence

In formulating these comments, the following documents have been considered:

- [APP-303] 3.1 Draft Development Consent Order
- [APP-304] 3.2 Explanatory Memorandum
- [APP-058] 6.1.3 Chapter 3 Project Description
- [APP-089] 6.2.3 Chapter 3 Project Description Figures

1. Natural England's Advice and Recommendations

A summary of Natural England's key concerns in relation to the Development Consent Order (DCO) and Deemed Marine Licence (dML) is set out in Table 1.

Natural England wishes to highlight that we are in the process of reviewing the recent Sheringham and Dudgeon Extension Project (SADEP) DCO/DML. While we have provided some advice relating to monitoring in light of the decision, further comments in relation to the DCO/DML may be provided at Deadline 1 once the review is completed.

Our detailed advice and recommendations are presented in further detail in Table 2. A glossary of acronyms and abbreviations is provided below.

Glossary of Acronyms and Abbreviations

DCO	Development Consent Order
dML	Deemed Marine Licence
ES	Environmental Statement
MMO	Marine Management Organisation
ODOW	Outer Dowsing Offshore Wind
OLEMS	Outline Landscape and Ecological Management Strategy
SADEP	Sheringham and Dudgeon Extension Project
SIP	Site Integrity Plan
SNCB	The Statutory Nature Conservation Body
SPA	Special Protection Area

Table 1 Summary of Key Issues – Development Consent Order and Deemed Marine Licence.

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
A1	The compensation conditions related to the use of the Marine Recovery Fund or other third-party compensation options, are not sufficient to appropriately secure compensation and revision is needed.	Natural England advises the DCO compensation conditions are amended to make it clear what will be required when opting for a third-party option, making sure to address the need for monitoring and adaptive management measures.	
A2	The compensation schedules timing requirements are not sufficient. For Kittiwake they include three full breeding seasons and not four. For all other compensation plans they do not secure that the compensation will be in place and functioning prior to impact.	Natural England advises the DCO is amended to make it clear that compensation must be in place and functioning prior to operation.	
A3	The recent SADEP DCO included wording within the post construction monitoring condition to make it clear that, if identified impacts are more than those assessed and/or that mitigation measures have been insufficient, then further measures and/or remediation may be required to ensure the Proposed Development remains beneficial to the environment.	Natural England advises the Applicant includes and secures with the ODOW DCO/DML wording in accordance with the SADEP DCO which contains a clause requiring adaptive management /remediation measures to be implemented, and further consultation with relevant bodies is required to inform agreement/discharge.	

Table 2 Natural England's Detailed Advice and Recommendations –DCO/dML

Natural England's Relevant and Written Representations - Detailed Advice DCO/dML				
NE Ref	**Ref**	**Comment**	**Recommendation**	**Risk**
Document Used: [APP-303] 3.1 Draft Development Consent Order				
A4	3.1 - Article. 2, Pg. 8	Natural England notes the definition of maintain does not link to the limits of maintenance as described in the Environmental Statement (ES), or to the outline operations and maintenance plan.	Natural England suggest linking to the limits of maintenance to provide clarity that only activities assessed within the ES are covered by the definition of maintenance.	

Natural England's Relevant and Written Representations - Detailed Advice DCO/dML				
NE Ref	**Ref**	**Comment**	**Recommendation**	**Risk**
A5	3.1 - Sched 1 Part 3 Requirement 18	This requirement is for the Code of Construction Practice and includes a list of mitigation plans and requirements for various ecological factors. Natural England notes that the list does not include a requirement to monitor Sea Bank Clay Pits SSSI in the event of dewater. Natural England notes this is an important commitment and should be secured within the DCO.	Consider inclusion of a plan to monitor the Sea Bank Clay SSSI within requirement 18. And ensure that all environmental mitigation measures are appropriately secured.	
A6	3.1 - Sched. 10, Pt 2, Cond. 13(1) (a), Pg. 124	Natural England notes that the relevant Statutory Nature Conservation Body (SNCB) is not listed as a body that will be consulted by the Marine Management Organisation (MMO) on this document. Natural England would expect to be consulted on all sections of this document, especially regarding the Environmental micro-siting requirements.	Consider amendment to make it explicit that the relevant SNCB will be consulted.	
A7	3.1 - Sched. 10, Pt. 2, Cond. 14(2) Pg. 127	Given the recent increase in size and complexity of offshore wind farm construction, Natural England considers that a period of four months is insufficient to approve some documentation.	Natural England advises the condition is amended to a 6 month approval period. Natural England notes that for the Dudgeon and Sheringham Extension Project, a 6-month period was agreed for some conditions. Natural England would be happy to engage with the Applicant and the MMO to come to a similar agreement.	
A8	3.1 - Sched. 10 and 11 Condition 19 Pg. 129	The recent SoS decision for Sheringham and Dudgeon Extension Project (SADEP) approved the recommendation from Natural England and the Marine Management Organisation for amendments to the monitoring requirements should monitoring highlight particular impacts requiring remediation or further mitigation works. Natural England have pasted the condition used below for your reference:	Natural England advises the Applicant includes and secures with the ODOW DCO/DML wording in accordance with the SADEP DCO (Condition 20 (schedules 10 and 11) and Condition 19 (schedules 12 and 13) of the dML) which contain a clause requiring adaptive management measures to be implemented, and that further consultation with relevant bodies is required to inform agreement/discharge.	

Natural England's Relevant and Written Representations - Detailed Advice DCO/dML				
NE Ref	**Ref**	**Comment**	**Recommendation**	**Risk**
		(7) In the event that the reports provided to the MMO under sub-paragraph (4) identify impacts which are unanticipated and or beyond those predicted within the Environmental Statement and the Habitats Regulations Assessment an adaptive management plan to reduce effects to within what was predicted within the Environmental Statement and the Habitats Regulations Assessment, unless otherwise agreed by the MMO in writing, must be submitted alongside the monitoring reports submitted under sub-paragraph (4). This plan must be agreed by the MMO in consultation with the relevant statutory nature conservation bodies to reduce effects to an agreed suitable level for this project. Any such agreed and approved adaptive management or mitigation should be implemented and monitored in full to a timetable first agreed in writing with the MMO. In the event that this adaptive management or mitigation requires a separate consent, the undertaker shall apply for such consent. Where a separate consent is required to undertake the agreed adaptive management or mitigation, the undertaker shall only be required to undertake the adaptive management or mitigation once the consent is granted.		
A9	3.1 - Sched. 10 Part 2 Condition 21	Natural England notes this condition prohibits the deployment of cable protection 10 years after the completion of construction. Natural England notes that this only applies to areas outside of	Natural England advises this condition is amended to secure that no cable protection will be deployed within the designated site after the construction works within the designated site have completed. Please see	

Natural England's Relevant and Written Representations - Detailed Advice DCO/dML				
NE Ref	**Ref**	**Comment**	**Recommendation**	**Risk**
		benthic SACs. A condition is required to make it clear that no cable protection may be deployed within areas within the Inner Dowsing North Ridge and Race Bank SAC after completion of construction	agreement drawn to this effect for SADEP in regards to inside and outside of Cromer Shoal Chalk Beds MCZ	
A10	3.1. - Sched. 11, Sched. 12, Sched. 13, Sched. 14, Sched. 15 & Sched. 16.	All comments raised on Schedule 10 apply to Schedule 11, 12, 13, 14, 15 and 16 where similar provisions exist. For brevity Natural England will not repeat these comments.		
A11	3.1 - Sched. 16, Pg. 202	Natural England notes that Schedule 16 of the DML enables the recreation of Annex I Reef as a compensation measure within IDRBNR SAC and that this will be considered as part of the HRA for the DCO/dML rather than a separate post consent marine licence.	Until further evidence is provided to refine down the 17 areas of search to 1 or maybe 2 locations the potential impacts on Annex I features within the SAC and/or the conservation objectives for the site can't be assessed. Therefore, at this time we are unable to support the inclusion of Schedule 16.	
A12	3.1 - Sched. 16, Pg. 202	We also note that some of the 17 potential compensation areas of search are located where The Crown Estate has recently issued seabed lease areas to the Aggregates Industry. Whilst they do not have a Marine Licence for aggregates dredging it remains unclear how these overlapping seabed uses are managed from a legal perspective and how this aligns with designated site management and the revision of the East Marine Plan. This is likely to have a bearing on the inclusion of Schedule 16 for this project.	We acknowledge that the issue of marine spatial prioritisation is a wider seabed issue than for just this project, and we will continue to work with relevant interested parties to address this and update the Examination accordingly.	

Natural England's Relevant and Written Representations - Detailed Advice DCO/dML				
NE Ref	**Ref**	**Comment**	**Recommendation**	**Risk**
A13	3.1 - Sched. 11, Pt. 2, Cond .22, Pg 130	Due to the need to appropriately consider in-combination impacts of other developments it is also important that the Site Integrity Plan (SIP) should not be submitted too early.	Natural England recommends that the condition should require the SIP no sooner than 9 months and no later than 6 months prior to commencement of piling	
A14	3.1 - Sched. 22 Pt. 1 Cond. 4(b), Pt. 2 Cond. 4(d), Pt. 3 Cond. 4(d), Pt. 4 Cond. 4(h), Pt. 5 Cond 4(e)	For conditions which relate to project contribution to a Marine Recovery Fund. Natural England has some preferred wording to cover requirements for use of the Marine Recovery Fund.	Natural England suggests that The Applicant considers our suggested wording provided to regulators (Annex 1).	
A15	3.1. - Sched. 22 Pt. 1 Cond. 4(c) & (d), Pt. 2 Cond. 4(e) & (f), Pt. 3 Cond. 4(e) & (f), Pt. 4 Cond. 4(i) & (j), Pt. 5 Cond. 4(f) & (g).	These conditions allow for third parties to deliver, or partly deliver compensatory measures on behalf of the Applicant. However, conditions enabling third party delivery do not include provisions for monitoring or for adaptive management should the compensatory measures not be effective. The current drafting does not imply an either or situation, which means that, should the project rely on a contribution to be made to such funds to deliver compensation the project specific compensation would also be required.	Natural England suggests these sections require review and amendment to make it clear exactly what will occur should the developer decide to use third party compensation.	

Natural England's Relevant and Written Representations - Detailed Advice DCO/dML				
NE Ref	**Ref**	**Comment**	**Recommendation**	**Risk**
A16	3.1 – Sched. 22 Pt. 1 Cond. 5	This requirement ensures that compensation for impacts to Kittiwake designated to the Flamborough and Filey Coast Special Protection Area must be provided three full breeding seasons prior to operation. However, Natural England notes that on other developments a period of four full breeding seasons was deemed appropriate and considers this should therefore be amended to ensure alignment. It is further noted that Parts 2-5 do not have a similar requirement or any provision which would ensure compensation is in place prior to works.	Amend the condition to reflect four full breeding seasons in line with compensation requirements for other projects and check the parts securing compensatory measures for other designated features (Sched. 22, Pts. 2-5). The amendment should be made to ensure compensation is delivered and is sufficiently functioning prior to impact occurring. However, the wording of compensation requirements may change as discussions on the measures progress	
A17	3.1 – 12 – Ecological management Plan Page 52	As detailed within Appendix I, Natural England is concerned that mitigation for Annex I pink-footed geese is covered under the generic mitigation within for over wintering birds utilising land which is functionally linked to designated sites, secured by the Outline Landscape and Ecological Management Strategy (OLEMS)	Natural England advises a requirement is included within the DCO to secure a commitment for an Outline Annex I bird species mitigation plan with the level of detail required securing provisions relating to the geographical definition of the mitigation scheme; a timeframe for the approval process; details of pre-construction surveys and mitigation. The outline mitigation should be agreed with Natural England as part of the consenting process.	

Annex 1: Suggested Benthic compensation wording provided to regulators

Schedule XX

[Site Name] Special Area of Conservation or Marine Conservation Zone: Delivery of measures to compensate for [impacts]

1. In this Schedule—

"BIMP" means the Benthic Implementation and Monitoring Plan for the delivery of measures to compensate for offshore windfarm construction and/or operation within the [Site Name] SAC/MCZ as a result of the authorised development;
"BSG" means the benthic steering group who will shape and inform the scope and delivery of the BIMP;
"[Site ref] SAC" means the [Site name] Special Area of Conservation;
"[Site ref] MCZ" means the [Site name] Marine Conservation Zone;
"[Site ref] SAC/MCZ compensation plan" means the document certified as [In Principle Compensation Plan Document Ref] by the Secretary of State for the purposes of this Order under article XX (Certification of plans etc); and
"Strategic Compensation Fund" means the [name of strategic fund] fund established by Defra [or another Government body] for the purpose of implementing strategic compensation measures.
"Strategic Compensation Owner" means the government body which established the Strategic Compensation Fund with the responsibility to manage contributions to the fund and/or delivery of the strategic compensation measure.

2. No later than 2 years from the date of this order the Undertaker must advise the Secretary of State of the intention to provide compensation either;

a. Through a monetary contribution to the Strategic Compensation Fund; or
b. Through a project/developer led compensation scheme for the undertaker to provide compensation as outlined in the [site ref] SAC/MCZ Compensation Plan.

Paragraphs 7-15 of this Schedule shall not apply to the extent that a contribution to the Strategic Compensation Fund has been elected in Paragraph 2 of this Schedule and paragraphs 4, 5 and 6 of this schedule shall not apply to the extent that a project/developer led compensation plan has been elected in paragraph 2 of this Schedule.

3. The authorised development may not be commenced until a plan for the work of the BSG has been submitted to and approved by the Secretary of State. Such plan must include:

(a) terms of reference of the BSG;
(b) the membership of the BSG;
(c) details of the schedule of meetings, timetable for preparation of the BIMP and reporting and review periods, or details of the schedule of meetings to agree contribution to the Strategic Compensation Fund; and
(d) the dispute resolution mechanism.

4. The undertaker must agree a ratio/value of contribution with the strategic compensation owner, in consultation with the Statutory Nature Conservation Body [and the BSG]. Unless agree otherwise with the Strategic compensation Owner the ratio/value must include consideration of the provision of;

a. The required contribution to compensate for the worst-case scenario of impact on the [site ref] SAC/MCZ;
b. The required contribution to monitoring of the compensation undertaken under the Strategic Compensation Fund;

c. The required contribution to provide for any adaptive management measures for the compensation undertaken under the Strategic Compensation Fund;
d. The timing of any required contribution to ensure compensation is either provided ahead of construction or to a sufficiently high ratio to allow for construction prior to implementation of the compensation;
e. The required contribution for the ongoing maintenance and/or monitoring of the compensation undertaken under the Strategic Compensation Fund; and
f. The required contribution for any decommissioning of the compensation undertaken under the Strategic Compensation Fund.

5. Prior to the commencement of any works the undertaker must provide details on the contribution to the Strategic Compensation Fund agreed under paragraph 4 to the Secretary of State for approval.

6. The undertaker must provide the contribution to the Strategic Compensation Fund as per the agreement approved by the Secretary of State under paragraph 5.

7. The BSG must be consulted on the proposed BIMP prior to the submission to the Secretary of State and must be consulted further as required during the approval process.

8. The undertaker will meet with and report to the BSG at least annually throughout the establishment and implementation phases of the BIMP and document the conclusions of the meetings.

9. The BIMP must be submitted to and approved by the Secretary of State, in consultation with the MMO and the relevant statutory nature conservation bodies.

10. The BIMP must accord with the relevant principles contained in the [site ref] SAC/MCZ compensation plan and must include in particular provide:

(a) details of any further survey work required to inform the compensation requirements as per the requirements of the secretary of state agreed through consultation with the BSG;
(b) details of the location, nature and works to be undertaken to compensate for the predicted effects of the project;
(c) a method statement for the compensatory works, to include the vessel type, tools used and mitigation for how impacts on the [site ref] SAC and any other relevant habitats or features
(d) a programme of works for the compensatory works;
(e) proposals for monitoring in accordance with the principles set out in the [site ref] SAC compensation plan as well as proposals for reporting of monitoring; and
(f) success criteria, adaptive management measures, and details of how all impacts to protected habitats and features within designated sites will be avoided.

11. The BIMP must be carried out as approved, unless otherwise agreed in writing by the Secretary of State in consultation with the MMO and the relevant statutory nature conservation body. In particular, no installation works in the [site ref] SAC/MCZ may be commenced until the Secretary of State has confirmed that compensation requirements have been discharged, excluding monitoring and/or adaptive management measures.

12. Unless otherwise agreed in writing with the Secretary of State, prior to the commencement of any cable installation works in the [site ref] SAC/MCZ, the undertaker must—

(a) provide a reasonable estimate of the cost of delivery of the compensation measures; and
(b) put in place either—
(i) a guarantee in respect of the reasonable estimate of costs associated with the delivery of the compensation measures; or
(ii) an alternative form of security for that purpose, that has been approved by the Secretary of State.

13. Results from the monitoring scheme must be submitted at least annually to the Secretary of State, the MMO and the relevant statutory nature conservation body. This must include details of any finding that the measures have been ineffective in securing an improvement in the condition of the [site ref] SAC and, in such case, proposals to address this. Any proposals to address effectiveness must thereafter be implemented by the undertaker as approved in writing by the Secretary of State in consultation with the MMO and the relevant statutory nature conservation body.

14. A report which demonstrates completion of the activities required by the BIMP must be submitted to the Secretary of State within 12 months of completion of such activities and following approval of the report by the Secretary of State, in consultation with the MMO and the statutory nature conservation body, the undertaker will be discharged from any further obligations under this Part.

15. The approved BIMP includes any amendments that may subsequently be agreed in writing by the Secretary of State, in consultation with the MMO and the relevant statutory nature conservation body. Any amendments to or variations of the BIMP must be in accordance with the principles set out in the [site ref] SAC compensation plan and may only be approved where it has been demonstrated to the satisfaction of the Secretary of State that it is unlikely to give rise to any new or materially different environmental effects from those considered in the [site ref] SAC compensation plan.

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Appendix B to the Relevant and Written Representations of Natural England

Marine Physical Processes

For:

The construction and operation of the Outer Dowsing Offshore Wind Farm located approximately 54km east of the Lincolnshire Coast in the Southern North Sea.

Planning Inspectorate Reference EN010130

13th June 2024

Appendix B – Marine Physical Processes

In formulating these comments, the following documents have been considered:

- [APP-006] 2.2 Offshore Works Plans
- [APP-008] 2.4 Offshore Location Plan
- [APP-020] 2.16 Statutory and Non-Statutory Nature Conservation Sites
- [APP-023] 2.19 Offshore Crossing Plan
- [APP-058] 6.1.3 Chapter 3 Project Description
- [APP-073] 6.1.18 Chapter 18 Marine Infrastructure and Other Users
- [APP-089] 6.2.3 Chapter 3 Project Description Figures
- [APP-062] 6.1.7 Chapter 7 Marine Physical Processes
- [APP-078] 6.1.23 Chapter 23 Geology and Ground Conditions
- [APP-093] 6.2.7 Chapter 7 Marine Physical Processes Figures Part 1 of 2
- [APP-094 6.2.7 Chapter 7 Marine Physical Processes Figures Part 2 of 2
- [APP-108] 6.2.18 Chapter 18 Marine Infrastructure and Other Users Figures
- [APP-142] 6.3.3.1 Chapter 3 Appendix 1 Cable Burial Risk Assessment [CONFIDENTIAL]
- [APP-144] 6.3.3.3 Chapter 3 Appendix 3 Offshore Crossing Schedule
- [APP-145] 6.3.4.1 Chapter 4 Appendix 1 Landfall Assessment Offshore ECC Route Optioneering
- [APP-150] 6.3.7.1 Chapter 7 Appendix 1 Physical Processes Technical Baseline
- [APP-151] 6.3.7.2 Chapter 7 Appendix 2 Physical Processes Modelling Report
- [APP-152] 6.3.7.3 Chapter 7 Appendix 3 Seabed Mobility Report [CONFIDENTIAL]
- [APP-236] 7.1 Report to Inform Appropriate Assessment [CONFIDENTIAL]
- [APP-242] 7.5 Derogation Case.pdf
- [APP-245]7.6.1.1 Sandbank Compensation Implementation and Monitoring Plan
- [APP-276] 8.3 Offshore In Principle Monitoring Plan.pdf
- [APP-287] 8.13 Schedule of Mitigation.pdf
- [APP-295] 8.21 Outline Scour and Cable Protection Management Plan

1. **Natural England's Advice and Recommendations**

A summary of Natural England's key concerns in relation to Marine Physical Processes is set out in Table 1. Our detailed advice and recommendations are presented in Table 2.

In order to reduce the repetition in our advice, the advice and recommendations within this appendix, notably regarding sandbanks and sandwaves are applicable to and should be read in conjunction with, the advice presented the Benthic and Intertidal Ecology Appendix C.

A glossary of acronyms and abbreviations is provided below.

Glossary of Acronyms and Abbreviations

CEA	Cumulative Effects Assessment
DCO	Development Consent Order
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
ES	Environmental Statement
HDD	Horizontal Directional Drilling
HRA	Habitats Regulations Assessment
IDRBNR SAC	Inner Dowsing Sandbank, and Inner Dowsing Race Bank North Ridge Special Area of Conservation
IPMP	In-Principle Monitoring Plan
JNCC	Joint Nature Conservation Committee
LGS	Local Geological Site
MDS	Maximum Design Scenario
MHWS	Mean High Water Springs
ODOW	Outer Dowsing Offshore Wind
O&M	Operations & Maintenance
ORCP	Offshore Reactive Compensation Platform
OSCPM	Outline Scour and Cable Protection Management Plan
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Information Report
SAC	Special Area of Conservation
SIP	Site Integrity Plan
SNS	Southern North Sea
SSC	Suspended Sediment Concentration
UXO	Unexploded Ordnance
WCS	Worst Case Scenario
WTG	Wind Turbine Generator
ZoI	Zone of Interest

Table 1 Summary of Key Issues – Marien Physical Processes

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
B1	Impact Pathways Natural England is concerned that impact pathways to key receptors due to construction-related suspended sediment concentration (SSC) and seabed level changes have not been thoroughly considered by the Applicant.	Natural England advises that there are a number of marine physical process receptors which may be sensitive to this impact pathway and the Applicant should include these in their impact assessment and revisit assessment conclusions.	
B2	Disruption to hydrodynamics Natural England queries the Applicant's realistic Worst Case Scenario (WCS) for wave and hydrodynamic blockage effects.	Natural England advises that the Applicant should clarify, and provide rationale for, the realistic WCS presented for changes to the wave and tidal regimes due to the presence of the array, taking into account the engineering assessment in the Seabed Mobility Report [Confidential: APP-152].	
B3	Impacts from the Offshore Reactive Convertor Platforms Natural England queries the adequacy of information provided regarding pressures exerted on Inner Dowsing Sandbank, and Inner Dowsing Race Bank North Ridge Special Area of Conservation (IDRBNR SAC) due to the presence of the Offshore Reactive Convertor Platforms (ORCPs).	Natural England advises that the Applicant should provide further evidence to support the impact assessment conclusions for changes to seabed morphology and modifications to the wave, tide, and sediment transport regimes due to the presence of the ORCPs.	
B4	Project lifetime impacts Natural England has concerns regarding pressures exerted by Operations & Maintenance (O&M) activities through the lifetime of the Project.	Natural England advises that the Applicant needs to include proposed O&M activities from Chapter 3 Project Description [APP-060] in the Marine Physical Process Environmental Impact Assessment (EIA) [APP-062].	
B5	Placement of external cable protection within designated site Natural England has concerns regarding the placement of external cable protection within IDRBNR SAC.	Natural England advises that the Applicant should revisit the assumptions and assessment conclusions made. The	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
		Applicant should also make all efforts to avoid, reduce and mitigate impacts to the features of IDRBNR SAC.	
B6	<u>Placement of external cable protection outside of benthic designated sites</u> Natural England has concerns regarding potential changes to wave energy transmission, nearshore sediment pathways, and coastal morphology, due to the presence of cable protection within the shallow nearshore zone perpendicular to longshore sediment transport. Disruption of these processes would have a likely significant effect to coastal SAC and SPAs, but specifically The Wash and North Norfolk Coast SAC, The Wash SPA, Ramsar and SSSI.	Natural England advises that the Applicant should clarify the Maximum Design Scenario (MDS) for cable protection within shallow nearshore water and revisit their impact assessment conclusions.	

Table 22 Natural England's Detailed Advice and Recommendations – Marine Physical Processes

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Project Parameters - Documents Used: [APP-058] 6.1.3 Chapter 3 Project Description, [APP-062] 6.1.7 Chapter 7 Marine Physical Processes, [APP-150] 6.3.7.1 Chapter 7 Appendix 1 Physical Processes Technical Baseline, [APP-152] 6.3.7.3 Chapter 7 Appendix 3: Seabed Mobility Report [CONFIDENTIAL], [APP-295] 8.21 Outline Scour and Cable Protection Management Plan.					
Project Description	B7	6.1.3	The Project Parameters are well defined with the exception of O&M activity in relation to project cable repair and reburial.	Natural England advise that details of O&M activity are further considered within [APP-058] 6.1.3 Chapter 3 Project Description.	
Natural England's Position on Worst Case Scenario.	B8	6.1.7 - Tables 7.9 & 7.10	Tables 7.9 & 7.10 show the estimated scour depth, radius, and volume for an array of 100 Wind Turbine Generators (WTGs) with monopile and jacket foundations, respectively. However, the estimated scour depth, radius, and volume are only provided for 65% of locations. It is unclear whether this is because the remaining 35% of locations are not expected to experience scour. We are, therefore, uncertain about the Maximum Design Scenario (MDS) scour volumes presented.	Natural England advises the Applicant clarifies the results of the scour assessment presented for the WTG foundations. The Worst-Case Scenario (WCS) should also be revisited.	
	B9	6.1.7 - Section 7.8, Table 7.3/6.3. 1.7,	Annex B (and Annex C) presents the Preliminary Environmental Information Report (PEIR) assessment of spoil mounds for sandwave clearance and seabed levelling. However, the MDS parameters used have since been revised and differ from those presented in the Environmental Statement (ES). It is not clear how the results of the	Natural England advises that further clarification is required from the Applicant on the WCS parameters for spoil mounds due to sandwave clearance and seabed levelling and where appropriate update the impact assessment.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
		6.3.7.1, Annex B	PEIR assessment relate to those presented in the ES, or the implications for the WCS.		
	B10	6.1.7 - Section 7.8, Table 7.3	The MDS for increases in Suspended Sediment Concentration (SSC) and consequential changes to seabed level does not consider boulder clearance, pre-lay grapnel run or Unexploded Ordnance (UXO) clearance. However, Natural England advises that these (pre-construction) related activities could alter seabed elevation and lead to increased SSCs.	Natural England advises that the Applicant should consider and assess the MDS for all construction-related activities that may alter SSCs and seabed level.	
	B11	6.1.7 - Section 7.12.1. 3, Para. 153	Currently, the likely length (and thus area and volume) of cable protection measures required from 500m seawards (in shallow nearshore waters) is not known. Therefore, the MDS for cable protection within nearshore shallow waters is not clearly defined.	Natural England advises that the MDS parameters for cable protection measures within shallow nearshore waters should be more clearly defined and assessed accordingly.	
	B12	6.1.7 - Table 7.3 and 8.21, Section 3.2, Paras. 39 & 40	The MDS for cable protection with Inner Dowsing North Ridge and Race Bank Special Area of Conservation (IDRBNR SAC) is unclear. For example, within the Outline Scour and Cable Protection Management Plan (OSCPM) [APP-295], it states that cable protection may cover up to 5% of the [export] cable length for a total area of 5760m^2 over Inner Dowsing and North Ridge, and outside of the sandbank features within the SAC, up to 20% of the cable length. In Table 7.3 (6.1.7), 5% of the export cable length within the two sandbank areas covers 5760m^2, and the 20% of	Natural England advises that the Applicant needs to clarify within the OSCMP [APP-295] the MDS as fully detailed in Table 6.18 of the Chapter 3 Project Description [APP-058] for cable protection within the IDRBNR SAC in terms of specific locations, length, seabed footprint, and volume both during construction and over the lifetime of the project. Natural England further advise that the WCS final value should consider the	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			export cable length within the SAC (excluding the sandbank areas) covers a total area of 227,558m^2. Moreover, Table 3.1 in the OSCPM, states that 21.4% of the export cable route will require cable protection.	difficulties that other projects have encountered with the amount of cable protection that has been required in similar environments. For example, the amount of cable protection along the export cable corridor for the Triton Knoll Offshore Windfarm. Whilst the Triton Knoll ECC was located outside of a designated site, it was within similar substrate and environmental conditions and therefore would make a suitable comparison. The Applicant should include reference to other projects within their WCS justification.	
Baseline Characterisation - Documents Used: [APP-062] 6.1.7 Chapter 7 Marine Physical Processes, [APP-150] 6.3.7.1 Chapter 7 Appendix 1 Physical Processes Technical Baseline, [APP-151] 6.3.7.2 Chapter 7 Appendix 2 Physical Processes Modelling Report [APP-152] 6.3.7.3 Seabed Mobility Report [CONFIDENTIAL].					
Survey Data Acquisition	B13	6.3.7.3	The bathymetric survey data used to inform the seabed mobility study, has a number of limitations including data coverage, timing, and number of epochs. There is also some uncertainty regarding absolute measure of bed elevation change, which was not undertaken, owing to insufficient data overlap, and the identification of erosional areas, which could be associated with scour processes.	Natural England advises that the Applicant should collect further full seabed coverage bathymetric survey data prior to construction to inform the assessment of bedform migration directions and the scour potential assessment (and thus detailed engineering and design), to ensure that the ES predictions remain fit for purpose and where they are not adopt the mitigation hierarchy to reduce impacts.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Data Gaps	B14	6.3.7.3	While the baseline characterisation is largely sufficient; Natural England notes that in the Seabed Mobility Assessment, currently Holocene sediment thickness data are not sufficiently detailed to inform the seabed mobility study. Further bathymetric data will also be required in order to allow more accurate assessment/corroboration of bedform migration rates. This evidence is important for informing the assessment of seabed mobility and recovery of bedforms.	Natural England advises the Applicant provides more detailed information regarding the thickness of Holocene/mobile beds across the study area. In addition, further bathymetric survey data should be acquired to refine modelling results and assessment of bedform migration directions and rates.	
Analysis, Modelling and Reporting	B15	6.3.7.3 & 6.1.7 - Section 7.12.2. 1, Para. 178	<u>Impact 4: Modifications to the Wave and Tidal Regime and Associated Potential Impacts to Morphological Features, including Coastal Processes and Geomorphology above Mean High Water Springs (MHWS).</u> It is stated in 6.1.7, Section 7.12.2, that given *'the small percentages of wave reduction predicted to result from the presence of the foundations, there is unlikely to be a meaningful change to the banks' crest height, and these features are therefore considered to have a high capacity to accommodate change to the wave regime'.* In turn, the sensitivity of offshore sandbank receptors has been assessed as low. However, evidence presented in the Seabed Mobility Report suggests that residual sediment transport rate direction is dependent upon wave height. Yet, it is unclear how the predicted changes to wave height over the lifetime of the Project may affect this relationship	Natural England advises that information is required to demonstrate how potential changes to the wave regime (due to the presence of the array) have been considered in the assessment of changes to sediment transport processes and bedform migration within the array, over the lifetime of the Project. Further information should be provided to demonstrate this, and the impact assessment updated, if required.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			and, in turn, the sandbank morphology within and around the array. Therefore, we are unable to agree with the assessment conclusion.		
Environmental Impact Assessment - Documents Used: [APP-062] 6.1.7 Chapter 7 Marine Physical Processes, [APP-150] 6.3.7.1 Chapter 7 Appendix 1 Physical Processes Technical Baseline, [APP-151] 6.3.7.2 Chapter 7 Appendix 2 Physical Processes Modelling Report, [APP-152] 6.3.7.3 Seabed Mobility Report, [APP-276] 8.3 Offshore In Principle Monitoring Plan.					
Identified Impacts	B16	6.1.7 - Section 7.4.3.3, P 38	Inner Silver Pit glacial tunnel valley is located on the northern boundary of the offshore export cable corridor (ECC). Inner Silver Pit is an important seabed morphological feature that supports a range of benthic communities and ross worm reef. Yet, it has not been included as a receptor in the impact assessment.	Natural England advises that further consideration of the potential impacts of the Project on Inner Silver Pit is required.	
	B17	6.3.7.2 - Section 5.6 & 6.3.7.3	Wave Blockage Modelling The modelled windfarm scenario is defined in Annex A to Document 6.3.7.2 Chapter 7 Appendix 2 Physical Processes Modelling Report. We are concerned that the windfarm layout used to model wave and hydrodynamic blockage effects, may not be the most realistic WCS. The windfarm scenario used for wave blockage modelling is defined in Annex A. However, Annex A appears to be missing, so we cannot assess the exact windfarm scenario modelled. Nevertheless, Figures 7.24-7.26, present results from the hydrodynamic and wave blockage modelling, which shows a grid-like	Natural England seeks clarification from the Applicant on whether the modelled scheme layout is the realistic WCS, and also whether the hydrodynamic and wave modelling should be revised in line with the recommendations in the Seabed Mobility Report.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			pattern of regularly spaced foundations in the array. However, the initial engineering assessment in the Seabed Mobility Report advises that whilst **mitigation by design is likely to be effective against the effects of smaller sandwave migration within the array**, **avoidance of the larger sandwaves and sandbanks is likely to be the most practical solution** (owing to engineering challenges). Therefore, Natural England questions, whether the scheme layout modelled is actually the realistic WCS, or whether, based on this engineering assessment, the realistic WCS is more likely to be a scheme layout where foundations are located away from mobile sandbanks and the larger sandwaves.		
	B18	6.1.7 - Section 7.12.2 & 6.3.7.3	<u>Potential Impact of the Offshore Reactive Convertor Platforms (ORCPs) on Inner Dowsing Sandbank and IDRBNR SAC</u> Two ORCPs are planned to be located within the ECC near Inner Dowsing Sandbank a feature of the IDRBNR SAC. The southern ORCP location, in particular, appears close to/overlaps Inner Dowsing Sandbank, in an area of high sediment mobility, seabed elevation change, and bedform migration rates. Currently, there is insufficient information to inform the assessment of impacts to Inner Dowsing Sandbank and the SAC due to construction- and operational-related changes to waves, hydrodynamics, and sediment transport regime,	Natural England advises that the Applicant should provide further evidence to support the impact assessment conclusions for changes to seabed morphology and modifications to the wave, tide, and sediment transport regime due to the presence of the ORCPs. We advise that further consideration is given to moving the platform further to the North away from Inner Dowsing Sandbank and the SAC. However, a balance will need to be sought between SAC impacts and those of the Greater Wash SPA.	

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Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			and in turn seabed morphology from both the structure and any scour prevention. We are also concerned that currently there is insufficient evidence to successfully mitigate for the effects of sandwave/sandbank migration or scour through the Project's lifetime at the ORCP locations. Natural England is, therefore, unable to agree with the impact conclusions.		
	B19	6.1.7 - Table 7.2, Page 47	Operation & Maintenance (O&M) Activities Within Table 7.2, it is stated that remedial and maintenance activities…*'are short-lived in both duration and extent when compared to construction activities, and as such are not considered to represent the worst-case scenario…Therefore, in line with best practice, they have not been assessed as a separate impact within this chapter…*' We advise that, in line with Natural England's best practice guidance, pressures during the O&M phase are likely to compound existing pressures to features and therefore have the potential to slow the ability of the feature to recover.	Natural England advises that **proposed O&M activities** detailed in Chapter 3 Project Description [APP-058] **need to be taken account of in relevant environmental assessments**. As per other stages of the development, O&M-related environmental impacts should be reduced through the avoid, reduce, mitigate hierarchy. Therefore, Natural England advises the Applicant provides sufficient information on remedial and maintenance activities that may cause additional impacts to the marine physical environment and processes, through the operational lifetime of the Project, to inform both Project alone and in-combination/cumulative assessments.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Methodology	B20	6.1.7 - section, 7.13, Table 7.11 and Figure 7.27	Cumulative Assessment It has been noted within the three-tier system used for describing projects in the Cumulative Effects Assessment (CEA), that it does not follow best practice. For example, Tier 1 does not include built and operational projects where they have not been included in the environmental characterisation. Natural England also note that Figure 7.27 showing the location of cumulative projects relative to the Physical Processes Study Area, does not include the location of designated site boundaries or other important areas or features for protected species and habitats.	Natural England advises that the Applicant should follow Natural England and Joint Nature Conservation Committee (JNCC) best practice for determining which projects should be included in cumulative assessments and the level of data that is available at each stage. Phase III Best Practice for Data Analysis and Presentation at Examination, Version 1.2, August 2022.pdf Natural England advise that the CEA should be updated in line with best practice. Furthermore, Figure 7.27 should be updated to identify designated site boundaries, other important areas for protected habitats and species, and marine processes receptors.	
	B21	6.3.7.3 - Section 6.23	Seabed Mobility Report The seabed mobility assessment for the initial operational period of the Offshore Wind Farm (OWF) based on a 25-year life of development. However, the OWF is expected to operate for at least 35 years.	Natural England advises that the seabed mobility assessment for the initial operational period of the wind farm should be revisited to reflect the predicted OWF lifespan of 35 years. And any necessary changes made to the impacts assessments.	
Have the impacts been avoided/reduced by the use of	B22	6.1.23 and 8.13 -	It is stated that there will not be any above-ground infrastructure located within the intertidal area and that this will limit the likelihood of significant effects on geological receptors in this area, we are	Natural England advises that owing to the scarcity of these features, irreplaceable nature, and importance for sea level rise and climate change studies, we advise	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
appropriate mitigation?		Table 1.1	concerned that there may be impacts to the Lincolnshire Coast Submerged Forest Local Geological Site (LGS), which is present within the ECC1 study area.	that impacts to the Lincolnshire Coast Submerged Forest LGS should be avoided through careful selection of cable routing or installation techniques, unless it can be clearly demonstrated that the potential impacts will not affect their extent or distribution.	
	B23	6.1.7 - Section 7.5, Para. 48	The beach management strategy at landfall is due to change this year (2024), with structures due to be implemented between 2025 and 2030. Currently, it is uncertain how these changes may affect the Project's buried infrastructure through the lifetime of the development.	Natural England advises liaison with the Environment Agency to gain a better understanding of the proposed changes to beach nourishment and implementation of coastal defence measures at landfall. Potential impacts to asset integrity should be assessed for the lifetime of the project, taking into account vertical changes to beach elevation, coastal retreat, and sea level rise. Consideration should also be given to potential sink holes appearing due to unconsolidated sediment layers, as this occurred during installation of the neighbouring Triton Knoll OWF cable.	
	B24	8.13 - Table 1.1 and 6.1.7, Table 7.4	<u>Schedule of Mitigation</u> The use of (Horizontal Directional Drilling) HDD at landfall has not been explicitly stated in the Schedule of Mitigation. However, in Table 7.4 Embedded Mitigation Relating to Marine Physical Processes, it is stated that the installation of the	Natural England advises that the Applicant should include HDD at landfall in the Schedule of Mitigation.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			offshore export cables at landfall will be undertaken by HDD, thus minimising disturbance to the existing coastline and its infrastructure.		
	B25	6.1.7 - Section 7.12.1, Paras. 102 & 103	7.12.1 Impact 1: Increase in SSC resulting in elevated turbidity and consequential changes to seabed levels. Natural England is unable to agree with the assessment conclusion. The conservation advice for IDRBNR SAC identifies features/sub-features sensitive to heavy deposition. Moreover, the offshore sandbanks located within the array area provide important fish (e.g. herring) nursery and spawning grounds and supporting habitat for prey relied upon by The Greater Wash SPA interest features, which could be affected by smothering due to heavy sediment deposition. The sandbanks and sandwave fields may also be affected by changes to bed level. Therefore, we do not agree with the conclusion that the magnitude of impact is low, or that all marine process receptors are insensitive to this impact.	Natural England advises that there **are** marine physical process receptors which may be sensitive to the impact pathway (construction-related increases in SSC, elevated turbidity, and changes to seabed levels), and the Applicant should review the EIA assessment conclusions for this impact and the conservation objectives for the IDRBNR SAC and the Greater Wash SPA.	
Assessment Conclusions	B26	6.1.7 - Section 7.12.1, Para. 104	7.12.1 Impact 1: Increases in SSC resulting in elevated turbidity and consequential changes to seabed levels. It is stated that there are no marine physical processes receptors sensitive to the impact pathway, therefore, the significance of effect has not been assessed. However, there a number of	Natural England advises that there **are** marine physical process receptors which may be sensitive to the impact pathway and the Applicant should include these in the EIA and revisit the assessment conclusions for both EIA and Habitat Regulations.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			seabed morphological features present within the Zone of Interest (ZoI), such as offshore sandbanks, sandwaves, SAC supporting habitat, and the IDRBNR SAC. **These marine physical processes receptors may be affected by changes in bed level (and possibly increased SSCs) and should be included in the impact assessment**. (Although we note that impacts to seabed morphology are assessed separately in Impact 2).		
	B27	6.1.7 - Section 7.12.1.2, Paras. 136 & 138	7.12.1.2 <u>Impact 2: Potential Impacts to Seabed Morphology (Sandbanks, Sandwave Areas and Notable Bathymetric Depressions).</u> We advise that features of the **IDRBNR SAC and other Annex I sandbanks within the array and ECC** may be impacted by **modifications to seabed morphology due to construction-related activities** within the offshore ECC and array area. Evidence for sandwave recovery within IDRBNR SAC is based on evidence from the Race Bank OWF. Please see Appendix C Annex 1. We advise against using this evidence as an analogue for the Outer Dowsing OWF. We expressed uncertainty in our Relevant Representations to Norfolk Boreas (2019) as to whether full recovery of Annex I sandbanks was achievable from Race Bank OWF sandwave sweeping. Whilst early indications of recovery suggested that this is possible, without	Natural England advises that the conclusions drawn by the Applicant should be revisited. Furthermore, we also advise that the Applicant needs to consider and assess impacts to the different marine physical process receptors separately within the assessment. We refer the Examining Authority to our updated conservation advice (May 2023) for Inner Dowsing Race Bank and North Ridge and the supplementary advice on Conservation Objectives where the impacts from existing infrastructure is published.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			further data we continue to have reasonable scientific doubt. The IDRBNR SAC sandbank features currently have a 'restore' target for their extent and distribution and maintain target for topography and volume attributes. Similarly, we are concerned that construction-related activities could lead to significant changes to the extent, volume, and structure of important sandwave-sandbank systems within the array area and offshore ECC. Therefore, we are unable to agree with the assessment conclusion that the magnitude of impact on the seabed morphology is low. Furthermore, it is stated that all marine physical processes receptors will be insensitive to this impact pathway. The SNCBs consider site integrity to have been hindered by impacts due to Race Bank OWF infrastructure. This has also compromised the ability of the site to meet its conservation objectives. The SAC Annex I Sandbank features currently have a restore target for their extent and distribution and maintain target for topography and volume attributes. Consequently, we are unable to agree that all receptors are insensitive to this impact pathway.		
	B28	6.1.7 - Section 7.12.1.2,	7.12.1.2 Impact 2: Potential Impacts to Seabed Morphology (Sandbanks, Sandwave Areas and Notable Bathymetric Depressions) – Use of Cable Protection Measures	Natural England advises that the Applicant should revisit the assumptions and assessment conclusions made. The Applicant should make all efforts to avoid,	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
		Paras. 131, 134, 138	The placement of external cable protection measures within IDRBNR SAC during the operational period of the Project represents a long-lasting change and/or loss of the Annex I sandbank features, in addition to a change in sediment composition. Whilst it is welcomed that the Applicant is committed to using removable cable protection over the Annex I sandbank features, there is no guarantee that it will be successfully removed, and its removal may lead to further harm to the site. Furthermore, the addition of, for example rock bags or concrete mattresses could lead to winnowing in areas of high sediment mobility, which may further impact the site and hinder the meeting of its conservation objectives. We are, therefore, unable to agree with the assessment of magnitude impact as **low for cable protection**, **receptor sensitivity as medium**, and effect significance as **minor adverse**. In relation to mitigation measures, Natural England advise that a cable protection option which has the most likelihood of being successfully removed at decommissioning should be the type permitted within the SAC. This would exclude the use of rock protection. We advise that an approach like this would show evidence that the project is following the mitigation hierarchy. However, this mitigation measure is not committed to within several of the	reduce and mitigate impacts to IDRBNR SAC. We also refer the Applicant to Natural England's and JNCCs (2022) advice on conservation considerations and environmental best practice for subsea cables (Nature conservation considerations and environmental best practice for subsea cables for English Inshore and UK offshore waters, Sept 22.pdf).	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			cable installation documents which still reference rock protection.		
	B29	6.1.7 - Section 7.12.1.3, Para. 156 and 161	7.12.1.3 Impact 3: Modifications to Littoral Transport and Coastal Behaviour (Erosion), Including at Landfall, including Coastal Processes and Geomorphology above MHWS. Use of Cable Protection Measures within the Nearshore Zone. We are concerned that the placement of cable protection within the shallow nearshore could interfere with wave energy transmission, affect nearshore sediment pathways and coastal morphology, including receptors to the south and along the adjacent coastline at landfall. Changes to the beach management strategy are planned for 2024, therefore, there is uncertainty at present regarding future beach profile change and coastal retreat rates. The placement of 1.5m high rock berms for a currently unknown length in shallow nearshore waters could interrupt seabed sediment transport and result in morphological change. Therefore, whilst we agree with the assessment of magnitude of impact on littoral transport and coastal behaviour from [the use of HDD, the construction of HDD exit pits, and] the use of cable protections is medium, we **do not agree** that the **significance of effect on the coast at the Project landfall** will be **minor adverse**. Especially as disruption of these processes would have a likely	Owing to the uncertainty regarding the MDS for cable protection within shallow nearshore waters, and beach management plans currently, Natural England advises that the Applicant should revisit the impact assessment conclusions.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			significant effect to coastal SACs and SPAs, but specifically The Wash and North Norfolk Coast SAC, The Wash SPA, Ramsar and SSSI.		
	B30	6.1.7 - Section 7.12.2. 1, Para. 177	7.12.2.1 Impact 4: Modifications to the Wave and Tidal Regime and Associated Potential Impacts to Morphological Features, including Coastal Processes and Geomorphology above MHWS (Operation & Maintenance). It appears that only array-related wave and tidal blockage effects have been considered for coastal receptors. However, as discussed in our comment above, the presence of cable protection measures within shallow nearshore waters has the potential to modify sediment transport pathways and change coastal behaviour. We would, therefore, advise **that there is a pathway of effect on coastal receptors**.	Natural England advises that the Applicant should revisit their assessment of receptor sensitivity for coastal receptors. Please also refer to our advice above.	
	B31	6.1.7 - Section 7.12.2. 2, Para. 189	7.12.2.2 Impact 5: Seabed Scouring Given the highly dynamic physical environment and mobile seabed across many parts of the array and ECC, there is the potential for scour (or secondary scour) and removal of seabed sediments due to the presence of cable/scour protection measures and/or cable exposures. Furthermore, evidence has been presented from Hornsea One OWF, but it is not clear if this provides a suitable analogue upon which to base estimates of secondary scour impacts at ODOW.	Natural England advises that the Applicant should consider and assess the potential for secondary scour impacts to marine processes receptors (e.g. IDRBNR SAC, Annex I sandbanks etc).	
HRA - Document Used:					

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
[APP-236] 7.1 Report to Inform Appropriate Assessment [APP-238] 7.3 Report to Inform Appropriate Assessment Screening Matrices					
Screening	B32	7.3	All relevant sites have been screened.	N/A	
Assessment Conclusions	B33	7.1	For the reasons set out in our advice to the EIA above regarding impacts to physical features of the IDRBNR SAC (Annex I Sandbanks and sandwaves) from construction related activities within the ECC including the ORCP, and should cable protection be required in the O&M phase, we are unable to agree to the Applicant's conclusion of no potential for an AEoI to the conservation objectives of the Annex I Sandbank feature of the IDRBNR SAC. This is in relation to 'changes to physical processes' impact.	Natural England advises that the Applicant should provide further evidence to support the impact assessment conclusions for changes to seabed morphology and modifications to the wave, tide, and sediment transport regimes due to the presence of the ORCPs. Natural England advises that the Applicant should revisit the assumptions and assessment conclusions made, and particularly with respect to cable protection, the Applicant should also make all efforts to avoid, reduce and mitigate impacts to IDRBNR SAC.	

THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

Appendix C to the Relevant and Written Representations of Natural England

Benthic and Intertidal Ecology

For:

The construction and operation of the Outer Dowsing Offshore Wind Farm located approximately 54km east of the Lincolnshire Coast in the Southern North Sea.

Planning Inspectorate Reference EN010130

13th June 2024

Appendix C – Benthic and Intertidal Ecology

In formulating these comments, the following documents have been considered:

- [APP-006] 2.2 Offshore Works Plans
- [APP-008] 2.4 Offshore Location Plan
- [APP-020] 2.16 Statutory and Non-Statutory Nature Conservation Sites Offshore
- [APP-023] 2.19 Offshore Crossing Plan
- [APP-058] 6.1.3 Chapter 3 Project Description
- [APP-089] 6.2.3 Chapter 3 Project Description Figures
- [APP-063] 6.1.8 Chapter 8 Marine Water and Sediment Quality
- [APP-095] 6.2.8 Chapter 8 Marine Water and Sediment Quality Figures
- [APP-064] 6.1.9 Chapter 9 Benthic and Intertidal Ecology
- [APP-096] 6.2.9 Chapter 9 Benthic and Intertidal Ecology Figures
- [APP-142] 6.3.3.1 Chapter 3 Appendix 1 Cable Burial Risk Assessment [CONFIDENTIAL]
- [APP-144] 6.3.3.3 Chapter 3 Appendix 3 Offshore Crossing Schedule
- [APP-153] 6.3.8.1 Chapter 8 Appendix 1 Water Framework Directive
- [APP-154] 6.3.9.1 Chapter 9 Appendix 1 Benthic Ecology Technical Report (Array)
- [APP-155] 6.3.9.2 Chapter 9 Appendix 2 Benthic Ecology Technical Report (ECC)
- [APP-156] 6.3.9.3 Chapter 9 Appendix 3 Intertidal Technical Report
- [APP-157] 6.3.9.4 Chapter 9 Appendix 4 Marine Conservation Zone Assessment
- [APP-158] 6.3.9.5 Chapter 9 Appendix 5 Envision Data Analysis
- [APP-236] 7.1 Report to Inform Appropriate Assessment [CONFIDENTIAL]
- [APP-239] 7.2 Habitats Regulations Assessment Screening Report
- [APP-240] 7.3 Report to Inform Appropriate Assessment Screening Matrices
- [APP-241] 7.4 Report to Inform Appropriate Assessment Integrity Matrices
- [APP-242] 7.5 Derogation Case
- [APP-243] 7.6 Without Prejudice Benthic Compensation Strategy
- [APP-244] 7.6.1 Without Prejudice Sandbank Compensation Plan
- [APP-245] 7.6.1.1 Sandbank Compensation Implementation and Monitoring Plan
- [APP-246] 7.6.2 Without Prejudice Biogenic Reef Compensation Plan
- [APP-247] 7.6.2.1 Biogenic Reef Compensation Implementation and Monitoring Plan
- [APP-248] 7.6.3 Without Prejudice Benthic Compensation Evidence Base and Road Map
- [APP-275] 8.2 Outline Offshore Operations and Maintenance Plan
- [APP-276] 8.3 Offshore In Principle Monitoring Plan
- [APP-277] 8.4 Outline Project Environmental Management Plan
- [APP-278] 8.5 Outline Cable Specification and Installation Plan
- [APP-287] 8.13 Schedule of Mitigation
- [APP-295] 8.21 Outline Scour and Cable Protection Management Plan
- [APP-296] 8.22 Outline Biogenic Reef Mitigation Plan
- [APP-299] 9.2 Cable Statement

Natural England's Advice and Recommendations

A summary of Natural England's key concerns in relation to Benthic and Intertidal Ecology is set out in Table 1. Our detailed advice and recommendations are presented in in Table 2. Annexes 1-5 to provide evidence to support our advice.
For complete consideration of Natural England's advice on Benthic Habitat receptors and to reduce repetition, the advice and recommendations provided in Appendix B Marine Processes, particularly regarding sandwaves and sandbanks are applicable for benthic matters, and should be read in conjunction with the advice presented within this appendix.
A glossary of acronyms and abbreviations is provided below.

Glossary of Acronyms and Abbreviations

AEoI	Adverse Effect on Integrity
DCO	Development Consent Order
DML	Deemed Marine Licence
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EUNIS	European Nature Information System
FCS	Favourable Conservation Status
IDRBNR	Inner Dowsing, Race Bank and North Ridge
IPMP	In-Principal Monitoring Plan
JNCC	Joint Nature Conservation Council
LSE	Likely Significant Effect
MAREA	Marine Aggregates Regional Environmental Assessment
MarESA	(Marlin) Marine Evidence based Sensitivity Assessment
MCZ	Marine Conservation Zone
MDS	Maximum Design Scenario
MMO	Marine Management Organisation
MPA	Marine Protected Areas
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act
NSIP	Nationally Significant Infrastructure Project
O&M	Operations and Maintenance
OWF	Offshore Wind Farm
RIAA	Report to Inform Appropriate Assessment
RSMP	Regional Seabed Monitoring Plan
SAC	Special Area of Conservation
SNCB	Statutory Nature Conservation Body
WCS	Worst Case Scenario

Table 1 Summary of Key Issues – Benthic and Intertidal Ecology

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
C1	<u>*Sabellaria spinulosa* reef baseline assessment</u> Natural England has concerns with the robustness of the baseline data analysis in relation to the extent and distribution of Annex I *Sabellaria spinulosa* reef and, therefore, at this stage is unable to agree with the results and conclusions as presented in the Export Cable Corridor (ECC) Technical Baseline Report [APP-155]. Natural England does not consider the additional analysis presented in 6.3.9.5 Envision Data Analysis document [APP-158] addresses previously held concerns expressed during the pre-application engagement with the Applicant in relation to the methods and analytical techniques used to determine the extent and distribution of Annex I *S. spinulosa* reef throughout the (ECC).	Natural England advises the Applicant re-examines the existing data, analytical approach and methods which have been used to provide a baseline of the extent and distribution of Annex I *S. spinulosa* reef. Evidence is required to provide the necessary confidence that pre-construction surveys, project mitigation and, where necessary, compensation requirements will be effectively targeted and implemented at the appropriate scale.	
C2	<u>Environmental Impact Assessment (EIA) –*Sabellaria spinulosa* Reef</u> Natural England has concerns that the assumptions made by the Applicant to draw the conclusion of 'no significant impacts in EIA terms' on Annex I Reef are not scientifically robust.	Natural England advises the Applicant reviews the assessment and conclusions for *S. spinulosa* reef following reconsideration of the baseline data as per comment C1. The EIA methods also require revisiting.	
C3	<u>EIA – Sandbanks</u> The assessment of impacts on Sandbanks is lacking transparency. Consequently, Natural England is concerned the assumptions made by the Applicant to draw the conclusion of 'no significant impacts in EIA terms' on Sandbank are not scientifically robust.	Natural England advises the Applicant reviews the EIA assessment methods and conclusions relating to the significance of impacts (in EIA terms) upon Sandbanks especially where sandbanks are protected within Inner Dowsing Race Bank and North Ridge (IDRBNR) Special Area of Conservation (SAC).	
C4	<u>Mitigation</u> Until concerns as set out above regarding the sufficiency of the baseline characterisation data are addressed, there is no guarantee the proposed mitigation measures will be fit for purpose. The outline Biogenic Reef Mitigation Plan [APP-296] is significantly lacking in substance. There are also numerous contradictions within the mitigation commitments across	Natural England advises a robust pre-construction survey strategy is incorporated within the biogenic reef mitigation plan. However, until our concerns our addressed, any confidence in such a mitigation plan is low and there is less certainty this will be agreed prior to project consent.	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
	the application documents including within the Report to inform Appropriate Assessment RIAA [App-235]. Mitigation fails to mention the MMO fisheries byelaw area which should be managed as biogenic reef.	Natural England advise contradictions in the mitigation commitments across the application documents need to be resolved and more robust commitments to mitigation should be made, including consideration of *S. spinulosa* Reef as a Priority Habitat listed under Section 41 of the Natural Environmental and Rural Communities (NERC) Act, 2006.	
C5	<u>IDRBNR SAC – Physical habitat loss/change</u> The significance of 'physical habitat loss/change' of both Annex I Sandbanks and *S. spinulosa* Reef from the placement of cable protection has been under-represented within the RIAA due to the assessment method grouping this with 'habitat disturbance'. In addition, the evidence underpinning the worst-case scenario (WCS) /maximum design scenario (MDS) for cable protection is also not transparent. Therefore, Natural England considers it is not possible to rule out an AEoI on IDRBNR SAC Annex I Sandbank or Reef features.	Natural England advises the methods applied within the RIAA, and the subsequent assessment conclusions require correcting. Natural England also advise that the WCS of cable protection required within IDRBNR SAC (and specifically within Annex I Sandbank feature) thoroughly assessed and further evidence for their justification provided. Further evidence is also required to provide the necessary level of assurance that any mitigation (i.e. scour protection removal) will be successful.	
C6	<u>IDRBNR SAC In-combination assessment - small-scale habitat loss</u> The Applicant has incorrectly disregarded small-scale habitat loss within the in-combination assessment. If avoidance is not possible, further small-scale losses are likely to result in an AEoI which would require compensation.	Natural England advises that all relevant pressures, including small-scale losses, should be fully considered in the in-combination impacts assessment.	
C7	<u>IDRBNR SAC – Annex I *Sabellaria spinulosa* Reef Conclusion</u> Natural England is unable to advise that an AEoI for Annex I *S. spinulosa* reef interest feature can be excluded from habitat loss/change from the placement of cable protection and disturbance during installation. This is due to inconsistencies and contradictions between the baseline evidence, consideration of supporting reef habitat with the SAC and conclusions	Natural England advises that the assumptions made by the Applicant to draw the conclusion of no AEoI on Annex I *S. spinulosa* reef features within IDRBNR are not scientifically robust and require revisiting in order that inconsistencies and	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
	drawn by the Applicant as detailed in NE Ref C1. Consequently, there is an insufficient level of confidence in the baseline data and assessments to inform our advice.	contradictions between the evidence and conclusions presented are resolved.	
C8	IDRBNR SAC – Annex I Sandbank Conclusion The Applicant has not considered habitat loss or mitigation of Annex I Sandbank feature appropriately. Lasting habitat loss/change from the placement of cable protection is likely to have an AEoI both Alone and in-combination. Unless robust justification can be provided to the contrary, Natural England is unable to advise that an AEoI for the Annex I Sandbank feature of the IDRBNR SAC can be excluded alone or in-combination. Given the restore conservation objective for Annex I Sandbank and Reef features of IDRBNR SAC (and as reflected in the updated draft conservation advice package, May 2023; Marine site detail (naturalengland.org.uk)) Natural England is concerned about the lasting impacts of any future cable protection and the potential AEoI.	Natural England advises that the assumptions made by the Applicant to draw the conclusion of no AEoI on the Annex I Sandbank feature within IDRBNR are not scientifically robust and require revisiting.	
C9	NERC, 2006 Priority Habit - Annex I *Sabellaria spinulosa* Reef Mitigation measures (embedded or otherwise) for Priority Habitats as listed under Section 41 of the NERC Act 2006 have not been considered by the Applicant.	Please be advised that, *S. spinulosa* reef of all quality is protected under Section 41 of the (NERC) Act 2006. Natural England advises that mitigation measures should be adopted in order that impacts to Annex I *S. spinulosa* reef outside of designated sites are avoided where possible	
C10	Outline Plans Natural England have reviewed several outline documents, including 8.4 Project Environmental Monitoring Plan [APP-277], 8.5 Cable Specification and Installation Plan [APP-278], 8.22 Biogenic Reef Mitigation Plan [APP-296] and others, which present an outline of what the final version of the document will include. We note that outline plan documents submitted for other offshore windfarm examinations presented a draft version of the plans for comment at this stage.	Natural England are unable to comment further on the acceptability of these docs and what they will and won't secure until we can review a draft version of each of the outline plans. Natural England advises that draft outline documents provide sufficient detail to ensure that risks and issues will be addressed.	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk

Table 2 Natural England's Detailed Advice and Recommendations – Benthic and Intertidal Ecology

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
Project Parameters - Document(s) Used: Document Names: [APP-295] 8.21 Scour and Cable Protection Management Plan [APP-058] 6.1.3 Chapter 3 Project Description [APP-142] 6.3.3.1 Cable Burial Risk Assessment					
Natural England's Position on Worst Case Scenario(s)	C11	8.21 - Sections 3.2 and 3.6	It is not clear what information has been used to confidently determine the maximum length of cable protection required within the Inner Dowsing Race Bank and North Ridge (IDRBNR) Special Area of Conservation (SAC), or whether the potential for the addition of further cable protection due to further exposures and/or secondary scour has been considered and included within the calculations for Maximum Design Scenario (MDS)/Worst Case Scenario (WCS) for scour protection within the SAC.	In order that a meaningful assessment can be made, Natural England also requires the Applicant to provide a transparent justification for the WCS quantification of benthic impacts within IDRBNR SAC, drawing upon previous experience and available information about the ground type along the ECC route. The WCS is also required to include the replenishment of cable protection over the lifetime of the project noting that areas of additional cable protection will require a separate marine licence. Natural England would welcome additional information within the Scour and Cable Protection Management Plan relating to the WCS length and volume of cable protection (within the SAC as fully detailed within [APP-058] Chapter 3 Project Description) so that it is	

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				clear to all parties what the permitted parameters would be. Natural England queries how the regulator will be certain that the WCS within the SAC hasn't been exceeded during construction? If the Secretary of State is minded consenting the project and advise further DCO/DML restrictions may be appropriate.	
	C12	6.1.3	Natural England have not seen an Outline Decommissioning Plan. We advise that without an outline decommissioning plan a realistic worst case scenario can't be determined	Natural England advises that an outline decommissioning plan in provided	
	C13	6.1.3 Para. 143	Natural England are unclear what the process will be for boulder clearance and repositioning within the IDRBNR SAC and how the project will seek to minimise the impacts of this activity on sensitive features within the site.	We advise that mitigation measures could be adopted to minimise the impacts of this activity to Annex I feature within IDRBNR SAC. The project should present a plan for review.	
	C14	6.1.3 Table 6.18 and Section 9 And 8.2	More detail is required on permitted Operations and Maintenance (O&M) activities over the lifetime of the project within the ECC, especially within IDRBNR SAC. For example, the number of repairs and remedial activities have been listed but not the lengths and whether or not cable protection replenishment will occur. We also seek that the project provides an estimate for new cable protection deployed in the O&M phase.	Natural England advise that more detail is required to support the impact assessment and worst case scenarios presented. We advise that impacts require separation between activity inside and outside of the designated site and assessment accordingly. Natural England will seek that a commitment to acquire a new marine licence for any further	

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			Natural England are also seeking to understand the differences between O&M activity on transmission assets inside and outside of IDRBNR SAC. This should be clearly set out in the O&M plan.	cable protection within the SAC over the lifetime of the project.	
	C15	6.3.3.1	With the limitation of the CBRA listed on p3 we are unable to ascertain from an ecological perspective that cables can be optimally buried. Given the challenges of neighbouring projects namely Triton Knoll and Race Bank we do not believe that the worst case scenario has been presented.	As with Hornsea Protect Three, Norfolk Boreas and Norfolk Vanguard we advise that the CBRA is updated from an ecological perspective using geophysical and geotechnical data and this should be cross referenced with the CSIP [APP-278]	
Baseline Characterisation - Document(s) Used: Document Name: [APP-154] 6.3.9.1 Chapter 9 Appendix 1 Benthic Ecology Technical Report (Array) [APP-155] 6.3.9.2 Chapter 9 Appendix 2 Benthic Ecology Technical Report (ECC) [APP-158] 6.3.9.5 Chapter 9 Appendix 5 Envision Data Analysis					
Survey Data Acquisition, Data Gaps, Analysis, Monitoring and Reporting	C16	6.3.9.2 - Section 4.8.1	Section 4.8.1 states "*The sharp increase in species at sample two (ECC_02) was due to sampling an area of Sabellaria, where a large number of individuals were counted."* However, Section 4.9.1 (and Figure 51) fails to identify *Sabellaria spinulosa* biotope at that station.	Please clarify whether this is an error in the text or an error within the data and maps and update all documents accordingly as part of clarifications regarding supporting evidence *S. spinulosa* reef at this location	
	C17	6.3.9.2 - Section 4.9 Para 2	The areas represented by the 'blocks' describing results are not clear and on occasion the interpretation and thread does not follow through the report. For example, it is stated "*SSS data showed areas of mottled reflectivity sediment across the majority of the survey, with an increased presence in Block 7, 9 15 and 17,*	Natural England advises the block numbers and their locations along the ECC are presented on the maps accordingly to assist with our understanding of the location and presence of *S. spinulosa*.	

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			indicating areas dominated by mixed sediments with patches of S. spinulosa." However, Section 4.9.1 States that "*S. spinulosa crusts as well as small clumps of live reef were most observed in Blocks 7, 9 and 15 of the ECC route*". Bock 8 is also mentioned in the Executive Summary.	Please also confirm whether *S. spinulosa* was present in Blocks 8 and 17 or not, where these are located and update maps and text in all documents accordingly. This information is needed for Natural England to draw conclusions on impacts to this feature.	
	C18	6.3.9.2 - Section 3.4, Section 4.9.2b and Appendix C, O and P.	As a minimum, 3 parameters should be considered in determining the presence, or absence, of Annex I *S. spinulosa* reef, these are: extent, elevation and percentage cover (Gubbay 2007). True patchiness along transects can also be derived from drop-down camera imagery as outlined in Jenkins *et al*., (2018). 2cm tube height elevation is a critical threshold for determining the presence of Annex I reef, yet both the main body of the technical report and the appendices (i.e. Appendix C – Field Operations and Survey Methods) fail to describe how *S. spinulosa* tube height has been confidently determined (text simply states that "*A conservative approach*" was used). Natural England notes that the Seabed Photopages (Appendix P) do not display laser scaling pointers and/or lines projected from the camera frame onto the seabed (as per Hitchin *et al*., 2015; Jenkins *et al*., 2018 in accordance with NE Best Practice Guidance: Environmental considerations for offshore wind and cable	Natural England advises the Applicant provides detail on how they have confidently arrived at the average *S. spinulosa* tube height calculations presented within Table 60 and Appendix O. Natural England is unable to agree with the environmental baseline results and conclusions until appropriate evidence has been provided to demonstrate that the extent and distribution of *S. spinulosa* reef, particularly within the IDRBNR SAC has been robustly determined and that the precautionary principal has been appropriately applied to the available data.	

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			projects) which would support accurate determination of tube height. Given that Appendix O provides average height figures which appear to suggest that elevation has been determined with an accuracy of <1cm (e.g. 1.9, 1.5 cm etc.), it is not clear what methods have been used to determine these values and therefore the determination of reefiness, at stations where *S. spinulosa* has been recorded, appears to be ambiguous. Of particular concern is that several images within the report appear to show tube elevations consistently in excess of 2cm (e.g. ECC_64, 66, 29b in Figure 47) which is in contradiction with the data presented in Table 60 and the overall report conclusions.		

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	C19	6.3.9.2 - Table 25 and Section 4.8.1	The report states that due to the degree of *S. spinulosa* 'reefiness' at Station 29 a sample was not taken. However, the Applicant has not considered or mapped this area as Annex I reef. Furthermore, grabs at adjacent Stations ECC_28 and ECC_30 failed. Natural England is concerned that this data has been disregarded as evidence for Annex I *S. spinulosa* reef, particularly as the failure of grabs at adjacent stations could indicate the presence of reef structure, preventing the grabs from closing.	Natural England advises the Applicant expands their interpretation to explain why the *S. spinulosa* at Station ECC_29 was considered sufficiently representative of Annex I reef to determine that sampling should be excluded from the area to prevent impacts to the habitat, yet the report results fail to consider the area as reef. The explanation also needs to consider the potential reasons for failed grabs at adjacent Stations ECC_28 and ECC_30 and likelihood of reef at these locations.	

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	C20	6.3.9.2 - Figure 54, Table 60, Appendix M, O and P	Natural England is concerned that Figure 54, Appendix P and Appendix M present evidence of *S. spinulosa* reef which are in stark contradiction to the evidence and 'reefiness' values presented in Appendix O, and importantly, the subsequent assessment and conclusions of 'reefiness' presented in Table 60. For example, ECC_VID_66_012.jpg (Appendix P) shows *S. spinulosa* tube structures consistently well in excess of the 0.5 cm tube height reported within Appendix O for that precise image/location. Furthermore, Appendix M reports a *S. spinulosa* SACFOR abundance of 'A- Abundant' which is consistent with the evidence in Appendix P, but not Appendix O and the overall reefiness conclusion in Table 60. Similarly, ECC_VID_66_031.jpg (Appendix P) and Appendix M show/report a 'Common' abundance of *S. spinulosa* tubes of height which appears in excess of 2cm, yet Appendix O reports no cover or elevation at this location. Further similar inconsistencies also exist for other stations, of most concern to Natural England, are those within the ECC.	Natural England considers that all evidence and data relating to *S. spinulosa* reefiness requires thorough review and revisiting. Given the inconsistencies and contradictions between the evidence and conclusions presented, currently Natural England does not have sufficient confidence in the baseline data to inform our advice.	
	C21	6.3.9.2 General	As advised at the pre-application stage, Natural England is concerned with the method of assessing *S. spinulosa* reef by averaging height	Natural England does not consider that the Applicants response to our pre-application advice in relation to the methods and analytical	

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		Section 9.4 Figure 54	and percentage cover scores recorded at every data point along each transect. Survey design for ground truthing reef with seabed imagery should target the full extent of identified potential reef including a run-in area where no reef would be observed. Natural England notes that in contradiction to our previous advice, percentage cover and elevation values have been averaged across the length of the transect rather than the subsections of the transect where reef has been delineated. This has resulted in bias with areas of potential Annex I reef being incorrectly identified as 'not reef'. The Applicants response to Natural England's pre-application comment (provided in Section 9.4 of the Benthic and Intertidal ES Chapter 9 [APP-064]) relies upon lack of spatial extent as justification for disregarding areas of reef. However, this is in contradiction to the spatial presentation of data within Figure 54 of the ECC technical report which shows consistent medium reef for >150 m lengths of transect, and low reef over the full transect lengths >300m in some cases. All of which would be protected as Annex I reef	techniques used to determine the extent and distribution of Annex I *S. spinulosa* reef is satisfactory, and we note numerous ongoing contradictions between the evidence presented and the baseline conclusions. Natural England is unable to agree with the environmental baseline results and conclusions until sufficient evidence has been provided that the extent and distribution of *S. spinulosa* reef, particularly within the IDRBNR SAC has been robustly determined. Where there is subjectivity in the process that cannot be sufficiently minimised, Natural England strongly advise the application of a precautionary approach when reviewing the available data and evidence to determine the potential for the presence of 'reef' as defined by Gubbay (2007) and/or potentially supporting habitat.	
	C22	6.3.9.5 General	[APP-158] 6.3.9.5 Envision Data Analysis does not address Natural England's pre-application comments relating to the adequacy of methods for determining the presence of Annex I	Natural England does not consider that [APP-158] addresses the concerns raised in our pre-application advice in relation to the methods and analytical techniques used to determine the	

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			S. spinulosa reef. As a result, Natural England has significant outstanding concerns relating to the survey methods, processing methods, sampling resolution, and the suitability and transparency of the resulting data for confidently informing the extent and distribution of Annex I reef feature within the ECC order limits. Section 2.7 of the [APP-158] 6.3.9.5 Envision Data Analysis report points to limitations and ambiguities within the data which has been used to inform its results, and these reflect Natural England's overarching concerns. Natural England notes the [APP-158] 6.3.9.5 Envision Data Analysis report has not reconsidered the approach taken to determining 'reefiness' using the Environmental Baseline Survey (EBS) data (as per our pre-application advice). The Applicants original 'reefiness' assessment, and the associated ambiguities and low resolution approach, have simply been embedded in further broadscale data (much of which is physical data only and/or in excess of 20 years old), which has then been used to inform the [APP-158] 6.3.9.5 Envision Data Analysis report results, further undermining the confidence that can be applied to conclusions.	extent and distribution of Annex I *S. spinulosa* reef. Natural England is unable to agree with the environmental baseline results and conclusions until sufficient evidence has been provided that the extent and distribution of *S. spinulosa* reef, particularly within the IDRBNR SAC has been robustly determined and that the precautionary principal has been appropriately applied using the available data available at this stage.	
	C23	6.3.9.5	Section 2.2 states that "*numbers of S. spinulosa individuals present in infauna grabs*" were "*used to inform the study*", however, there is no further	Natural England refers the Applicant to our pre-application advice and current comments pertaining to the benthic technical and	

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		Section 2.2	information on this approach, or the thresholds used to consider the potential for the presence of biogenic reef. Consequently, the suitability of this aspect of the additional analysis presented in [APP-158] cannot be determined, nor can it be determined whether the precautionary approach has been adequately applied. Confidence in this aspect of the methods is further undermined in Section 2.2 which states that where elevated numbers of *S. spinulosa* have been recorded "*supporting evidence is not available to allow a full reefiness assessment to be made*"; this suggests that the approach taken to using individual *S. spinulosa* count data within [APP-158] 6.3.9.5 Envision Data Analysis is inadequate for determining the likely presence of Annex I reef.	[APP-158] 6.3.9.5 Envision Data Analysis report, and request these be considered in a review of the currently available data. In the absence of such a review, Natural England is unable to agree with the environmental baseline results and conclusions. Further information and evidence are required to demonstrate that the extent and distribution of Annex I *S. spinulosa* reef, particularly within the IDRBNR SAC, has been robustly determined and that the precautionary principal has been appropriately applied.	
	C24	6.3.9.5 Section 2.2	Natural England notes that [APP-158] 6.3.9.5 Envision Data Analysis used "*Regional and other datasets were sourced from the Regional Seabed Monitoring Plan (RSMP) baseline assessment dataset (Cooper & Barry, 2017ii*)" in an attempt to augment the existing baseline. This '2017' data does not appear to have been fully and appropriately referenced, Natural England notes that the 'RSMP baseline data' for the study area is in excess of 20 years old. The age of this data set substantially undermines the confidence that can be applied to it, particularly	Natural England requires the age and nature (e.g. physical, biological) of the data used to inform the [APP-158] 6.3.9.5 Envision Data Analysis report to be more transparently presented. Analytical methods should also be applied to justify why the Applicant considers data >20 years old to be representative of the current baseline, and fit for purpose for determining the extent and distribution of Annex I *S. spinulosa* reef specifically, especially noting that current advice states that biogenic	

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			given the high existing levels of anthropogenic activity within, and adjacent to, the study area which have may acted to alter the benthic communities present over time. Natural England is concerned that the RSMP baseline data, which is in excess of 20 years old, is not sufficiently representative of the existing baseline. We note the validity of this concern is supported by recent aggregates casework on the East Coast which has demonstrated statistically significant temporal differences in the infaunal communities between Marine Aggregates Regional Environmental Assessment (MAREA) data (also known as the 'RSMP baseline data') and more recent site specific baseline data. Presentation of this data collectively has resulted in a baseline which appears spatially variable; however, the spatial variability is likely to be an effect of temporal variability introduced by the presentation of different data sets collectively (without further distinction of age of data) rather than representation of real community heterogeneity. A similar approach to using a broad range of temporal data has been applied by the Applicant within [APP-158] 6.3.9.5 Envision Data Analysis report, and as such, the confidence in the results of this assessment have been substantially undermined.	reef data older than 24 months can't be relied upon Please refer to Natural England's Best Practice Guidance (Environmental considerations for offshore wind and cable projects) where it is set out that a habitats or features which are ephemeral or dynamic (e.g. *S. spinulosa* reef) would require recent data to corroborate site-specific surveys.	

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	C25	6.3.9.5 Figures 16 to 22	There are numerous aspects of the [APP-158] 6.3.9.5 Envision Data Analysis report which lack transparency. It is difficult to decipher from Figures 16 to 22 whether more representative data has been potentially diluted by data of lower confidence such as that which is old, lacks relevant parameters, or is limited to broadscale or physical parameters. This significantly undermines the confidence that can be applied to the report results and conclusions, notwithstanding the ambiguities relating to the methods used to determine 'reefiness' as addressed by Natural England's accompanying comments.	The methods applied within the [APP-158] 6.3.9.5 Envision Data Analysis transparency. Natural England advises the Applicant provides further explanation as to how confidence in different data sets has been applied and how this informs the final baseline map and provides a Worst Case Scenario for extent and distribution of Annex I *S. spinulosa* reef within the ECC.	
	C26	6.3.9.5 Figure 21	Natural England considers that the confidence map as presented in Figure 21 is of limited relevance and is based on invalid analysis. This confidence map relates to, in the most part, the concurrence of broadscale habitats NOT the presence or absence of Annex I reef, and as such its relevance to confidently determining the presence/absence of Annex I reef is limited. Furthermore, the figure appears to present the concurrence of amalgamations of the same data presented in different ways/at different classification levels (i.e. MNCR level 3 and 4), therefore a significant degree of bias towards higher confidence has been introduced by the	In the absence of appropriate survey effort and a robust approach to determining the presence, extent, and distribution of Annex I *S. spinulosa* reef within IDRBNR SAC using existing data, Natural England advises that the data and analytical methods applied to the available data should be revisited and a suitably precautionary and transparent approach implemented. Where there is subjectivity in the process that cannot be sufficiently minimised, Natural England would welcome the application of a precautionary approach, and subsequent reconsideration of the data and evidence to	

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			invalid analysis and incorporation of the same data multiple times. In addition, no confidence appears to have been applied to data based on key aspects such as data age, methods, parameters measured etc. As a result, Natural England disagrees that this confidence map is of use for informing any decision-making processes in relation to Annex I reef features within the ECC. Section 2.5 of the [APP-158] 6.3.9.5 Envision Data Analysis report states that "*This map incorporates appropriate levels of precaution in terms of how the sample data are assessed and used within the mapping processes".* However, the precautionary approaches have not been explicitly stated and are not clear from the report. Given the information presented by the Applicant to date, the precautionary approach currently appears to be absent from the survey and analytical methods which have been used to determine the extent and distribution of Annex I reef within the ECC order limits.	determine the potential for the presence of 'reef' as defined by Gubbay (2007).	
	C27	6.3.9.5 and	A study by Envision in The Wash (Foster-Smith and Sotheran, 1999 in Limpenny *et al*., 2010) reported that reefs were associated with samples of densities of *S. spinulosa* individuals greater than 375 per 0.1m^2. Natural England notes that the Applicant has not described how individual	A precautionary approach to data interpretation is required to inform a worst-case scenario of Annex I *S. spinulosa* reef extent and distribution within the ECC order limits. This is required to provide a robust basis from which preconstruction surveys can be targeted.	

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
		6.3.9.2 Appendix I	*S. spinulosa* count data has been considered or what thresholds have been used to determine the potential for reef. Notably, the [APP-158] 6.3.9.5 Envision Data Analysis report fails to fully consider the Joint Nature Conservation Council (JNCC) count data it presents, which in some cases shows counts of 500-1000 individuals (no units provided), almost 3 times the threshold which Foster-Smith and Sotheran, (1999) suggest could represent reef. Furthermore, the infauna matrix in Appendix I shows counts in excess of 375 at Stations ECC_36, ECC_37, ECC_49, ECC_57, yet stations ECC_37 and ECC_49 have not even been considered in Table 60 for 'reefiness' assessment. Although Natural England acknowledges that there is no strong evidence of bimodal distribution of *S. spinulosa* individuals between areas categorised and 'reef' and 'not reef', considering the number of individuals is a highly useful approach to determining risk of impacts to Annex I reef and targeting pre-construction surveys accordingly, particularly given the low sampling resolution within the baseline surveys, and limitations in the ability of the geophysical surveys to differentiate areas of potential reef.	Natural England therefore advises that Individual count data from the baseline studies, JNCC (2022), and any other recent data should be reviewed in light of the Limpenny *et al*., (2010) findings, and spatially presented to inform pre-construction biogenic reef monitoring and mitigation, and any subsequent compensation.	

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
Environmental Impact Assessment - Documents Used: [APP-064] 6.1.9 Chapter 9 Benthic and Intertidal Ecology [APP-287] 8.13 Schedule of Mitigation [APP-295] 8.21 Scour and Cable Protection Management Plan [APP-296] 8.22 Outline Biogenic Reef Mitigation Plan					
Identified impacts.	C28	6.1.9 - Table 9.2	In response to Natural England S42 comments, the Applicant states that *S. spinulosa* was only found '*intermittently along a single camera transect*'.	This statement is incorrect and requires removal. *Sabellaria spinulosa* was observed along multiple video transects as per the ECC report 6.3.9.2.	
Methodology	C29	6.1.9 – Section 9.5 Paras 115 to 118 and 127 to 129.	Natural England reiterates our concerns with the available baseline data used to assess the presence and extent of *S. spinulosa* reef We do not consider the Applicants response to these concerns (which were raised at the pre-application stage) to provide a satisfactory explanation for the approach taken.	Natural England advises that the assumptions made by the Applicant to draw the conclusion of 'no significant impacts in EIA terms' on *S. spinulosa* Reef are not scientifically robust and require revisiting following a more appropriate review of the data available as per our accompanying comments. We further advise the Applicant must demonstrate due regard to *S. spinulosa* reef within 12nm under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.	
	C30	6.1.9 – Table 9.9	The ES has failed to identify any biotopes within Annex I Sandbank habitats (Table 9.9), yet Kleine (2006) has identified extensive sandbank features particularly throughout the eastern half of IDRBNR SAC which are intersected by the proposed ECC route.	Natural England advises that the assumptions made by the Applicant to draw the conclusion of 'no significant impacts in EIA terms' on Sandbank habitat are not scientifically robust and require revisiting. And this should then inform an updated Report to Information Appropriate Assessment (RIAA)	

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			It is therefore not clear how impacts to the Sandbank features have been assessed given that the sandbank communities have not been attributed EUNIS/Biotope classifications and therefore it is not possible to determine the significance of impacts on Sandbank receptors and thus the conservation objectives for the site according to the Applicants own methods as outlined in Section 9.7. Natural England considers the assessment process is significantly lacking transparency in this respect and requires updating.		
Have the impacts been avoided/reduced by the use of appropriate mitigation?	C31	8.13, Tab.1,1 Point2	Scour Protection: Natura England notes that the mitigation listed is from an engineering perspective rather than an ecological one.	Natural England advise that this is amended and it reflect commitments made to avoid rock protection in the IDRBNR SAC	
	C32	8.13 Tab.1,1 Point (3)	Natural England advises that all cable protection should be removed from IDRBNR SAC at the time of decommission. The use of Rock protection should be excluded within the SAC	Natural England advises that the document is updated to include environmental mitigation measures	
	C33	8.13 Tab. 1.1 Point 4 8.21 Section. 3.4	Natural England wishes to draw the ExA attention to our advice in relation to avoiding near shore cable protection and avoiding disruption to sediment transportation which is presented in Appendix B or our relevant representations. As set out, cable protection at HDD exit pits is likely to be a concern and haven't been fully qualified within the O&M plan, RIAA etc. Even if	Natural England advises that our advice, provided in Annex B, is addressed and this document is updated accordingly.	

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			the least impactful method of cable protection, i.e. mattressing, is used, the Applicant has presented no evidence that this would enable the continuation of sediment transport		
	C34	8.13 Tab. 1.1 Point 5	Natural England reiterates that the production of a PEMP in itself cannot be considered mitigation. We have concerns with level of detail of measures included in the Outline documents and their effectiveness. Please see comment C10 for further information.	Natural England requests that further details are provided on specific mitigation measures within Outline PEMP.	
	C35	8.13, Tab. 1.1 Point 6 &7	Natural England advises that disposals sites for dredged material should be agreed as part of the consenting process. Disposal sites within the IDRBNR SAC should be upstream of the sandbank to help facilitate recovery.	Natural England advises that further commitments to disposal locations should be made prior to consent being granted.	
	C36	8.21 Section 3.2 and 3.6	Natural England notes, within Section 3.2 and 3.6, that there is no distinction between the amount of cable protection deployed inside and outside of the IDRBNR SAC and that the focus is on reducing cable protection to 5% within sandbank features only	Natural England queries if further reductions in cable protection within IDRBNR SAC can be made	
	C37	8.22 - Section 2	The Outline Biogenic Reef Mitigation Plan Document 8.22, Section 2 'Consultation' appears to be incomplete.	Natural England has provided numerous pieces of advice within the pre-application stages, specifically in relation to mitigating impacts to Annex I reef feature, which are relevant to the mitigation plan. Each piece of advice should be included and discussed by the Applicant within this section of the mitigation plan.	

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
	C38	8.22 Sections 3 and 5	Natural England notes in Section 3 that "*Pre-construction surveys will be undertaken to further the understanding of the potential for S. spinulosa reef within the Project array and ECC*". Natural England reiterates our concerns that the survey and analytical methods that have been applied within both the Benthic Ecology Technical Reports [APP-154 and APP-155) and [APP-158] fail to confidently characterise the extent and distribution of Annex I features/ Section 41 NERC habitats. As a result, there is a significant risk that the extent and distribution of protected *S. spinulosa* reef has been under-represented within the projects order limits, preventing the Applicant from developing a robust pre-construction survey strategy (Section 5) and the required application of the precautionary approach.	Natural England requires the Applicant to detail how and when they intend to gain *"further understanding of the potential for S. spinulosa reef within the Project array and ECC"* which is fundamental to the robust development of the benthic mitigation plan. As stated above, we strongly advise the Applicant considers Natural England's accompanying comments in developing their further understanding of the potential for *S. spinulosa* reef within the project Order Limits at the earliest opportunity. Natural England advises the Applicant provides a robust and well-informed pre-construction survey strategy which will confidently and accurately identify the presence and extent of *S. spinulosa* reef within the ECC, or areas with suitable conditions for reef formation, and appropriately facilitate and inform mitigation.	
	C39	8.22 - Section 4 and 8.13 Table 1.1	Section 4 of the Outline Benthic Mitigation Plan does not provide any level of detail. The Applicant is required to present a robust and well considered approach to benthic mitigation that demonstrates that mitigation is feasible, particularly in relation to Annex I *S. spinulosa* reef.	As stated in previous comments, Natural England requires that the Applicant considers Natural England's accompanying comments in developing their further understanding of the potential for *S. spinulosa* reef within the project Order Limits. This is required to provide the necessary level of confidence that the pre-construction surveys will	

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			Currently, the mitigation plan is lacking any substance and fails to provide any level of confidence that the pre-construction surveys will be sufficiently designed and targeted to provide the data confidence necessary to effectively implement mitigation.	be sufficiently designed and targeted to effectively facilitate mitigation and inform compensation requirements where relevant.	
	C40	8.21 Section 1.2, Para 8.	Considering Natural England's comments relating to concerns and low confidence in the Applicants approach to determining the presence of Annex I *S. spinulosa* reef within the order limits, Natural England wishes to understand how the Applicant plans to define 'known' reef as per the micro-siting mitigation proposed.	Natural England advises the Applicant to provide information on how they plan to define 'known' reef as per the micro-siting mitigation proposed. Noting the importance of potentially supporting habitat, and areas of 'potential reef' in maintaining the total feature extent, Natural England advises that micrositing as mitigation, particularly within the SAC, should be extended to include areas where evidence (such as individual count data >345 per 0.1m^2) suggests there is a risk of potentially supporting reef habitat being impacted in the longer term.	
	C41	6.1.9, 8.13 and 8.22	In contradiction to the Applicants response to Natural England's previous advice relating to MMO fisheries byelaw closure areas, Natural England notes that the Benthic and Intertidal Ecology Chapter [APP-064], Outline Biogenic Reef Mitigation Plan [APP-296] and Schedule of Mitigation [APP-287] fails to consider or include the MMO fisheries byelaw area within mitigation measures. Lasting pressures in the byelaw area,	The Applicants response to our previous advice relating to MMO fisheries byelaw closure areas is incorrect and requires revision. All documents outlining mitigation measures should be updated to include measures to avoid lasting/permanent pressures within MMO fisheries byelaw areas so that reef recovery is not hindered.	

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			including cable protection, should be avoided so that reef recovery is not hindered.		
Assessment Conclusions	C42	6.1.9 Sections 9.8 and 9,12	Natural England considers that given the current disagreements in the approach used by the Applicant to the determine the extent and distribution of Annex I *S. spinulosa* reef within the order limits, the significance of impacts upon this receptor cannot be currently assessed with a sufficient level of confidence.	In order that a meaningful assessment can be made, Natural England requires the Applicant considers our pre-application advice and current comments in order that an adequate level of understanding of the potential for *S. spinulosa* reef within the project Order Limits is achieved.	
	C43	6.1.9 Sections 9.8 and 9.12	Natural England does not agree with the 'minor adverse impact' conclusions relating to lasting habitat loss/change of sandbank habitat within the IDRBNR SAC. Notwithstanding concerns Natural England have with the matrix methodology for EIA assessment (see comment on EIA approach in cover letter) if the methods in Section 9.7 are appropriately followed and the Applicant acknowledges sensitivity for this habitat is 'high', impacts to these receptors should be changed to 'moderately adverse' and considered significant in EIA terms in alignment with Table 9.15 of the ES Chapter. Natural England does not agree that the proposed mitigation in the form of removable cable protection would be enough to downgrade the magnitude of impact from 'low' to 'negligible' in the definition of magnitude set out in Table 9.13.	Natural England advises the Applicant reconsiders impacts relating to lasting loss/change of habitats within the IDRBNR SAC in EIA terms, and updates these in accordance with the methods outlined within Section 9.7 of the ES. We further advise that as presented within the EIA should support the conclusions made within the RIAA.	

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	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			We note that the Applicant has proposed mitigation measures but has not drawn a conclusion on impacts to reef within IDRBNR SAC in EIA terms. Furthermore, the two designated features of the site which are being discussed in this section of the EIA are 'reef' and 'sandbanks slightly covered by seawater all of the time' both of which are designated habitats under Annex I of the Conservation of Habitats and Species Regulations 2017 and Conservation of Offshore Marine Habitats and Species Regulations 2017 (collectively known as Habitats Regulations). It is important that EIA assessments assess impacts to all ecological receptors and support conclusions of the RIAA for habitats designated under the Habitats Regulations. The most appropriate way to assess the impacts of the project is in the context of the feature condition of the site for which they are designated within the RIAA. Natural England would like to draw the ExA attention that it is more appropriate to assess conclusions of project impacts to designated features within a site in the context of whether that impact would have an adverse effect on site integrity for that feature or not. This is assessed within the RIAA.		

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
HRA - Document Used: [APP-235] 7.1 Report to Inform Appropriate Assessment [APP-240] 7.3 Report to Inform Appropriate Assessment Screening Matrices [APP-241] 7.47.4 Report to Inform Appropriate Assessment Integrity Matrices					
Screening	C44	7.1, 7.3	All relevant sites have been screened in.	N/A	
Assessment	C45	7.1	Natural England notes that there is no mention of the conclusions of the Round 4 Plan Level HRA and in particular the Export Cable Regional Assessment. Natural England understands that, as part of the Applicant signing their Agreement for Lease (AfL), they have provided information to The Crown Estate that their development will be compliant with the conclusions of the Plan Level HRA. The Round 4 plan level HRA produced a conclusion No AEoI on the Annex I reef and sandbank features of the IDRBNR SAC on the basis that developers demonstrate compliance that irreparable damage to features have been avoided. In the context of this site that means avoiding known areas of reef, committing to ensuring that cable burial occurs below the depth of the mobile layer where a cable crosses a sand bank feature, and it demonstrates a high level of confidence that no cable protection will be	Whilst acknowledging that the plan level HRA is conducted without the level of detail a project level HRA is able to. Natural England understands that the conclusions of the Plan level HRA remain applicable to this application as part of its commitments when it signed the AfL. As the project refines its MDS, Natural England requests further information on how the Applicant is committing to meeting the conclusions of the Plan Level HRA and the Export Cable Region Assessment Natural England would welcome input from the Crown Estate to better understand how the proposals meet any seabed lease conditions.	

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			required within the site subject to the outcomes of a Cable Burial Risk assessment. Natural England are currently unsure how the evidence presented to form conclusions for IDRBNR SAC at the project level HRA scale would align with the Project's commitments to conclusions of the Plan level HRA for which it is committed to via the AfL.		
	C46	7.1	It is not clear whether the potential for the addition of further cable protection due to secondary scour has been considered and included within the calculations for the Maximum Design/Worst Case Scenario for scour protection within the IDRBNR SAC.	Where there is any potential for the requirement of additional scour protection, and such requirements have not been included worst case/maximum designs, the relevant parts of all benthic EIA/RIAA assessment conclusions will require review.	
	C47	7.1 Table 9.1	The RIAA is confusing for Benthic and Intertidal Ecology because there is limited focus on ECC and IDRBNR SAC with array only impacts also being included.	Natural England advises that the benthic and intertidal ecology sections are updated to focus on IDRBNR SAC and potential hinderance of the conservation objectives to provide a true representation of the Habitat Regulation concerns	
	C48	7.1 Table 9.1	Natural England notes that cable protection is only listed for Annex I sandbanks with IDRBNR SAC to a total of 5,760m2/0.576ha. However, we note that a further 22ha of cable protection is proposed within the SAC. We highlight that even if the Applicant is able to fully microsite the cable to avoid known Annex I reef features there will still be a loss of Annex I	Natural England advises that impacts to supporting habitat are considered within the RIAA	

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	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			reef supporting habitat which we consider would be adverse effect and would require compensation. Please see Annexes 2-5 of this Appendix where our detailed comments are provided on impacts to Annex I reef features. Until this is resolved we do not agree with the conclusions of the RIAA in regard to impacts to Annex I reef from the placement of cable protection. This will have implication for compensation requirements.		
	C49	7.1 Para. 126	Natural England advises that no evidence has been presented to support the recovery of Annex I reef from cable installation. To date, OWF projects have avoided impacting Annex I *S. spinulosa* reef. Therefore, there remains a degree of uncertainty in regard to reef recovery from anthropogenic activities and highlight the loss of Annex I *S. spinulosa* reef in the Waddenzee from abrasion cause by fishing. Therefore, we disagree with the Applicant on statements made on recovery and advise that compensation measures do not take account of this impact.	Natural England refers the ExA to the Norfolk Vanguard and Boreas Secretary of State Decisions where compensation was required due to the potential to disturb Annex I *S. spinulosa* Reef during cable installation	
	C50	7.1 Para. 127	Natural England highlights that it is a condition of all Aggregates Dredging licences that impacts to Annex I reef are avoided. In addition, the references used by the Application data to 2007 and 2001 before the development of the Gubbay 2007 *S. spinulosa* criteria and there it is not clear	Natural England's advice on likely recoverability of Annex I reef is consistent with that provided for the Hornsea Project Three, Norfolk Boreas and Norfolk Vanguard examinations. Therefore, Natural England believes that there is a likelihood of there being an impasse between	

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			that reef has or hasn't been impacted by Aggregates dredging. It is more likely that reef might have established on the disturbed seabed rather than existing reef was impacted. Therefore, conclusions in regard to *S. spinulosa* reef recovery can't be relied upon	the professional judgement of the Applicant's consultants and Natural England specialists on this matter.	
	C51	7.1 Para 130	Natural England disagrees with the Applicant's conclusion that Annex I *S. spinulosa* reef will recover from cable installation activities and due to uncertainties with the impact assessment we do not believe that mitigation measures in the for micro-siting has the necessary assurances in relation to avoiding impacts within the red line boundary.	Natural England's believes that there is likelihood of there being an impasse between the Applicant and Natural England on this matter.	
	C52	7.1 Para. 145	Sandwave Recovery following levelling: Please see Annex 1 to this Appendix. Where we have highlighted limitations with the evidence to support sandbank recovery	Natural England advises that monitoring sandbank recovery post construction should be incorporated within the In Principle Monitoring Plan	
	C53	7.1 Table 7.1	The pressures with differing receptor sensitivities should be assessed separately i.e. physical habitat loss and disturbance.	Natural England advises the assessment of physical habitat loss needs to be considered separately from physical disturbance in considering LSE/AEoI as the receptors have different levels of sensitivity to each of these pressures. Alternatively, the worst case sensitivity should be used and considered when determining LSE and or AEoI.	
In- combination	C54	7.1 para. 87	Natural England notes that several different TIER approaches for the in-combination assessment have been proposed and therefore the ongoing impacts from constructed windfarms	Please refer to Natural England's Best Practice Guidance Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. Phase III Expectations for data	

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	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			have not been taken into account. As written, we are unable to agree with the conclusions drawn within this report.	analysis and presentation at examination for offshore wind applications. for the SNCBs advice on using Tiers for scoping project into in-combination assessments	
	C55	7.1 Section 10.1 Table 9.1	Natural England notes the Worst Case Scenario is that *"5,760m^2, approximately 1.59% of the designated sandbank features"* within IDRBNR SAC could require cable protection. It is unclear how the WCS has been determined and this should be included with the RIAA. We advise that the existing pressures on the interest features of IDRBNR SAC are likely to be hindering the conservation objectives for the site resulting in an AEoI. Please see our updated Conservation Advice Package and Supplementary Advice on Conservation Objectives (Marine site detail (naturalengland.org.uk); June 2024). Annex 2 of this appendix also presents a summary of the changes that were made in the most recent update to our conservation package. Therefore, every effort must be made to mitigate the project impacts to not only reduce the Project's alone effects but also ensure that it doesn't materially contribute to existing pressures/cumulatively and in-combination impacts. Otherwise, the site is likely to be taken further away from meeting those conservation	Natural England advises these pressures, including small-scale losses, should be fully considered in the in-combination impact assessment.	

Natural England's Key Considerations	Relevant and Written Representations - Natural England's Advice				
	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			objectives, and compensation measures are likely to be required to address the adverse effects.		
Further Receptor Points	C56	7.1	Natural England has no further comments to make that would make a material difference to the application.	N/A	
Have the impacts been avoided/reduced by the use of appropriate mitigation?	C57	7.1 - Section 6, Table 6.1	Natural England reiterates our concerns that the survey and analytical methods that have been applied within the benthic ecology technical reports (APP-154, APP-155 and APP-158) which inform the RIAA fail to confidently characterise the extent and distribution of Annex I Reef/ Priority Habitat. As a result, there is a significant risk the extent and distribution of protected *S. spinulosa* reef has been under-represented within the projects order limits, preventing the Applicant from developing a robust pre-construction survey strategy and mitigation plan which appropriately consider the precautionary approach.	To provide adequate confidence in and inform any mitigation put forward by the Applicant, a robust and well-informed pre-construction survey strategy which will confidently and accurately identify the presence and extent of *S. spinulosa* reef within IDRBNR SAC, and/or areas with suitable conditions for reef formation. Natural England reiterates that any reduction in the extent of *S. spinulosa* reef, or loss of areas with suitable conditions for reef formation within the site, is likely to compromise the achievement of Favourable Conservation Status (FCS) for this feature (Johnston and Mousley, 2021) and require compensation.	
	C58	7.1 - Tables 4.1 and 6.1	The Applicants consultation comment in Table 4.1 states that *"The project has committed to solely using removable cable protection over the Annex I Sandbank features of the IDRBNR SAC, therefore as detailed in Section 9.1, the Applicant is confident that there will be no AEoI on the SAC".*	Natural England strongly advises that all mitigation of relevance to the assessment of impacts on IDRBNR SAC features is made consistent both within, and across, the application documents. In addition, further evidence is required to provide the necessary level of assurance that	

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	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			However, this commitment is missing from Table 6.1 'Mitigation of Relevance to the RIAA'. In addition, Natural England considers that the impacts from cable protection are likely to result in lasting change and/or loss of Annex I Sandbank feature with no guarantee that the protection can be successfully removed. If it can be removed, there is no guarantee that it can be done without causing wider damage to the site, and/or that the habitat will ever return to its original state.	any mitigation (i.e. scour protection removal) will be fully successful.	
	C59	7.1 Table 6.1	Notably, Table 6.1 'Mitigation of Relevance to the RIAA' fails to mention the MMO fisheries byelaw areas which should be managed as reef.	Natural England strongly advises that avoidance of MMO byelaw areas be included within proposed mitigation for Annex I reef within the IDRBNR SAC.	
Assessment Methods and Conclusions	C60	7.1.	Natural England disagrees with both the approach that has been taken within the RIAA [APP-235] to determine the potential for an AEoI to the IDRBNR SAC, and the conclusions. Both habitat 'disturbance' and 'loss' have been grouped together, and lower sensitivity categories from disturbance pressures used in place of the more significant pressures from loss, to which Annex I 'Sandbanks' and Annex I 'Reef' have 'no resistance' resulting in 'high' sensitivity. Natural England is unable to rule out AEoI for Annex I *S. spinulosa* reef due to inconsistencies	Please see our recommendations with regards to the *S. spinulosa* baseline assessment above. Within the RIAA, the Applicant is required to reassess the potential for an AEoI on Annex I benthic receptors ensuring that pressures, and the sensitivity of receptors, and small scale losses are appropriately considered. In the absence of proposed avoidance of MMO byelaw areas within mitigation documents, impacts within these areas within the IDRBNR SAC also require inclusion within the RIAA assessment and conclusions.	

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	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
			and contradictions between the baseline evidence and conclusions presented as detailed above. Natural England considers that any placement of scour prevention/cable protection is likely to constitute a lasting impact over the lifetime of the project which is potentially irreversible. Unless it can be demonstrated otherwise, the scale of impacts is likely to hinder the 'restore' habitat feature conservation objectives of the site whilst the protection is in situ, and potentially beyond, due to low confidence in the ability to remove the infrastructure. Presently, the post installation evidence is not sufficient to remove all reasonable scientific doubt as to the absence of AEoI on the Annex I Sandbank feature because of the installation of cable protection over the lifetime of the project. Natural England therefore considers that if assessed appropriately, these impacts would result in lasting change which will undermine the conservation objectives of the site and therefore result in an AEoI to the IDRBNR SAC. We refer you to Annex 3 and 4 of this response.		
Compensatory measures	C61		Please refer to Appendix D for Natural England's advice on the compensatory measures.		

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	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
MCZ Assessment - Document Used: [APP-157] 6.3.9.4 – Chapter 9 Appendix 4 Marine Conservation Zone Assessment					
All	C62	General	Natural England has no comments to make in relation to the MCZ Assessment that would make a material difference to the application.		
Priority Habitats and Species listed under Section 41 list of the Natural Environmental and Rural Communities (NERC) Act, 2006 - Document Used: [APP-154] 6.3.9.1 Chapter 9 Appendix 1 Benthic Ecology Technical Report (Array) [APP-155] 6.3.9.2 Chapter 9 Appendix 2 Benthic Ecology Technical Report (ECC) [APP-158] 6.3.9.5 Chapter 9 Appendix 5 Envision Data Analysis [APP-064] 6.1.9 Chapter 9 Benthic and Intertidal Ecology [APP-287] 8.13 Schedule of Mitigation [APP-296] 8.22 Outline Biogenic Reef Mitigation Plan [APP-276] 8.3 Offshore In Principle Monitoring Plan					
Potential impact pathways where further info/assessment required.	C63	Chapter 9 Benthic and Intertidal Ecology	Natural England's comments relating to the Applicants approach and methods used to identify Annex I reef, also apply to *Sabelleria* reef Priority Habitat as listed under Section 41 of the NERC Act.	In the absence of appropriate survey effort and a robust approach to determining the presence, extent and distribution of *Sabelleria* reef Priority Habitat, Natural England advises that the data and analytical methods applied to the available data should be revisited and a precautionary approach transparently implemented. Where there is subjectivity in the process that cannot be sufficiently minimised, we would welcome the application of a precautionary approach, and subsequent reconsideration of the data and evidence to determine the potential for the presence of 'reef' as defined by Gubbay (2007).	

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	NE Ref	**Doc Ref**	**Comment**	**Recommendation**	**Risk**
				Please be advised that, *S. spinulosa* reef of all quality is protected under Section 40 and 41 of the Natural Environmental and Rural Communities (NERC) Act 2006. Therefore, due regard must be given to the conservation of this habitat.	
	C64	6.1.9, 8.13, 8.2.2, 8.3	Mitigation measures (embedded or otherwise) for Priority Habitats as listed under Section 41 of the NERC Act 2006 have not been considered at all by the Applicant. Natural England advises such mitigation would be expected in the following documents: [APP-287] 8.13 Schedule of Mitigation [APP-154] 6.1.9 Chapter 9 Benthic and Intertidal Ecology (Section 9.4.5/6) [APP-296] 8.2.2 Outline Biogenic Reef Monitoring Plan [APP-276] 8.3 Offshore In Principle Monitoring Plan.	Natural England advises that the adoption of mitigation measures via the Applicants Schedule of Mitigation and Environmental Statement, in order that impacts (particularly permanent loss), on all Section 41 Habitats be avoided and/or reduced wherever feasible through mitigation measures such as micro-siting. In addition, Section 41 Habitats should be appropriately considered within both the Biogenic Reef Monitoring Plan and Offshore In-Principle Monitoring Plan (IPMP).	
Cumulative Impacts Assessment	C65		Natural England has no comments which would make a material difference to the application.		

References

Klein, A. 2006. Identification of submarine banks in the North Sea and the Baltic Sea with the aid of TIN modelling. In: H. von Nordheim, D. Boedesker, J.C.Krause, eds. Progress in Marine Conservation in Europe. Natura 2000 sites in German Offshore Waters. The Netherlands: Springer, 97 – 110

Johnston, C. and Mousley, S. 2021. Definition of Favourable Conservation Status for Reefs. Natural England August, 202. Accessed at https://publications.naturalengland.org.uk/publication/5127115176673280 on 10 June 2021.

Annex I: Sandwave Recovery

We consider that the Larsen *et al.* 2019 paper provides useful evidence from the Race Bank Offshore Windfarm (OWF) to indicate that complete natural regeneration of different types of dynamic sandbanks may be achieved within 3 years after levelling.

However, Natural England highlights that there remains a gap in the evidence to demonstrate that this has fully occurred, due to the lack of further monitoring of the recovery trajectory at Race Bank OWF after the 303 days of monitoring. Even though there remains some uncertainty as to the exact timeframes for sandbank regeneration, Natural England's experience suggests that complete regeneration is likely to occur on dynamic sandbank systems. Natural England highlights that there is a lack of evidence to suggest that this would be the case in more static sandbank systems e.g. Dogger Bank.

Therefore, we believe that there is a low risk of adverse effects arising due to the proposed sandwave levelling/sweeping by the ODOW projects. But this is not the case if additional external cable protection be progressed in swept area.

Given the need for evidence to improve our understanding of the timescales for recovery and address this outstanding uncertainty, Natural England advises that monitoring similar in scope to the Larsen et al. 2019 surveys is undertaken of all areas where sandwave sweeping/levelling occurs within IDRBNR SAC and is secured in the In Principle Monitoring Plan. The initial survey of the impacts should be repeated until such time that the sandbanks are considered by the regulator (in consultation with Natural England) to have satisfactorily regenerated and are providing the same structure and function as to the surrounding sandbanks.

Annex 2 - Inner Dowsing Race Bank North Ridge (IDRBNR SAC) updated draft Conservation Advice Package.

In May 2023 the Conservation Advice (CA) package was updated for IDRBNR SAC.

The key points to note from the updated Supplementary Advice on Conservation Objectives (SACOs) are that: -

SAC Annex I reef feature

- Any reduction in the extent of *S. spinulosa* reef, or loss of areas with suitable conditions for reef formation within the site, is likely to compromise the achievement of Favourable Conservation Status (FCS) for this feature (Johnston and Mousley, 2021).

- The conservation objectives for the site are likely to already being hindered by the presence of Lincs, Lynn and Inner Dowsing Offshore Windfarms (OWFs) resulting in a likely loss of suitable sediment for *S. spinulosa* reef establishment. It should be noted that, whilst this is not a direct quantitative impact on Annex I feature extent, it has the potential to impact the ability of reef to develop in this area of the designated site where it might otherwise establish.

- Monitoring indicates areas adjacent to the above group of OWFs have shown evidence of Annex I Reef or supporting habitats, indicating there is the potential for restoration of Annex I Reef if successful decommissioning of the infrastructure occurred (Roberts et al., 2016, Mcllwaine et al., 2014, Centre for Environment, 2014).

- Fisheries management measures have been implemented in discrete areas within the IDRBNR SAC which restrict bottom towed trawling, and this is likely to help increase the extent of Annex I *S spinulosa* reef across the site where reef establishment had been suppressed within sandbank systems.

- Additional reductions to the extent of Annex I reef and supporting sediments from anthropogenic impacts would further hinder the restore target and therefore the ability to meet the conservation objectives for the site. Therefore, all plans/projects going forwards will need to be robustly justified and use evidence to demonstrate

that, at worst, restoration will be only temporarily slowed rather than significantly hindered.

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SAC sandbank feature

- Offshore windfarm (OWF) turbine infrastructure, including hard substrata in the form of rock protection for cabling protection and scour prevention, has been installed within the Race Bank Annex I sandbank.

- Where hard infrastructure is present, the distribution of natural sandbank biological communities is reduced. The total extent of hard infrastructure that has been installed, or is consented, but not yet installed, within Annex I Sandbank in IDRBNR SAC is 64,077.42 m^2.

- The SNCBs consider that the impacts from Race Bank OWF infrastructure is likely to result in lasting change and/or loss of Annex I sandbank feature with no guarantee that the protection will be removed. If it can be removed, there is no guarantee that it can be satisfactorily removed without causing wider damage to the site, and/or that the habitat will ever return to its original state.

- The SNCBs consider that it is likely that the extent, distribution, structure and function attributes of the Annex I sandbank feature have been adversely affected. Thereby, hindering site integrity and compromising the ability of the site to meet its conservation objectives. As a result of this, it is predicted that the SAC's contribution to delivering the FCS of Annex I sandbanks is reduced.

- At this stage, no measures or mechanisms to offset the habitat loss/predicted habitat loss have been put in place. The SNCB advise that additional reductions to the extent of the Annex I sandbank feature are likely to further compromise the ability of the site to fulfil its conservation objectives.

Annex 3: Cable Protection

Natural England advises that the placement of scour prevention/cable protection with benthic SACs designated for Annex I Sandbanks and/or Reef constitutes a lasting generation impact over the lifetime of the project [including turbines, OWF cable, pipeline etc.] which is potentially irreversible. Unless it can be demonstrated otherwise, the scale of impacts are likely to hinder the conservation objectives of the site which can't be 'restored' whilst the protection is in situ, and potentially beyond due to removal implications.

All options should be explored by the Applicant to avoid, reduce and mitigate the impacts from the placement of cable protection including (but not exclusively), reducing the number of cables, reducing cable crossings within designated sites, minimising the cable protection requirement along the cable length within the SAC, modifying cable installation, avoiding placing cable in fisheries byelaw areas, adoption of the reburial hierarchy and using cable protection which has the greatest likelihood of successful removal.

However, experience from projects to date is demonstrating that mitigation measures are unlikely to completely remove the need for cable protection over the lifetime of the project. Presently, the post installation evidence is not sufficient to remove all reasonable scientific doubt as to the absence of adverse effects on the integrity on the protected Annex I Sandbanks and Reefs as a result of the installation of cable protection over the lifetime of the project. The Secretary of State decision for Hornsea Project Three, Norfolk Boreas and Norfolk Vanguard supports this position with a requirement to provide compensation measures.

Annex 4 - In relation to consideration of small-scale habitat loss within Special Areas of Conservation (SACs) in relation to cable protection Natural England provides the following advice:

1.1. Natural England will usually consider permanent, long-lasting and irreversible loss to be an adverse effect unless it can be clearly demonstrated otherwise.

1.2. The following points should be considered (but not exclusively) when providing evidence to underpin an assessment of whether an impact is likely to be an adverse effect:

- Location of the predicted loss in terms of whether it sits on a designated or supporting feature of the site.
- Duration of the loss – for loss to be considered temporary it must be clearly time-limited to the point where the impact is predicted to return to the same pre-impact condition and must include a detailed remediation plan using proven techniques as part of the licence.
- Scale of the loss in relation to the feature / sub feature of the site including consideration of the quality and rarity of the affected area.
- Impact on structure, functioning or supporting processes of the habitat.
- Feature condition; and
- Existing habitat loss within the same site/ feature/ sub feature.

1.2. Whilst there are no hard and fast rules or thresholds, in order for Natural England to advise that there is no likelihood of an adverse effect the Applicant would need to demonstrate the following:

1) *That the loss is not on the priority habitat/feature/ sub feature/ supporting habitat and/or*
2) *That the loss is temporarily and reversible (within guidelines above) and/or*
3) *That the scale of loss is so small as to be de minimus alone and/ or*
4) *That the scale of loss is inconsequential including other impacts on the site/ feature/ sub feature*

1.3. As set out in (C-294/17 Cooperatie Mobilisation for the Environment UA and Others v College van gedeputeerde staten van Limburg and Others) and other case law relating to People over Wind (2018) for a plan/project to be consented within a designated site there needs to be sufficient certainty in the evidence presented and

the recoverability of the features and/or absolute certainty that any proposed mitigation measures will remove an adverse effect on integrity.

1.4. Therefore, we welcome any further work the Applicant can do to provide more certainty in relation to the Worst Case Scenario presented and/or minimise the impacts as much as possible.

***Annex 5* - Statutory Nature Conservation Bodies (SNCB's) generic advice in relation to colonisation of *Sabellaria spinulosa* reef on artificial substrate being considered as Annex I reef and contributing to the favourable condition status as reef**

1) Establishment of *Sabellaria spinulosa* reef on artificial substrata over laying suitable habitat for reef development

1. Whilst in theory this shouldn't happen as there is the standard marine licence mitigation condition to avoid reef or areas to be managed as reef at the time of construction. The developers first choice is also to use the appropriate tools to install the cable to the optimum cable burial depth so that further cabling activities i.e. reburial and protection are not required.

2. However, Natural England's 'Cables' paper (Natural England, 2018) which summarises our experience of cable installation is demonstrating that cable installation is more challenging than predicted with the need for cable protection therefore on the increase to protect the developers' assets.

3. It may be argued that cable protection can be colonised by *Sabellaria spinulosa* reef and therefore doesn't preclude the recovery of the reef features. Whilst Natural England (and other SNCBs) agree that *Sabellaria spinulosa* could colonise cable protection we consider the establishment of *Sabellaria spinulosa* reef on artificial substrate as not "counting" towards favourable condition of the feature and/or site. This is because it is not a replacement for Annex I *Sabellaria spinulosa* reef on natural site sediment as set out at the time of designation and within the conservation advice package for the site.

2) Decommissioning

4. Offshore windfarm developers have suggested that views on the acceptability of colonisation of cable protection may have changed by the time of decommissioning, including a potential argument to retain the cable protection in situ within designated sites. Whilst Natural England acknowledges this may be the case, we can't foresee what will happen over the next 30+ years and a further assessment would need to be made at that time. Therefore, based on best available evidence our advice remains unchanged that *Sabellaria spinulosa* on artificial substrate is not Annex I reef.

5. It should also be noted that should decommissioning happen there are still no guarantees that site/features will be returned to pre impact states, thus further hindering the recovery of Annex I reef features.

References

Natural England (2018) Natural England Offshore wind cabling: ten years' experience and recommendations.

THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

Appendix D to the Relevant and Written Representations of Natural England

Benthic Compensation

For:

The construction and operation of the Outer Dowsing Offshore Wind Farm located approximately 54km east of the Lincolnshire Coast in the Southern North Sea

Planning Inspectorate Reference EN010130

13th June 2024

Annex D Compensation Case - Benthic

As the derogations materially differ in content/structure to a standard Environmental Statement chapter, our comments are provided in a different format to the other Appendices. We have provided a summary table for each compensation measure (**Table 1 – 7**)) and detailed comments on the compensation plans and supporting documents (**Table 8**). The summary RAG table is used to highlight areas of agreement and outstanding concern. The following criteria used to assess each category in the summaries:

	NE has confidence in this aspect of the measure.
	There are some concerns/uncertainties regarding this aspect of the measure, but they are likely resolvable.
	Considerable uncertainties remain with this aspect of the measure, which if not resolved would make compensation undeliverable. NE cannot be confident at this stage that the measure is deliverable.

For ease of separating out the measures between the different features we have made Annex I Sandbank only compensation headers ‘Yellow’, Annex I Reef only compensation headers ‘Green’ and where the compensation applies to both the header is ‘Blue’.

Table 1 Summary position of compensation measure

Compensation measure: Strategic Compensation - New site designation or Extension for Annex I Sandbanks and Reef			
	RAG	**NE Comment**	**Recommendation**
Theoretical merit to deliver compensation.		Natural England refers the ExA to the published 'Offshore Wind Leasing Round 4 Dogger Bank Strategic Compensation Plan' (April 2024). In Section 7.1.1 it is stated that *'It is agreed by the Steering Group that new site designation or site extension (new areas or features added to existing sites) is the recommended compensation measure of in this DBSCP and this follows advice received from Defra that this is an available strategic compensation measure that can be used to compensate for habitat loss and damage caused by the Round 4 Plan. It states that any new site/ site extensions will be determined by Defra and be designated as a strategic compensation measure which will benefit multiple projects. This DBSCP recognises that a team in Defra will work to identify potential areas for designating new sites, or extending existing sites, working closely with Natural England and JNCC. The information presented in this report is included as supporting evidence that the measure is appropriate for the specific purposes of the DBSCP, but without prejudice to the future outcome of the Defra-led process.'* Subsequently, delivery discussions have commenced between DEFRA, JNCC and NE. It has been agreed that the scope of the strategic compensation should include all OWF projects in English waters within the pipeline contributing to the Government 2030 target, where benthic compensation is deemed necessary. Due to multiple projects, designated sites and interest features, it will not be limited to provision of Annex I sandbank compensation. This measure is therefore also the recommended compensation measure for the Outer Dowsing Offshore Windfarm project for both Annex I Sandbank and Reef feature. It is the SNCB's view that this measure has the greatest likelihood from an ecological perspective, of maintaining the coherence of the National Site Network.	If and when further information becomes available during examination, NE will update accordingly. However, any assurances in the security of this measure should be sought directly from DEFRA.

Technical feasibility		It is Natural England's view that with the Secretary of States support for the compensation measure, it is now technically feasible. The evidence included within the Applicant's documentation and within the Dogger Bank Strategic Compensation Plan supports the SNCBs position that there are areas of seabed not currently protected which if protected and appropriately managed could provide similar ecological function to those Annex I features which are likely to be subject to lasting loss/change and/or disturbance.	No further comment
Agreed compensation level.		Natural England is not in agreement with the Applicant on the presented Worse Case Scenario (WCS) of lasting habitat loss/change of Annex I Sandbanks and Reef features from the placement of cable protection within Inner Dowsing Race Bank and North Ridge (IDRBNR) SAC and habitat disturbance of Annex I *Sabellaria spinulosa* reef from cable installation within IDRBNR SAC In addition, due to potential uncertainties with the delivery mechanisms and timeframes for successful delivery of the measure, further discussions are required in relation to individual project contributions and compensatory ratios which may be required.	Natural England advises that the points raised in Appendix B and C of our Relevant Representations/Written Representations (RR/WR) are addressed. Further feedback on the development of this measure should be sought from DEFRA.
Scale/extent of measure.		Natural England has significant concerns in relation to the outcomes of the Impact Assessment and evidence used to support conclusions on scale and significance of potential impacts from cable installation activities and the placement of cable protection from ODOW. Until these issues are resolved	Natural England advises that the points raised in Appendix B and C of our RR/WR are addressed.

		we do not agree with the Applicant on the scale and extent of the compensation measures required. As set out in the R4 plan level compensation document, the designation of a new site or existing site extension will be led on by a team in DEFRA in collaboration with interested parties therefore delivery mechanisms, costs and timeframes presented by the Applicant cannot and should not be relied upon.	
Timing: Deliverable before impact		Please see above points, where Natural England recognises that there are likely to be time lags between impact occurring and compensation achieving the desired outcomes. In this scenario, Natural England would wish to see the project contribution to the measure to be such that it ensures an overall environmental net positive outcome for the impacted feature over the lifetime of the project.	If and when further information becomes available during examination NE will update accordingly. However, any assurances in the security of this measure should be sought directly from DEFRA.
Location of measure		This is still under consideration by DEFRA, NE and JNCC and as yet nothing has been agreed and/or secured.	If and when further information becomes available during examination NE will update accordingly. However, any assurances in the security of this measure should be sought directly from DEFRA.
Long term implementation		This is still under consideration by DEFRA, NE and JNCC and as yet nothing has been agreed and/or secured.	If and when further information becomes available during examination NE will update accordingly. However, any assurances in the security of this measure should be sought directly from DEFRA.

Success criteria/Ability to prove additionality.		This is still under consideration by DEFRA, NE and JNCC and as yet nothing has been agreed and/or secured.	If and when further information becomes available during examination NE will update accordingly. However, any assurances in the security of this measure should be sought directly from DEFRA.
Suitable as sole measure for target species		It is the SNCB's view that this measure has the greatest likelihood from an ecological perspective of maintaining the coherence of the National Site Network and even with uncertainties surrounding the project impacts, we believe that sufficient capacity can be built into the design of the measure to compensate for the impacts of this project as a sole measure.	Natural England advises that the points raised in Appendix B and C of our RR/WR are addressed so that the realistic WCS can be included within the compensation measure.
Key uncertainties in addition to those raised above			
Uncertainty		**Description**	
Impacts to supporting habitats		Natural England is concerned that the Applicant hasn't assessed the lasting loss/change of supporting habitat for Annex I *Sabellaria* reef from the placement of cable protection and that this will further hinder the restore conservation objective for this feature. This is because where cable protection is placed on the seabed that area is no longer available for Annex I *Sabellaria spinulosa* reef restoration. Therefore, the scale and significance of the impact and required compensation for this feature is likely to be considerably greater than what is presented by the Applicant.	Please see comments included in Appendix B and C of our RR/WR
Evidence gaps		Natural England has concerns in relation to the evidence provided to support conclusions drawn on the potential scale of the impacts to Annex I reef and therefore the ability of mitigation measures to avoid Annex I reef. If impacts prove to be unavoidable then there is a high likelihood of an Adverse Effect on Integrity and the need for compensation.	

Ability to bury cables		Natural England notes that limited geotechnical and geophysical survey data has been presented with the Cable Burial Risk Assessment [APP-142] and the Cable Specification and Installation plan [APP- 278] to have confidence that the cables can be buried to optimum cable burial depth. In addition, there is limited consideration of the highly dynamic sediment transport/marine processes within IDRBNR SAC which may have implications for cable burial over the lifetime of the project. Therefore, we are concerned that the WCS presented for cable protection within IDRBNR SAC may not be realistic.	

Table 2 Summary position of compensation measure.

Compensation measure: **Alternative measures** for Annex I Sandbanks and Reef			
	RAG	**NE Comment**	**Recommendation**
Theoretical merit to deliver compensation.		Given the legislative changes that would be required, Natural England does not consider this option is viable within the Project's timeframe. If the Applicant wishes to pursue this there will need to be agreement from The Crown Estate for a seabed lease and management measures put into place. Note that this measure was not taken forward in the Round 4 Plan Level Compensation Plan. In addition, it currently remains unclear how this measure will ensure the coherence of the National Site Network.	This is outside of NE remit therefore the Applicant will need to liaise with TCE, DEFRA, MMO (and EIFCA depending on location)
Technical feasibility		The evidence is similar to that for strategic compensation for site designation/extension and therefore we advise that Strategic Compensation would be the preferred mechanism	No comment
Agreed compensation level		Natural England is not in agreement with the Applicant on the presented Worse Case Scenario (WCS) of lasting habitat loss/change of Annex I Sandbanks and Reef features from the placement of cable protection within Inner Dowsing Race Bank and North Ridge (IDRBNR) SAC and habitat disturbance of Annex I *Sabellaria spinulosa* reef from cable installation within IDRBNR SAC In addition, due to potential uncertainties with the delivery mechanisms and timeframes for successful delivery of the measure, further discussions are required in relation to compensatory ratios which may be required.	Natural England advises that the points raised in Appendix B and C of our RR/WR are addressed.
Scale/extent of measure		The scale/extent of the measure has not been presented in detail and/or agreed with Natural England, JNCC or DEFRA.	No comment.
Timing: Deliverable before impact		We do not believe that this measure will be available in the project timeframes.	This is outside of NE remit therefore the Applicant will need to liaise with TCE, DEFRA, MMO (and EIFCA depending on location).
Location of measure		The location of the measure has not been presented in detail and/or agreed	This is outside of NE remit

		with TCE, Natural England, JNCC or DEFRA.	therefore the Applicant will need to liaise with TCE, DEFRA, MMO (and EIFCA depending on location).
Long term implementation		There is a requirement for changes in legislation for the delivery of this measure and therefore until that is secured, further long-term implementation remains unknown.	This is outside of NE remit therefore the Applicant will need to liaise with TCE, DEFRA, MMO (and EIFCA depending on location).
Success criteria/Ability to prove additionality		As per the above comment in relation to long-term implementation.	No comment.
Suitable as sole measure for target species		We do not believe that is currently suitable as a sole or part measure at this time.	This is outside of NE remit therefore the Applicant will need to liaise with TCE, DEFRA, MMO (and EIFCA depending on location).
Key uncertainties in addition to those raised above			
Please see those included in Table 1			

Table 3 Summary position of compensation measure.

Compensation measure: **Anthropogenic Pressure Removal – Redundant Infrastructure for Annex I Sandbanks**			
	RAG	**NE Comment**	**Recommendation**
Theoretical merit to deliver compensation		Whilst Natural England is supportive of the removal of redundant surface laid/exposed infrastructure being progressed as a benthic compensation measure for Annex I sandbanks; we note ODOW focus is on the removal of disused telecommunications 'telecom' cables. Natural England advises that currently there is no evidence that redundant telecoms cables are causing a significant impact on the Annex I Sandbank feature of the IDRBNR SAC or other benthic designated sites. Unless further supportive detailed evidence is provided, Natural England does not consider their removal to constitute suitable compensation as a primary measure.	Natural England advises that the applicant provide more detail to address Natural England concerns.
Technical feasibility		The Applicant has shown that there are redundant telecom cables within the National Site Network, but currently there is limited evidence to demonstrate that the cables are sufficiently present on the surface of Annex I sandbanks at both a spatial and temporal scale to be hindering the conservation objectives of the designated sites and the attributes of Annex I sandbanks. Once this can be demonstrated then commitments with the cable owners will need to be secured.	Natural England advises that the applicant provide more detail to address Natural England concerns.
Agreed compensation level		Natural England is not in agreement with the Applicant on the presented Worse Case Scenario (WCS) of lasting habitat loss/change of Annex I Sandbanks from the placement of cable protection within Inner Dowsing Race Bank and North Ridge (IDRBNR) SAC.	Please see our comments in Appendix B and C.
Scale/extent of measure		Natural England has significant concerns in relation the outcomes of the Impact Assessment and evidence used to support conclusions on scale and significance of potential impacts from cable installation activities and the placement of cable protection from ODOW. Until these issues are resolved we do not agree with the Applicant on the scale and extent of the compensation measures required.	Please see out comments in Appendix B and C.
Timing: Deliverable before impact		Unlike other proposed measures the delivery of this measure is less reliant on other parties, therefore Natural England believes that the compensation could	No Comment.

		and should be delivered before the impact occurs.	
Location of measure		The location of the measure has not been presented in detail and/or agreed with the SNCBs.	Natural England advises that the Applicant provides more detail to address our concerns.
Long term implementation -		Natural England notes in 7.6.1.1 Sandbank Compensation Implementation and Monitoring Plan that there is an intention for monitoring and adaptive management to be progressed if this mechanism is taken forward. Ideally, in order to provide the Secretary of State with the necessary comfort that this measure is sufficiently progressed during the consenting phase, this should be set out in more detail. However, we acknowledge that the Applicant has indicated that this is not ODOWs preferred benthic compensation measure and we would therefore anticipate as the examination progresses that this measure is either more thoroughly progress or removed as an option if not.	Natural England advises that the applicant provide more detail to address Natural England concerns.
Success criteria/Ability to prove additionality		Please see comments regarding the technical feasibility of this proposed measure. Until this is resolved, success criteria and additionality would be hard to determine.	Natural England advises that the applicant provide more detail to address Natural England concerns.
Suitable as sole measure for target species		While Natural England considers that the removal of redundant infrastructure could be progressed as a sole measure it remains unclear if there are sufficient surface laid/exposed telecom cables on Annex I sandbanks to fully mitigated the potential project impacts. We would be supportive of this proposal being progressed as part of package if not.	Natural England advises that the applicant provide more detail to address Natural England concerns.
Key uncertainties in addition to those raised above			
Uncertainty		**Description**	
Impacts of telecoms within the National Site Network		Information on amount and location of surface laid/exposed cables and the spatial and temporal extent of those are required.	Natural England advises that the applicant provide more detail to address Natural England concerns.
Please also see those included in Table 1			

Table 4 Summary position of compensation measure.

Compensation measure: **Anthropogenic Pressure Removal of Aggregates industry Pressures for Annex I Sandbanks**			
	RAG	**NE Comment**	**Recommendation**
Theoretical merit to deliver compensation		Natural England is supportive of the option for a percentage buyout of aggregate licence(s) as a compensation measure for Annex I sandbank as reduction of existing pressure on Annex I sandbanks would help restore Annex I sandbanks, prior to any licence renewal. We therefore encourage further detail to be included within the Application of any agreements with Aggregates industry that this measure has potential.	Natural England advises that the Applicant provides more detail to address our concerns.
Technical feasibility		Natural England believes this is technically feasible as there are active Aggregate licences within the National Site Network which interact with Annex I sandbanks. However, there is currently no certainty that this measure can be secured.	Natural England advises that the Applicant provides more detail to address our concerns.
Agreed compensation level		Natural England is not in agreement with the Applicant on the presented Worse Case Scenario (WCS) of lasting habitat loss/change of Annex I Sandbanks from the placement of cable protection within Inner Dowsing Race Bank and North Ridge (IDRBNR) SAC.	Please see our comments on Appendix B and C.
Scale/extent of measure		The scale/extent of the measure has not been presented in detail and/or agreed with the SNCBs.	Please see our comments on Appendix B and C.
Timing: Deliverable before impact		It is unclear if this measure can be delivered prior to the impacts occurring.	Natural England advises that the Applicant provides more detail to address our concerns.
Location of measure		The location of the measure has not been presented in detail and/or agreed with the SNCBs	Natural England advises that the Applicant provides more detail to address our concerns.
Long term implementation		Natural England notes in 7.6.1.1 Sandbank Compensation Implementation and Monitoring Plan that there is an intention for monitoring and adaptive management to be progressed if this mechanism is taken forward. Ideally, in order to provide the Secretary of State with the necessary comfort that this measure is sufficiently progressed during the consenting phase this should be set out in more detail. However, we acknowledge that the Applicant has	Natural England advises that the Applicant provides more detail to address our concerns.

		indicated that this is not ODOWs preferred benthic compensation measure and we would therefore anticipate as the examination progresses that this measure is either more thoroughly progress or removed as an option if not.	
Success criteria/Ability to prove additionality		As per long term implementation for this measure, this is yet to be considered in detail and agreed with the SNCBs.	Natural England advises that the Applicant provides more detail to address our concerns.
Suitable as sole measure for target species		While Natural England considers that the buyout of Aggregate licences could be progressed, it remains unclear if there are any options open to the Applicant to deliver this measure either as a sole measure or as part of a package.	Natural England advises that the Applicant provides more detail to address our concerns.
Key uncertainties in addition to those raised above			
Uncertainty		**Description**	
Active licence areas willing to be bought out		Information on amount and location of available active licence locations open to being bought is required.	Natural England advises that the Applicant provides more detail to address our concerns.
Please also see those included in Table 1			

Table 5 Summary position of compensation measure.

Compensation measure: **Anthropogenic Pressure Removal Marine Debris and Awareness campaign for Annex I Sandbanks and Reef**			
	RAG	**NE Comment**	**Recommendation**
		The SNCBs are not supportive of this measure for the following reasons. On 21 January 2022 Natural England and JNCC submitted statutory advice to the Secretary of State (as the relevant competent authority) on Ørsted's Hornsea Project Three (HOW03) Sandbank Implementation Plan (SBIP) and associated documents. We advised DESNZ that the proposed Marine Debris Removal Campaign and Marine Debris Awareness Campaign would not provide sufficient compensation for the long-lasting loss of designated sandbank habitat resulting from the placement of external cable protection within both North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (**NNSSR SAC**) and The Wash and North Norfolk Coast (**WNNC SAC**). Having reviewed the Hornsea Project Three Debris Removal Campaign Field and Summary reports (2023), Natural England advises that the HOW03 findings confirm that the debris removal and awareness campaign measures are ineffective as a compensation measure in offsetting adverse effects on sandbank features. The HOW03 findings also supports the SNCB paper regarding the ineffectiveness of marine debris removal as a compensation measure in offsetting AEoI from the placement of cable protection. As such, COWSC (Collaboration on Offshore Wind Strategic Compensation) and The Round 4 Plan Level Compensation Steering Group including the SNCBs, DEFRA and DESNZ, has also agreed this position, with Marine Debris Removal not being included in DEFRA's Strategic Compensation Library of Measures nor the R4 Plan Level Strategic compensation measure.	We advise that this measure is removed from the list of proposed compensation measures.

Table 6 Summary position of compensation measure.

Compensation measure: Creation of Biogenic Reef					
	RAG	**Annex I Sandbanks**	**RAG**	**Annex I Reef**	**Recommendation for Annex I reef only**
Theoretical merit to deliver compensation		Natural England refers the ExA to the published 'Offshore Wind Leasing Round 4 Dogger Bank Strategic Compensation Plan' (April 2024). It was considered by the Round 4 Plan Level Benthic Compensation Steering Group including SNCBs, DEFRA and DESNZ, that Reef creation/enhancement is not considered to provide comparable ecological function to Annex I sandbank and is therefore not an appropriate measure for sandbank compensation. We therefore consider the same to be true for sandbank systems within IDRBNR SAC and provide no further comment on this as a potential measure.		There is a restore conservation objective for Annex I *Sabellaria spinulosa* reef feature of IDRBNR SAC and therefore there is a preference for management measures to be put in place to support its recovery. Please see Site Conservation Objectives. As set out in Spatial assessment of benthic compensatory habitats for offshore wind farm impacts - NECR443 (naturalengland.org.uk) bivalve reefs such as Oysters and Blue Mussel are ecologically distinct from Annelid reefs such as *Sabellaria spinulosa* reefs. Therefore, the creation/restoration of other reef features should not be at the detriment of existing Annex I habitats within IDRBNR SAC and/or hinder Annex I *Sabellaria spinulosa* reef restoration. In addition, we highlight that both Oyster and Blue Mussel reef may not provide the same ecological function, even if legally it would be considered to be the same i.e. Annex I biogenic reef.	Natural England advises that this proposal to compensation for Annex I reef requires further development to provide the necessary confidence in it as a measure.

				Natural England is of the view that within The Wash and North Norfolk Coast SAC there is a five-year *Sabellaria spinulosa* reef life cycle which is associated with *Lanice conchilega* and *Mytilus edulis*. Natural England has sponsored a PhD. on ecological functioning which produced a Journal of the Marine Biological Association, peer reviewed paper (Hendricks V. & Foster-Smith, R. 2006). It is therefore likely that similar could be true for the wider Wash area including the Wash Approaches and IDRBNR SAC. Consequently, if reef creation was to be progressed as a compensation measure we would be more inclined towards Blue Mussel (*Mytilus edulis*) reef than Oyster reef which is not proven to have been historically found within the site.	
Technical feasibility				There is limited evidence to suggest why Oyster and Blue Mussel reef are not/no longer present with IDRBNR SAC and there are no guarantees of success. In particular, the recreation of Oyster beds is proving to be challenging. We refer the Applicant and the ExA to	Natural England advises that this proposal to compensation for Annex I reef requires further development to provide the necessary confidence in it as a measure.

				Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects Appendix 1 - In-Principle Cromer Shoal Chalk Beds (CSCB) Marine Conservation Zone (MCZ) Measures of Equivalent Environmental Benefit (MEEB) Plan and the Annexes therein which consider the creation of Native Oyster Beds and the limitations thereof.	
Agreed compensation level				Natural England is not in agreement with the Applicant on the presented Worse Case Scenario (WCS) of lasting habitat loss/change of Annex I Reef features from the placement of cable protection within Inner Dowsing Race Bank and North Ridge (IDRBNR) SAC and habitat disturbance of Annex I *Sabellaria spinulosa* reef from cable installation with IDRBNR SAC. In addition, due to potential uncertainties with the delivery mechanisms and timeframes for successful delivery of the measure, further discussions are required in relation to compensatory ratios which may be required.	The Applicants' assessments should be undertaken in line with SNCB advice to aid in informing compensation measures.

Scale/extent of measure				The scale/extent of the measure has not been presented in detail and/or agreed with Natural England, JNCC or DEFRA.	Please see our comments in Appendix B and C.
Timing: Deliverable before impact				We do not believe that this measure will be available in the project timeframes.	Natural England advises that this proposal for compensation for Annex I reef requires further development to provide the necessary confidence in it as a measure
Location of measure				The location of the measure has not been presented in detail and/or agreed with Natural England, JNCC or DEFRA. We note that Schedule 16 of the DML enables the recreation of Annex I Reef as a compensation measure within IDRBNR SAC and that this will be considered as part of the HRA for the DCO/dML rather than a separate post consent marine licence. However, until further evidence is provided to refine down the 17 areas of search to 1 or maybe 2 locations the potential impacts on Annex I features within the SAC and/or the conservation objectives for the site, can't be assessed. Therefore, at this time we are unable to support the inclusion of Schedule 16 and/or the 17 locations proposed.	Natural England advises that this proposal for compensation for Annex I reef requires further development to provide the necessary confidence in it as a measure.

				We also note that some of the 17 potential compensation areas of search are located where The Crown Estate has recently issued seabed lease areas to the Aggregates Industry. Whilst they do not have a Marine Licence for aggregates dredging it remains unclear how these overlapping seabed uses are managed from a legal perspective and how this aligns with designated site management and the revision of the East Marine Plan. We acknowledge that this is a wider seabed issue than for just this project, and we will continue to work with relevant interested parties to address this and update the Examination accordingly. Natural England also highlights that MaRePo has identified locations for Oyster restoration in consultation with NE.	
Long term implementation				Natural England notes in 7.6.1.1 Sandbank Compensation Implementation and Monitoring Plan that there is an intention for monitoring and adaptive management to be progressed if this mechanism is taken forward. Ideally, in order to provide the	Natural England advises that this proposal to compensation for Annex I reef requires further development to provide the necessary confidence in it as a measure.

				Secretary of State with the necessary comfort that this measure is sufficiently progressed during the consenting phase this should be set out in more detail. However, we acknowledge that the Applicant has indicated that this is not ODOWs preferred benthic compensation measure and we would therefore anticipate as the examination progresses that this measure is either more thoroughly progressed or removed as an option if not.	
Success criteria/Ability to prove additionality.				Please see comments regarding the technical feasibility of this proposed measure. Until this is resolved, success criteria and additionality would be hard to determine.	Further work is required in determining the feasibility of this measure.
Suitable as sole measure for target species				Natural England considers that theoretically, in the right location, and with the right delivery mechanisms in place this measure is suitable for Annex I reef compensation.	Natural England advises that this proposal to compensation for Annex I reef requires further development to provide the necessary confidence in it as a measure.
Key uncertainties in addition to those raised above					
Please see those included in Table 1					

Table 7 Summary position of compensation measure.

Compensation Measure Seagrass Habitat Creation/Restoration for Annex 1 sandbanks			
	RAG	**NE Comment**	**Recommendation**
Theoretical merit to deliver compensation.		Natural England refers the ExA to the published 'Offshore Wind Leasing Round 4 Dogger Bank Strategic Compensation Plan' (April 2024). In section 3.4.2 it is stated that *'Although lower on the compensation hierarchy than the other measures, seagrass meadows do occur on some sandbanks within coastal subtidal and intertidal zones and seagrass is a sub-feature of other designated Annex I sandbanks, such as those within Fal and Helford SAC and Plymouth Sound and Estuaries SAC (Natural England, 2023a; Natural England, 2023b). Suitability as compensation for sandbank is supported by the listing of seagrass as a flora associated with sandbank in Natura 2000 (now National Sites Network) guidance habitat guidance (European Commission, 2013). Nonetheless, seagrass restoration is a lower preference measure compared to those supporting the same ecological function of the habitat being compensated for.* We advise the same is true for compensation for impacts to Annex I Sandbank Features of IDRBNR SAC where subtidal seagrass has not been found within the site.	Natural England has no further recommendation currently.
Technical feasibility		Natural England refers the ExA to the published 'Offshore Wind Leasing Round 4 Dogger Bank Strategic Compensation Plan' (April 2024). In section 3.4.3 it is stated that '*The Steering Group had significant concerns about the deliverability of seagrass restoration, even on a small scale as there have been no long term successes with seagrass restoration in the UK. Seagrass restoration is included as a potential measure only where it would be a minor part of a wider package in terms of the required compensation. Given the intention to compensate for Annex I sandbank habitat, which is, by definition, a subtidal habitat, seagrass restoration for the purpose of compensation for DBSW and DBSE projects shall be limited to subtidal seagrass. The measure is retained in the DBSCP as an additional option*	Natural England will provide further comment on the technical feasibility on this measure at Deadline 1.

		which could potentially be employed if the Steering Group considered that it was necessary to supplement other measures, or potentially as an adaptive management response.'. This is also applicable to ODOW compensation. NE is in the process of drafting a paper on the current seagrass restoration projects.	
Agreed compensation level.		Natural England is not in agreement with the Applicant on the presented Worse Case Scenario (WCS) of lasting habitat loss/change of Annex I Sandbanks from the placement of cable protection within Inner Dowsing Race Bank and North Ridge (IDRBNR) SAC.	Please see our comments on Appendix B and C.
Scale/extent of measure.		The scale/extent of the measure has not been presented in detail and/or agreed with the SNCBs.	Please see our comments on Appendix B and C.
Timing: Deliverable before impact		It is unclear if this measure can be delivered prior to the impacts occurring.	Natural England advises that the Applicant would need to provide more detail to address our concerns.
Location of measure		The location of the measure has not been presented in detail and/or agreed with the SNCBs.	Natural England advises that the Applicant would need to provide more detail to address our concerns.
Long term implementation		Natural England notes in 7.6.1.1 Sandbank Compensation Implementation and Monitoring Plan that there is an intention for monitoring and adaptive management to be progressed if this mechanism is taken forward. Ideally, in order to provide the Secretary of State with the necessary comfort that this measure is sufficiently progressed during the consenting phase this should be set out in more detail. However, we acknowledge that the Applicant has indicated that this is not ODOWs preferred benthic compensation measure and we would therefore anticipate as the examination progresses that this measure is either more thoroughly progressed or removed as an option if not.	Natural England advises that the Applicant would need to provide more detail to address our concerns.
Success criteria/Ability to prove additionality		As per long term implementation for this measure, this is yet to be considered in detail and agreed with the SNCBs.	Natural England advises that the Applicant would need to provide more detail to address our concerns.
Suitable as sole		Natural England advises that this measure could only be considered as part of a package providing <10% of	

measure for target species		the required compensation and/or potential adaptive management for part delivered compensation. There would also be a requirement for the provision of subtidal seagrass, not intertidal. Therefore, we advise that other measures are progressed first. If other projects are being progressed then there is an expectation this compensation will not be taken forward.	
Key uncertainties in addition to those raised above			
Uncertainty		**Description**	
Details on project to be progressed		Further details on following should be provided: • the particular project/s to be supported by ODOW, • how this will be secured in the DCO, • the location, and in what format the Applicant will provide the compensation; and • how it will be demonstrated to be additional to what the seagrass project already has entrained. It is also unclear how success will be demonstrated.	Further details to be provided into examination should this option be progressed.
Please see those included in Table 1			

Table 8 Natural England's Detailed Advice (not incorporated above) on specific compensation documents/plans which have been submitted.

APP Ref		Natural England's Comment	Recommendation	Risk
Document Used: As Listed in table below.				
	APP-242 7.5 Derogations	Reviewed - no specific comments.		
	APP-243 7.6 Benthic compensation	Reviewed – no specific comments other than this document should be updated in light of comments provided in this Appendix.		
	APP-244 7.6.1 Sandbank Compensation Plan	Natural England refer the ExA to Appendix C and in particular on the RIAA which are also relevant to this document. Section 2 Mitigation strategy - Natural England notes that avoidance of placing infrastructure within IDRBNR SAC as set out in the Offshore Transmission Review hasn't been possible. Nor has the avoidance of an AEoI. The predicted impacts are therefore outside of the parameters of the Crown Estate (TCE) plan-level HRA, which concluded that there will be no AEoI from the installation of ODOW cables through IDRBNR SAC. Equally there is confusion between the various chapters about what cable protection will and won't be used within IDRBNR SAC to ensure best likelihood of removal. Para (51 + 54) Natural England advises that we do not agree with the Applicant's assessment and consideration should be given to the impacts of the Race Bank offshore windfarm cabling within IDRBNR SAC and the ongoing cable exposures occurring for that project.		
	APP-245 7.6.1.1. Sandbank Compensation Implementation and Monitoring Plan	Natural England notes that this document is a skeleton document of what will be included post consent. Therefore, we are unable to provide comment at this time on its content. It is not clear if this is the most appropriate approach if Strategic Compensation is taken forward.		
	APP-246 7.6.2 Annex I reef Compensation	Reviewed – no specific comments other than this document should be updated in like of comments provided in this Appendix.		
	APP-247 7.6.2.1.	Natural England notes that this document is a skeleton document of what will be included post		

APP Ref		Natural England's Comment	Recommendation	Risk
	Annex I Reef Compensation Implementation and monitoring Plan	consent. Therefore, we are unable to provide comment at this time on its content.		
	APP-248 7.6.3 Benthic compensation evidence and route map	Natural England highlights that Section 2 is superfluous because of changes in approach since the time those projects were consented. All other comments are incorporated within the table above.		

THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

Appendix E to the Relevant and Written Representations of Natural England

Marine Mammals

For:

The construction and operation of the Outer Dowsing Offshore Wind Farm located approximately 54km east of the Lincolnshire Coast in the Southern North Sea.

Planning Inspectorate Reference EN010130

13th June 2024

Appendix E – Marine Mammals

In formulating these comments, the following documents have been considered:

- [APP-006] 2.2 Offshore Works Plans
- [APP-008]2.4 Offshore Location Plan
- [APP-020]2.16 Statutory and Non-Statutory Nature Conservation Sites Offshore
- [APP-058] 6.1.3 Chapter 3 Project Description
- [APP-089] 6.2.3 Chapter 3 Project Description Figures
- [APP-066] 6.1.11 Chapter 11 Marine Mammals
- [APP-099] 6.2.11 Chapter 11 Marine Mammals Figures
- [APP-160] 6.3.11.1. Chapter 11 Appendix 1 Marine Mammals Technical Baseline
- [APP-161] 6.3.11.2 Chapter 11 Appendix 2 Underwater Noise Assessment
- [APP-236] 7.1 Report to Inform Appropriate Assessment [CONFIDENTIAL]
- [APP-239] 7.2 Habitats Regulations Assessment Screening Report.pdf
- [APP-240] 7.3 Report to Inform Appropriate Assessment Screening Matrices
- [APP-241] 7.4 Report to Inform Appropriate Assessment Integrity Matrices
- [APP-242] 7.5 Derogation Case
- [APP-276] 8.3 Offshore In Principle Monitoring Plan
- [APP-279] 8.6.1 Outline Marine Mammal Mitigation Protocol Piling
- [APP-280] 8.6.2 Outline Marine Mammal Mitigation Protocol UXO
- [APP-281] 8.7 In Principle Southern North Sea Special Area of Conservation Site Integrity plan
- [APP-287] 8.13 Schedule of Mitigation
- [APP-294] 8.20 Outline Vessel Management Plan

1. Natural England's Advice and Recommendations

A summary of Natural England's key concerns in relation to Marine Mammals is set out in Table 1. Our detailed advice and recommendations are presented in further detail in Table 2. A glossary of acronyms and abbreviations is provided below.

Glossary of Acronyms and Abbreviations

ADD	Acoustic Deterrent Device
AEoI	Adverse Effect on Integrity
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EPS	European Protected Species
ExA	Examining Authority
HRA	Habitats Regulations Assessment
iPCOD	interim Population Consequences of Disturbance
IPMP	In-Principle Monitoring Plan
MMMP	Marine Mammal Mitigation Plan
MMO	Marine Management Organisation
MMObs	Marine Mammal Observers
MU	Management Unit
NAS	Noise Abatement Systems
ODOW	Outer Dowsing Offshore Wind
ORCP	Offshore Reactive Compensation Platform
OWF	Offshore Wind Farm
PAM	Passive Acoustic Monitoring
PTS	Permanent Threshold Shift
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SIP	Site Integrity Plan
SNS	Southern North Sea
TTS	Temporary Threshold Shift
UXO	Unexploded Ordnance
WCS	Worst Case Scenario
WNNC	Wash and North Norfolk Coast

Table 1 Summary of Key Issues – Marine Mammals

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
E1	The baseline characterisation has demonstrated clear evidence that the project area is important for harbour porpoise in the summer months. As such, Natural England does not agree to using the average annual density for harbour porpoise.	Natural England strongly advises the average summer density for harbour porpoise (2.63 individuals / km) is used in the impact assessment to reflect the importance of the project area during the summer.	
E2	Natural England does not agree with several conclusions in the EIA and HRA because they lack robust evidence supporting the conclusion	Natural England advises the Applicant uses population modelling, for example interim Population Consequences of Disturbance (iPCoD), to understand the impacts of the project alone and in combination with other plans and projects at a population level to inform the conclusions of the EIA and HRA.	
E3	The Applicant has not committed to using Noise Abatement Systems (NAS) at this stage.	Natural England strongly advises the Applicant to commit to using noise abatement as mitigation, should driven or part-driven piles be used during construction. The effect of noise abatement systems in reducing noise impacts should be included in the assessment.	
E4	Natural England is concerned that the current approach to implementing Site Integrity Plans (SIPs) for piling impacts to the Southern North Sea SAC from offshore wind development does not allow sufficient time for mitigation methods, such as Noise Abatement Systems (NAS), to be procured by the Applicant prior to construction, should they be required, therefore increasing the risk that an Adverse Effect on Site Integrity cannot be avoided.	Natural England strongly advises that the Applicant commits to the use of specific mitigation measures at this stage, which may be removed at a later date if the revised SIP demonstrates they are not required.	

Table 2 Natural England's Detailed Advice and Recommendations – Marine Mammals

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Project Parameters - Documents Used: 6.1.3 Chapter 3 Project Description 6.1.11 Chapter 11 Marine Mammals **Baseline Characterisation - Documents Used:** 6.1.11 Chapter 11 Marine Mammals 6.3.11.1 Chapter 11 Appendix 1 Marine Mammals Technical Baseline					
Project Description Natural England's Position on Worst Case Scenario or Scenarios Survey Data Acquisition Data Gaps	E5		Natural England has no significant concerns with these parts of the application with respect to marine mammals that have not been addressed in other comments. At this stage, Natural England has not identified any significant issues with marine mammal data acquisition, or any baseline data gaps that may materially affect the marine mammal part of the application.		
Analysis, Modelling and Reporting	E6	6.1.11 Section 11.4.3	The baseline characterisation has demonstrated clear evidence that the project area is important for harbour porpoise in the summer months. The site-specific surveys found very high densities of harbour porpoise in the summer (average summer density is 2.63 individuals / km), 41 mother and juvenile pairs were sighted during the site-specific surveys within the project	Since most noisy activities occur during the summer, Natural England strongly advises the average summer density for harbour porpoise (2.63 individuals / km) is used in the impact assessment. The assessment should be updated.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			area from May-August and a large part of the development is situated within the summer area of the Southern North Sea SAC.		
Environmental Impact Assessment - Documents Used: 6.1.11 Chapter 11 Marine Mammals 6.3.11.1: Chapter 11 Appendix 1 Marine Mammals Technical Baseline 6.3.11.2: Chapter 11 Appendix 2 Underwater Noise Assessment					
Identified Impacts	E7	6.1.11 Table 11.11	Natural England does not agree with the conclusion of *not significant* in the matrix for scenarios with medium sensitivity and medium magnitude (UXO PTS for harbour porpoise, piling PTS for harbour porpoise and minke whale, and cumulative impact from piling and UXO disturbance on harbour seal). The Applicant should provide robust evidence to justify the conclusion of *not significant* for scenarios which have medium sensitivity and medium magnitude, or these scenarios should be reclassified to *significant.*	To justify the conclusion of *not significant* for scenarios which have medium sensitivity and medium magnitude, Natural England advises the Applicant should use population modelling, such as Interim Population Consequences of Disturbance (iPCoD), to quantitatively assess if these scenarios will have a significant impact at a population level in the long term.	
	E8	6.1.11 Table 11.37	Natural England does not agree that the mitigated impacts of Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS) from piling and UXO clearance is negligible for all marine mammals. These conclusions are hinged on mitigation outlined in the MMMP. Although the mitigation procedures	Appropriate mitigation and the use of Noise Abatement Systems (NAS) must be assessed and secured as a condition of the DCO.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			outlined in the Marine Mammal Mitigation protocol (MMMP) will help reduce the chance of marine mammals being injured by underwater noise from piling and Unexploded Ordnance (UXO) clearance, marine mammals spend most of their time underwater and therefore it is not always possible to ensure all animals are outside of injury zone. Therefore, Natural England consider the conclusion should be at least of a low magnitude.		
	E9	6.1.11 Para 430	As a result of the decline in numbers of the Wash harbour seal colony, Natural England has recently updated the conservation advice package for the Wash and North Norfolk Coast (WNNC) SAC. The conservation objective for the harbour seal feature is currently set to 'restore'.	Disturbance impacts to harbour seal from piling which could further hinder the 'restore' objective of the WNNC SAC should be avoided, reduced or mitigated. Natural England advises that if impactful noise from the project reaches the SAC, additional mitigation measures, for example NAS, should be implemented. To avoid disturbance during sensitive times, activities generating impactful noise which may reach the SAC should also be avoided during pupping (June, July and August).	
	E10	6.1.11 Figure 11.4	Natural England is concerned that noise from piling of the Offshore Reactive Compensation Platform (ORCP) will cause a barrier for harbour seals entering	Natural England advises the Applicant provides a barrier effects assessment on harbour seal disturbance from piling at the ORCP.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			and leaving the Wash and North Norfolk Coast SAC.		
Methodology	E11	6.3.11.2		Natural England defers to CEFAS as underwater noise specialists.	
Mitigation Document Used: 8.6.1: Outline Marine Mammal Mitigation Protocol for Piling Activities 8.6.2: Outline Marine Mammal Mitigation Protocol for UXO 8.2: Outline Vessel Management Plan					
Have the impacts been avoided/reduced by the use of appropriate mitigation?	E12	General comment	Natural England strongly advises the Applicant to commit to using noise abatement as mitigation, should driven or part-driven piles be used during construction. NAS are proven to reduce the level of noise generated by piling and its propagation through the marine environment. As the noise levels are reduced at or close to the source, the range and area over which noise-related impacts occur will be reduced significantly. Natural England are aware that Defra will be publishing a marine noise policy paper soon (announced at MMO workshop, 13th March 2024) which will include the expectation from the MMO that all offshore wind pile driving activity in English waters should demonstrate that they have utilised best endeavours to deliver noise reductions through the	Natural England expects noise abatement to be committed to in the Outline/Draft Marine Mammal Mitigation Plan and Site Integrity Plan submitted at the DCO Application stage. Natural England advises the assessment includes the effect of noise abatement systems in reducing noise impacts.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			use of primary and/or secondary noise mitigation methods in the first instance from January 2025. Natural England expects that the majority of piling from 2025 onwards will not be able to go ahead without noise abatement in place, for the following reasons: (i)The overall level of noise in the Southern North Sea SAC is increasing due to the current and forecasted levels of offshore wind construction and other noisy marine activities taking place. Therefore, it will be increasingly difficult to determine no Adverse Effect on Site Integrity (AEoI) from cumulative noise disturbance. Projects that do not use NAS risk contributing to cumulative noise disturbance that could exceed the daily and seasonal thresholds for significant disturbance leading to AEoI, and therefore may not be able to construct as planned. (ii)The large-scale piling campaigns for offshore wind projects risk causing injury and disturbance offences to marine mammals of European Protected Species (EPS), therefore developers typically apply for a wildlife licence to exempt them from an offence under the		

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			regulations. A licence can only be granted where the regulator is satisfied that the required legislative tests are met, such as that there is no other satisfactory alternative. Natural England expects it to be increasingly difficult for projects to demonstrate that noise abatement is not a satisfactory alternative. Projects that do not use noise abatement therefore risk not meeting the legislative test needed in order to be granted a wildlife licence.		
	E13	8.6.1	As stated in point E3, Natural England does not agree that the mitigated impacts of PTS and TTS from piling and UXO clearance is negligible for all marine mammals. These conclusions are hinged on mitigation outlined in the MMMP. Although the mitigation procedures outlined in the MMMP will help reduce the chance of marine mammals being injured by underwater noise from piling and UXO clearance, marine mammals spend most of their time underwater and therefore it is not always possible to ensure all animals are outside of injury zone. Therefore, Natural England consider the conclusion should be at least of a low magnitude.	Mitigation and the use of Noise Abatement Systems must be assessed and secured as a condition of the DCO.	
	E14	8.6.1 Section	Natural England supports the Applicant's decision to define the mitigation zone as	It is important for the final MMMP to consider how this zone can be effectively	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
		4.2; 8.6.2 Section 4.2	the maximum potential PTS-onset impact range.	monitored to ensure all marine mammals can be detected. This may require using more marine mammal observers (MMObs) and implementing stricter limits on workable weather conditions.	
	E15	8.6.1 Section 4.3 Para 20-21	Natural England recommends that, if a marine mammal is not observed leaving the mitigation zone, a delay of 20 minutes from the last sighting should be implemented before commencement of soft-start.	Natural England advises this is committed to within the final MMMP.	
	E16	8.6.1 Section 4.3 Para 23; 8.6.2 Para 18	The PAM guidance was updated in December 2023 (JNCC 2023). This updated version should be used to inform the final MMMP.	Updated PAM guidance should be used to inform the final MMMP: JNCC guidance for the use of Passive Acoustic Monitoring in UK waters for minimising the risk of injury to marine mammals from offshore activities | JNCC Resource Hub.	
	E17	8.6.1 Section 4.3 Para 31	Natural England recommends that, for a maximum hammer energy of 6,600 kJ, the soft-start should commence at 10% of maximum hammer energy, not 15% as stated here.	Natural England advises this 10% maximum hammer energy is committed to in the final MMMP.	
	E18	8.6.1 Section 4.6 Para 40	If the commencement of piling is delayed for a sufficient time to warrant the Acoustic Deterrent Device (ADD) being turned off, Natural England recommends the break in ADD use is more than 20 minutes to ensure a startle and flee response once reactivated.	Natural England advises any break in ADD use being more than 20 minutes should be committed to in the final MMMP.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
	E19	8.6.1; 8.6.2	Visual marine mammal watches should commence at least 30 minutes before ADD activation. This might require the visual watch to be longer than 1 hour when the ADD activation time is longer than 30 minutes.	Natural England advises a commitment for visual marine mammal watches for a duration of at least 30 minutes before ADD activation should be included in the final MMMP.	
	E20	8.6.2 Para 31	If UXO detonation is delayed for a sufficient time to warrant the ADD being turned off, Natural England recommends the break in ADD use is more than 20 minutes to ensure a startle and flee response once reactivated.	Natural England advises any break in ADD use being more than 20 minutes should be committed to in the final MMMP.	
	E21	8.20 Sections 6.1.2 &, 7.1.2.2	The mitigation and marine mammal sections do not include measures to avoid collisions with marine mammals. These measures should involve following a code of conduct to ensure vessels operate appropriately around marine mammals and be finalised in accordance with best practice at the time. This may include the Scottish Marine Wildlife Watching Code.	Natural England advises measures are included in the vessel management plan to ensure vessels operate appropriately around marine mammals, these should be finalised in accordance with best practice at the time. This may include the Scottish Marine Wildlife Watching Code.	
Assessment Conclusions	E22		With reference to points E1 and E2 and E3, Natural England does not agree to several conclusions of the EIA because they lack robust supporting evidence.	Refer to recommendations in pointsE1, E2 and E3 and update the conclusions as required.	
HRA - Documents Used: 7.2: HRA Screening Report 7.1: Report to Inform Appropriate Assessment 8.7: In-Principle Southern North Sea Special Area of Conservation Site Integrity Plan					

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
8.3: Offshore In-Principle Monitoring Plan					
Screening	E23	7.2 Table 5.4	Harbour porpoise have been screened out from sites that are more than 26 km from the project. As wide-ranging animals, any designated site with harbour porpoise as a named feature within the North Sea Management Unit should be screened in.	To note.	
Assessment	E24		No comment required. Natural England does not have any significant issues with this part of the application.		
In- combination	E25	7.1 Para 1444	It is unclear if seismic surveys have been included in the in-combination assessment.	Natural England advises the number of seismic surveys included in the in-combination assessment is clearly stated. Natural England recommends two seismic surveys per year are included in the in-combination assessment. The Assessment should be updated to reflect this.	
Have the impacts been avoided/reduced by the use of appropriate mitigation?	E26	8.7 - general comment	The submission of an In-Principle Site Integrity Plan (SIP) offers the opportunity for the Applicants to demonstrate to the ExA/Competent Authority that avoiding AEoI will be possible through appropriate management and mitigation, whilst deferring the ultimate determination to the MMO in the pre-construction phase of the project. It is then anticipated that the SIP will be updated and finalised close to the time (within 1 year) of	Natural England strongly advises that the Applicant commits to specific mitigation measures at this stage, particularly the implementation of NAS, rather than relying on the SIP identifying the requirement for them. Taking this approach would minimise the risk of an AEoI for the SNS SAC as far as possible, with the outcome of the revised SIP determining pre-construction if the mitigation measures are still necessary or can be removed. Natural	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			construction when the extent of noisy activities impacting the designated site in any given season is better known and therefore able to be assessed. This enables the MMO to review the impact of a much-refined, more realistic worst case scenario and confirm that the applied for works will not result in an AEoI on the Harbour porpoise feature of the SNS SAC in-combination with other plans and projects. Whilst this approach carries risk and uncertainty for all parties, it has been accepted as the most pragmatic way forward at this time. Whilst recognising the potential utility of SIPs to manage in-combination noise impacts, Natural England is not confident that the current approach to SIP implementation will prevent impact thresholds for significant disturbance from being exceeded in the Southern North Sea SAC. Our concerns are detailed in annex A of this document.	England considers that relevant mitigation options are available to the Applicant and would be happy to engage further with them on the merits of this approach.	
Assessment Conclusions	E27	7.1 Para 99	There is insufficient justification provided of how the Applicant reached the conclusion of no AEoI for each impact on sites with marine mammal features.	To provide a robust justification for conclusions of no AEoI, Natural England advises the use of population modelling, such as iPCoD to demonstrate the	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			Consequently, Natural England cannot agree to the conclusions in the Appropriate Assessment. Population modelling, such as iPCoD, needs to be undertaken.	significance of impacts from the project and the project in-combination with other activities on each site. To be comprehensive, this would be undertaken for all scenarios, but most importantly this should be undertaken for the harbour seal feature of the Wash and North Norfolk Coast SAC and the Grey Seal feature of the Humber SAC and Berwickshire and North Northumberland Coast SAC.	
	E28	7.1 Para 201	Owing to the decrease in the Wash harbour seal population, the conservation objectives of this site have been changed to 'restore'. Natural England is not confident that the levels of disturbance from underwater noise caused by piling and UXO clearance from the project alone and in-combination with other activities can be concluded as no AEoI on the Wash and North Norfolk Coast SAC.	Natural England strongly suggests population modelling (such as iPCoD) is undertaken to assess the impacts of the project alone and in-combination with other activities on the population of harbour seal in the Wash and North Norfolk coast SAC.	
	E29	7.1 Para 295	Natural England is concerned by the high proportion of harbour seals from the Wash and North Norfolk Coast SAC disturbed from UXO clearance (7.8%).	In the UXO clearance licence application, the Applicant should commit to using mitigation which reduces the sound at source, for example Low Order detonation or, as a last resort, high order with NAS.	
	E30	7.1 Table 10.4;	Natural England is concerned by the high proportion of the Southern North Sea SAC estimated to be disturbed by the project in-combination with other	Natural England advises the conclusions of the assessment are revised and the Applicant commits to mitigation measures	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
		Para 1480	activities. This percentage is 68.36% at the highest and is far greater than the 20% daily noise threshold for the SAC. Consequently, Natural England does not agree to the conclusion of no AEoI for in-combination impacts of the project for disturbance of harbour porpoise in the SNS SAC. The mitigation committed to in the MMMP (following the JNCC guidelines for MMObs, PAM and ADD use) is designed to reduce the likelihood of injury caused by underwater noise. It is not reducing disturbance caused by the underwater noise. To reduce disturbance to harbour porpoise, the Applicant needs to commit to NAS to significantly reduce the sound at source.	which will reduce the sound at source, for example, NAS.	
	E31	8.3 General Comment	For detailed requirements for In-Principal monitoring, refer to*: Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards Phase IV: Expectations for monitoring and environmental requirements at the post-consent phase.* This document outlines Natural England's recommendations for an effective IPMP and should be considered when planning monitoring post-consent.	Natural England advises the Applicant incorporates advice from Natural England's Best Practice Advice documents when planning In-Principal monitoring. Phase IV Best Practice Advice for Post-Consent Monitoring, Version 1.0, July 2022.pdf (sharepoint.com)	

Annex A: Natural England's concerns regarding the SIPs current approach to preventing impact thresholds for significant disturbance from being exceeded in the Southern North Sea SAC.

(i) The SIP approach inevitably defers detailed HRA questions to the post consent phase. To be a robust approach going forward, it is essential that a comprehensive review be conducted by MMO once the revised piling SIP is submitted to ensure any potential AEoI of the SAC can be confidently ruled out. There have been instances recently where SIPs have been signed off contrary to Natural England's advice regarding uncertainty in the assessment conclusions.

(ii) The final SIP may identify necessary mitigation measures at a time that final project design and financial investment decisions have already been made. As a result, certain mitigation options may no longer be feasible on financial or design grounds e.g. use of alternatives to impact piling; use of pin piles instead of monopiles; use of noise abatement systems; seasonal or other timing restrictions. In particular, feedback from developers is that by the time that revised SIPs are submitted to MMO for consideration, it is too late to procure NAS should they be required.

(iii) The consequence of this is that piling for offshore wind developments can account for substantial parts of the daily and/or seasonal thresholds which SIPs operate to, which in turn may constrain the ability of subsequent projects to not exceed the thresholds. Other industries and activities typically have shorter lead-in times for their licences, meaning their applications are submitted closer to or during the SNS SAC season (summer/winter) they will impact. This means that offshore wind piling SIPs may therefore be signed off in advance of up-to-date information on other projects that may act in-combination being available. An inaccurate revised in-combination assessment may lead to the need for mitigation not being identified at the time of the offshore wind piling SIP and a risk of AEoI being identified too late for appropriate mitigation to then be put in place.

(iv) The management measures implemented through SIPs thus far have been limited to co-ordination measures to ensure that activities on a given day do not exceed the daily thresholds. This measure does not reduce the risk of exceeding the seasonal thresholds. Indeed, the seasonal threshold in the Southern North Sea SAC was almost exceeded in summer 2022 and 2023, and there is considerable concern around 2024. The most robust measure to reduce the contribution to the seasonal disturbance is to reduce the impact to the SAC from the project; however, such measures have not yet been implemented through SIPs. Accordingly Natural England has low confidence in appropriate measures being secured to ensure the seasonal threshold is not exceeded.

In any event, the number of offshore wind projects due to undertake piling in the SNS SAC from now to 2030 means that the disturbance impact thresholds are likely to be exceeded by offshore wind piling alone without further mitigation and management. Other industries or activities will only increase this risk, particularly given the aspirations for a range of developments in the southern North Sea (oil and gas, carbon capture and storage etc).

THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

Appendix F to the Relevant and Written Representations of Natural England

Offshore & Intertidal Ornithology

For:

The construction and operation of the Outer Dowsing Offshore Wind Farm located approximately 54km east of the Lincolnshire Coast in the Southern North Sea.

Planning Inspectorate Reference EN010130

13th June 2024

Appendix F – Offshore & Intertidal Ornithology

In formulating these comments, the following documents have been considered:

- [APP-006] 2.2 Offshore Works Plans
- [APP-008] 2.4 Offshore Location Plan
- [APP-020] 2.16 Statutory and Non-Statutory Nature Conservation Sites Offshore
- [APP-058] 6.1.3 Chapter 3 Project Description
- [APP-089] 6.2.3 Chapter 3 Project Description Figures
- [APP-067] 6.1.12 Chapter 12 Offshore and Intertidal Ornithology
- [APP-100] 6.2.12 Chapter 12 Offshore and Intertidal Ornithology Figures
- [APP-162] 6.3.12.1 Chapter 12 Appendix 1 Intertidal and Offshore Ornithology Technical Baseline
- [APP-163] 6.3.12.2 Chapter 12 Appendix 2 Collision Risk Modelling
- [APP-164] 6.3.12.3 Chapter 12 Appendix 3 Displacement Assessment
- [APP-165] 6.3.12.4 Chapter 12 Appendix 4 Population Viability Analysis
- [APP-166] 6.3.12.5 Chapter 12 Appendix 5 Migratory Collision Risk Modelling
- [APP-236] 7.1 Report to Inform Appropriate Assessment [CONFIDENTIAL]
- [APP-237] 7.1.1 Offshore and Intertidal Ornithology Apportioning
- [APP-238] 7.1.2 Ornithology Population Viability Analysis Habitats Regulations Assessment
- [APP-239] 7.2 Habitats Regulations Assessment Screening Report
- [APP-240] 7.3 Report to Inform Appropriate Assessment Screening Matrices
- [APP-241] 7.4 Report to Inform Appropriate Assessment Integrity Matrices
- [APP-242] 7.5 Derogation Case
- [APP-249] 7.7 Ornithology Compensation Strategy
- [APP-250] 7.7.1 Kittiwake Compensation Plan
- [APP-251] 7.7.1.1 Outline Kittiwake Compensation Implementation and Monitoring Plan
- [APP-252] 7.7.2 Without Prejudice Guillemot Compensation Plan
- [APP-253] 7.7.2.1 Outline Guillemot Compensation Implementation and Monitoring Plan
- [APP-255] 7.7.3 Without Prejudice Razorbill Compensation Plan
- [APP-254] 7.7.3.1 Outline Razorbill Compensation Implementation and Monitoring Plan
- [APP-256] 7.7.4 Offshore Artificial Nesting Structure Evidence Base and Roadmap
- [APP-257] 7.7.5 Without Prejudice Predator Control Evidence Base and Road Map
- [APP-258] 7.7.5.1 Plemont Seabird Reserve Feasibility Study Report
- [APP-259] 7.7.6 Without Prejudice Additional Measures for Guillemot and Razorbill Evidence and Road Map
- [APP-260] 7.8 TCE Strategic Kittiwake Compensation Plan
- [APP-261] 7.8.1 App A TCE Outline Kittiwake Strategic Implementation Monitoring Plan
- [APP-262] 7.8.2 App B Letter of Acceptance from Secretary of State
- [APP-263] 7.8.3 App D NIRAS Site Selection ANS AoS
- [APP-264] 7.9 Compensation Funding Statement
- [APP-276] 8.3 Offshore In Principle Monitoring Plan
- [APP-287] 8.13 Schedule of Mitigation
  [APP-294] 8.20 Outline Vessel Management Plan

1. Natural England's Advice and Recommendations

A summary of Natural England's key concerns in relation to offshore and inshore ornithology is set out in Table 1. Our detailed advice and recommendations are presented in further detail in Table 2. A glossary of acronyms and abbreviations is provided below.

Glossary of Acronyms and Abbreviations

AEoI	Adverse Effect on Integrity
AR	Avoidance Rates
BDMPS	Biologically Defined Minimum Population Size
CRM	Collision Risk Modelling
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ECC	Export Cable Corridor
FFC SPA	Flamborough and Filey Coast SPA
HRA	Habitats Regulations Assessment
LBBG	Lesser black-backed gull
LSE	Likely Significant Effect
MDS	Maximum Design Scenario
NE	Natural England
ODOW	Outer Dowsing Offshore Windfarm
ORCP	Offshore Reactive Compensation Platform
O&M	Operation & Maintenance
OWF	Offshore Wind Farm
PVA	Population Viability Analysis
RIAA	Report to Inform Appropriate Assessment
RTD	Red-throated Diver
SNCB	Statutory Nature Conservation Body
SPA	Special Protection Area

Table 1 Summary of Key Issues – Offshore & Intertidal Ornithology

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
F1	Errors: There are multiple errors across the submitted documents. These include, but are not limited to: 1. Errors in the tables within the Technical Baseline Report 2. Incorrect/inconsistency in reference populations for HRA 3. Errors in calculations of % increase to baseline mortality 4. Errors in the displacement matrices 5. Missing data from the NatureScot apportioning tables 6. Insufficient description of tables and figures within the legends/titles and missing table column headings See detailed comments for specific examples, which are unlikely to be exhaustive. Please note that due to the number of errors identified, Natural England is unable to make any conclusive judgements based on this submission. Accordingly, our comments focus on the methodologies employed, and in broad terms the relevance and feasibility of any compensatory measures. This extends to judgements concerning cumulative and in-combination impacts. Natural England advises the ExA of the potential for additional concerns to emerge during the Examination once an updated, error free assessment is provided and we can give it full scrutiny.	Natural England advises the Applicant to provide updated/corrected documents at the earliest opportunity so that we can provide the ExA with SNCB advice on the scale and significance of impact and the appropriateness of compensatory measures. This statement extends to the necessary cumulative and in-combination assessments.	
F2	Use of stable age structure (Furness 2015) to calculate proportions of adults. The Applicant has used a theoretical generalised stable age structure to apportion impacts to adults from Special Protection Area (SPA) colonies for Habitats Regulations Assessment (HRA). This is unlikely to be representative of the actual proportions of adults present within specific areas at different times of year and could lead to over, or more importantly, underestimation of impacts.	Where good quality site-specific ageing data is not available, Natural England advises that the precautionary approach is used, that is to assume that all 'adult type' birds recorded on surveys (i.e. birds that cannot be distinguished from adults, and hence might be adults) are apportioned as adults.	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
F3	Approaches to apportioning: For guillemot and razorbill, the Applicant has presented some displacement outputs for both the Applicant's and Natural England's preferred apportioning approach to SPA colonies of concern but has only present full displacement matrices for the Applicant's preferred apportioning approach. Additionally, for puffin, Sandwich tern and lesser black-backed gull, assessment outputs have only been presented for the Applicant's approach to apportioning of adults using the stable-age structure (see point F2 above). This does not allow us to consider the potential range of impacts.	In order for Natural England to provide advice into the Examination, the Report to Inform Appropriate Assessment (RIAA) needs to present assessment outputs based on our advised apportioning approach. We advise the Applicant presents the complete outputs, including full displacement matrices, for Natural England's apportioning approach to individual SPAs and also adults (as set out in recommendation for point F2 above). Please see table 5.1 within Natural England's cover letter for sites and features are affected. These include but are not limited to the Flamborough and Filey Coast SPA, Greater Wash SPA and Farne Islands SPA.	
F4	The Applicant has stated within Ch12 and Ch4 that the array area reduction from the 500km2 AfL area to the 436km2 ES array area considered the density of bird species across the array, in particular areas of high density for auks, and that this has been done using both design- and model- based estimates. However, it is not clear from the Applicant's documents how this process has been carried out.	Natural England requests that the Applicant clearly sets out the process by which both design- and model-based estimates have been used to show areas of high usage by auks, and how the Applicant has used this data to inform the refinement of the array area. Natural England advise that an evidence-based approach to refinement of the array area using model-based approach to identify high risk areas has the potential to substantially reduce displacement impacts to auks. This should be pursued further in light of the high predicted impacts to auks, particularly guillemot, and the likely connectivity to Flamborough and Filey Coast SPA (FFC SPA).	
F5	Displacement matrices have only been presented for the mean abundance values for all species.	Natural England advises the Applicant presents displacement assessment outputs, including displacement matrices, based on the lower and upper confidence limits of abundance values in addition to the mean, as per Tables 14.15 - 14.17 in Annex II of NE's	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
		Best Practice Advice (Parker et al. 2022) available at: Environmental considerations for offshore wind and cable projects.	
F6	The presence of the Offshore Reactive Compensation Platforms (ORCPs) is not adequately considered and assessed throughout the lifetime of the project. The continued presence of the ORCP within the Export Cable Corridor (ECC) has the potential to impact red-throated diver and common scoter through disturbance and displacement. These species are features of the Greater Wash Special Protection Area and the ORCP falls within the SPA.	Natural England advises the ORCP should be considered at every stage of the project life-cycle and therefore assessed for potential impacts to red-throated diver and common scoter in both the Environmental Impact Assessment (EIA) and HRA (for the Greater Wash SPA). Alternative locations for the ORCP outside the SPA should be considered.	
F7	Though the Applicant has undertaken an assessment, as agreed with Natural England, considering whether their baseline characterisation data requires any adjustment in light of HPAI, including a comparative assessment using data from nearby projects, there is limited consideration of HPAI within the HRA process.	Natural England agrees with the Applicant that no adjustment is needed to their baseline characterisation data to account for the impacts from HPAI, as losses will likely be proportional prior to and following the outbreak. However, some consideration should be given within the HRA process as to the potential for long-term implications of HPAI to reduce the resiliency of populations, and how this may impact on the need for conditions to allow a population to recover to, rather than be maintained at, a target level, as outlined in our guidance on HPAI and impact assessments. (Guidance appended to this annex).	

Table 2 Natural England's Detailed Advice and Recommendations – Offshore & Intertidal Ornithology

Natural England's Key Considerations	**Natural England's Advice**				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Project Parameters - Documents Used: 6.1.12 Chapter 12 Offshore and Intertidal Ornithology 6.3.12.1 Appendix 12.1 Offshore and Intertidal Ornithology Baseline Characterisation Report 6.3.12.2 Appendix 12.2 Collision Risk Modelling					
Project Description	F8	6.3.12.2 Appendix 12.2	Collision risk modelling parameters presented throughout are not clearly defined.	Please ensure parameters are clearly presented under appropriate table headings and table/figure legends/titles in an updated assessment.	
Natural England's Position on Worst Case Scenario or Scenarios	F9	6.1.12 Table 12.10	The maximum design scenario (MDS) does not account for the presence of the Offshore Reactive Compensation Platforms (ORCPs) throughout the lifetime of the project. The ORCPs are included in the MDS for the construction and decommissioning phases but not the operation & maintenance (O&M) phase. The presence of the ORCP within the offshore Export Cable Corridor (ECC) has the potential to impact red-throated diver and common scoter (Greater Wash SPA features) through disturbance and displacement.	The ORCP should be included in the Maximum Design Scenario and therefore assessed for potential impacts to red-throated diver and common scoter in both the EIA and HRA (Greater Wash SPA) during the O&M phase.	
Baseline Characterisation - Document Used: 6.3.12.1 Appendix 12.1 Offshore and Intertidal Ornithology Baseline Characterisation Report					
Survey Data Acquisition	F10	Appendix 12.1, Para 9	Baseline characterisation data includes digital aerial surveys for March 2021 to August 2023, including two monthly surveys between March and August 2022.	Natural England welcomes the inclusion of 30 months of digital aerial survey data across three breeding seasons, with two surveys per month between March and August 2022, which is above the minimum	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
				requirement of 24 consecutive months of survey data.	
Data Gaps	F11	Appendix 12.1, Annex D	Chapter 12.1 Appendix 1 Baseline Characterisation Report Annex D, which presents the results of the census of offshore platforms, is not included. This is relevant to the apportioning of kittiwake to Flamborough & Filey Coast SPA (FFC SPA) and therefore is a key HRA issue, and we are unable to provide advice on the merits of the Applicant's apportioning approach until this is provided.	Natural England requests the Applicant provides the Annex D Ornithological Census and Capture Trial document.	
Analysis, Modelling and Reporting	F12	Appendix 12.1	Presentation of baseline characterisation data.	Tables of abundance and density estimates should be presented separately for birds in flight, birds on the water, and all birds. This should include accounting for availability bias where relevant and 'unidentified' groups for example, unidentified gull, large gull or auks not identified to species level. Without this material Natural England is unable to confirm whether the impact assessment has been correctly conducted.	
	F13	Appendix 12.1, Annex B	There are errors in the tables presenting the survey data within Annex B. For example, Table 12.66 suggests that the population estimate for little auk in March 2021 is 2427, whilst Para 208 states *"A single little auk was recorded in March 2021 in the Project array area, corresponding to an abundance estimate*	Please check and correct any errors in the baseline characterisation data tables and ensure any errors have not been carried through to the impact assessment.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			of two and a density estimate of 0 individuals per km2. No further individuals were recorded across the wider survey area."		
	F14	Ch12 6.1.12 & Appendix 12.1	The Applicant appears to have only presented design-based estimates of abundance and density for all species, though this is not clearly stated within Appendix 12.1, and other documents including Ch4 and Ch12 refer to modelled population estimates.	As advised at PEIR, Natural England advises the use of model-based (e.g. MRSea) estimates are presented alongside the design-based outputs. We advise that model-based estimates are likely to be particularly useful in identifying high risk areas when considering the refinement of the array area.	
Environmental Impact Assessment - Documents Used: 6.1.3 Chapter 3 Project Description 6.1.12 Chapter 12 Offshore and Intertidal Ornithology6.3.12.2 Appendix 12.2 Collision Risk Modelling 6.3.12.3 Appendix 12.3 Offshore Ornithology Displacement Assessment 6.3.12.4 Appendix 12.4 Offshore Ornithology Population Viability Assessment					
Identified Impacts	F15	Ch12 6.1.12, Para 48 and Paras 183-186	Natural England does not agree with the scoping out of disturbance and displacement effects because of the presence of the ORCP within the ECC during the O&M phase. As stated in Point F7 above, the ORCP will be located within the offshore ECC throughout the operational lifetime of the project. It therefore has the potential to cause disturbance and displacement to relevant species.	Natural England advises that the ORCP should be considered when assessing impacts to red-throated diver and common scoter within the ECC during the O&M phase, and that these impacts should be considered within the project-alone and in-combination assessments.	
Methodology	F16	Ch12 6.1.12, Para 42	The Applicant states that they have used the full breeding season for all species. Nonetheless, it appears that for gannet the	Please note that Natural England recommends the use of the full breeding season not the migration-free breeding	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
		& Table 12.7	migration-free breeding season has been used throughout the assessment. In addition, the Applicant has used a different breeding season for Sandwich tern than is recommended by Natural England and as outlined in Furness (2015).	season. The full breeding seasons as outlined in Furness (2015) are as follows: Gannet: March to September Sandwich tern: April to August. The assessments, including the cumulative and in-combination assessments, should be updated accordingly.	
	F17	Ch 12 6.1.12, Paras 250-1	The Applicant has used two studies of collisions at Thanet and Aberdeen Offshore Windfarm to argue that the CRM parameters advised by SNCBs are precautionary. The SNCBs are aware of the recent studies at Aberdeen Bay and Thanet Offshore wind farms that have shown low to zero collisions between seabirds and turbine blades during operation of the arrays. Whilst these results add to the evidence base around the frequency and magnitude of collision risk, for a number of reasons Natural England does not consider them to provide sufficient or robust evidence to alter our current advice, which we highlight already incorporates findings of the Thanet study among other datasets. The studies themselves are of small-scale arrays (or of a small number of turbines in larger arrays), in areas of		

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			relatively low bird density where relatively few collisions would have been expected in any case and/or in areas where species composition and behaviours are atypical of more offshore sites. They do not therefore, provide sufficient evidence to draw wider conclusions on collision risk for other projects.		
	F18	Ch12 6.1.12, Para 252, Table 12.34	Natural England notes that there has been a nocturnal activity factor of zero applied to little gull, sandwich tern and common tern for the CRM assessment, and that this is not in line with Natural England guidance.	Natural England advises the Applicant to refer to and apply the nocturnal activity factor set out in Garthe and Hüppop (2004) to little gull, sandwich tern, and common tern or present empirical evidence to inform an alternative rate.	
	F19	Ch12 6.1.12, Table 12.9	Natural England notes that the productivity and average mortality rates presented in this table for some species (particularly great black-backed gull, common tern, razorbill and puffin) are different than the updated rates provided by NE to all the Round 4 developers. .	We recognise that this updated guidance was shared with the Applicant in March 2024 and therefore too late to inform their submission, but request that the Applicant updates their assessment with these updated figures moving forward.	
	F20	Appendix 12.2, Section 12.2.3, Table 12.1 & Ch3 6.1.3, Table 6.1	Natural England notes that the rotor radius used for CRM is based on the minimum rotor diameter of 236m. Chapter 3 Table 6.1 states the indicative maximum number of WTGs assuming maximum rotor diameter of 340m is 50. It would appear that this results in a greater total swept area than the maximum number of turbines of 100 and minimum rotor diameter of 236m.	Natural England advises that the Applicant clarifies how they have arrived at the MDS for collision risk, specifically how the greatest total swept area has been calculated from these parameters.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
	F21	Appendix 12.2, Section 12.2.7, Para 21	Natural England notes that the nocturnal activity factor percentages presented in this section are not in line with Natural England guidance. Natural England advises that a nocturnal activity factor rank of 1, as set out in Garthe and Huppop (2004), is representative of a nocturnal activity factor percentage of 12.5%, not 0%.	Natural England advises the Applicant revises the nocturnal activity factors for sandwich tern, common tern and little gull to reflect Natural England's advised nocturnal activity factor.	
	F22	Appendix 12.3, Section 1.3, Table 1.12	Natural England notes that there is an error in the displacement matrix presented for guillemot breeding season in the higher mortality and displacement ranges.	Natural England advises the Applicant reviews all matrices to ensure that they do not contain any errors.	
	F23	Appendix 12.3, Section 1.3 Tables 1.3-1.24	Natural England notes that the displacement matrices presented in this section are only for the mean peak abundance. Natural England considers it best practice that matrices are also presented of the upper and lower confidence intervals for each species, so that the full range of impact scenarios can be understood.	Please present displacement matrices using upper and lower confidence limits, as well as the mean, for each species considered in the displacement appendix, as per our Best Practice Guidelines: Environmental considerations for offshore wind and cable projects.	
	F24	Appendix 12.3, Section 1.3, Tables 1.3-1.24	Natural England notes that it is not clear whether each displacement matrix is displaying the lower confidence limits, mean or upper confidence limits of the abundance estimates.	An updated assessment should clearly state what figures are being presented within these tables/displacement matrices.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
	F25	Appendix 12.4, Para 15	For the Population Viability Analysis, the Applicant has stated that the recommended number of years for burn-in has been included for all species except lesser black-backed gull, for which no burn in is included. However, no explanation/justification has been provided.	Natural England advises the Applicant provides justification for the inclusion of no burn in for lesser black-backed gull. Please note that Natural England advise burn-in of five years for all species.	
	F26	Appendix 12.4	A full log of input and outputs of the Population Viability Analysis (Annex A) was not provided within the relevant Appendix.	Annex A has been requested from the Applicant. Upon review of this Annex, Natural England will be able to advise on the Applicant's PVA with the expectation that our advice will be provided into Examination in due course.	
Have the impacts been avoided/reduced by the use of appropriate mitigation?	F27	Ch12 6.1.12, Table 12.11	The Applicant has outlined embedded mitigation related to offshore ornithology including a Minimum Tip Height of 40m..	Natural England welcomes the inclusion of this mitigation measure. period.	
	F28	Ch12 6.1.12, Table 12.11	Embedded mitigation related to the following of the Best Practice Protocol for minimising disturbance from vessel traffic to sensitive species including red-throated diver and common scoter	We welcome the Applicant adopting the Natural England best practice protocol. However, see our comment in the HRA section below: depending on the predicted impacts to Greater Wash SPA red-throated diver and common scoter during the construction phase, it may be necessary to condition a formal seasonal restriction on construction of the ECC and/or ORCPs during the sensitive over-wintering period.	
	F29	Ch12 6.1.12,	Array Area Refinements. Reduction of the array area to allow for Guillemot densities.	Please see comments F4 and F14 above. It is unclear whether the array boundary	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
		Table 12.11	Whilst Natural England welcome the consideration of the ornithological survey data in the refinement of the boundary, there remains a risk for significant displacement of Auk species as a result of the array.	refinements have gone as far as is practically and reasonably possible to reduce the interaction with Auk species in the array area. If not, further consideration should be given to reducing this overlap.	
Assessment Conclusions	F30	n/a	Please note that at this stage, Natural England is unable to make any conclusive judgements based on this submission for the reasons outlined in our summary Table 1 above.	Natural England advises the Applicant to provide updated/corrected documents at the earliest opportunity so that we can provide advice on the scale and significance of impact.	
HRA - Documents Used: 7.1 Report to Inform the Appropriate Assessment 7.2 Habitat Regulations Assessment Screening Report 7.1.1 RIAA Annex 1 Offshore and Intertidal Ornithology Apportioning					
Screening	F31	RIAA 7.1, Table 7.1	Likely Significant Effect (LSE) has been identified for red-throated diver in the Greater Wash SPA during the operation and maintenance phase through direct disturbance and displacement in the array area plus 4km buffer due to the presence of turbines. However, LSE has not been identified for direct disturbance and displacement within the ECC either as a result of vessel movements or the presence of the Offshore Reactive Compensation Platforms (ORCPs), the proposed locations of which are within the Greater Wash SPA (Figure 9.3).	Natural England advises full consideration should be given to the potential for displacement and disturbance to red-throated diver within the Greater Wash SPA during the O&M phase as a result of vessel movements and the permanent presence of the ORCPs within the SPA. Alternative locations for the ORCP outside the SPA should be considered.	
Assessment	F32		Natural England would like to reiterate comment F1. Whilst we have made every	To note	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			effort to provide comprehensive comments. Further issues may arise as a result of reviewing revised assessment documents.		
	F33	RIAA 7.1, Para 487-492	It is not clear what reference population has been used for guillemot at Flamborough & Filey Coast SPA. *Para 487* states the most recent count is 149,980 individuals from 2022 (whilst *Para 492* states the latest population count is 121,754 individuals from 2023. The count of 121,754 is in fact the 2017 count (guillemot were not surveyed in 2023).	Natural England advises the Applicant presents a table with the reference populations used for each species at each SPA, noting that these should be counts from year(s) closest to the years of baseline data collection. Please revise any calculations of impacts using the correct reference populations.	
	F34	RIAA 7.1, Paras 471, 519, 586, 635	The reference populations (most recent count) for guillemot at Farne Islands SPA and puffin at Flamborough & Filey SPA are different in the construction and O&M phases.	As noted in F33 above, Natural England advises the Applicant presents a table with the reference populations used for each species-SPA combination in the HRA.	
	F35	RIAA 7.1, Para 617	The calculations of baseline mortality for guillemot at FFC SPA appear incorrect. *Para 617* states a mortality of 237.7 breeding adults represents an increase in baseline mortality of **0.793%** when considering the recent count. As stated by the Applicant in *para 610,* the annual background mortality is 9,148.8 (based on the recent count of 149,980). A mortality of 237.7 therefore represents an increase in baseline mortality of **2.598%.**	Natural England advises the Applicant corrects the errors in these calculations of % increase in baseline mortality for guillemot, and check calculations for all species-SPA combinations.	
	F36	RIAA 7.1,	Displacement matrices for guillemot and razorbill have only been provided for the	Natural England advises the Applicant provides displacement matrices for	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
		Tables 9.25 & 9.27	Applicant's approach to apportioning to FFC SPA and not for Natural England's recommended apportioning approach.	guillemot and razorbill based on Natural England's preferred apportioning approach in order to allow us to assess the predicted impacts using a range-based approach. Natural England's advised approach to apportioning during the breeding season for guillemot and razorbill is to assume 100% adult-type birds are breeding adults, and to apportion 100% of these individuals to FFC SPA. Natural England also advises that a separate season with bespoke apportioning for each species in August and September should be assessed, and has provided guidance on this separately in Appendix 2.	
	F37	RIAA Annex 1 7.1.1, Table 11	The Applicant helpfully provides a summary of apportioning approaches in Table 11. However, the method used to calculate the site-specific adult proportions for kittiwake and gannet using the digital aerial survey (DAS) images is not outlined.	Natural England advises the Applicant provides further detail on how site-specific adult proportions for kittiwake and gannet have been calculated from the DAS data, including what months have been included and how the proportions are calculated.	
	F38	RIAA 7.1, Annex A/Table 12	The breeding season apportioning table in Annex A (Table 12) are missing the values in the 'resulting weight for SPA' and 'proportional weight of SPA' columns. It is therefore not possible to determine how the Applicant has calculated their apportioning values using the NatureScot apportioning tool.	Natural England advises the Applicant corrects Table 12.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
	F39	RIAA 7.1, Annex 1, Para 41	Natural England notes that this paragraph is misleading. The Wakefield et al. (2017) results, and the Cleasby et al. (2018) results (which are based on the same original dataset) are based on tracking data from guillemots during the late incubation and early chick rearing period of the breeding season. This data does not include any information on the distributions of birds in April, when the highest abundances of guillemot are recorded for this site, nor in August/September, when densities are also elevated. Furthermore, no data from guillemots tracked at FFC SPA were included in these analyses – the distribution maps around FFC are based on modelled predictions only. The results from Wakefield et al (2017) and Cleasby et al. (2018) cannot, therefore, be used to draw inference about the potential importance of areas of the North Sea to guillemot outside of the breeding season.	Natural England advises removing this paragraph, or amending this paragraph to better reflect the data limitations.	
	F40	RIAA Annex 1 7.1.1 Section	The Applicant has not included sabbatical rates in their approach to apportioning.	As advised during the ETG process and at PEIR, Natural England currently advise that the evidence base is insufficient to support the consideration of sabbaticals	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
		2.3.4 Para 7		within assessments; Natural England are therefore in agreement with this approach.	
In-combination	F41	RIAA 7.1, Para 1681, Table 10.38	Several features at several sites have been screened out of the in-combination assessment due to the assessment 'alone' concluding a '*trivial and inconsequential level of effect',* including lesser black-backed gull at Alde-Ore Estuary SPA. Sandwich tern at NNC SPA is said to have been screened in as per Table 10.38, however there is no section presenting this assessment. Given our concerns over the accuracy of the alone assessment, we do not agree at this stage that these species can be screened out of the in-combination assessment. Furthermore, it is Natural England's position that where there is a prospect of a contribution to an in-combination adverse effects, small impacts need to be carried through to an in-combination assessment.	The first priority for the Applicant is to update their assessment of the 'alone' impacts of the proposal. However, the SPA features identified (and others in a similar situation) should be subject to in-combination assessment once the issues with the submitted impact assessment are rectified.	
	F42	-	Natural England highlights that the values used in the in-combination assessment for other English North Sea projects entering the NSIP process in 2024 (Five Estuaries, Dogger Bank South West and South East, North Falls) are likely to be subject to change through their respective Examinations, particularly where these	Natural England recommends the Applicant to contact the relevant developers to agree how updated values based on SNCB advice are shared and disseminated across their Examinations, to ensure the in-combination assessment is updated in a streamlined way.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			values are based on those from Preliminary Environmental Information reports.		
Have the impacts been avoided/reduced by the use of appropriate mitigation?	F43	RIAA 7.1, Table 6.1	The Applicant has outlined embedded mitigation related to offshore ornithology including a Minimum Tip Height of 40m	Natural England welcomes the inclusion of these mitigation measures.	
	F44	RIAA 7.1, Table 6.1	Embedded mitigation related to the following of the Best Practice Protocol for minimising disturbance from vessel traffic to sensitive species including red-throated diver and common scoter.	Depending on the predicted impacts to red-throated dive and common scoter during the construction phase, it may be appropriate to condition a formal seasonal restriction on construction of the ECC and ORCPs during the sensitive over-wintering period. Given the presence of common scoter detected through shore-based surveys, intertidal restrictions may require consideration as well.	
	F45	RIAA 7.1, Table 6.1	Array Area Refinements. Reduction of the array area to allow for Guillemot densities. Whilst Natural England welcome the consideration of the ornithological survey data in the refinement of the boundary, there remains a risk for significant displacement of guillemot and razorbill from FFC SPA as a result of the array.	Natural England asks whether the array boundary refinements have gone as far as is practically and reasonably possible to reduce the interaction with Auk species in the array area. If not, further consideration should be given to reducing this overlap, given the significant numbers present and the likelihood of connectivity to FFC SPA.	
Assessment Conclusions	F46	n/a	Please note that at this stage, Natural England is unable to make any conclusive judgements based on this submission for the reasons outlined in Table 1.	Natural England advises the Applicant to provide updated/corrected documents at the earliest opportunity so that we can provide advice on the scale and	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
				significance of impact and the appropriateness of compensatory measures.	
Compensatory measures	F47	n/a	Detailed comments on compensatory measures have been provided separately in Appendix G.	N/A	

Appendix 1

Highly Pathogenic Avian Influenza (HPAI) outbreak in seabirds and Natural England advice on impact assessment (specifically relating to offshore wind) September 2022

1. We are currently unclear what the short, medium and long-term effects of the 2022 HPAI outbreak will be on seabird colony abundance and vital rates (productivity and survival), though impacts at some English colonies in 2022 were likely substantial (e.g. emerging indications of estimates include adult mortality in ~50% of the UK's only roseate tern colony at Coquet Island SPA, and ~10% of Sandwich terns at the North Norfolk Coast SPA). We do not know the extent of population resilience – for instance, how many non-breeding birds might replace adults dying from HPAI in 2022 in future breeding seasons.

2. We expect HPAI to remain a threat to UK breeding seabirds (and terrestrial species of birds, especially perhaps wintering waterbirds) for the foreseeable future. It will take several years for data to be gathered on abundance, mortality and productivity, so we will need to work with imperfect knowledge in the interim.

3. The species understood to be of greatest relevance for imminent impact assessment of offshore wind farms in England are black-legged kittiwake, Sandwich tern, northern gannet, great black-backed gull, common guillemot and razorbill.

4. We expect seabird data collected prior to summer 2022 (approx. June) to remain a valid representation of 'typical' seabird distribution and density, as this was before mass mortality events began to take place. (At this point, we assume affected colonies will recover in the short or long term, depending on available recruits to colonies, scale of further outbreak, and other factors). Data collected at sea from summer 2022 onwards will need discussion with Natural England, to understand how the species and colonies of concern, and their density at sea at certain times, may have been affected by HPAI. We welcome engagement with developers actively engaged in data collection through the Evidence Plan process.

5. Implications for data collection planned for projects beyond Round 4 will largely be site- and species-specific, and we recommend careful interpretation of results in consultation with Natural England. As the duration and severity of the epidemic is unknown and evidence will continue to accumulate over time, an iterative approach seems likely to be required.

6. Broadly, we expect any changes in abundance at colonies to be reflected proportionately in the at sea data. That is, it is reasonable to assume distribution patterns will remain broadly similar, but densities to change accordingly.

7. This assumption means that the scale of impact is likely to remain in proportion to the size of the colony. For instance, if a population were reduced by 10% then we would expect 10% fewer collisions. However, where a population has been significantly depleted, it should be considered whether an equivalent level of impact would have greater implications for the newly reduced population.

8. This would also reflect the likely need to ensure that the sea areas that support SPA (Special Protection Area) seabird colonies provide suitable conditions to restore populations where HPAI impacts have reduced population sizes, rather than simply maintain them. Natural England will aim to provide conservation advice that reflects any such changes. 9. Given the significant uncertainties about the health and resilience of seabird colonies introduced by HPAI, Natural England is likely to further emphasise the need to continue with a risk-based approach to its advice on additional impacts from development, particularly where populations have been significantly impacted. This is to ensure that the impacts of HPAI are not compounded by those from development.

9. This approach is also likely to be taken to compensation discussions. We are likely to recommend that the nature, scope and scale of compensatory measures reflect the uncertainties around population trends, recovery and resilience introduced by HPAI.

10. We need much more data, and urgently need all concerned with seabird conservation and related developments to fund monitoring of key variables at important colonies, so that collectively we can make best decisions about impact and its effects in the face of the threat from HPAI.

11. Natural England will shortly publish its advice to Defra underpinning an English Seabird Conservation and Recovery Plan, which includes direct recommendations for seabird recovery, some relating to disease as well as seabird monitoring.

12. We must work collectively to ensure that seabird populations are made more resilient to the type of catastrophic event caused by HPAI. This includes delivering the actions relating to feeding, breeding and survival as outlined in Natural England's recommendations to Defra in the England Seabird Conservation and Recovery Plan.

Appendix 2

Natural England's additional guidance on the assessment and apportioning of guillemot and razorbill displacement impacts for the Outer Dowsing Offshore Wind Farm

Overview

This document provides additional advice to the applicant on the assessment and apportioning of displacement impacts on common guillemot (*Uria aalge*, hereafter 'guillemot') and razorbill (*Alca torda*) that may arise from the construction, operation, and maintenance phase of the proposed Outer Dowsing Offshore Wind Farm. Natural England had previously advised the applicant during the evidence plan process, that a bespoke approach to apportioning of impacts on these species to Flamborough and Filey Coast SPA ('FFC SPA') in August and September might be required (Expert Topic Group meeting held on the 20th November2023), given apparent peaks in density and abundance in these months in the array area plus 2km buffer, and the proximity of the project to the SPA. However, we were unable to advise on what this approach should be until we had reviewed the full 30 months of baseline survey data to better understand the seasonal variations.

Natural England can now set out our advice on how displacement impacts from the project should be apportioned to FFC SPA in these months.

Background

Natural England note that density and abundance figures for guillemot and razorbill appear to be high in the array plus 2km buffer during August and September. For razorbill, this period coincides with the 'post-breeding migration' season, as defined in Furness (2015). For guillemot, the breeding season as defined in Furness (2015) is from March to July. However, growing evidence suggests that the months of August and September may be considered as a distinct 'chick rearing and moult' season, with aggregations in particular locations. At this time of year, both species are likely to be undergoing a full flightless moult, and successful breeding males will also be caring for flightless chicks, meaning that both species may be particularly sensitive to displacement impacts during this period. The baseline data from the Outer Dowsing array plus 2km buffer suggests that this area may be important to both species during these months. Furthermore, the proximity to FFC SPA and the distance from Scottish colonies means it is likely that birds in the area at this time of year are likely to originate from FFC SPA.

Natural England believe that the applicant's standard approach to apportioning impacts to FFC SPA during these months using the Biologically Defined Minimum Population Scale (BDMPS) does not adequately address the likelihood of a high proportion originating from FFC SPA or the likely vulnerability of the birds to displacement impacts at this time of year. Natural England have therefore proposed a project-specific approach to apportioning of impacts for these species in these months, which is detailed below. We note that this is similar to the approach advised by Natural England for Hornsea Project 4 Offshore Wind Farm, though we highlight that it should not be assumed that all aspects of our Hornsea 4 advice automatically apply to Outer Dowsing.

Supporting evidence: seasonal differences in ecology and distribution

Breeding adults of both guillemot and razorbill leave their breeding colonies at the end of what is defined as the "breeding season" by Furness (2015), usually in July. Chicks leaving the

breeding colony at this time are not yet fully grown and remain flightless, staying with their fathers for an extended period of chick provisioning and care at sea for up to two months (St John Glew et al 2018, Dunn et al 2019, Merkel et al 2020, Merkel et al 2021, Christie 2021, Buckingham et al 2022). Adults of both guillemot and razorbill also undergo a complete moult of primary and secondary feathers after they leave the breeding colony, which renders them completely flightless for four to six weeks during August and September (Harris & Wanless 1990, Harris et al 2015, St John Glew et al 2018, Dunn et al 2019, Dunn et al 2020, Christie 2021, Merkel et al 2021, Buckingham et al 2022). After leaving the breeding colony, birds are no longer constrained by central place foraging, so are able to exploit different foraging areas. Their distribution is therefore likely to different from their breeding season distribution (Furness 2015, Merkel et al 2021). However, given their reduced mobility and the energetic demands of moult and parental care, birds during the two months immediately following the breeding season may be particularly reliant on specific and possibly time-limited foraging areas (St John Glew et al 2018, Dunn et al 2019, Christie 2021, Merkel et al 2021, Buckingham et al 2022).

Furness (2015) suggests a distinct "post-breeding migration" season for razorbill of August-October that includes this sensitive period. However, although Furness (2015) defines a "post-breeding migration" season for guillemot as August to October, it does not advocate separating the post-breeding migration season from the remainder of the non-breeding season, due to the lack of information about the post-breeding movements of guillemot available at the time of the review. Furness (2015) does, however, note that there may be post-breeding aggregations of guillemot and refers specifically to the FFC SPA area in this respect: "*in autumn shortly after dispersal from colonies there may be aggregations of SPA birds close to Flamborough Head & Bempton SPA*" and expresses concern that guillemot may be vulnerable to marine renewables development during this period.

Evidence gathered from year-round geolocator studies of guillemot increasingly suggest that the months immediately following departure from the breeding colony should be treated as a distinct season with specific ecological requirements and specific distribution (St John Glew et al 2018, Dunn et al 2020, Merkel et al 2021, Buckingham et al 2022). Merkel et al (2021) looked at a large dataset of Guillemot geolocator tracking data for the non-breeding season from multiple colonies in the Northeast Atlantic and found "*a strong seasonal pattern in space use and environmental spread was apparent*", which was likely driven by life history stages of the annual cycle "*such as restricted movement capabilities during the autumn moult*". Buckingham et al (2022) looked at geolocator data from 290 Guillemot and 135 Razorbill from 11 colonies over 2 non-breeding seasons (2017-2018 and 2018-2019). The results showed clear differences between core distributions during "post-breeding moult" and core distributions in mid-winter, for both Guillemot and Razorbill. They also showed colony-specific non-breeding season distributions for Guillemot, with little mixing between populations from different colonies.

The Joint SNCB Interim Displacement Advice Note (2017) recommends that, for displacement assessment, mean seasonal peak abundance be used to produce at least two seasonal displacement matrices, but states that "*more than two seasons may be appropriate (e.g. based on post-breeding dispersal periods for auks*" and "*for a number of species there may be evidence to support an additional breakdown of the non-breeding period to account for periods when distribution, activity or population mix are distinctly different (for example post-breeding aggregations of some auk and sea duck species associated with flightless periods, migration periods etc.)*"

Supporting evidence: connectivity with FFC SPA during August and September

Studies have suggested guillemot and their chicks may disperse rapidly away from colonies and potentially mix with birds from other colonies at the end of the breeding season (e.g. Camphuysen et al. 2002, Harris et al. 2015, Christie 2020, Dunn et al. 2020). Following the chick rearing/moult period, some adult guillemot and razorbill may also return to their colonies, implying a proportion of adults remain local throughout the non-breeding season (Harris & Wanless 1990, Dunn et al. 2020).

Most recently, Buckingham et al. (2022), investigated non-breeding movements of guillemot and razorbill from 11 UK colonies in the northern UK (not FFC SPA) using refined geolocator tag data. Their results showed colony-specific non-breeding season distributions for guillemot, with little mixing between populations from different colonies. During the main period of "post-breeding moult" (mid-August to mid-September), Scottish colony core distributions (50% kernel density contours) did not overlap with the Outer Dowsing array area, suggesting that guillemot from the more northerly SPAs are unlikely to heavily utilise the Outer Dowsing area at this time of year, instead favouring areas largely to the north and east of the colonies. McFarlane Tranquilla et al (2014) and Merkel et al (2021) studied year-round guillemot geolocator data from multiple breeding colonies and also found a level of segregation between the distributions of birds from different colonies. Unfortunately, no tracking data are currently available for this period for either guillemot or razorbill breeding or fledged at FFC SPA. However, the available evidence indicates that the majority of guillemot using this area at this time of year are likely to originate from FFC SPA.

There is also evidence to suggest that guillemot breeding at FFC SPA are unlikely to travel far from the colony during the non-breeding season. Nest site attendance by guillemot at FFC SPA from October onwards has been recorded for many years. Harris and Wanless (1990) state that guillemot were recorded visiting the colony at Bempton (part of the FFC SPA) in November 1870 and that their appearance has become gradually earlier and probably more frequent since the 1940s. Vaughan (1998) states that guillemot are present on the Flamborough cliffs from October to August, that the "*early autumn return of the Guillemots to their breeding cliffs has been documented for some time*" and that the adult guillemots breeding on the Flamborough cliffs are "*seldom far out at sea in winter*". More recent observations at the FFC SPA would appear to support this. The FFC seabird monitoring report from 2015 states that "*evidence is growing highlighting the importance of the SPA for wintering Common Guillemot*", with observations suggesting that "*Guillemots were present on the cliffs and inshore waters for at least 50% of the period from mid-November-March*" and that these were local breeding birds that were occupying and defending nesting sites (Babcock et al 2015).

The Flamborough Bird Observatory report for 2020 notes that guillemot were "*present throughout the year*" and "*seen in low numbers in the winter months except when weather systems brought them close inshore*". These observations suggest that at least some of the breeding population of guillemot from FFC SPA remains relatively local throughout the post-breeding period and indeed the entire non-breeding season. Furness (2015) states that many adult Guillemot "*remain close to their colony throughout the year*". Wernham et al (2002) considers guillemot to be a dispersive rather than migratory species, noting that adults can be seen ashore at some colonies in the north-east at any season except from early August to the end of September, which coincides with the main moult period.

While Razorbill are less well known for attending their nest sites outside of the breeding season, Harris and Wanless (1990) state that this does happen at some colonies, particularly in Scotland, and appears to be becoming more common, with colony attendance known to occur

as early as October. The Flamborough Bird Observatory report for 2020 also notes that large numbers of Razorbill are sometimes observed outside of the breeding season, notably an estimated 21,255 birds on 20th September 2020 and an estimated 20,000 birds on 12th October 2020. The possibility that some of these are FFC SPA breeding birds cannot be discounted.

Natural England note that Marine Scotland advise that "*for guillemot and razorbill all non-breeding season impacts should be assigned to SPAs as per the breeding season*" (Marine Scotland 2017).

Natural England's advised approach for Outer Dowsing OWF

Natural England note that applying the BDMPS apportioning approach for these two species in August and September, as the applicant has done, is likely to underestimate impacts on guillemot and razorbill breeding at FFC SPA. Natural England therefore advise a bespoke apportioning to displacement impacts on these species during these months, detailed below.

Guillemot

Natural England advise the use of the following seasons to derive seasonal mean peak abundance estimates for EIA and HRA for guillemot. These should then be subject to the accompanying overall apportioning rates for Flamborough & Filey Coast Special Protection Area (FFC SPA) for HRA.

Breeding season (March to July): 100% apportioning - this assumes 100% of all birds are adults from FFC SPA and represents the worst-case scenario.

Chick rearing and moult (August and September): 68.5% apportioning - this is based on productivity information from FFC SPA during the baseline survey period (2021 to 2023). Guillemot productivity averaged 0.63 chicks per pair across the three years (0.67/pair in 2021, 0.61/pair in 2022, 0.61/pair in 2023). This suggests that, on average, there would be 0.315 chicks per breeding adult, which is equivalent to 76.1% adults at the end of the breeding season (Cope et al 2022, Butcher et al. 2023). Taking into consideration the likely connectivity between FFC SPA and the Outer Dowsing area at this time and allowing for some degree of dilution by adults from other colonies to North, we suggest that it is precautionary to assume that around 90% of the adults come from FFC SPA. Notwithstanding any new evidence, this would equate to approximately 68.5% of all guillemots in the Outer Dowsing area being adults linked to the FFC SPA.

Non-breeding season (October to February): 4.41% apportioning- based upon the standard BDMPS approach (Furness 2015), noting that this value may be a source of under-precaution in the assessment, particularly given the evidence above regarding colony attendance during the winter at FFC SPA.

Razorbill

For razorbill, we advise the use of the standard seasons defined by Furness (2015) to derive seasonal mean peak abundance estimates for EIA and HRA. These should then be subject to the accompanying overall apportioning rates for Flamborough & Filey Coast Special Protection Area (FFC SPA) for HRA.

Pre-breeding migration (January to March): 3.4% apportioning, using the BDMPS method, noting that this value may be a source of under-precaution in the assessment

Breeding season (April to July): 100% apportioning - this assumes 100% of all birds are adults from FFC SPA and represents the worst-case scenario.

Post-breeding migration (August to October): 70.6% apportioning - this is based on productivity information from FFC SPA in 2021 to 2023 (mean productivity of 0.55 chicks per pair during the baseline survey period (2021 to 2023). Razorbill productivity averaged 0.55 chicks per pair across the three years (0.7/pair in 2021, 0.45/pair in 2022, 0.5/pair in 2023). On average, this suggests there would be 0.275 chicks per breeding adult, which is equivalent to 78.4% adults at the end of the breeding season (Cope et al 2022, Butcher et al. 2023). Again, allowing for some degree of mixing in the Outer Dowsing area, we suggest that it is precautionary to assume that around 90% of the adults come from FFC SPA. Notwithstanding any new evidence, this would equate to approximately 70.6% of all razorbill in the Outer Dowsing area being adults linked to the FFC SPA

Winter (November to December): 2.7% apportioning, using the BDMPS method, noting that this may be a source of under-precaution in the assessment

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THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES

2010

Appendix G to the Relevant and Written Representations of Natural England

Offshore Ornithology Compensation

For:

The construction and operation of the Outer Dowsing Offshore Wind Farm located approximately 54km east of the Lincolnshire Coast in the Southern North Sea

Planning Inspectorate Reference EN010130

13th June 2024

Annex G– Compensation Case

In formulating these comments, the following documents have been considered:

- [APP-250] 7.7.1 Kittiwake Compensation Plan
- [APP-252] 7.7.2 Without Prejudice Guillemot Compensation Plan
- [APP-255] 7.7.3 Without Prejudice Razorbill Compensation Plan
- [APP-256] 7.7.4 Offshore Artificial Nesting Structure Evidence Base and Roadmap
- [APP-257] 7.7.5 Without prejudice Predator Control Evidence Base and Road Map
- [APP-258] 7.7.5.1 Plemont Sea Bird Reserve Feasibility Study Report
- [APP-259] 7.7.6 Without Prejudice Additional Measures for Guillemot and Razorbill Evidence and Road Map

1. Introduction

As the derogations material differs in content/structure to a standard Environmental Statement chapter, our comments are provided in a different format to the other Appendices. Within this Appendix we provide our current position on our confidence in each proposed compensation measure, followed by key consenting concerns and detailed comments on the compensation plans and supporting documents. For clarity, we have also provided a summary RAG table for each measure alongside our position to highlight areas of agreement and outstanding concern. We have used the following criteria to assess each category in the summaries:

	NE has broad confidence in this aspect of the measure, though there may be some uncertainties that need addressing.
	There are significant concerns/uncertainties regarding this aspect of the measure, but they have the potential to be resolvable.
	Major uncertainties remain with this aspect of the measure, which if not resolved would make compensation undeliverable. NE cannot be confident at this stage that the measure is deliverable.

Natural England compensatory measures 'check list'

To assist developers and regulators, Natural England has developed a checklist of aspects that need to be described in detail in compensation submissions, to give confidence that the measures can be secured (see Annex A, of this document). This checklist forms the basis of the summary table criteria.

2. Natural England's Advice and Recommendations

Tables 1, 2 and 3 set out Natural England's summary position for each proposed compensation measure, with detailed comments on the compensation plans and supporting documents presented in Table 4.

Key consenting concerns applicable to all measures

Updates to Implementation Plans (all species)

Natural England advises that the species-specific Implementation and Management Plans should be submitted into the examination process in a fully populated state, rather than as skeleton documents. These documents are of key importance. The success of proposed compensation measures are intrinsically linked to these Plans.

Flamborough and Filey Coast Special Protection Area Guillemot and Razorbill- Predator Control

Table 1: Summary position of compensation measure - FFC SPA Guillemot and Razorbill

Compensation measure: Predator Control For FFC SPA Guillemot and Razorbill		
Overall confidence in the measure		Natural England recognise that the proposed measures have some theoretical potential to increase the size of the Channel Islands' colony. It is less certain how these measures will demonstrably compensate for impacts to the colony at the FFC SPA as connectivity will be very difficult to evidence. At this time, we also question the technical feasibility of the measure, in the context of ensuring that predators are eradicated and ongoing exclusion can be monitored and maintained. Further work to increase the evidence base and feasibility of these measures is required.

		NE Comment
Theoretical merit to deliver compensation		Natural England considers that the measure has theoretical potential to increase the size of the razorbill colony at the chosen site in the Channel Islands, and that this in turn has the potential to increase the number of recruits into the National Site Network (NSN) for each species. However, the scale of benefit from the latter aspect may be hard to quantify due to uncertainties around the level of connectivity between the site and Flamborough and Filey Coast (FFC) Special Protection Area (SPA) and the rest of the NSN. Natural England has a number of concerns as to the uncertainty of success of the measure for guillemot in particular, which have not bred in Jersey in significant numbers since the 1950s. The reasons for the loss of, and therefore the suitability of the site for, this species remains uncertain. For both species, it is broadly assumed that predation is the primary pressure acting to prevent nesting, or limit the number of, birds nesting at the site; however, the impact of other pressures has not been considered in detail. Natural England considers that there is a high level of uncertainty that the removal or control of rats and other mammalian predators will lead to colonisation of guillemot and/or an increase in the number of successfully breeding razorbill. Natural England recommends the Applicant attempts to further evidence the potential of the site for guillemot by investigating the potential reasons for the loss/decline of guillemot and razorbill breeding on Jersey. A more detailed analysis of the potential nesting habitat for these species that is currently accessible to rats and other predators is needed to allow a better understanding of the potential scale of benefits.
Technical feasibility		Our concerns around technical feasibility relate to the ability of the proposal to exclude predators on an ongoing basis. Natural England agrees that eradication of predators including rats has been shown to lead to notable increases in productivity and population size for species including guillemot but note that this is usually in relation to smaller islands, and that the success of this measure is substantially less proven at mainland sites. Natural England urges caution when relying on these case studies in evidencing the likely success of the proposed measure. It is unclear whether the recommendations for further work outlined in the Feasibility Study, specifically the development of a fully-costed fence operational plan, eradication plan and biosecurity plan, have been undertaken. The success of the measure relies on not only the successful eradication of target predators within the fenced area, but also the ongoing maintenance of the reserve through maintenance of the fence and sustained biosecurity measures to prevent and deal with reinvasion of predators, particularly from rats along the shoreline. Although there is an acknowledgement of the risk of reinvasion via the intertidal zone, and some suggested measures to mitigate these impacts, the Feasibility Study appears to underestimate the risk this provides to the measure, rating it as a 'medium risk' within Table 14 [APP-258]. Natural England

		consider ongoing recolonisation by rats along the shoreline to be a strong possibility. Natural England recommends consulting predator eradication and predator fencing experts in order to develop detailed plans for all stages of the proposed measure including a detailed design for the fence, the subsequent predator eradication measures and ongoing biosecurity measures.
Agreed compensation level		Due to the issue of multiple instances of typographic/calculation errors within the submitted documents, and the lack of assessment outputs based on our advised approach, Natural England are unable at this stage to assess the scale and significance of impacts, and therefore the scale of compensation required. Natural England advises the Applicant provides updated/corrected documents at the earliest opportunity so that Natural England can provide advice on the compensation level. Please see comment F1 in Appendix F.
Scale/extent of measure		Thus far, the Applicant has only presented the potential for the measures to deliver the full capacity of required compensation at their preferred apportioning approach, using a 50% displacement rate and 1% mortality rate, using the mean impact value, and using a 1:1 compensation ratio. Though it is not possible at this stage to determine the specific scale of compensation required due to the reasons outlined above, it is evident that at Natural England's preferred apportioning approach, using a 70% displacement rate and 2% mortality rate, using the upper 95% CI (as accepted by the SoS for Sheringham & Dudgeon Extension Project) and a compensation ratio of greater than 1:1, to account for the uncertainty in the effectiveness of the measure, predator control is unlikely to be able to deliver the full compensation requirement. Natural England advises the Applicant to consider and present the potential for each of the proposed measures to deliver the required compensation using Natural England's approach to calculating impacts (including our preferred approach to apportioning of guillemot and razorbill to FFC SPA), and at a ratio of greater than 1:1 to account for the high degree of uncertainty associated with this measure. Natural England also request that the Applicant fully presents how the compensation requirement has been calculated based on the impact level.
Timing: Deliverable before impact		The lead in time appears to be less than 2 years (see detailed comment in Table). Predator eradication requires a significant lead-in time before any benefits accrue, and in the case of guillemot, colony establishment would likely be occurring in the early years of construction and possibly operation. Until the target population/productivity is met, a mortality debt will accumulate. A decreased lead in time therefore increases the likelihood that the measure will not be delivering compensation at the scale required before impacts occur. Natural England recommends that the Applicant considers the need for a longer lead in time to account for the uncertainty around how long it will take before benefits are accrued.
Location of measure		The Applicant has identified a location for the measure and has secured an exclusivity agreement with National Trust for Jersey with respect to

		the funding. The Applicant states that a full planning application for the establishment of the fence and the reserve is expected to be submitted early Q2 2024, with all necessary consents secured by the end of 2024. Whilst this timetable is promising, Natural England maintains some concerns around the feasibility of undertaking sustained predator control at this chosen site due to the issues outlined above for 'Technical feasibility'. It is worth noting that the proposed location/route option for the fence has changed since the feasibility study was carried out in 2021, and that the Applicant's documents do not assess what implications this change may have on the conclusions within the feasibility study with regards to risk of reinvasion, maintenance of the fence and potential conflicts with members of the public. This matter should be clarified in an updated submission. Natural England also notes that landowner leases are not yet secured. The Applicant should update the Examination on progress with securing landowner leases.
Long term implementation		The Applicant has acknowledged the need for monitoring of both targeted predators and relevant seabirds i.e. guillemot and razorbill following the implementation of the predator control programme. They have also acknowledged the potential need for adaptive management should this monitoring show that the measure is not as successful as planned. Natural England welcomes this and wishes to clarify that this monitoring will almost certainly highlight the need for ongoing predator control throughout the lifetime of the project, due to regular reinvasions of predators. Natural England advises that the need for ongoing predator control measures and maintenance of the predator fence throughout the project lifetime should be sufficiently considered when costing up the measure and finalising the Compensation Implementation and Monitoring Plan for both guillemot and razorbill.
Success criteria/Ability to prove additionality		The Applicant has acknowledged the need for ongoing monitoring of both target predators and relevant seabirds (i.e. guillemot and razorbill) in order to establish whether the measure is successful, and that monitoring of seabird numbers will need to continue throughout the lifetime of the Project. This sets out the success criteria as an increase in razorbill productivity and abundance (and for guillemot, the reestablishment of a breeding population) at the site to the target number. Although it will not be possible to determine with certainty that any increase in numbers can be solely attributed to the implemented measure, the Applicants proposal to monitor numbers and productivity at other local or regional colonies will enable more confidence that a causal link can be established.
Suitable as sole measure for target species		See comment above re. scale/extent of measure. At this stage, it is unclear whether this measure will be suitable as a sole measure. It is also unclear at this stage to what degree this measure could contribute to a package of measures. Natural England advises the Applicant to provide updated/corrected documents at the earliest opportunity so that Natural England can provide advice on the suitability of the compensatory measure.
Key uncertainties		

Recruitment into the National Site Network		The proposed measure is to be implemented remotely to the impacted site, and the accrual of any material benefit to the national site network remains uncertain, particularly when considering the high level of philopatry shown by auks. The Applicant has provided evidence to suggest that approximately 50% of guillemot and 80% of razorbill will disperse away from their natal colony, and thus a number of birds fledged from Plemont Seabird Reserve have the potential to recruit into the FFC SPA breeding population or to other sites within the National Site Network. Nonetheless, this has not been accounted for in the Applicant's calculations of the scale of compensation that will be delivered by the predator control measure, which we advise requires consideration. Natural England advises that the proportion of birds likely to recruit into the National Site Network be considered when calculating the scale of compensation required
Uncertainty regarding effectiveness of the measure		Of particular concern is the apparent lack of full consideration of the potential for reinvasion by rats, via the intertidal zone. It is acknowledged within the feasibility study that brown rats are capable of swimming up to 2.5km distance, and that there is the potential for rats to enter the fenced area via the intertidal zone. Natural England recommend the Applicant submit a more detailed assessment of the potential risks of intertidal incursions and any mitigation measures that could be put in place.
Lead-in time		The Applicant is proposing to begin construction of the predator fence in Q4 of 2025, undertake predator exclusion in 2026, and begin offshore construction in 2027. This effectively gives a lead-in time of less than 2 years prior to impacts occurring, depending on how long it is anticipated that predator exclusion will take (this is not stated within any of the relevant documents). Predator eradication/control will also require a significant lead-in time before any benefits accrue. Natural England does not believe this would afford the Secretary of State sufficient confidence that the compensation would be delivering prior to impact occurring, a requirement confirmed by multiple pieces of compensation guidance. Natural England advises the Applicant to consider whether a greater lead in time of at least 3 years prior to the onset of impacts is necessary.

Table 2: Summary Position of Compensation Measure – FFC SPA guillemot and razorbill

	RAG	Natural England's Comment
Compensation measure: Additional measures. Species: guillemot & razorbill.		
Overall confidence in the measure		Natural England recognise there is some prospect of the additional measures described, contributing to the required compensation for Razorbill and Guillemot, as a secondary measure. Significant additional work is required to improve understanding and develop site specific evidence to allow this to contribute, with confidence, to the compensation package.
		NE Comment
Theoretical merit to deliver compensation and technical feasibility.		In principle Natural England considers the Additional Measures which include disturbance reduction, habitat management and potentially additional predator control, at colonies of both species in south-western England to be acceptable as a secondary measure only. However Natural England advises it will be unlikely to be able to evidence that any reduction in pressure is actually resulting in an increase in abundance/productivity. Therefore, success will likely have to be based on the reduction in pressure only.
Technical feasibility		Thus far, site-specific investigations at a very preliminary stage, with only desk-based reviews of the potential pressures affecting each of the short-listed sites, and the ways in which the impacts of these pressures on breeding success can be reduced. Engagement with landowners, stakeholders and regulators regarding what may be feasible at each short-listed site has yet to commence Natural England advises that substantial investigation is required to determine the current level of disturbance impacting guillemot and razorbill at each of the short-listed sites. This can then be used to determine the baseline against which the effectiveness of the proposed measures can be assessed.
Agreed compensation level		Due to the issue of multiple instances of typographic/calculation errors within the submitted documents, and the lack of assessment outputs based on our advised approach, Natural England are unable at this stage to assess the scale and significance of impacts, and therefore the scale of compensation required. Natural England advises the Applicant provides updated/corrected documents at the earliest opportunity so that Natural England can provide advice on the compensation level. **Please see comment F1 in Appendix F.**
Scale/extent of measure		Thus far, the Applicant has only presented the potential for the measures to deliver the full capacity of required compensation at their preferred apportioning approach, using a 50% displacement rate and 1% mortality rate, using the mean impact, and using a 1:1 compensation ratio. Though it is not possible at this stage to determine the specific scale of compensation required due to the reasons outlined above, it is evident that at Natural England's preferred apportioning approach, using a 70% displacement rate and 2% mortality rate using the upper 95% CI (as accepted by the SoS for Sheringham & Dudgeon Extension Project) and a compensation ratio of greater than 1:1, to account for the uncertainty in the effectiveness of the measure, this measure is unlikely to be able to deliver the full capacity of required compensation. This is compounded by the preliminary nature of the site-specific assessments, which urgently need updating following surveys of the colonies in the breeding season to establish the relevant pressures, the extent of their effects and the feasibility of addressing them.

		Lastly, the Applicant has not presented any detail on how they have calculated the compensation requirement based on their predicted impact. Natural England advises the Applicant to consider and present the potential for each of the proposed measures to deliver the required compensation using Natural England's approach to calculating impacts (including our preferred approach to apportioning of guillemot and razorbill to FFC SPA), and at a ratio of greater than 1:1 to account for the high degree of uncertainty associated with this measure. The Applicant should update the Examination with the findings of any site-specific studies in summer 2024 so that the likely scale of benefits can be adequately established. Natural England also request that the Applicant presents how the compensation requirement has been calculated based on the impact level.
Timing: Deliverable before impact		The lead in time appears to be less than one year, with measures being implemented at colonies in 2027, the same year construction is to begin. A lead in time of less than one year increases the likelihood that the measure will not be delivering compensation at the scale required before impacts occur. Natural England does not believe this would afford the Secretary of State sufficient confidence that the compensation would be delivering prior to impact occurring, a requirement confirmed by multiple pieces of compensation guidance. Natural England recommends that the Applicant considers the need for a longer lead in time to account for the uncertainty around how long it will take before benefits are accrued.
Location of measure		A short list of sites in the southwest of England has been produced, and a desktop study undertaken to review the pressures at these sites and the potential measures to reduce these pressures. However, site selection needs further, more detailed consideration, with the identification of specific issues/pressures at these locations and the feasibility of measures to reduce them evidenced more thoroughly. Furthermore, whilst the Applicant is in contact with relevant landowners, no agreements are in place. Natural England advises in-situ monitoring will be needed to determine to what degree specific pressures are acting on guillemot and razorbill at each site, and the likely effectiveness of any potential measures to reduce these pressures. The findings of this monitoring and the implications for site selection should be submitted into the Examination as soon as possible after they are concluded, alongside any updates regarding landowner agreements.
Long term implementation		Thus far, the Applicant has provided only limited detail regarding how the compensation measure will be delivered, but has stated that measures to identify the sites best suited for the proposed measures are ongoing, and that following this, bespoke measures will be developed for each site, with relevant landowners and managers consulted on the appropriate delivery mechanism and any consents and approvals required. Natural England advises that without this, it is not possible to have full confidence that the measures can be implemented. As signposted at the top of this advice, fully populated species specific Implementation and Monitoring Plans should be submitted into the examination process at the earliest opportunity
Success criteria/Ability to prove additionality		There is a lack of clarity around how success will be measured, and whether this is in terms of increases in abundance or productivity at the colonies. It is unlikely that the Applicant will be able to evidence a direct causal link between the reduction in identified pressures and a resulting

		increase in abundance/productivity, due to the presence of confounding variables. Therefore, success may have to be based on the reduction in pressure only. Thus far, the Applicant has provided only limited detail regarding how monitoring and adaptive management will be undertaken for this measure, with the final details being presented within the Compensation and Monitoring Plans for each species. Notwithstanding this, it is important to establish a baseline against which the effect of any measures implemented can be assessed (see detailed comments). Natural England advises the Applicant to ensure sufficient consideration is given to what monitoring will be required to evidence that the measure has been successful in reducing the specific pressures at each site, as well as the need to monitor the target species at a regional level. As signposted at the top of this advice, fully populated species specific Implementation and Monitoring Plans should be submitted into the examination process at the earliest opportunity. Any surveys conducted in summer 2024 should include a measure of current abundance and productivity at each colony to provide a baseline.
Suitable as sole measure for target species		See comment above re. scale/extent of measure. At this stage, it is unclear to what degree this measure can contribute to a package of measures. Natural England advises the Applicant provides updated/corrected documents at the earliest opportunity so that Natural England can provide advice on the suitability of this compensatory measure.
Key uncertainties		
Recruitment into the National Site Network		The proposed measure is to be implemented remotely to the impacted site, and the accrual of any material benefit to the national site network is uncertain. The Applicant has provided evidence to suggest that approximately 50% of guillemot and 80% of razorbill will disperse away from their natal colony with the potential to recruit into the FFC SPA breeding population. Nonetheless, this has not been accounted for in the Applicant's calculations of the scale of compensation that will be delivered by the additional measures at colonies in the South West. Natural England advises that the proportion of birds likely to recruit into the National Site Network be considered when calculating the scale of compensation required.
Uncertainty around the specific pressures impacting guillemot and razorbill at each site, and the potential for a reduction in these pressures to increase productivity		The Applicant has provided a literature review of key threats to guillemot and razorbill relating to disturbance, as well as an analysis of the existing pressures, and the existing and potential management measures, at each of the short-listed sites. Although this provides some indication as to what might be appropriate at each site, site-specific surveys have not yet been undertaken and there is therefore fairly limited confidence in whether these sites offer opportunities to reduce pressures on guillemot and razorbill, and if so whether they are practical and feasible to implement. Site-specific monitoring and further landowner/stakeholder engagement is required to provide confidence that these sites offer pressure reduction opportunities.

Table 3: Summary position of compensation measure - FFC SPA Kittiwake, Guillemot and Razorbill

	RAG	Natural England's Comment		
Compensation Measure: Artificial Nesting Structures (ANS) for Kittiwake and Guillemot and Razorbill				
Overall confidence in the measure		Whilst Natural England recognise the provision of ANS would likely increase the recruitment of Kittiwake into the population from which FFC SPA draws its recruits, there is considerably less certainty in the viability of the measure for Razorbill and Guillemot. Significant gaps in understanding exist in quantifying the likely contribution that ANS might make for the latter. There would therefore be significant risk associated with relying on this measure to satisfy the required compensation requirement. Nonetheless, Natural England considers there to be merit in exploring this option, perhaps principally in the context of adaptive management. ANS could represent a sole compensatory measure for Kittiwake, however it is doubtful whether this is the case for Razorbill and Guillemot. The proposed lead in times to deliver this compensation to a level where it is providing the required ecological function are unlikely to be sufficient.		
	Feature **Guillemot and Razorbill**		Feature **Kittiwake**	
Theoretical merit to deliver compensation		Natural England considers that offshore artificial nesting structures (ANS) have the potential to deliver some level of compensation for auks **if** individuals can be attracted to purpose-built structures and are shown to breed successfully. However, there are significant uncertainties around this method, which is as yet unproven. Although there is evidence as presented by the Applicant, of auks nesting on offshore structures, this is in very low numbers in comparison with kittiwake and the productivity of these offshore breeders is unknown. Natural England advises that there is significant uncertainty around this measure for auks, and that there is significant risk associated with relying on this measure to satisfy the required compensation requirement. Nonetheless, Natural England considers there to be merit in exploring this option, perhaps principally in the context of adaptive management		Natural England considers that offshore artificial nesting structures (ANS) have the potential to increase the number of recruits into the wider kittiwake population, although the scale of benefit to the impacted site and National Site Network will be indirect and is likely to be unquantifiable.
Technical feasibility		Technically viable options are likely to be available for providing new structures and/or repurposing existing structures offshore. The most appropriate design of these		Technically viable options are likely to be available for providing new structures and/or repurposing existing structures offshore.

		structures for auks is less certain (see comment above) and carries a high level of uncertainty with regards to how successful it will be. As above, Natural England's view is that for auks, this is an experimental, unproven measure with high degrees of uncertainty around viability, but one worth exploring, particularly as it may inform the design of future ANS for auks.		
Agreed compensation level		Due to the issue of multiple instances of typographic/calculation errors within the submitted documents, and the lack of assessment outputs based on our advised approach, Natural England are unable at this stage to assess the scale and significance of impacts, and therefore the scale of compensation required. Natural England advises the Applicant provides updated/corrected documents at the earliest opportunity so that Natural England can provide advice on the compensation level. **Please see comment F1 in Appendix F.**		Due to the issue of multiple instances of typographic/calculation errors within the submitted documents, and the lack of assessment outputs based on our advised approach, Natural England are unable at this stage to assess the scale and significance of impacts, and therefore the scale of compensation required. Natural England advises the Applicant provides updated/corrected documents at the earliest opportunity so that Natural England can provide advice on the compensation level. **Please see comment F1 in Appendix F.**
Scale/extent of measure		Thus far, the Applicant has only presented the potential for the measures to deliver the full capacity of required compensation at their preferred apportioning approach, using a 50% displacement rate and 1% mortality rate, using the mean impact, and using a 1:1 compensation ratio. Though it is not possible at this stage to determine the specific scale of compensation required due to the reasons outlined above, it is evident that at Natural England's preferred apportioning approach, using a 70% displacement rate and 2% mortality rate using the upper 95% CI (as accepted by the SoS for Sheringham & Dudgeon Extension Project) and a compensation ratio of greater than 1:1, to account for the uncertainty		It is not possible at this stage to determine the specific scale of compensation required due to the reasons outlined above. The Applicant has presented the calculation of the level of compensation required based on both the Hornsea 3 and Hornsea 4 methods, using the Applicant's impact value, which is based on the mean peak abundance rather than the 95% CI. This has been presented for a range of compensation ratios (1:1, 2:1 and 3:1). Natural England advises the Applicant to consider and present the potential for each of the proposed measures to deliver the required compensation using Natural England's approach to

		in the effectiveness of the measure, ANS is unlikely to be able to deliver the full capacity of required compensation. Natural England advises the Applicant to consider and present the potential for each of the proposed measures to deliver the required compensation using Natural England's approach to calculating impacts, using the upper 95% CI, and at ratios of greater than 1:1 to account for the high degree of uncertainty associated with this measure, particularly for auks. Natural England reiterates its previous advice to the Applicant that the provision of two structures rather than one (either for the project alone or through strategic delivery with other Round 4 Applicants) provides resilience against the possibility of a single site not being colonised, or underperforming, due to design- or location- specific issues.		calculating impacts, using the upper 95% CI. Natural England reiterates its previous advice to the Applicant that the provision of two structures rather than one (either for the project alone or through strategic delivery with other Round 4 Applicants) provides resilience against the possibility of a single site not being colonised, or underperforming, due to design- or location- specific issues.
Timing: Deliverable before impact		The lead in time for offshore ANS is presented and considered in reference to kittiwake only. A lead in time of three years prior to the operation of turbines (in 2030) does not account for the fact that impacts to guillemot and razorbill are likely to begin when or shortly after construction starts in 2027. Until the target population/productivity is met, a mortality debt will accumulate. A decreased lead in time therefore increases the likelihood that the measure will not be delivering compensation at the scale required before impacts occur. Natural England recommends that the Applicant considers the need for a longer lead in time to account for the uncertainty around how long it will take before benefits are accrued, and that impacts to guillemot and razorbill are likely to begin prior to turbines being operational, during the construction of the project.		The Applicant proposes a lead in time of three breeding seasons prior to the operation of turbines, which equates to the start of impacts to kittiwake. It remains Natural England's view that the ANS should be in place 4 breeding seasons before the turbines are operational. Natural England reiterates that kittiwake do not usually breed until they are 4+ years old, and therefore recruits will not enter the breeding population until that point. Colony establishment would likely still be occurring in the early years of operation, and until the target population/productivity is met a mortality debt will accumulate. It is also worth noting that there has been a delay in kittiwake colonising recently installed onshore ANS. Therefore, although the measure will be in place prior to operation, a decreased lead in time increases the likelihood that the measure will not be

				delivering compensation at the scale required before impacts occur. It is Natural England's view that at least one ANS should be in place at least 4 breeding seasons prior to operation, even if a second is in place only three breeding seasons prior.
Location of measure		The Applicant has undertaken a detailed spatial mapping process which considered both the ecological suitability and feasibility of different locations, for guillemot and razorbill. This process has identified two potential regions or Areas of Search (AOS) as being suitable for the installation of ANS. However, at this stage, the specific proposed locations have not yet been identified. Further discussions are required on any implications of the ANS on designated sites once the specific locations have been proposed. Note that this advice is provided in the context of the proposed project specific measures and does not reflect other proposed strategic solutions.		The Applicant has undertaken a detailed spatial mapping process which considered both the ecological suitability and feasibility of different locations, for kittiwake. This process has identified two potential regions or Areas of Search (AOS) as being suitable for the installation of ANS. However, at this stage, the specific proposed locations have not yet been identified. Further discussions are required on any implications of the ANS on designated sites once the specific locations have been proposed. Note that this advice is provided in the context of the proposed project specific measures and does not reflect other proposed strategic solutions.
Long term implementation		There is limited detail on the proposed monitoring, adaptive management and reporting for this measure in the event of the ANS being delivered as a project-led measure, as the Applicant has stated this will be developed post-consent. Please see our overarching comment above regarding the need for more detail with the IMPs. Whilst the fine details can be agreed post-consent, the core elements of the monitoring should be specified in the IMP before then.		There is limited detail on the proposed monitoring, adaptive management and reporting for this measure in the event of the ANS being delivered as a project-led measure, as the Applicant has stated this will be developed post-consent. Please see our overarching comment above regarding the need for more detail with the IMPs. Whilst the fine details can be agreed post-consent, the core elements of the monitoring should be specified in the IMP before then.
Success criteria/Ability to prove additionality		The Applicant has set out the requirement for compensation in the form of a target number of breeding pairs, with values presented for both the Applicant and Natural England approaches, though we cannot confirm whether		The Applicant has set out the requirement for compensation in the form of a target number of breeding pairs. Values are presented for both the Hornsea 3 and Hornsea 4 method, albeit the starting

		the stated values actually reflect our advice. It is not clear from the Applicant's documents how this will be measured in the event of the ANS being delivered as a project-led measure (see comment above). We highlight that it will be important to monitor productivity as well as the number of breeding pairs, which may present some challenges offshore. It will also be difficult to quantify benefits to the SPA or indeed other sites in the national site network (NSN).		value does not reflect Natural England's advised approach. It is not clear from the Applicant's documents how this will be measured in the event of the ANS being delivered as a project-led measure (see comment above). We highlight that it will be important to monitor productivity as well as the number of breeding pairs, which may present some challenges offshore. It will also be difficult to quantify benefits to the SPA or indeed other sites in the NSN.
Suitable as sole measure for target species		See comment above re. scale/extent of measure. At this stage, it seems doubtful that this will be suitable as a sole measure. It is also unclear at this stage to what degree this measure could contribute to a package of measures. Natural England advises the Applicant provides updated/corrected documents at the earliest opportunity so that Natural England can provide advice on the suitability of this compensatory measure.		See comment above re. scale/extent of measure. Whilst the level of impact is unclear, it is plausible that with appropriate scaling, and the potential use of two structures, this could function as a sole measure. Natural England advises the Applicant provides updated/corrected documents at the earliest opportunity so that Natural England can provide advice on the suitability of this compensatory measure.
Key uncertainties				
Uncertainties around the effectiveness of the measure, and the most appropriate design of ANS for these species		Though recent surveys of offshore infrastructure provide evidence of both guillemot and razorbill nesting or attempting to nest at these sites, more information on the frequency and resulting productivity is needed. This method has yet to be proven and there remain significant uncertainties around the most appropriate design of ANS particularly with regards to ledges. The Applicant has undertaken a review of ANS design requirements for guillemot and razorbill to evidence their proposed design, though this is lacking in detail with regards to some aspects (see detailed comments in Table 4). We consider a more detailed review of the requirements and		

		preferences of auks is needed to inform the proposed design. Providing a range of design parameters e.g. different sized and shaped ledges, would allow for a testing of the species' preferences and provide resilience to the measure.		
Recruitment into the National Site Network		Considering the high level of philopatry shown by auks, the benefit this measure could provide to the National Site Network is unclear. The Applicant has provided evidence to suggest that approximately 50% of guillemot and 80% of razorbill will disperse away from their natal colony, and thus a number of the birds fledging from offshore ANS have the potential to recruit into the FFC SPA breeding population. Nonetheless, this has not been accounted for in the Applicant's calculations of the scale of compensation that will be delivered by the measure. Natural England advises that the proportion of birds likely to recruit into the National Site Network be considered when calculating the scale of compensation required.		Kittiwakes show low rates of philopatry so a significant proportion of birds produced by a given colony will recruit into other colonies. This means that if successful, ANS may provide recruits into the wider population and therefore FFC SPA to some extent, although this would be challenging to predict or quantify. Natural England advises that the proportion of birds likely to recruit into the National Site Network be considered when calculating the scale of compensation required.

Table 4 Natural England's Detailed Advice and Recommendations

NE Ref	Section	Natural England's Comment	Recommendation	Risk
Documents Used: 7.7.4 Offshore Artificial Nesting Structures Evidence Base and Roadmap 7.7.5 Without Prejudice Predator Control Evidence Base and Road Map 7.7.5.1 Plemont Sea Bird Reserve Feasibility Study Report 7.7.6 Without Prejudice Additional Measures for Compensation of Guillemot and Razorbill Evidence and Road Map				
	7.7.4, Section 4.2.2 & Table 4.1	There is limited justification for the presentation of some of the species specific ANS requirements, e.g. maximum nesting height above sea level. A maximum height of 15m for guillemot and 20-35m for razorbill may not take into consideration that at onshore colonies, the height above the nesting unit is also important, and that breeding success, particularly of guillemot, has been shown to increase with distance from the cliff-top.	Natural England advises that a more detailed review of nesting requirements and preferences is carried out for auks, particularly with regards to elevation and topographic complexity.	
	7.7.4, Table 4.1	Table 4.1 sets out species specific ANS design requirements for guillemot, and states the number of pairs able to occupy a nesting unit (1m x 0.30m i.e. 0.3m^2) is 20 pairs. The reference for this (Mitchell et al. 2004) is missing from the reference list. It is assumed that the reference is 'P. Ian Mitchell, Stephen F. Newton, Norman Ratcliffe and Timothy E. Dunn (Eds.). 2004. Seabird Populations of Britain and Ireland: results of the Seabird 2000 census (1998-2002)' which states a density of 20 pairs/m^2.	Please provide evidence to support the calculation of 20 pairs per nesting unit of 1m x 0.3m, or amend the calculation of pairs able to occupy each nesting unit accordingly.	
	General	Natural England agrees that eradication of predators including rats has been shown to lead to notable increases in productivity and population size for seabirds, but notes that this is usually in relation to islands, and that the success of this measure is substantially less proven at mainland sites. Predator control at mainland sites, particularly those with a high level of human presence, is inherently more difficult. This is due to several factors including the increased risk of reinvasion via the shoreline, increased use of the site by members of the public and therefore increased risk of reinvasion via public access gates, and increased likelihood of public opposition to the presence of the fence. Consequently, Natural England urge	To note.	

		caution when relying on these case studies in evidencing the likely success of the proposed measure.		
	7.7.5.1, Section 8	The feasibility study includes a number of recommendations for further work, including that "*a fully-costed and detailed full-scale fence operational plan is developed by a pest-proof fencing specialist"*, that "*a fully costed eradication plan is developed for the target species within the fence site"* and that *"a fully costed biosecurity plan is produced for the target species"*. It is unclear whether this work has been carried out.	Natural England considers that these plans are required to have sufficient confidence that the measure can be secured, and that they should be produced by or in consultation with predator eradication and predator fencing experts.	
	7.5.5.1, Table 14	The success of the measure relies on not only the successful eradication of target predators within the fenced area, but also the ongoing maintenance of the reserve through maintenance of the fence and sustained biosecurity measures to prevent and deal with reinvasion of predators, particularly from rats along shoreline. Although there is an acknowledgement of the risk of reinvasion via the intertidal zone, and some suggested measures to mitigate these impacts, the Feasibility Study appears to underestimate the risk this provides to the measure, rating it as a 'medium risk' within Table 14 [App-258]. Evidence suggests that a small number of (re)colonising or surviving rats can complete the invasion of large areas in less than 2 years, suggesting that ongoing control measures and comprehensive biosecurity measures are critical to the success of this project. The lack of detailed plans for these elements of the project therefore remains a key concern for Natural England.	Natural England recommends consulting predator eradication and predator fencing experts in order to develop detailed plans for all stages of the proposed measure including a detailed design for the fence, the subsequent predator eradication measures and ongoing biosecurity measures.	
	7.5.5, Table 5.1	Although the lead in time has not been explicitly stated, it can be inferred from Table 5.1 in Document 7.7.5 [APP-257] that the eradication programme will be undertaken in the two years prior to the start of offshore construction, in other words less than two years prior to the potential onset of impacts. Typically, a two year 'lay-down' period following eradication is needed in order to give confidence that an island or enclosed area is 'rat-free', noting that very low densities of rats are difficult to detect particularly during the summer when food is plentiful and they are less likely to visit bait stations and traps.	Natural England advises longer lead in time is required to allow for this period to determine whether eradication efforts have been successful.	
	7.5.5,	More detailed consideration is required regarding the	Natural England advises further	

	Section 6.2.2	appropriateness of different methods for both eradication and monitoring that are specific to the proposed site at Plemont, and how this may change throughout the eradication process. For example, live traps will require daily checks (for animal welfare reasons), and traps in general have been shown to have limited success at low densities. How traps and other measures are deployed also needs careful consideration, with knowledge of predator movements and behaviour, particularly at low densities, needed to inform both eradication and biosecurity/monitoring methods.	consultation with experts is needed to develop detailed plans for eradication, biosecurity and monitoring.	
	7.5.6, Section 7	In order to effectively measure the success of any additional measures at colonies in the south-west, it is essential to establish a baseline against which the effect of any measures implemented can be assessed.	Natural England advises that the surveys conducted in summer 2024 include effective monitoring of current abundance and productivity at each colony to provide this baseline.	

Annex A: Natural England check list for compensatory measure submissions

Natural England has developed a checklist of those aspects of compensatory measures that need to be described in detail when developers are submitting or updating applications where impacts on MPAs are anticipated. Whilst not exhaustive, it lists key areas where sufficient detail is needed to provide the Secretary of State with appropriate confidence that compensatory measures can be secured.

a) What, where, when: clear and detailed statements regarding the location and design of the proposal.

b) Why and how: ecological evidence to demonstrate compensation for the impacted site feature is deliverable in the proposed locations

c) For measures on land, demonstrate that on ground construction deliverability is secured and not just the requirement to deliver in the DCO e.g. landowner agreement is in place. For measures at sea, demonstrate that measures have been secured e.g. agreements with other sea or seabed users.

d) Policy/legislative mechanism for delivering the compensation (where needed)

e) Agreed DCO/DML conditions

f) Clear aims and objectives of the compensation

g) Mechanism for further commitments if the original compensation objectives are not met – i.e. adaptive management

h) Clear governance proposals for the post-consent phase – we do not consider simply proposing a steering group is sufficient

i) Ensure development of compensatory measures is open and transparent as a matter of public interest, including how information on the compensation would be publicly available

j) Timescales for implementation especially where compensation is part of a strategic project, including how timescales relate to the ecological impacts from the development

k) Commitments to ongoing monitoring of measure performance against specified success criteria

l) Proposals for ongoing ‘sign off’ procedure for implementing compensation measures throughout the lifetime of the project, including implementing feedback loops from monitoring.

m) Continued annual management of the compensation area including to ensure other factors are not hindering the success of the compensation e.g. changes in habitat, increased disturbance as a result of subsequent plans/projects

THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

Appendix H to the Relevant and Written Representations of Natural England

Onshore Ecology

For:

The construction and operation of the Outer Dowsing Offshore Wind Farm located approximately 54km east of the Lincolnshire Coast in the Southern North Sea.

Planning Inspectorate Reference EN010130

13th June 2024

Appendix H – Onshore Ecology

In formulating these comments, the following documents have been considered:

- [APP-005] 2.1 Onshore Works Plans
- [APP-007] 2.3 Onshore Location Plan
- [APP-019] 2.15 Statutory and Non-Statutory Nature Conservation Sites Onshore
- [APP-021] 2.17 Important Hedgerows and Tree Preservation Order
- [APP-022] 2.18 Onshore Crossing Plan
- [APP-058] 6.1.3 Chapter 3 Project Description
- [APP-089] 6.2.3 Chapter 3 Project Description Figures
- [APP-143] 6.3.3.2 Chapter 3 Appendix 2 Onshore Crossing Schedule
- [APP-074] 6.1.19 Chapter 19 Onshore Air Quality
- [APP-109] 6.2.19 Chapter 19 Onshore Air Quality Figures
- [APP-176] 6.3.19.1 Chapter 19 Appendix 1 Construction Phase Dust Assessment Methodology
- [APP-177] 6.3.19.2 Chapter 19 Appendix 2 Non-Road Mobile Machinery Emissions Assessment
- [APP-179] 6.3.19.4 Chapter 19 Appendix 4 Road Traffic Dispersion Modelling
- [APP-076] 6.1.21 Chapter 21 Onshore Ecology
- [APP-111] 6.2.21 Chapter 21 Ecology Figures Part 1
- [APP-112] 6.2.21 Chapter 21 Ecology Figures Part 2
- [APP-189] 6.3.21.1 Chapter 21 Appendix 1 Onshore Ecology Desk Based Assessment.
- [APP-190] 6.3.21.2 Chapter 21 Appendix 2 UK Habitat Survey Report
- [APP-191] 6.3.21.3 Chapter 21 Appendix 3 Important Hedgerows Report
- [APP-192] 6.3.21.4 Chapter 21 Appendix 4 Bat Surveys Part 1
- [APP-193] 6.3.21.4 Chapter 21 Appendix 4 Bat Surveys Part 2
- [APP-194] 6.3.21.5 Chapter 21 Appendix 5 CONFIDENTIAL Badger Desk Study and Field Survey
- [APP-195] 6.3.21.6 Chapter 21 Appendix 6 Riparian Mammal Report
- [APP-196] 6.3.21.7 Chapter 21 Appendix 7 Great Crested Newt Report
- [APP-197] 6.3.21.8 Chapter 21 Appendix 8 Reptile Habitat Suitability Study
- [APP-198] 6.3.21.9 Chapter 21 Appendix 9 Invertebrates Study
- [APP-199] 6.3.21.10 Chapter 21 Appendix 10 Fish Habitat Study
- [APP-078] 6.1.23 Chapter 23 Geology and Ground Conditions
- [APP-114] 6.2.23 Chapter 23 Geology and Ground Conditions Figures
- [APP-079] 6.1.24 Chapter 24 Hydrology Hydrogeology and Flood Risk
- [APP-115] 6.2.24 Chapter 24 Hydrology Hydrogeology and Flood Risk Figures
- [APP-210] 6.3.24.1 Chapter 24 Appendix 1 Groundwater Risk Assessment
- [APP-080] 6.1.25 Chapter 25 Land Use
- [APP-116] 6.2.25 Chapter 25 Land Use Figures
- [APP-082] 6.1.26 Chapter 26 Onshore Noise and Vibration
- [APP-117] 6.2.26 Chapter 26 Onshore Noise and Vibration Figures
- [APP-214] 6.3.26.1 Chapter 26 Appendix 1 Noise and Vibration Calibration Certificates
- [APP-215] 6.3.26.2 Chapter 26 Appendix 2 Full Baseline Survey Results
- [APP-216] 6.3.26.3 Chapter 26 Appendix 3 Construction Plant List
- [APP-217] 6.3.26.4 Chapter 26 Appendix 4 Noise Model Outputs
- [APP-235] 7.1 Report to Inform Appropriate Assessment
- [APP-239] 7.2 Habitats Regulations Assessment Screening Report
- [APP-240] 7.3 Report to Inform Appropriate Assessment Screening Matrices

- [APP-241] 7.4 Report to Inform Appropriate Assessment Integrity Matrices
- [APP-242] 7.5 Derogation Case
- [APP-268] 8.1 Outline Code of Construction Practice
- [APP-269] 8.1.1 Outline Noise and Vibration Management Plan
- [APP-270] 8.1.2 Outline Air Quality Management Plan
- [APP-271] 8.1.3 Outline Soil Management Plan
- [APP-272] 8.1.4 Outline Pollution Prevention and Emergency Incident Response Plan
- [APP-273] 8.1.5 Outline Surface Water Drainage Strategy
- [APP-274] 8.1.6 Outline Site Waste Management Plan
- [APP-284] 8.10 Outline Landscape and Ecological Management Strategy (OLEMS)
- [APP-285] 8.11 Outline Operational Artificial Light Emissions Management Plan
- [APP-286] 8.12 Outline Operational Drainage Management Plan
- [APP-287] 8.13 Schedule of Mitigation
- [APP-302] 9.5 Biodiversity Net Gain Report Principles and Approach

1. Natural England's Advice and Recommendations

A summary of Natural England's key concerns in relation to onshore ecology is set out in Table 1. Our detailed advice and recommendations are presented in further detail in Table 2.

The advice presented within the Noise and vibration section of this appendix is also relevant to the advice we have presented on the thematic receptor of onshore ornithology (Appendix I) and should be read together with this. Our detailed advice in relation to biodiversity net gain, protected species, and land use is presented in Table 3.

A glossary of acronyms and abbreviations is provided below.

Glossary of Acronyms and Abbreviations

ABC Method	Threshold based method for assessing significant effect of noise levels
ABS	Artificial Badger Sett
ALC	Agricultural Land Classification
AEoI	Adverse Effect on Integrity
AQMP	Air Quality Management Plan
BMV	Best and Most Versatile Land
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CEMP	Construction Environmental Management Plan
CoCP	Code of Construction Practice
DCO	Development Consent Order
DMRB	Design Manual for Roads and Bridges
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EPS	European Protected Species
ES	Environmental Statement
ExA	Examining Authority
FLL	Functionally Linked Land
HRA	Habitats Regulations Assessment
IAQM	Institute of Air Quality Management
IRZ	Impact Risk Zones
MAFF	Ministry for Agriculture Fisheries and Food
MDS	Maximum Design Scenario
NEWLS	Natural England Wildlife Licencing Service
NNC SPA	North Norfolk Coast SPA
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NRMM	Non-Road Mobile Machinery
NSR	Noise Sensitive Receptors
NVMP	Noise and Vibration Management Plan
OAQMP	Outline Air Quality Management Plan
ODOW	Outer Dowsing Offshore Wind
OnSS	Onshore Substation
ORCP	Offshore Reactive Compensation Platform
OWF	Offshore Wind Farm
PAMP	Public Access Management Plan
PPEIRP	Pollution Prevention and Emergency Incident Response Plan
PPG	Planning Practice Guidance
Ramsar	Wetland sites of international importance
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SMP	Soil Management Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

WCS	Worst Case Scenario
WNNC	Wash and North Norfolk Coast SAC
ZoI	Zone of Influence

2. Natural England's Advice and Recommendations

Table 1 Summary of Key Issues – Onshore Ecology

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
Air Quality			
H1	The project has used a 20m and 50m buffer to assess the impacts of large and medium sized airborne dust particles dispersed by construction activity.	Natural England advises the use of a 200m buffer to assess impacts from construction dust where the onshore order limits pass close to a designated site. This is the extent that medium sized airborne dust particles are likely to travel. An assessment using the 200m buffer should be used to inform mitigation within the Code of Construction Practice (CoCP) and the Air Quality Management Plan (AQMP).	
Noise & Vibration			
H2	Not all noise sensitive receptors (NSR) have been screened and assessed for noise disturbance. This includes the below NSRs: • Assemblages of breeding birds at Sea Bank Clay Pits Site of Special Scientific Interest (SSSI) • Functionally Linked Land (FLL) for non-breeding birds flagged from impact risk zones (IRZs) along the export cable corridor (ECC) • The Wash Special Protection Area (SPA)	Natural England advises all listed ecological NSRs are included in screening and assessment stages for construction noise disturbance. Any mitigation proposed must be based on evidence collected and secured through requirement in the DCO.	
H3	A generic threshold based on the minimum compliance thresholds identified in the ABC Method (British Standard 5228:2009+A1:2014) has been used to assess disturbance from construction noise for all ecological NSRs at designated sites and within any land that is considered functionally linked to designated sites. This has been used regardless of the species type, location, time of year or what receptor is using the land.	Natural England advises the Applicant identify thresholds appropriate to each receptor. Ensure the thresholds are considered in the wider spatial and temporal context.	
H4	The locations of sound recording equipment during characterisation surveys has meant that inadequate data have been collected to assess noise disturbance to the most sensitive receptors of designated sites (Sea Bank Clay Pits SSSI, The Wash SSSI, SPA and	Natural England advises that the Applicant supplies further information to provide the necessary confidence in the noise impact assessment. And, going forwards, the Applicant must undertake pre-construction surveys at appropriate locations to measure baseline noise at	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
	Ramsar), or land functionally linked for mobile interest features of these sites. Therefore, Natural England has concerns with the adequacy of the noise models and consequently the impact assessments for noise disturbance.	designated sites and any functionally linked land to ensure that the assessments remain fit for purpose.	
H5	The Noise and Vibration Management Plan (NVMP) is yet to be finalised.	Natural England advises the NVMP is updated based on evidence collected through the Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) assessments and targeted accordingly. Natural England cannot form a position on the proposed impacts until the additional baseline data and assessments requested in this response have been presented.	
Pollution Control			
H6	Designated sites and their features are not specifically considered regarding a potential pollution event from trenchless drilling.	Natural England advises that Sea Bank Clay Pits SSSI and its features are included as sensitive ecological receptors in the final Pollution Prevention and Emergency Incident Response Plan (PPEIRP) risk assessment with regards to the use of drilling fluid. We would expect to see a specific bentonite 'frack-out' management plan.	
Hydrology and Landfall			
H7	Natural England welcomes the consideration of potential impacts upon hydrological interest features of Sea Bank Clay Pits SSSI and concurs with the conclusion that the only potential pathway between the Project and Sea Bank Clay Pits SSSI is if the clay pits encountered the sand and gravel horizon identified in nearby BGS logs and that this horizon also extends to the HDD location. Natural England considers the proposed monitoring and mitigation approach to be suitable in avoiding any potential adverse hydrological effects to Sea Bank Clay Pits SSSI.	Natural England recommends that details of mitigation measures should be provided and secured within a named plan. The commitment to the monitoring of Sea Bank Clay Pits SSSI in the event of dewatering must also be secured within the DCO. However, Natural England queries how mitigation measures will be secured and implemented if monitoring shows the impacts are greater than predicted?	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
H8	The landfall location at Anderby Creek, just North of Wolla Bank SSSI, has already experienced unforeseen complications and impacts from horizontal directional drilling operations during the Triton Knoll windfarm installation.	Natural England advises that a more detailed plan of landfall construction methodology should be defined and submitted into examination.	
Land Use and Soils			
H9	National Planning Policy Framework (NPPF) 181 and associated footnote 62 have not been included within the list of policies considered during the assessment of impacts to land use receptors. This framework ensures that, where significant development of agricultural land is necessary, the focus of decision makers is on the preference for poorer quality land in the first instance.	Natural England advises that acknowledgement of NPPF 181 and footnote 62 and the implications for this are included within the relevant environmental impact assessment (EIA) chapter.	
H10	The Applicant has not provided a detailed assessment of the Agricultural Land Classification (ALC) or soil function testing along the order limits to inform the route selection and the outline soil management plan. There is also a requirement to identify areas of deep peat and peaty soils which are known in the area. Without detailed site-specific soil data and ALC classification, the Applicant is unable to show how the project avoids impacting best most versatile (BMV) land.	Natural England advises the ES is updated to present further site specific information on detailed and semi-detailed Agricultural Land Classification and soil function surveys. This should include a breakdown of the ALC grades (area, %) in relation to the application site boundary and include ALC and soil data for the cable route and areas of permanent infrastructure and habitat enhancement. A breakdown of the proposed site into disturbed and undisturbed land categories should also be included, split by ALC grade, to help illustrate the potential for impact on agricultural land grade. This site-specific detail informed through a site survey is required to assist the decision maker to reach a decision and apply the National Policy Statement for Renewable Energy Infrastructure (EN-3). See Annex 1 for further information on definitions and soil tests.	
H11	The Applicant has committed to handling soils in dry and friable condition without detail on how this will be achieved.	Natural England advises that the Applicant commits to including the Institute of Quarrying's Good Practice Guide	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
		for Handling Soils in Mineral Working and associated rainfall protocols. We further advise that construction work is avoided between October and March inclusive to reduce the impact of soil erosion. These measures should be secured within the DCO via the Soil Management Plan (SMP) [APP-271].	
H12	Further detail within the Outline SMP is required on land use and soil management and restoration techniques.	Specifically, Natural England is seeking further commitment on the following within the Outline SMP [APP-271]: • The type of machinery used for land works. • Topsoil and Subsoil handling and storage. • Parameters used for establishing successful restoration of soil profiles. • Use of a decompaction strategy to minimise decompaction from heavy plant vehicles and ensure that post works recovery reflects the level of impact occurring.	
H13	Natural England welcomes the commitment to secure a decommissioning plan within the DCO. However, the commitments require further detail on restoration of land use as it was prior to development.	Natural England requests that the restoration of land to its original condition and ALC grade is included within this commitment. Furthermore, Natural England requests that the Applicant commits to decommissioning sooner than the proposed 35-year operational phase, should the infrastructure no longer be required before this time.	
Protected Species Licencing			
H14	Natural England notes that, for several species which may fall under the requirement of a European Protected Species (EPS) licence, the Applicant's approach is to utilise pre-commencement and pre-construction surveys to determine whether a licence would be required and apply for this post consent.	Whilst the responsibility for establishing the need for a licence falls to the Applicant. The Applicant should seek to provide the Examining Authority with confidence that Natural England, as the statutory licensing authority, has considered appropriate issues relating to protected species. Natural England cannot provide a position on the likelihood of a licence being granted without having	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
		reviewed a draft licence application and/or seen relevant supporting evidence as part of the consenting process.	
H15	Currently the information that has been supplied to Natural England is not sufficient to enable us to issue a Letter of No Impediment (LoNI) or to allow us to make an assessment as to whether there are issues to addressed within a draft licence. Full draft licence applications have not yet been submitted to Natural England, as is the procedure, to allow LoNIs to be issued. The baseline data with respect to GCN, badger, water vole and otters would appear to be sufficient to enable the Applicant to submit draft species mitigation licences, if the Applicant determines that licences are deemed to be required for these species. For bat species the mitigation hierarchy has been adhered to and the impacts to trees that provide roosting potential for bats have been mitigated by the either trenchless drilling or retaining the trees / features. Should this change and the trees fall within the direct impact zone then additional surveys will need to be conducted in line with current best practice guidelines.	Natural England is unable to provide a position on the likelihood of a licence being granted without having reviewed a draft licence application. It should also be noted that Natural England are unable to comment on the need for a licence, this responsibility falls to the Applicant. The Applicant should present full draft licence applications to the Natural England Wildlife Licensing Service (NEWLS) for each of the species it deems it would require a licence for as soon as possible. The Applicant and the planning inspectorate should be aware that, assuming Natural England require no further clarifications upon receipt of the full draft licence applications, there is a 30-working day turnaround time for issuing LoNI to projects.	

Table 2 Natural England's Detailed Advice and Recommendations – Onshore Ecology

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Environmental Impact Assessment: Air Quality – Documents Used: [APP-074] 6.1.19 Chapter 19 Onshore Air Quality [APP-109] 6.2.19 Chapter 19 Onshore Air Quality Figures [APP-176] 6.3.19.1 Chapter 19 Appendix 1 Construction Phase Dust Assessment Methodology [APP-177] 6.3.19.2 Chapter 19 Appendix 2 Non-Road Mobile Machinery Emissions Assessment [APP-179] 6.3.19.4 Chapter 19 Appendix 4 Road Traffic Dispersion Modelling [APP-270] 8.1.2 Outline Air Quality Management Plan					
Identified Impacts and Methodology	H16	6.1.19 - Section 19.4.1 19.7.1.1 & 6.3.19.	<u>Study Area</u> Natural England notes and agrees with the defining of the study area for assessing air quality impacts to nationally and internationally designated sites from road traffic emissions, Non-Road Mobile Machinery (NRMM) emissions and vessel emissions. When assessing construction dust impacts to designated sites, Natural England use a 200m buffer to assess impacts from construction dust to designated sites which considers the possibility of intermediate sized particles deposited at this distance (DETR, 2000). The project has used smaller buffers of 50m and 20m, which may not be sufficiently large to capture impacts to designated sites from dust falling onto plants, which can physically smother leaves affecting photosynthesis, respiration, transpiration and leaf temperature. Larger particles can also block stomata, cause toxicity	Natural England advises using a precautionary 200m buffer for assessment of construction dust impacts to nationally and internationally designated sites. This assessment should then be used to inform appropriate mitigation for designated sites from construction dust, presented in the Outline Air Quality Management Plan (OAQMP) [8.1.2].	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			issues (caused by heavy metals particles) and changes in pH (particularly if the dust is alkaline, e.g. cement dust). Lichens can also be directly affected by dust (shading, chemical effects) or by changes in bark chemistry.		
Have the impacts been avoided/reduced by the use of appropriate mitigation?	H17	8.1.2	<u>Construction Dust & Non-Road Mobile Machinery Emissions Mitigation</u> Natural England agrees with measures outlined in the Outline AQMP [APP-270] to mitigate for construction dust and NRMM emission impacts to designated sites.	Natural England recommends these mitigation measures are informed by the assessment outlined above to appropriately target mitigation where it is needed and based on the evidence collected. Natural England advises the OAQMP is secured by an appropriate requirement within the DCO.	
Environmental Impact Assessment: Geology and Ground Conditions - Documents Used: [APP-078] 6.1.23 Chapter 23 Geology and Ground Conditions [APP-114] 6.2.23 Chapter 23 Geology and Ground Conditions Figures					
Baseline characterisation data	H18	6.1.23 - Section 23.4.2, Table 23.3	The appropriate sources have been used to identify geological designations and available baseline data relevant to the assessment.	No further advise on this issue to be provided during examination.	
Methodology	H19	6.1.23 - Section 23.5.1, Para. 315	Natural England notes that the assessment of impacts on designated sites with geological features of interest have only been scoped in for the construction phase of the project. The impact on designated sites has not been accounted for at the operation and maintenance or decommissioning stages of the project. It is acknowledged that the key source of impact to	Further clarity should be included regarding the absence of impacts during the operation and maintenance phase, during cable repair and during decommissioning phase so that this can be reviewed.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			the features of this site would be Horizontal Directional Drilling during construction.		
Have the impacts been avoided/reduced by the use of appropriate mitigation?	H20	6.1.23 - Section 23.5.1, Para. 315	Natural England welcomes the refinement of the project boundary. Subsequently Chapel Point to Wolla Bank SSSI is now outside of the project boundary. We note and agree the following statement: *'Where the project makes landfall, it will no longer cross under the SSSI. The SSSI has therefore been mitigated against by avoidance'.* Natural England note and welcome the avoidance of the direct use of HDD directly below the SSSI given the site's designation.	No further advice on this issue will be provided during examination.	
	H21	6.1.23 - Section 23.7.1.4 Para. 375	The Applicant states that damage to the coastal landforms and designated features are unlikely because trenchless methods follow a parabolic profile under the beach and generally are up to 15m below the surface with no risk of erosion exposure. However, no detailed site investigation to confirm the ground conditions and final detailed design has been undertaken to date.	As per Natural England advice on Coastal Processes (Appendix B Point 23) Natural England advises that ideally ground investigation works are undertaken at landfall to inform the consent process, especially given the sink holes and requirement for extra cable protection that occurred during the installation of Triton Knoll. We advise as a minimum that it should be demonstrated that lessons have been learnt from Triton Knol and preconstruction ground investigations are secured via inclusion within the outline CoCP or Works Plans to avoid unforeseen direct or indirect impacts to Chapel Point to Wolla Bank SSSI.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
	H22	6.1.23 - Section 23.7.1.4 Para. 376	We note the Applicant's proposal for detailed construction plans in the areas where the Project passes through areas of potentially high sensitivity, along with appropriate pollution management controls, to maintain the integrity of the area. We also note plans to mark out the site boundary in areas where the Project is near designated sites, to avoid or reduce disturbance from construction activities.	Natural England recommends these mitigation measures are set out within the outline CoCP, which is secured by DCO Requirement 18. Plus, any pollution management plans are provided in outline as part of the consenting process.	
Assessment Conclusions	H23	6.1.23 Tab. 23.25	Subject to the implementation of the Construction Environmental Management Plan (CEMP), and securing of items noted above, Natural England agrees with the EIA assessment conclusions.	N/A	
Environmental Impact Assessment: Hydrology – Documents Used: [APP-079] 6.1.24 Chapter 24 Hydrology Hydrogeology and Flood Risk [APP-115] 6.2.24 Chapter 24 Hydrology Hydrogeology and Flood Risk Figures [APP-210] 6.3.24.1 Chapter 24 Appendix 1 Groundwater Risk Assessment [APP-273] 8.1.5 Outline Surface Water Drainage Strategy [APP-286] 8.12 Outline Operational Drainage Management Plan					
Baseline Data	H24	6.1.24 - Section 24.4.2	The appropriate sources have been used to identify geological designations and available baseline data relevant to the assessment.	No further advice will be provided on this issue during examination.	
Have the impacts been avoided/reduced by the use of appropriate mitigation?	H25	6.1.24 Appendix 24.1 Section 24.7.3.6	Natural England welcomes the consideration of potential impacts upon Sea Bank Clay Pits SSSI and concurs with the conclusion that the only potential pathway between the Project and Sea Bank Clay Pits SSSI is if the clay pits encountered the sand and gravel horizon identified in nearby BGS logs and that horizon also extend to the HDD location.	At present, no details of suitable mitigation for this effect, should it occur, have been identified further than 'changing the method of working' or 'providing a replacement water supply'. Natural England advises that details of these backup mitigation measures are agreed with the LPA/MMO in consultation	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			The precautionary approach to this impact is also welcomed, whereby in the event the HDD works encounter groundwater and require dewatering, then additional monitoring will be implemented, and in the unlikely event that a notable drop in water levels or flows is recorded at the SSSI the dewatering would be ceased until appropriate assessment of impact or suitable mitigation can be put into place.	with NE prior to construction and that this is secured in the CoCP prior to consent.	
	H26	6.3.24.1 Section. 24.7.4.1 and 24.7.4.2	Monitoring and Mitigation: Natural England considers the proposed monitoring and mitigation approach to be suitable in avoiding any potential adverse hydrological effects to Sea Bank Clay Pits SSSI.	The commitment to the monitoring of Sea Bank Clay Pits SSSI during construction to avoid dewatering must be secured within the DCO via the appropriate named plan.	
Assessment Conclusions	H27	6.3.24.1 Table 24.9 and Section 27.7.3.6	It is noted within Table 24.9 that Sea Bank Clay Pits SSSI is the only identified site which is potentially influenced by groundwater. We welcome the consideration of the site's notified features as well as consideration of the potential influence of elevated groundwater levels in basal heave/inflows to pits. In terms of hydrology, Natural England notes and agree with the conclusions that the potential significance of effects to the Sea Bank Clay Pits SSSI is assessed as minor, however as a precautionary approach appropriate monitoring and mitigation as outlined should be adopted.	As above, Natural England advises the monitoring and mitigation measures referenced above are secured within the DCO and/or a named plan.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Environmental Impact Assessment: Noise & Vibration – Documents Used: [APP-082] 6.1.26 Chapter 26 Onshore Noise and Vibration [APP-117] 6.2.26 Chapter 26 Onshore Noise and Vibration Figures [APP-217] 6.3.26.4 Chapter 26 Appendix 4 Noise Model Outputs [APP-269] 8.1.1 Outline Noise and Vibration Management Plan *Please note, comments in this section relating to the identification of impacts, mitigation measures, and assessment conclusions of noise and vibration are also relevant to the impact pathway of disturbance to overwintering bird species which are features of designated sites along the Yorkshire, Lincolnshire and Norfolk coasts. Natural England's advice relating to Onshore Ornithology (including overwintering bird features) is provided separately in Appendix I). Natural England's advice within this section and Appendix I should be considered together.					
Identified impacts	H28	6.1.26 - Section. 26.7.6, Para. 278	Sea Bank Clay Pits Site of Special Scientific Interest (SSSI) has not been included in the analysis. Part of the site's citation is for its assemblages of breeding, passage and overwintering birds. As such these interest features have the potential to be impacted by noise disturbance.	Natural England advises Sea Bank Clay Pits SSSI, and its designated assemblages of breeding, passage and overwintering birds are included in assessment of noise disturbance from construction, construction traffic and decommissioning.	
	H29	6.1.26 - Section 26.7.6	There is limited indication that the designated sites have been assessed using the Impact Risk Zones (IRZs) available on Defra's Magic Maps in the noise impact assessment. These can be used to review designated features of designated sites, in relation to a specific development activity. This includes important areas of functionally linked land (FLL), which have not been assessed along the export cable corridor (ECC). Please also see our advice in Appendix I (Onshore Ornithology).	Natural England advises the IRZs are used to flag any sections of the Project that have potential to disturb the designated features of nationally designated sites from construction, construction traffic and decommissioning noise pollution. This includes functionally land. Projects and species specific data should then be used to refine impacts assessments and inform mitigation measures.	
	H30	6.1.26 - Section 26.7.6	The Wash Special Protection Area (SPA) is not listed as a designated site with potential to be impacted by noise.	Natural England advises The Wash SPA and its designated breeding and non-breeding birds are included in assessment of noise disturbance from	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
				construction, construction traffic and decommissioning. This should include any FLL. Please also refer to our advice in Appendix I.	
	H31	6.1.26 - Section 26.7.6	The designated bird features of The Wash SSSI, SPA and Ramsar impacted by noise pollution, i.e. listed breeding and non-breeding birds, and assemblages of breeding and non-breeding birds, have not been specifically identified and assessed. It is important to consider the specified designated features in the analysis as they have differing habitats, behaviours and thresholds to noise disturbance.	Natural England advises the designated features of sites are included in assessment for their unique characteristics and impacts from noise pollution. This should include any FLL. Please also refer to our advice in Appendix I.	
Methodology	H32	6.1.26 – Section 26.2.5.1	Using the minimum compliance thresholds identified in the ABC Method (British Standard 5228:2009+A1:2014) does not account for the differing disturbance impacts to designated bird and mammal features of designated sites from differing noise level, duration and type. Applying a standard threshold to all ecological receptors at all locations does not account for time of year, type of behaviour at a particular location (e.g. foraging, breeding etc.), habituation to certain noises, impacts affecting behaviour such as cold weather etc. Caution should be exercised when attempting to define a threshold based on noise levels alone. Other factors such as noise peakiness, including rise time of a noise signal, and the frequency	Natural England advises the Applicant provides an assessment of the designated bird and mammal species impacts from differing noise level, duration and type to their specific thresholds of noise disturbance including a rationale for any concluded absence of impacts. When assessing Natural England advises the Applicant considers the full picture. Including what species will be using land at the location for? Are there any seasonal changes that mean supporting habitat is more valuable at a certain time period? How will differing noise type affect them at the location? From this assessment is the proposed threshold	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			content of the noise source, should also be expected to affect bird behaviour. There is no definitive guidance on noise disturbance levels for birds, though there are research papers available. Noise levels arising from construction work between 50dB and 70dB have been used as an acceptable threshold in other situations (Cutts et al, 2009). These thresholds arise from the Institute of Estuarine and Coastal Studies (IECS) work on the Humber Estuary. This work is helpful but subject to limitations and dependant on site specific situations. The thresholds mentioned are used by the IECS toolkit for non-breeding birds. This 'Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Project' was developed as part of an INTERREG inter-estuary exchange with other North Sea Region estuaries. It followed work which had been undertaken on the Humber Estuary in response to casework. The IECS carried out a literature review of bird disturbance and reported (in 2009) that there was little evidence available on the impacts of construction disturbance to birds. On this basis it is unclear how the specific noise and distance 'triggers' for individual species of birds were derived for the subsequent toolkit.	suitable? And what mitigation is needed to remain below the threshold? It is important to build a broader picture in the assessment, alongside any proposed thresholds. Construction noise during sensitive times of the year at sensitive locations should be restricted to within 3 dB of baseline levels to avoid significant disturbance to birds generally. Natural England advises that the Applicant should give further consideration to potential noise disturbance to ensure that appropriate mitigation measures are adopted and are sufficiently flexible to take account the changing environment.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			However, the thresholds taken from the referenced Cutts et al. (2009) study, provide a useful indication of bird responses, across a range of noise levels (e.g. response likely above 50dB). This is subject to the following caveats; it is a simplistic approach, it is based in the Humber Estuary where there are already levels of noise, even relatively low noise levels might still generate moderate behavioural responses in birds (e.g. increased vigilance) which can be significant under certain circumstances (e.g. freezing weather conditions when reduced foraging efficiency can reduce survival), sudden unpredictable noises might be more disturbing than a steady noise of the same amplitude. Given the limitations it is not recommended that generic thresholds for noise levels which result in moderate to high disturbance of birds are used in isolation.		
	H33	6.1.26 - Section 26.6.5.7	Natural England requests that the construction and operational noise impact magnitudes be reviewed in line with our comments on the use of the minimum compliance ABC Method.	Natural England advises the Applicant reviews the construction noise impact magnitude in terms of impacts based on thresholds of the designated features of designated ecological sites, i.e. the listed birds and mammals in their relevant spatial and temporal contexts.	
	H34	6.1.26 - Section 26.4.2	The assessment of noise impacts from construction activities at The Landfall site to Sea Bank Clay Pits SSSI, does not adequately assess the ecological Noise Sensitive Receptors (NSRs)	Natural England advises the Applicant collects characterisation data to ensure impacts from noise pollution can be adequately modelled and assessed for	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			at this nationally designated ecological site, i.e. the breeding, wintering, and passage bird assemblages. The SSSI is <150m from construction works and within the study area, so noise impacts are likely. The sound monitoring location L003 is beyond the SSSI and so will not adequately assess the baseline or therefore, impacts to the designated features of the SSSI.	the designated features of the Sea Bank Clay Pits SSSI sensitive to noise.	
	H35	6.1.26 - Section 26.4.3	The assessment of noise impacts from construction activities along the ECC to The Wash SSSI, SPA and Ramsar does not adequately assess the ecological NSRs at these designated ecological sites, i.e. the breeding and non-breeding birds. They also do not review any land functionally linked to designated sites for the designated non-breeding birds, which are mainly pink-footed goose and Bewick's swan. At points, the ECC passes through FLL as flagged by Natural England's IRZs and so has the potential to disturb these designated features at these functional locations. The sound monitoring locations are not placed in areas to adequately characterise the baseline or therefore, impacts to the designated features of the designated sites, including at functionally linked land.	Natural England advises the Applicant collects baseline characterisation data at the designated sites and FLL to ensure impacts from noise pollution can be adequately modelled and assessed for the designated features of the SSSI, SPA and Ramsar sensitive to noise.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Have the impacts been avoided/reduced by the use of appropriate mitigation?	H36	6.1.26 - Table 26.33	Natural England welcomes the routing of the ECC, locations of Temporary Construction Compounds and Onshore Substation (OnSS) to avoid key areas of sensitivity in the first instance through project design. Details of acoustic mitigation are as yet undetermined. The Noise and Vibration Management Plan (NVMP) [APP-269] states that specific locations for various acoustic mitigation measures will be determined at the detailed design stage. We would expect those measures outlined in the NVMP and CoCP to be targeted and based on the evidence collected for the EIA and baseline, and ongoing evidence collected throughout the pre-construction, construction, and decommissioning phases to ensure impacts to sensitive designated ecological receptors are mitigated. In addition, the NVMP states noise mitigation measures will be monitored during construction, which is welcomed, however, monitoring of noise impacts at sensitive ecological receptor sites are not referenced.	Natural England considers reference should be made within the NVMP to the targeted nature of mitigation measures for potentially impacted interest features of designated sites based on collected evidence in the EIA. The NVMP should ensure noise pollution is monitored during construction and decommissioning phases at the sensitive ecological receptor sites with appropriate mitigation implemented to manage noise pollution impacts to these receptors. The NVMP and CoCP are secured by DCO Requirement 18.	
	H37	6.1.26 - Section 26.7.6.2	It is noted that within Chapter 22: Onshore Ornithology, Section 22.4.1, Para 12 [APP-077] there will be mitigation in place to avoid construction works taking place from October to	Natural England advises the Applicant uses robust baseline data and protected sites IRZ to establish appropriate mitigation buffers around FLL in addition	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			March inclusive within 400m of The Wash SPA and Ramsar. As per Natural England's advice to the developer in response to a request for more information (Email direct to ODOW dated 16/11/2023). Natural England confirmed that 400m was an acceptable distance for mitigation measures but that this distance was also applicable to areas considered as FLL to designated sites. However, we highlight that The Wash SPA has internationally important numbers of passage and over wintering birds outside of October to March. Therefore, we advise that depending on the survey data, mitigation measures are likely to be required in certain locations from September through to the end of April. Please note that any in year seasonal restriction will need to be determined by birds present and also whether conditions.	to that already proposed. And ensure that any seasonal restriction is fit purpose, The Applicant will need to ensure the identified mitigation is included in an appropriate Management Plan, such as NVMP.	
	H38	6.1.26 - Section. 26.7.6.4	The ECC crosses the River Haven at a point <200m from The Wash SSSI / SPA / Ramsar and The Wash and North Norfolk Coast SAC. At this point, the Project will utilise trenchless drilling (likely to be Horizontal Directional Drilling (HDD)) to cross the waterbody. The Applicant has assessed the impacts as negligible based on the threshold limit calculated by the ABC model. There is no specific assessment of the impacts to the designated bird populations. There is also no baseline data collected for noise at the	Natural England advises the Applicant ensures pre-construction baseline data is collected at the designated sites and associated FLL, and appropriate methodology is applied to adequately assess impacts to the designated features of the sites. Appropriate mitigation should be identified during the consented phase and included within the NVMP. This will need to be agreed upon	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			designated site. As such a conclusion on mitigation requirements cannot be drawn from the assessment due to the lack of baseline data and methodology that is based on the minimum compliance threshold.	with the Local Planning Authority (LPA) in consultation with NE prior to construction.	
	H39	6.1.25, Section 26.7.6.6 & Tab. 26.61	Table 26.61 demonstrates a worked example showing stand-off distances for $L_{Aeq,\ 1\text{-}hour}$ (ambient noise) and L_{Amax} (loud, sporadic noise e.g. loud bangs). This is proposed to demonstrate how loud, sporadic activities will be mitigated through the ambient noise stand-off distances, which are larger. The worked example is not modelled to demonstrate this mitigation is effective in managing loud and sporadic noise impacts at designated sites.	Natural England advises modelling is provided at the consenting phase to demonstrate that the stand-off distances imposed for the $L_{Aeq,\ 1\text{-}hour}$ limit are adequate at mitigating activities within the L_{Amax} limit at designated sites and any functionally linked land.	
Assessment Conclusions	H40	6.1.26 - Section 26.7.6.3 /4	Natural England cannot agree with the conclusion of noise disturbance for both minor and major drill noise at designated sites. This conclusion is based on the noise threshold limit generated from the ABC Model. It does not review impacts to the specific bird species adequately. As such we cannot assess the impacts from noise disturbance to designated sites from the data provided.	Natural England advises the Applicant uses adequate modelling to assess impacts to designated birds at designated sites and FLL. This will allow conclusions to be drawn from sound data.	
	H41	6.1.26 - Section 26.7.9.2	No assessment of the inter-relation between landfall and ECC construction works has been conducted for Sea Bank Clay Pits SSSI. As such no conclusion can be drawn on impacts to the designated site.	Natural England advises Sea Bank Clay Pits SSSI is included in the assessment of inter-relation between the landfall and ECC.	
	H42	6.1.26 - Section 26.10	Natural England cannot yet adequately assess the impacts to designated sites and their features including at FLL. We cannot adequately review	Natural England advises the Applicant collects pre-construction noise baseline data at designated sites potentially	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			the efficacy of proposed mitigation to ensure it is targeted, based on evidence collected. This is due to the minimum thresholds used in the methodology, and the lack of noise baseline data at designated sites and land functionally linked for their designated features. As such we cannot agree with the conclusions outlined in Table 26.81 for impacts from noise disturbance to designated sites from construction at Landfall and along the ECC.	impacted by construction noise at Landfall and along the ECC. This is to ensure the thresholds used to assess impacts to protected designated birds from at designated sites are appropriate and based on evidence of impacts from noise disturbance to these populations. Any functionally linked land should be included in baseline data and assessments.	
	H43	6.1.26 - Section 26.10	Natural England cannot yet adequately assess the impacts to designated sites and their features including at FLL. We cannot adequately review the efficacy of proposed mitigation to ensure it is targeted, based on evidence collected. This is due to the minimum thresholds used in the methodology and lack of noise baseline data at designated sites and land functionally linked for their designated features. As such we cannot agree with the conclusions outlined in Table 26.81 for impacts from noise disturbance to designated sites from construction at Landfall and along the ECC.	Natural England advises the Applicant collects pre-construction noise baseline data at designated sites potentially impacted by construction noise at Landfall and along the ECC. This is to ensure the thresholds used to assess impacts to protected birds from designated sites are appropriate and based on evidence of impacts from noise disturbance to these populations. Any functionally linked land should be included in baseline data and assessments.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Environmental Impact Assessment: Pollution Control – Documents Used: [APP-268] 8.1 Outline Code of Construction Practice [APP-272] 8.1.4 Outline Pollution Prevention and Emergency Incident Response Plan (PPEIRP)					
Have the impacts been avoided/reduced by the use of appropriate mitigation?	H44	8.1.4 - Section 2.3	No specific assessment of the possible impacts of bentonite/drilling fluid on the features of the nearby designated nature conservation sites has been provided. However, it is noted that the final PPEIRP will include a risk assessment for impacts from frack-outs. Natural England considers the principles for bentonite breakout management included in the outline PPEIRP to be appropriate in avoiding any effects from the accidental release of drilling fluid; as such if the measures outlined in Paras. 30 and 31 of the outline PPEIRP are implemented, impacts to designated nature conservation sites are considered unlikely. However, this should still be considered further by the Applicant.	The outline PPEIRP should refer to Sea Bank Clay Pits SSSI to ensure its features are included as sensitive ecological receptors in the final PPEIRP risk assessment for the use of drilling fluid.	
HRA – Document Used: **[**APP-235] 7.1 Report to Inform Appropriate Assessment [APP-239] 7.2 Habitats Regulations Assessment Screening Report					
In- combination	H45	7.1 - Table 7.9	Natural England advises that they like to see the Viking Carbon Capture and Storage pipeline and National Grid Grimsby to Walpole project are included for consideration of in-combination effects.	Natural England advises the two named projects are considered within the in-combination assessment.	
	H46	7.1 - Table 6.1	<u>Construction Dust</u> Within the embedded mitigation, no mitigation is discussed in relation to construction dust and its impacts on designated sites.	Natural England advises mitigation for construction dust is included within the embedded mitigation.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Have the impacts been avoided/reduced by the use of appropriate mitigation?	H47	7.1 - Table 6.1	<u>Functionally Linked Land - Seasonal Restriction</u> It is noted that within Chapter 22: Onshore Ornithology, Section 22.4.1, Para 12 [APP-077] there will be mitigation in place to avoid construction works taking place from October to March inclusive within 400m of The Wash SPA and Ramsar. As per Natural England's advice to the developer in response to a request for more information (Email direct to ODOW dated 16/11/2023). Natural England confirmed that 400m was an acceptable distance for mitigation measures but that this distance was also applicable to areas considered as FLL to designated sites. However, we highlight that The Wash SPA has internationally important numbers of <u>passage</u> and over wintering birds outside of October to March. Therefore, we advise that depending on the survey data mitigation measures are likely to be required in certain locations from September through to the end of April. Please note that any in year seasonal restriction will need to be determined by birds present and weather conditions.	Natural England advises the Applicant uses robust baseline data and protected sites IRZ to establish appropriate mitigation buffers around FLL in addition to that already proposed. And ensure that any seasonal restriction is fit purpose, The Applicant will need to ensure the identified mitigation is included in an appropriate Management Plan, such as NVMP. Ensure the identified mitigation is included in an appropriate Management Plan, such as NVMP.	
	H48	7.1 - Table 6.1	<u>Functionally Linked Land - Disturbance</u> Within additional mitigation, minimising disturbance to non-breeding waterbirds using FLL the 400m buffer is applied. There is no indication that the nationally and internationally designated	Natural England advises the Applicant ensures areas of FLL outside the 400m buffer and within the IRZ for Goose and Swan FLL are assessed for construction disturbance.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			sites have been assessed using the Impact Risk Zones (IRZs) available on Defra's Magic Maps in the mitigation assessment. This includes important areas of FLL, which have not been assessed along the ECC.		
	H49	7.1 - Paras 1181, 1182, 1183, 1187.	Noise Disturbance during Construction The 70dB threshold mentioned is used by the IECS toolkit for non-breeding birds. Applying a standard threshold to all ecological receptors at all locations does not account for time of year, type of behaviour at a particular location (e.g. foraging, breeding etc.), habituation to certain noises, impacts affecting behaviour such as cold weather. Please see our further detail on this matter in above.	Natural England advises the Applicant considers the complexity of the designated sites and the notified features in their own contexts. Use the thresholds are to be used as a "rule of thumb." Construction noise during sensitive times of the year at sensitive locations should be restricted to within 3 dB of baseline levels to avoid significant disturbance to birds. Natural England advises the Applicant ensures noise capturing and recording equipment are located at appropriate locations to represent bird behaviour when collecting baseline data.	
Assessment Conclusions	H50	7.1 - Para. 1382	Construction Dust: Construction Impact 1 (Dust/PM10 emissions), Natural England use considers a 200m ZoI. As such a 20m ZoI has been used we cannot agree with the conclusions reached. Please see comment H16 for further information. Natural England agrees with the conclusions reached for impacts to designated sites from Construction Impact 2 (road traffic emissions) and Construction Impact 3 (NRMM) and have no further comment on these matters.	We advise that the ZoI is extend to 200m to ensure any designated sites impacted by construction dust are included in the assessment.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
	H51	7.1 - Section 9.5.4	Natural England agrees with the conclusions for AEoI to designated sites from the operational phase. When considering FLL, we would ask that the IRZs are used to identify any FLL outside of the already established 400m buffer from designated sites.	We advise that the IRZs are used to identify FLL. See Natural England's advice and conclusion in Appendix I in relation to FLL during the construction phase.	

Table 3 Other Onshore Related Matters - Protected Species, Biodiversity Net Gain and Soils

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation.**	**Risk (RAG)**
Protected Species – Document Used: [APP-076] 6.1.21 Chapter 21 Onshore Ecology [APP-192] 6.3.21.4 Chapter 21 Appendix 4 Preliminary Roost Survey for Bats Part 1 [APP-193] 6.3.21.4 Chapter 21 Appendix 4 Preliminary Roost Survey for Bats Part 2 [APP-196] 6.3.21.7 Chapter 21 Appendix 7 Great Crested Newt Surveys, March 2024 [APP-197] 6.3.21.8 Chapter 21 Appendix 8 Reptile Habitat Suitability Survey. [APP-284] 8.10 Outline Landscape and Ecological Management Strategy (OLEMS)					
Onshore Protected Species – **Bats**	H52	General Comment	Natural England has not yet received a draft licence application for bat species in order for us to provide a Letter of No Impediment (LoNI).	Should the Applicant deem that a protected species licence for bats is required we advise that the Applicant submits a full draft species licence to the Natural England Wildlife Licencing Service (NEWLS) team as soon as possible. Within the draft licence application Natural	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation.**	**Risk (RAG)**
				England would expect to see that all characterisation baselines are collected using industry standard methods, and where not they are justified. For any bat species where roost will be directly impacted either by modification (structural changes, destruction or (removal), Natural England would expect to see a mitigation and compensation plan that states the species, approximate number of individuals, location, and data collection method. The mitigation plan should include working methods, timings of works etc. A compensation proposal should be included for roost losses and modification. The Applicant should note that disturbance is now a standalone licensable activity for bats. Disturbance is any activities that negatively affect a bats behaviour at a particular roosting feature or impacts to features integral to the functioning of roost locations (foraging/commuting)	
	H53	6.3.21.4 - Sec. 21. 7, Para. 59	It is noted that alterations to the redline boundary occurred after the completion of bat surveys to inform the baseline data set.	Natural England notes that any areas not surveyed which have habitat suitable for roosting, foraging or are integral to connectivity, and that will be directly impacted by works need to have the appropriate level of surveys undertaken before conclusions on	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation.**	**Risk (RAG)**
				impacts and licence requirements can be made.	
	H54	6.3.21.4, Sec. 21.5.2.5 & 21.5.3, Pg.10	In line with Collins 2023 (4th edition), emergence/re-entry surveys will generally only be accepted where trees are evidenced as being unsafe to climb.	Natural England advises that pre-construction tree climbing inspections are required on any trees identified via Ground Level Assessment (GLAs) as having moderate -high Potential Roosting Features (PFR's) where there are direct impacts such as removal, structural works or likely subjected to disturbance that may impact roosting bat behaviour. This will need to be secured as part of the DCO and/or named plan.	
	H55	6.1.23.4, Sec. 21.8.3.4 Pg. 27	The baseline characterisation survey report states there was a notable increase in the call registrations for Nathusius's pipistrelle in September. This species is known to swarm for the purpose of mating in late summer/early autumn. Is it possible there is a feature of importance at the location of the remote device that needs categorising and considering under any mitigation plans.	Natural England advises that the Applicant should consider aggregations of this species in late summer/early autumn and whether any surrounding features might constitute a feature of importance. It should provide scientific rationale within its justification. If it is concluded that it's activities may directly impact bat behaviour or feature use, these may be considered functionally linked to and onsite roost, or important areas of foraging and or commuting. The Applicant should ensure that linear features which could be impacted by works or high potential features of importance (surveyed via remote detectors and with call	

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				registrations recorded) are included within a mitigation strategy. Any proposed mitigation should be presented within the OLEMs which is secured within the DCO.	
	H56	8.10, Sec. 3.7.6 Para. 171	The OLEMS document states that currently a European Protected Species licence for bat species is not considered necessary. It goes on to state that protected species licences will be re-assessed based upon the results of the pre-construction survey and final scheme design.	While Natural England acknowledge that the mitigation hierarchy has been used to avoid impacts. Where the Applicant anticipates a licence is required, Natural England would advise early engagement with NEWLs. The Applicant should seek to provide the Examining Authority with confidence that Natural England, as the statutory licensing authority, has considered the appropriate issues relating to protected species. Natural England are unable to provide a position on the likelihood of a licence being granted without having reviewed a draft licence application. If the decision to apply for a LoNI is made then instructions can be found Nationally Significant Infrastructure Projects - Advice Note Eleven, Annex C: Natural England and the Planning Inspectorate - GOV.UK (www.gov.uk)	

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Onshore Protected Species – **Badger**	H57	6.1.21 - Sec. 21.9.1.4. , Para. 390.	Natural England welcomes the proposed mitigation for impacts to protected badger species. However, we further advise that where impacts to main setts cannot be avoided, preconstruction surveys should include detailed territorial analysis to ensure correct placement of any artificial badger sett(s) required as mitigation. Bait marking is considered the best method for conducting territorial analysis.	Natural England advises that the Applicant should include requirement for detailed territorial assessments as part of their pre-construction survey within the OLEMS.	
	H58	General Comment	Any main sett that is closed as part of the development will require the creation of an artificial badger sett (ABS) to avoid potential welfare issues to badgers. No ABS design has been included within the documents supplied to Natural England.	Natural England advises that construction of artificial setts must be complete prior to the exclusion works and there should be evidence that the badgers have found the sett. Evidence could be gained from a variety of monitoring techniques. Attractive bait such as peanuts as well as bedding can be used to assist the badgers locate the artificial sett. Artificial setts must be constructed with the following considerations: • in a suitable location, • within the territory of the affected badger social group (this can be determined using a bait-marking survey) • away from main roads, public rights of way or sources of danger to badgers,	

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				• using materials and in a manner which is sufficiently robust for long-term use by badgers, • made of materials not harmful to badgers, • of a size to reflect the importance and extent of the sett to be lost • provide a dry and well-ventilated (but not draughty) refuge, • ideally with vegetative cover immediately around the structure. • with the minimum internal diameter of artificial tunnels, chambers, and sett entrances, being 300mm. This mitigation will need to be secured in the OLEMS.	
	H59	8.10, Sec. 3.7.7.2, Para. 187	The Applicant has stated the approach to mitigation (where setts cannot be avoided) will be to undertake pre-commencement/pre-construction surveys to determine if a badger sett will be affected by the proposed construction and then apply for a licence. There is however no guarantee that Natural England will issue a licence and a draft species licence should be submitted prior to consent for a LoNI to be issued to provide the	Where the Applicant anticipates a licence is required, Natural England would advise early engagement with NEWLS. The Applicant should seek to provide the Examining Authority with confidence that Natural England, as the statutory licensing authority, has considered appropriate issues relating to protected species. Natural England cannot provide a position on the likelihood of a licence being granted without having reviewed a draft licence application. If the decision to apply for a LoNI is made then instructions can	

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			ExA and the decision maker the necessary level of comfort.	be found Nationally Significant Infrastructure Projects - Advice Note Eleven, Annex C: Natural England and the Planning Inspectorate - GOV.UK (www.gov.uk)	
Onshore Protected Species – **Great Crested Newt (GCN)**	H60	6.3.21.7 Sect. 21.5.6.	Natural England advise that access attempts should be evidenced.	Natural England advise that records of access attempts and refusals to land along the ECC should be kept and made available should Natural England request them. Where data gaps exist due to access limitations, follow up surveys should be planned if/when access can be agreed Though we recognise that this will be a pre-construction requirement.	
	H61	6.3.21.7 Sect. 21.5.6.	Data gaps in GCN presence from indeterminate eDNA analysis results.	Whilst we understand that eDNA is a survey technique that is adopted for GCN, we do highlight that another project has had difficulty gaining a protected species licence (Letter Of No Impediment) reliant solely on eDNA, rather than combined/additional use of conventional survey methods. This is due to issues including: reliability of data (such as false positives), presentation of presence/absence, period of time between surveys and proposed state of development, and seasonal timings of surveys. As such it is recommended that guidance available from Natural England Wildlife Licensing Service is followed if a draft Letter of No Impediment is sought. Ideally surveys involve Habitat Suitability Index appraisal and eDNA survey of ponds within the red line boundary and surrounding	

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				250m.Where data gaps exist follow up surveys should be planned if/when access can be agreed	
	H62	8.10. Sect. 3.7.3.1. Para. 115	The OLEMS states a derogation licence in respect of GCN may be required for works within 250m of the two metapopulations identified once detailed design has been reviewed. There is however no guarantee that NE will issue a licence. And a draft species licence should be submitted prior to consent for a LoNI to be issued to provide the ExA and the decision maker the necessary level of comfort.	Where the Applicant anticipates a licence is required, Natural England would advise early engagement with NEWLS. The Applicant should seek to provide the Examining Authority with confidence that Natural England, as the statutory licensing authority, has considered appropriate issues relating to protected species. Natural England are unable to provide a position on the likelihood of a licence being granted without having reviewed a draft licence application. If the decision to apply for a LoNI is made then instructions can be found Nationally Significant Infrastructure Projects - Advice Note Eleven, Annex C: Natural England and the Planning Inspectorate - GOV.UK (www.gov.uk)	
Onshore Protected Species – **Reptiles**	H63	6.3.21.8, Sect. 21.5.4	The reptile habitat suitability study noted the limitations associated with the current desk study effort undertake to date, particularly with respect to the Habitat Suitability Index (HSI) Assessment not being sufficient to confirm presence or absence of reptiles on its own. Natural England welcomes the proposals to	Further pre-construction survey effort to confirm presence or absence of widespread/common reptiles should be undertaken as indicated. An approach to provide confirmation of presence or absence of widespread reptiles	

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			undertake preconstruction surveys using traditional reptile survey methods in those habitats identified via the HSI Assessment exercise as offering exceptional habitat for reptiles.	would be in line with the expectations and guidance as set out in Natural England's Standing Advice for Reptiles. This will need to be secured in the DCO/OLEM and final mitigation design agree with the LPA in consultation with NE.	
Onshore Protected Species – **Otter**	H64	8.10, Sect. 3.7.8	The OLEMS document states that there may be a requirement to apply for an EPS mitigation licence should it not be possible to avoid disturbance impacts to otters. There is however no guarantee that NE will issue a licence. A draft species licence should be submitted prior to consent for a LoNI to be issued to provide the ExA and the decision maker the necessary level of comfort.	Where the Applicant anticipates a licence is required, Natural England would advise early engagement with NEWLS. The Applicant should seek to provide the Examining Authority with confidence that Natural England, as the statutory licensing authority, has considered appropriate issues relating to protected species. Natural England are unable to provide a position on the likelihood of a licence being granted without having reviewed a draft licence application. If the decision to apply for a LoNI is made then instructions can be found Nationally Significant Infrastructure Projects - Advice Note Eleven, Annex C: Natural England and the Planning Inspectorate - GOV.UK (www.gov.uk)	
Onshore Protected Species – **Water Vole**	H65	8.10, Sect. 3.7.9.2	The OLEMS document states that where impacts water vole cannot be avoided and where the CL31 licence cannot be used then	Where the Applicant anticipates a licence is required, Natural England would advise early engagement. The Applicant should seek to	

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			either a separate displacement licence or trapping licence will be applied for. There is however no guarantee that NE will issue either licence. A draft species licence should be submitted prior to consent for a LoNI to be issued to provide the ExA and the decision maker the necessary level of comfort.	provide the Examining Authority with confidence that Natural England, as the statutory licensing authority, has considered appropriate issues relating to protected species. Natural England are unable to provide a position on the likelihood of a licence being granted without having reviewed a draft licence application. If the decision to apply for a LoNI is made, then instructions can be found here.	

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Biodiversity Net Gain – Document Used: [APP-080] 6.1.25 Chapter 25 Land Use [APP-302] 9.5 Biodiversity Net Gain Report Principals and Approach					

Biodiversity Net Gain	H66	9.5	The Environment Act 2021 includes NSIPs in the requirement for Biodiversity Net Gain (BNG). The biodiversity net gain objective for NSIPs is defined as at least a 10% increase in the pre-development biodiversity value of the on-site habitat.
			
			It's the intention that BNG should apply to all terrestrial NSIPs accepted for examination from November 2025. This includes the intertidal zone but excludes the subtidal zone.
				The biodiversity baseline should include all land contained within the site's red line boundary and proposals can be iteratively refined over time and throughout detailed design. We encourage developers to:
				
				• Develop BNG proposals in adherence with well-established BNG principles:
				  ○ BS 8683:2021 Process for designing and implementing Biodiversity Net Gain
				  ○ CIEEM/IEMA/CIRIA good practice principles (2016) and guidance (2019).
				• Use the Defra biodiversity metric to calculate BNG and adhere to the rules and principles set out within the metric guidance.
				
				Biodiversity gains should be secured for a minimum of 30 years and be subject to adaptive management and monitoring. BNG plans should be secured by a suitably worded requirement in the DCO.	

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Soils and Best and Most Versatile Agricultural Land – Document Used: [APP-080] 6.1.25 Chapter 25 Land Use [APP-271] 8.1.3 Outline Soil Management Plan					
Soils and Best and Most Versatile Agricultural Land	H67	6.1.25 - Tab. 25.1	Natural England highlights that decision makers are responsible for ensuring that they have sufficient detailed agricultural land classification (ALC) information to apply National Planning Policy Framework (NPPF) policies for NSIP applications. Having reviewed the policies indicated in table 25.1 we are in broad agreement with the Applicant. However, further consideration should be given to the following policy: *NPPF 181 Plans should: distinguish between the hierarchy of international, national, and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework…* *Footnote 62: Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality. The availability of agricultural land used for food production should be considered, alongside the other policies in this Framework, when deciding what sites are most appropriate for development.*	Natural England advises NPPF paragraph 181 and Footnote 62 is included and given further consideration.	

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	H68	6.1.25 - Para. 18	Broadly Natural England is satisfied with the approach taken using national data to determine the proposed route at a strategic level.	No further comment	
	H69	6.1.25 - Tab. 25.3	It is unclear whether any desk-based investigation has considered Natural England post 1988 Agricultural Land Classification (ALC) data. We acknowledge there is no data available within the proposed DCO boundary, but there is data available within proximity that would be worth considering for context.	Natural England advises post 1988 ALC data in the vicinity is considered for broader context and to strengthen the assessments.	
	H70	6.1.25- Paras 31, 266, 349 and 397.	In the absence of a detailed, site-specific soil and ALC survey, and if all mapped ALC Grade 3 land is Best and Most Versatile (BMV) (i.e. Subgrade 3a) under a WCS, it is impossible to provide an accurate baseline and demonstrate the likely potential impacts. So, whilst this may make the mitigation precautionary, it means that the Applicant is unable to show how the project avoids impacts to BMV soils nor the design of potential mitigation to safeguard the soil resources. Due to the extent of the temporary disturbance, it is now considered important for a detailed ALC field survey in line with the Agricultural Land Classification of England and Wales: Revised criteria for grading the quality of agricultural land (MAFF, 1988) is undertaken.	Natural England require that land quality and soil resources information is gathered for any land that is disturbed by the development. As per comment H10, surveys should be conducted prior to consent being granted to allow the decision maker to make an informed decision on impacts in line with NPS for Renewables Energy Infrastructure (EN-3). A detailed ALC and soil survey of the agricultural land should be undertaken across the full Study Area to inform the EIA. This should normally be at a detailed level, e.g. one auger boring per hectare, supported by pits dug in each main soil type to confirm the physical characteristics of the full depth of the soil resource, i.e. 1.2 metres. Soil data collected as part of an ALC survey can also be used to inform the soil resource and	

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			The Environmental Statement should quantify the areas of land according to Grades 1 to 5 of the ALC, including differentiating between Grades 3a and 3b. Natural England recognises the Applicant's acknowledgement of the deficiencies within the provisional dataset. However, whilst provisional mapping provides an indication of the ALC grade, and thus the potential impact on BMV agricultural land, it does not provide the soil details required to inform soil management which would feed into the Soil Management Plan (SMP) [APP-271]. There is a risk of soil damage, ALC degradation and long term or permanent loss of BMV from cable installation. Soil will need to be handled according to best practice and reinstated to a high standard to reduce the impacts. The results from a detailed ALC survey would provide soils data to inform a soil management plan for the whole site regardless of whether the use is permanent or temporary in nature. The baseline data presented in each of the EEC tables is an approximation and not based on detailed ALC surveys.	management plan as set out in the Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. This type of survey requires an experienced ALC surveyor, to make the correct professional judgements, where to introduce flexibility. A semi detailed survey may not identify all the BMV land.	
	H71	6.1.25 - Section. 25.3.3.7	According to Natural England data there are pockets of Deep Peat in this area. As above, a detailed survey will identify the presence of	Natural England advises that within the detailed soil survey, ensure a robust assessment on peat is included. As per	

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			Deep Peat or Peaty soils. The Planning Practice Guidance (PPG) for the Natural Environment advises the use of the Defra Code of practice for the sustainable use of soils on construction sites (DEFRA, 2009) to help guide the use and protection of soils on development sites; this includes peat soils as well as other soil types. Given the location of the proposed development on mapped areas of peat, it would be expected for the potential impact of the development on peat to be included in the assessment, including the potential impact on the carbon within the peat as per the IEMA (2022) Guidelines. Excavating peat may alter the hydrological status of the site and surrounding area. As Fenland peat soils may have highly acidic subsoils which can influence the ALC grade by restricting rooting depth and causing a drought limitation, determination of pH should be carried for areas comprising peaty soils to assess the depth(s) at which highly acidic conditions (if any) occur.	comment H10, the soil survey should be conducted prior to consent being granted to allow the decision maker to make an informed decision on impacts in line with NPS for Renewables Energy Infrastructure (EN-3). This should include soil testing for basic soil properties (pH, SOM, and macro-nutrients) and would be expected to be taken at the same time as the ALC and soil survey to provide soil information to inform the habitat and landscaping plans, where appropriate. Soil samples for particle size analysis are recommended to confirm soil textural assessments made in the field, including organic matter content. A full consideration of the peat budget (i.e. if there is any surplus peat) needs to be factored in, including its handling, storage, and restoration. A Peat Management Plan would be key at the application/consenting phase, alongside any compensation restoration.	
	H72	6.1.25 - Para. 253	The temporary displacement of soil during construction as a result of the underground cable installation and temporary haul	Natural England advises degradation or permanent loss of BMV agricultural land should be considered in the ES and	

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			roads/construction compounds can result in permanent land quality change and soil damage if undertaken inappropriately.	associated SMP. This is required for consultees and decision makers to understand the extent (ha) and likely long-term impacts on agricultural land quality (ALC grade).	
	H73	6.1.25 - Table 25.19	We note there is no assessment of the decommissioning process on soils (including BMV land) for the cable route corridor.	Natural England supports the commitment to provide decommissioning plan as part of the DCO submission.	
	H74	6.1.25 - Para. 268 and Tab. 25.21	Standard EIA methodology as presented in the Design Manual for Roads and Bridges (DMRB) LA104 (Highways England, 2020), the ICE EIA handbook and the IEMA 'A new perspective on land and soil in EIA' (Stapleton et. al., 2021) should be followed. However, considering advice within this response on the requirement for detailed surveys, the indication of deep Peaty soils and cumulative local impacts we would ask the Applicant to reconsider the criteria within Table 25.21. The separation of 'high' from 'very high' allows for micro siting of permanent development to lower grade land identified through detailed site surveys, minimising the overall effect the project will have on higher sensitive land.	Natural England advises using a rating of Very High to rate receptor sensitivity. This is to inform placement of permanent infrastructure on lower grade land. This requirement will need to be secured as mitigation measure within the DCO and/or Soil management plan	
	H75	6.1.25 – Paras. 282 & 285	An ALC survey has not been undertaken within the area proposed for the route of trench line for the underground cabling nor the proposed substation location.	Natural England advises a ALC survey is undertaken at the route of trench line for the underground cabling and the proposed substation location. This should be	

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			Additionally, the spatial distribution of ALC grades within the order limits determined from a detailed ALC survey are necessary to inform the reinstatement criteria more generally, which allows the area of each ALC Grade temporarily disturbed to be returned to the same quality as far as practicable to minimise potential loss.	undertaken as part of a comprehensive set of baseline soil and ALC information given that soil disturbance will take place in these areas. Use the data to inform the soil handling and restoration plans and the SMP. As per comment H10, surveys should be conducted prior to consent being granted to allow the decision maker to make an informed decision on impacts in line with NPS for Renewables Energy Infrastructure (EN-3).	
	H76	6.1.25 - Para. 348	It is noted that the proposed operational lifespan is up to 35 years.	Natural England advises the Applicant should provide a firm commitment to decommission the site after 35 years (or sooner if no longer operational), to remove all infrastructure and equipment and to return the land to its original condition and ALC grade. As part of this there should be a commitment to prepare and submit to the planning authority a detailed decommissioning plan to restore the site prior to the end of its operational use, as set out by NPS EN3 (Refer to link https://assets.publishing.service.gov.uk/media/65a7889996a5ec000d731aba/nps-renewable-energy-infrastructure-en3.pdf).	
	H77	6.1.25 - Para. 352	No ALC soil survey information for review of the loss of agricultural land has been provided.	Natural England advises that the ES should present the detailed and semi-detailed ALC survey information. This should include a breakdown of the ALC grades (area, %) in relation to the application site boundary, and	

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				include ALC and soil data for the cable route and areas of permanent infrastructure and habitat enhancement. A breakdown of the proposed site into disturbed and undisturbed land categories should also be included, split by ALC grade, to help illustrate the potential for impact on agricultural land grade. This information would also help inform the scale of mitigation measures required.	
	H78	6.1.25 - Para. 355	In general, it is Natural England's opinion, that it is unlikely it would be possible to remove the topsoil from an area of Grade 1 land and for that land to remain Grade 1, nor is it likely that receiving land could be upgraded to Grade 1. Soil grading applies to the whole soil profile, both topsoil and subsoil layers, in its given location, and is influenced by a wide range of factors not just the type of topsoil. However, if there is anticipated surplus topsoil as a result of development on a site, it is beneficial to consider its potential re-use as early in the process as possible. The changes to the soil profile at the donor site and the receptor site would need to be understood, including the change to soil profile properties from the baseline and the implications for the ALC grades at both locations.	Natural England advises that the Applicant should commit to reviewing the use of surplus topsoil early in the process. A full understanding of the soil profile at donor and receptor sites is necessary. We advise that it is unlikely that the movement of Grade 1 soil will upgrade the recipient land.	

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	H79	6.1.25, Para. 357	The ALC system is a national system, therefore the significance should also be determined in the national context. However cumulative impacts should consider all development that will result in or could lead to a loss of 20ha BMV soils.	Natural England advises the inclusion of an assessment at the national scale.	
	H80	6.1.25, Tab. 25.24	It is unclear whether agricultural productivity has been assessed correctly.	Natural England requires further justification as to why agricultural productivity should not be assessed cumulatively for each project phase.	
	H81	6.1.25, Para. 370	Natural England supports the use of the planning inspectorate's advice note 17.	Natural England advises that this should be considered alongside the IEMA guidelines "A New Perspective on Land and Soils in EIA" (February 2022) methodology for cumulative effects and the application updated accordingly.	
	H82	6.1.25, Para. 396	Natural England notes there are significant gaps in the figures presented in both in this paragraph the table beforehand (25.27).	Natural England advises the Applicant ensures all other projects in the area are considered for cumulative BMV loss.	
	H83	8.1.3	We welcome the use of a Soil Management Plan (SMP) to ensure BMV agricultural land and soil function are protected during and restored after construction.	All agreed measures in the Outline SMP should be secured by appropriate requirement within the DCO via the SMP.	
	H84	8.1.3, Section 1.2 to 1.4 and Section 2.4	We welcome use of the Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009) to guide soil management during construction. Alongside this there should also be a commitment for 'best and most versatile'	A detailed ALC and soil survey of agricultural land should be undertaken across the full Study Area to inform the EIA. As per comment H10, these surveys should be conducted prior to consent being granted to allow the decision maker to make an informed decision on impacts in line with NPS for Renewables	

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			(BMV) agricultural land temporality required for the development to be returned to its original ALC grade. This includes areas such as field scale ecological mitigation areas and borrow pits where reinstatement to the physical characteristics of 'best and most versatile' quality may also be required.	Energy Infrastructure (EN-3). These surveys should normally be at a detailed level, e.g. one auger boring per hectare, supported by pits dug in each main soil types to confirm the physical characteristics of the full depth of the soil resource. Soil data collected as part of an ALC survey can also be used to inform the soil resource and management plan as set out in the Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (publishing.service.gov.uk).	
	H85	8.1.3, Sections 2.2 to 2.3 and Para. 93	Natural England supports the commitment to have soil work supervised. Given the very high quality of the land this should include supervision of soil handling by a competent soil specialist.	Natural England advises that this should be secured in the OLEM and Soil Management plan. Natural England will provide no further comment on the issue of soil supervision during examination.	
	H86	8.1.3, Sect. 5.4 and Section 5.10 (Para .87)	Whilst the commitment to handle soils only when in a dry and friable condition is welcome, soil handling should normally be avoided during October to March inclusive, irrespective of soil moisture conditions, because it will generally not be possible to establish green cover over winter to help dry out soils and protect them from erosion. Soils should only be handled in a dry and friable condition.	Natural England advises avoiding construction work during October to March inclusive. A field suitable method for assessing whether soils are in a dry and friable condition based on plastic limits set out in Part One (Explanatory Note 4 – Table 4.2 provided below in Annex 1) of the Institute of Quarrying's Good Practice Guide for Handling Soils in Mineral Working, and this approach together with the associated rainfall protocols should be adopted and noted within the SMP [APP-271].	

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	H87	8.1.3, Section. 5.6	Natural England advise this paragraph is considered further and potentially re-written in order of proposed works. i.e. pre-construction – construction – post-construction /operation/maintenance – decommissioning.	Consider drainage in terms of pre-construction – construction – post-construction /operation/maintenance – decommissioning.	
	H88	8.1.3 Para. 67	It is stated that "*stripping will be carried out when soil is reasonably dry and friable*".	We advise that the word "*reasonably*" is removed from this paragraph.	
	H89	8.1.3, Para. 68	The machinery to be used will need to be specified. This should accord with best practice as set out in the Code of Construction Practice for the Sustainable Use of Soils on Construction Sites (DEFRA, 2009), namely using excavators and dump trucks. Use of bulldozers should not be permitted for any subsoils being returned to best and most versatile quality due to the high risk of soil compaction due to repeated trafficking.	Natural England advises machinery to be used is outlined for a full assessment of impacts within the Outline SMP [APP-271].	
	H90	8.1.3, Sect. 5.8	In all cases, topsoil and subsoil must be separately handled to avoid mixing. Where soils are stored, different soil types will need to be kept separated in the storage bunds. The Outline SMP [APP-271] notes that subsoil and topsoil can be stored together. This is not the case.	Natural England advises that the details of soil handling should be included within a Restoration Plan, accompanied by a detailed soil balance. The Outline SMP [APP-271] should note that topsoil and subsoil are to be stored separately.	
	H91	8.1.3, Para. 82	Mowing and stripping should not be carried out during wetter periods when soils moisture content exceeds their lower plastic limit. Tracking of heavy machinery for maintenance	Natural England advises a commitment is added to the Outline OSMP [APP-271] avoid mowing and stripping in wet conditions.	

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			interventions will increase the risk of soil compaction.		
	H92	8.1.3, Para. 88	The depth of decompaction should reflect the depth of compaction.	Natural England advises that the Outline SMP [APP-271] should include a measure to ensure the depth of decompaction reflects the depth of compaction and reference the guidance used. Additionally, where compaction is likely to take place further consideration should be given to providing a decompaction strategy to maximise the effectiveness of decompaction methods. Further guidance on decompaction strategies may be found here; IQ Soil Guidance Sheet O.pdf (hubspotusercontent30.net)	
	H93	8.1.3, Para 89	No data has been provided regarding current soil profiles. We are, therefore, unsure which parameters will be used to assess the specifications for reinstated soil profiles.	Natural England advises that further information on the parameters to be used for restoration specifications of soil profiles should be provided. Details should include the target soil profiles to be reinstated (soil volumes, soil textures, soil depth, stone content, likely depth to slowly permeable layers, moisture balances etc) and their pre development ALC grade where appropriate as determined by detailed ALC survey.	
	H94	6.1.25. Section 21.9.1.2	No ancient or veteran trees were recorded within the Order Limits. However, 12 trees were not subject to detailed assessment.	For any ancient or veteran trees impacted by the Project, Natural England's standing advice should be referred to and commitments to mitigate impacts included within the OLEM.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation.**	**Risk (RAG)**
Ancient Woodland and Ancient/Veteran Trees	H95	6.1.25, Para. 313	The King Charles III England Coast Path will not be impacted due to the trenchless drilling works at Landfall.	Natural England will provide no further comment on this issue during examinations	
Connecting people with nature (National Trails, open access land and England Coast Path)	H96	6.1.25, Paras. 311 and 312	Land use impacts on linear recreational routes have been assessed and deemed likely. Embedded mitigation includes the use of a Public Access Management Plan (PAMP).	Natural England advises the PAMP is secured by an appropriate requirement within the DCO, with an Outline PAMP provided into examination.	

References

Department for Environment, Food and Rural Affairs (2009), Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. DEFRA, London, March 2011, accessed at https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites on 29 May 2024.

Department of the Environment, Transport and the Regions (DETR) (2000), Controlling and mitigating the environmental effects of minerals extraction in England. Mineral Planning Guidance Note 11, consultation paper. DETR, London. Cited in Technical Guidance Document (Monitoring) M17 – Environment Agency March 2004.

Highways England (2020), Design Manual for Roads and Bridges LA104 Environmental Assessment and Monitoring, Highways England, Birmingham, August 2020.

Humphries, R. N (2021) Good Practice Guide for Handling Soils in Mineral Workings, Institute of Quarrying, Nottingham, July 2021

Ministry for Agriculture, Fisheries and Food (1988), Agricultural Land Classification of England and Wales: Revised Criteria for Grading the Quality of Agricultural Land (ALC011), Natural England October 2015, accessed at https://publications.naturalengland.org.uk/publication/6257050620264448 on 29 May 2024.

Stapleton, C., Reed, E., Gemmell, L., Adams, K. (eds) (2021) IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment

Annex 1 – Table 4.2, Explanatory Note 4 taken from The Institute of Quarrying's Good Practice for Handling Soils in Mineral Working.

Closed season and definition of 'dry and friable'

A 'closed season' for handling soil shall be applied between the months of October and March inclusive. At all other times soils shall only be stripped and handled when they are in a 'dry and friable' condition. Broadly speaking, a soil is 'dry and friable' when it breaks and shatters when disturbed rather than smears and deforms. The following tests describe methods to objectively differentiate between these two conditions.

Soil Tests

Soil tests are to be undertaken in the field. Samples shall be taken from at least five locations in the soil handling area. The tests shall include visual examination of the soil and physical assessment of soil consistency.

Examination Test

- If the soil is wet, films of water are visible on the surface of soil particles or aggregates (e.g. clods or peds) and/or when a clod or ped is squeezed in the hand it readily deforms into a cohesive 'ball' – NO HANDLING should take place.
- If the sample is moist (i.e. there is a slight dampness when squeezed in the hand) but it does not significantly change colour (darken) on further wetting, and clods break up/crumble readily when squeezed in the hand rather than forming into a ball – HANDLING OK.
- If the sample is dry, it looks dry and changes colour (darkens) if water is added, and it is brittle – HANDLING OK.

Consistency Test

First Test – Attempt to mould soil sample into a ball by hand:

- Impossible because soil is too dry and hard – HANDLING OK
- Impossible because the soil is too loose and dry – HANDLING OK
- Impossible because the soil is too loose and wet – NO HANDLING
- Possible – GO TO NEXT TEST

Second Test – Attempt to roll ball into a 3mm diameter thread by hand:

- Impossible because soil crumbles or collapses – HANDLING OK
- Possible – NO HANDLING

NB: It is impossible to roll most coarse loamy and sandy soils into a thread even when they are wet. For these soils, the result of the Examination test alone must be adhered to.

Weather and ground conditions

Soil handling shall cease during rain, sleet or snow. The following criteria shall be applied:

- In light drizzle soil handling may continue for up to 4 hours unless the soils are already too moist
- In light rain soil handling must cease after 15 minutes
- In heavy rain and intense showers, handling shall cease immediately.
- After rain has ceased, soil tests shall be applied to determine when handling may restart, provided that the ground is free from puddles.

THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

Appendix I to the Relevant Written Representations of Natural England

Onshore Ornithology

For:

The construction and operation of the Outer Dowsing Offshore Wind Farm located approximately 54km east of the Lincolnshire Coast in the Southern North Sea.

Planning Inspectorate Reference EN010130

13th June 2024

Appendix I – Onshore Ornithology

In formulating these comments, the following documents have been considered:

- [APP-005] 2.1 Onshore Works Plans
- [APP-007] 2.3 Onshore Location Plan
- [APP-019] 2.15 Statutory and Non-Statutory Nature Conservation Sites Onshore
- [APP-058] 6.1.3 Chapter 3 Project Description
- [APP-089] 6.2.3 Chapter 3 Project Description Figures
- [APP-077] 6.1.22 Chapter 22 Onshore Ornithology
- [APP-113] 6.2.22 Chapter 22 Onshore Ornithology Figures
- [APP-200] 6.3.22.1 Chapter 22 Appendix 1 Ornithology Desk Study
- [APP-201] 6.3.22.2 Chapter 22 Appendix 2 CONFIDENTIAL Ornithology Desk Study Annex
- [APP-202] 6.3.22.3 Chapter 22 Appendix 3 Winter Bird Survey 2022 – 2023 Appendix Part 1
- [APP-XXX] 6.3.22.3 Chapter 22 Appendix 3 Winter Bird Survey 2022 – 2023 Appendix Part 2
- [APP-203] 6.3.22.3 Chapter 22 Appendix 3 Winter Bird Survey 2022 – 2023 Appendix Part 3
- [APP-204] 6.3.22.3 Chapter 22 Appendix 3 Winter Bird Survey 2022 – 2023 Appendix Part 4
- [APP-205] 6.3.22.4 Chapter 22 Appendix 4 Breeding Bird Survey 2023
- [APP-206] 6.3.22.5 Chapter 22 Appendix 5 CONFIDENTIAL Breeding Bird Survey 2023
- [APP-207] 6.3.22.6 Chapter 22 Appendix 6 Bird Species List
- [APP-208] 6.3.22.7 Chapter 22 Appendix 7 Winter Bird Survey 2023-2024 Preliminary Summary
- [APP-236] 7.1 Report to Inform Appropriate Assessment [CONFIDENTIAL]
- [APP-239] 7.2 Habitats Regulations Assessment Screening Report
- [APP-240] 7.3 Report to Inform Appropriate Assessment Screening Matrices
- [APP-241] 7.4 Report to Inform Appropriate Assessment Integrity Matrices
- [APP-284] 8.10 Outline Landscape and Ecological Management Strategy (OLEMS)
- [APP-287] 8.13 Schedule of Mitigation

1. Natural England's Advice and Recommendations

A summary of Natural England's key concerns in relation to the thematic receptor of onshore ornithology is set out in Table 1. Our detailed advice and recommendations are presented in further detail in Table 2. The advice presented in this appendix should be read in conjunction with the relevant sections of our advice on onshore ecology (Appendix H). A glossary of acronyms and abbreviations is provided below.

Glossary of Acronyms and Abbreviations

AEoI	Adverse Effect on Integrity
DCO	Development Consent Order
ES	Environmental Statement
EIA	Environmental Impact Assessment
ECC	Export Cable Corridor
ExA	Examining Authority
HRA	Habitats Regulations Assessment
NNC SPA	North Norfolk Coast Special Protected Area
ODOW	Outer Dowsing Offshore Wind
ORCP	Offshore Reactive Compensation Platform
OWF	Offshore Wind Farm
Ramsar	Wetland sites of International Importance Designated under the Ramsar Convention
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SPA	Special Protection Area
WCS	Worst Case Scenario
WNNC	Wash and North Norfolk Coast

Table 1 Summary of Key Issues – Onshore Ornithology

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
I1	A preliminary report of the second year overwintering survey [APP-208], presenting a partial second year data set was provided separately to the Environmental Impact Assessment (EIA) [APP-077]. The preliminary report shows abundance data for species of interest were highly variable compared to the first year. Until two years of baseline characterisation data are considered within both the EIA and the Report to Inform the Appropriate Assessment (RIAA), Natural England cannot draw any conclusions on the proposed impacts to protected passage and overwintering bird species. This includes being able to assess the suitability of any mitigation measures to species belonging to designated sites using functionally linked land (FLL). Of particular concern are Annex I species, dark belied brent geese (*Branta bernicla)*, pink-footed geese (*Anser brachyrhynchus*), and golden Plover (*Pluvialis apricaria*) as well as designated lapwing (*Vanellus vanellus*) and curlew (*Numenius arquata*).	Natural England advises that the Applicant submits an amended EIA and RIAA presenting their conclusions based on the completed two years of characterisation surveys. Without robust data collected over two years, it is also not possible to determine whether proposed mitigation measures would be effective and therefore any mitigation outlined within plans and named documents may also require updating.	
I2	Natural England is concerned that discussion of cropping patterns and land use within the order limits is limited to a single unreferenced paragraph within the EIA [APP-077]. Conclusions for project impacts to land functionally linked to features of protected sites are reliant on the availability of alternative foraging habitat within the foraging range of species which is not being impacted by the project.	Natural England advises that much greater detail of data and discussion on potential cropping management practices are presented within the EIA. This should include temporal and spatial extent of cropping patterns of every arable field where foraging range of species of interest overlap with the order limits and suitable buffer. As cropping practices rotate annually, multi-year data are also required to understand general trends in the area.	
I3	Natural England is concerned that mitigation for Annex I pink-footed geese is covered under the generic mitigation for over wintering birds utilising land which is functionally linked to designated sites [APP-284]. The Applicant has considered that by applying the mitigation measures proposed there will be no impact to the Annex I pink-footed geese feature of The Wash Special Protection Area (SPA).	Following assessment updates, Natural England advises that the Applicant sets out more detailed project specific mitigation measures for pink-footed geese or considers a strategic approach to mitigation to reduce any impact it may have on suitable foraging habitat for this species.	

NE Ref	Summary of Key Concerns	Natural England's Recommendations to Resolve Issues.	Risk
	As above, considering the incomplete characterisation surveys used for assessment, Natural England is unable to rule out an impact to this species or that the currently proposed project mitigation strategies would be effective.	Natural England advises the Applicant provides a separate Outline Annex I bird species mitigation plan to include the level of detail required and this is secured within the Development Consent Order. Please see Natural England's Guidance in Annex 1 on measures which Natural England deem appropriate for pink-footed geese.	
I4	Natural England notes that the Applicant has used modelling to establish that noise decibel threshold levels would not be met within the boundary of any designated site, except for a small portion of The Wash SPA where it has applied additional mitigation measures. We are concerned the Applicant has not assessed whether land already established as functionally linked for designated overwintering bird species would also be within the decibel levels exceedance threshold.	Natural England advises that designated site impact risk zones (IRZs) which can be found on DERFA's Magic Maps Magic Map Application (defra.gov.uk) should be used to establish where already known functionally linked land occurs within or in close proximity to the order limits. The Applicant should then assess whether this land would be subject to decibel levels greater than the disturbance threshold and adjust the EIA and RIAA chapters accordingly.	
I5	The project has adopted mitigation in the form of localised working and reinstatement programmes to reduce impacts of disturbance and temporary habitat loss on land functionally linked to features of protected sites, in particular The Wash SPA and Ramsar. Natural England is concerned these measures have been applied at a high level across the Export Cable Corridor (ECC) without considering specific designated species distribution patterns, species specific disturbance distances and preferred foraging habitat distribution within the route.	Whilst Natural England welcomes the commitment to these mitigation measures, Natural England advises further information on the mitigation measures in the context of these important factors should be included so that we and the Examining Authority can have confidence that proposed mitigation measures will be effective.	

Table 2 Natural England's Detailed Advice and Recommendations – Onshore Ornithology

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Baseline Characterisation - Document(s) Used: [APP-077] 66.1.22 Chapter 22 Onshore Ornithology [APP-082] 6.1.26 Chapter 26 Onshore Noise and Vibration [APP-202] 6.3.22.3 Chapter 22 Appendix 3 Winter Bird Survey 2022 – 2023 Appendix Part 1 [APP-XXX] 6.3.22.3 Chapter 22 Appendix 3 Winter Bird Survey 2022 – 2023 Appendix Part 2 [APP-203] 6.3.22.3 Chapter 22 Appendix 3 Winter Bird Survey 2022 – 2023 Appendix Part 3 [APP-204] 6.3.22.3 Chapter 22 Appendix 3 Winter Bird Survey 2022 – 2023 Appendix Part 4 [APP-208] 6.3.22.7 Chapter 22 Appendix 7 Winter Bird Survey 2023-2024 Preliminary Summary [APP-236] 7.1 Report to Inform Appropriate Assessment					
Survey Data Acquisition	I6	6.3.22.3	At this stage, Natural England has not identified any significant issues with data acquisition beyond the absence of characterisation data for overwintering bird species and crop rotation patterns within the order limits.	Natural England's advice on these matters is covered in NE Refs I7 and I8.	
Data Gaps	I7	6.1.22 & 6.3.22.7	The Applicant has presented a single year of baseline characterisation survey data for overwintering bird species within the onshore export cable corridor (ECC) route. This forms the basis of the impact assessment for both the Environmental Impact Assessment (EIA) and the Report to Inform Appropriate Assessment (RIAA). We note that acquisition of a second year of data has been completed but this was not in time to be included within the reports to inform the EIA and HRA assessments. The Applicant has provided a preliminary summary [APP-208] of the	As per Natural England's Offshore Wind Environmental Assessments: Best Practice Advice for Evidence and Data Standards (Parker et. al., 2022), two years of survey data are required to produce a robust characterisation of bird distribution against which impacts can be assessed. We advise the Applicant presents the review and analysis of two complete years of survey data within their conclusions before Natural England can form a position on the proposed impacts of the development.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			partial data set for the second year of survey results. An initial review has highlighted significant in year differences particularly in the abundances of species which are interest features of The Wash SPA/Ramsar/SSSI, Gibraltar Point Ramsar and Humber Estuary SPA and Ramsar.		
	I8	6.1.22 - Section 22.4.3., Para. 92.	There is a requirement for multiple years of data to inform crop rotation and land use patterns and the area of potential foraging habitat temporarily lost on land considered functionally linked to interest features of designated sites. From the information presented, Natural England cannot have certainty that arable land used by Annex I birds for foraging is not being affected. The Applicant relies on these data to rule out impacts to land used by designated features and which is functionally linked to coastal SPAs.	Natural England advises the Applicant provides a temporal and spatial scale for their crop rotation data within the order limits and suitable buffer. These data can then be presented in the context of the significance and scale of the impact that the project may have on arable land within the foraging range of overwintering bird species which are features of designated sites.	
Analysis, Modelling and Reporting	I9	6.1.22 - Section. 22.4.3., Para. 92.	Discussion of crop rotation within the order limits and the wider area is limited to one paragraph and unreferenced.	Natural England advises that more detail is required on crop rotations within in the order limits, including extents and distributions of arable land acting as key foraging habitat. The distribution of designated species, as identified from baseline characterisation survey data, found utilising arable land should also be included. Without this information, it is not possible for Natural	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
				England to agree with conclusions on the project impacts to land functionally linked to designated sites where species are known to use arable land.	
	I10	6.1.26	The method for assessing potential noise disturbance responses of designated species focuses on minimum compliance thresholds rather than specific species disturbance responses.	Natural England advises the Applicant should assess the disturbance response of each designated bird species specifically. Please see Appendix H of Natural England's Relevant Representations response for further information.	
Environmental Impact Assessment - Documents Used: [APP-077] 6.1.22 Chapter 22 Onshore Ornithology [APP-284] 8.10 Outline Landscape and Ecological Management Strategy (OLEMS)					
	I11	6.1.22 - Para. 205	The noise impact assessment as presented within EIA chapter on noise and vibration stated that a threshold levels of 55db LAeq would not be met within the boundary of any designated site except for a small portion of the Wash SPA. Natural England advises that Impact Risk Zones (IRZs), available on Defra's Magic Maps Magic Map Application (defra.gov.uk), can be used to review designated features of designated sites, in relation to a specific development activity. IRZs include key areas of functionally linked land (FLL). It is important to distinguish which sections of the onshore cable corridor (ECC) are already established as potential sites for foraging	Natural England advises the Applicant ensures the IRZs are used to flag any sections of the Project that have potential to disturb the designated features of the National Sites Network from construction, construction traffic and decommissioning noise pollution. This includes FLL for interest features from designated sites.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			activity and that the established noise thresholds do not exceed 55db LAeq within these areas in addition.		
Methodology	I12	6.1.22 - Section. 22.7.3. Paras 121 and 122	Natural England notes the different approach of assessment of significance of effects for onshore ornithology compared to assessment for receptors of other thematic areas in the Application. We welcome this approach over the use of matrices.	For awareness of the Planning Inspectorate, the EIA assessment methodology for onshore ornithology differs to that of the wider project.	
Have the impacts been avoided/reduced by the use of appropriate mitigation?	I13	6.1.22 - Section 22.8.1 Para. 131.	Where the export cable corridor unavoidably crosses sensitive environmental habitats which support protected species, the project is heavily reliant on the use of trenchless techniques to avoid impacts. However, Natural England is concerned that potential limitations of this mitigation measure have not be thoroughly explored.	Natural England advises that further evidence is required to demonstrate that trenchless crossing would be successful in each of the proposed locations. And, where sufficient confidence in the success of the measures cannot be established, alternative mitigation measures are presented.	
	I14	8.10 - Section. 3.7.5, Para. 168	The Applicant has stated that all current mitigation measures for overwintering bird species have been included within their Outline Landscape and Environmental Management Strategy (OLEMS) document and that these measures are sufficient to reduce impacts to an acceptable level within the EIA and Habitat Regulations Assessment (HRA). Therefore, in the Applicant's opinion, there is no requirement for a separate outline Annex I	Natural England continues to advise that a separate outline overwintering Annex I bird species mitigation management plan document is produced which incorporates the additional detail Natural England has requested. The mitigation management plan should be submitted into examination to be agreed as part of the consent and secured within the DCO. This should include the additional information on the project's current mitigation strategy as well as further	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			species (including pink-footed goose) management plan. As mitigation measures are likely to be different for pink-footed geese, Natural England requested a separate Annex I bird species management Plan during consultations as part of pre-application process.	measures to mitigate impacts to Annex I bird species using functionally linked land. Further detail on Natural England's suggestions for these additional measures is provided within Annex 1 (Natural England Best Practice Advice for North Norfolk Coast SPA pink-footed Geese Mitigation April 2024). During the consenting phase the Applicant should consider whether these measures are applicable to its development once an impact assessment has been made against a two year baseline characterisation data set.	
Assessment Conclusions	I15	6.3.22.7 - Section 22.722.4 onwards.	Natural England is unable to agree with the conclusions stated within the EIA until 2 years of baseline characterisation data have been presented against which to judge the proposed impacts. From review of the partial data set provided within the preliminary winter bird survey 2023/24 summary document, this is particularly pertinent for pink-footed geese, lapwing, golden plover and curlew where the species abundances look to have increased significantly and for dark bellied brent geese where the species distribution has altered.	Natural England advises the Applicant presents the complete two years of data within their EIA to understand interannual variability and to fully characterise bird usage along the ECC.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
Habitats Regulations Assessment – Documents Used: [APP-208] 6.3.22.7 Chapter 22 Appendix 7 Winter Bird Survey 2023-2024 Preliminary Summary [APP-236] 7.1 Report to inform appropriate assessment. [APP-284] 8.10 Outline Landscape and Ecological Management Strategy (OLEMS) [APP-287] 8.13 Schedule of Mitigation.					
Have the impacts been avoided/reduced by the use of appropriate mitigation?	I16	7.1 - Table 6.1	The proposal for minimising temporary loss of functionally linked land through reinstatement of topsoil and cover crop requires further detail. The proposal uses the phrase "*Where practical*" without further qualification and the use of a *"cover crop*" without providing further detail on what that cover crop may be and whether this would seek to provide the same ecological functionality as the land that has been temporarily lost.	Natural England advises greater detail is provided on reinstatement methods employed to mitigate temporary loss of land functionally linked to designated sites.	
	I17	7.1 - Section 9.5.3.1. Para. 1111. & Section 9.5.3.1. Para. 1304.	Natural England advises we are currently unable to provide our position on the impact assessment conclusion of No AEoI for the impacts of temporary habitat loss and disturbance to land functionally linked to designated populations of pink-footed geese. The underlying baseline characterisation data used to draw the conclusion were based on a single year of overwintering bird survey results. Whilst a second year of data has been collected, it was not in time to be considered in the RIAA. Preliminary observations on the second	Natural England advises two years of overwintering bird survey data are required to provide a robust baseline against which to assess project impacts. Natural England has provided our generic advice on mitigation measures for pink-footed geese as an Annex to this submission (Annex 1). A suite of potential suitable mitigation measures are presented within this note. We advise that the Applicant adopts suitable measures to reduce their impact.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			year data suggest variations on abundances observed within the order limits. Further to this, Natural England advises that additional mitigation measures proposed by the Applicant to mitigate project impacts of habitat functionally linked to The Wash SPA are generic and do not incorporate details of site specific data. Natural England requires that robust pink-footed goose population extent and distributions, as well as information on cropping rotations within the impacted area are incorporated into a mitigation management plan or the adoption of strategic supplementary feeding strategies for the plan to be considered robust. We do not have confidence that the generic mitigation measures as presented are suitable for reducing impacts to this species.	Natural England also continues to advise that mitigations measures are secured within a separate specific Annex I bird species mitigation management plan, submitted into examination, which addresses the specific needs of multiple Annex I species rather than incorporate generic advice into an Outline Land and Environmental Management Strategy (OLEMS).	
	I18	7.1 - Section 9.5.3.2. Para. 1193	The proposed additional mitigation measures to reduce the potential noise disturbance at the landfall location suggests construction of the mitigation bund in March, August, or September.	Natural England advises that March is also avoided as this month overlaps with known presence of designated passage and overwintering bird species.	
	I19	7.1 - Section 9.5.3.2.,	Natural England agrees the proposed mitigation measures would reduce project impacts to foraging brent geese species in the prominent locations identified from the	The Applicant should ensure that two years of characterisation survey data are used at the time of consent to ensure the greatest likelihood of preferred brent geese habitat	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
		Para. 1287	1 year of baseline characterisation survey. However, 2 years of survey data are required to present a sufficient baseline characterisation to understand preferred species distribution within the order limits, and ensure that the mitigation measures are implemented in the appropriate areas.	within the export cable corridor are under mitigation measures. Would also expect for this species and all other Annex I birds that a pre-construction survey is undertaken to ensure that the mitigation measures remain fit for purpose. This should be secured in the In Principle Monitoring Plan.	
	I20	8.13	An update to the 8.13 Schedule of Mitigation [APP-287] is required to reflect the advice that Natural England have provided in this response.	In light of the comments above on mitigation, please amend the 8.13 Schedule of Mitigation [APP287] document to address our advice.	
Assessment Conclusions	I21	7.1 - Section 9.5.3.1, Para. 1100 & 1111	The impact pathway of temporary habitat loss for dark bellied brent geese has been ruled out on the basis that the amount of land subject to temporary habitat loss in the surrounds of the river Haven is 0.05km^2 (5ha) and the availability of alternative foraging habitats in the wider area. Data collected as part of the baseline characterisation survey has suggested that this area is utilised by the dark belied brent geese for foraging activity. This species has a restore target set for populations connected to the Wash SPA. The impact pathway of temporary habitat loss from construction activities has been	Natural England advises that further site specific evidence on suitable alternative foraging habitat for dark bellied brent geese should be presented to corroborate the conclusions of No AEOI. Please see comment NE Ref I8. Natural England requires the reassessment of the pink-footed geese impact pathway, by utilising two years of data for a robust conclusion to be drawn. Natural England cannot comment on the conclusion until this has been completed. Natural England further advises that impact of temporary habitat loss has been ruled out based on alternative foraging habitat. The Applicant should also present further specific	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			ruled out at Appropriate Assessment stage for pink-footed geese. This conclusion is based on only a single year of monitoring data. However, the preliminary summary of the second year of baseline characterisation survey data suggests a significant increases in abundance data for this species within the order limits.	evidence on the availability of alternative foraging sites within the foraging range (see comment I8). Natural England further advises that upon inclusion of these data into the impact assessment, additional mitigation proposals may be required. Examples of mitigation adopted by other projects is included within Annex 1 – Natural England's best practice advice on pink-footed geese.	
	I22	7.1 - Section 9.5.3.1, Para. 1038	Conclusions on temporary habitat loss considered no AEOI for Lapwing due to the <40% of arable fields which are being subject to temporary habitat loss. Natural England notes that this is based upon one year of survey data (peak flock count of 400). The Preliminary summary of the second year data suggests that greater abundances were noted in the second year of surveys. The peak flock count for the second year of survey is much higher (c. 2000) with multiple visits where flock count was 1000 or greater.	Natural England advises the Applicant should demonstrate that these conclusions remain valid considering the second year data which shows much higher abundances of this species identified along the onshore ECC route.	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
	I23	7.1 - Section 9.5.3.1., Para. 1047	The conclusion of No AEoI from the impact of temporary habitat loss utilises a summary of "*generally 50% or less*" of arable fields, where golden plover were identified in the first year survey, would be subject to temporary habitat loss. Natural England notes that, whilst this statement is true, of the twelve arable fields where this species was recorded in the first year survey, five would be subject to a loss of 50% or greater.	Considering the second year of baseline characterisation data which shows a general trend of greater abundances of individuals within flocks compared to the first year, Natural England advises that this conclusion is reviewed and justified with a full baseline characterisation data set.	
	I24	7.1 - Section 9.5.3.1., Para. 1077	The conclusion on temporary habitat loss for curlew relies on the same evidence as those drawn for lapwing.	Natural England's advice and recommendation on lapwing above (NE Comment: I22) is also relevant to populations of curlew.	
	I25	7.1 - Section 9.5.3.2., Para. 1216	The Applicant has proposed additional mitigation measures in the form of localised working to reduce the impact of disturbance on overwintering populations of lapwing and to support a conclusion of No AEoI for this designated feature of The Wash Ramsar site. The mitigation proposal suggests discrete localised work areas which will occupy no more than 1.4% of the onshore cable corridor during the overwintering period.	Natural England welcomes the commitment to localised working and to working on 1.4% of the onshore cable corridor at any one time during the overwintering period. The mitigation measure needs to provide further clarity on the factors affecting localised population distributions of this species to ensure Natural England can have confidence that mitigation measures would be effective. In addition, the Applicant should state a distance at which discrete sites should be separated from each other to avoid aggregating a larger disturbance effect	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
				between disparate sites. This distance should be based upon scientifically defined disturbance distances. Without this detail. Natural England cannot agree with the conclusion of No AEOI for the Wash Ramsar of which this species is designated.	
	I26	7.1 - Section 9.5.3.2., Para. 1234	The conclusion of No AEoI from temporary disturbance due to construction activity to populations of golden plover, which are designated interest features of the Humber Estuary SPA, The Wash Ramsar and part of The Wash SPA assemblage, is based upon 1 year of survey data. The preliminary second year survey report suggests that abundances of this species were higher in the second year. The conclusion also draws upon the comparatively lower numbers of golden plover compared to the numbers of lapwing observed.	Natural England advises that assessment of impact should be based upon two years of baseline characterisation data. The data baseline should then be set against population trends of the species and the conservation objectives of the sites where they are designated.	
	I27	7.1 - Section 9.5.3.2. Para. 1300	A conclusion of No AEoI for the impact of temporary disturbance to populations of designated pink-footed geese using functionally linked land is reliant on one year of baseline characterisation data and the availability of alternative foraging habitat.	Natural England advises that further information is required for us to understand the impacts the project may have on this species and its use of arable land (please see comments on incomplete baseline characterisation data and cropping patterns above).	

Natural England's Key Considerations	Natural England's Advice				
Relevant and Written Representations	**NE Ref**	**Ref**	**Comment**	**Recommendation**	**Risk (RAG)**
			The conclusion also draws on discussions relevant to the Sheringham and Dudgeon Extension Project which focussed on sugar beet as a preferred foraging crop as it is abundantly farmed in the area local to that development. As acknowledged within Para. 1297, this species is reliant on a variety of arable habitats for foraging including grass, grain, vegetables, and potatoes.	To have confidence in the impact conclusion, Natural England would need to understand the abundance and distribution of the population from 2 years of baseline characterisation data within the order limits. This information should be cross referenced against the species behaviour and type of arable land these populations were identified within. Using this information, the Applicant can demonstrate how much of this land could be subject to temporary disturbance within the foraging range and subsequently whether an impact would require mitigating.	

Annex 1 - Natural England's best practice advice on North Norfolk Coast SPA Pink-Footed Geese – April 2024

Natural England's best practice advice on North Norfolk Coast SPA Pink Footed Geese – April 2024

Foreword

This best practice advice is provided to help support sustainable development within North Norfolk and address potential impacts to Annex I Pink Footed Geese. When using this advice to develop and implement goose management plans it should be recognised that environmental factors which may also be influencing goose energetics and fecundity will also need to be taken into consideration. It is Natural England's view that it is possible to extrapolate the principles of this advice in regard to avoidance and supplementary feeding as mitigation for sustainable development projects impacting on Annex I geese at other locations.

North Norfolk Coast SPA Pink-footed geese: Pink-footed geese are attracted to Norfolk by the safe roosting locations within designated sites during the non-breeding season. Key roosting locations can be found at Snettisham, Scolt Head Island and Holkham. From these safe roost sites, geese move onto surrounding farmland where they preferentially feed on post-harvest sugar beet. Individual fields can contain many thousands of feeding birds. Foraging occurs both diurnally and, when conditions allow, nocturnally (geese rely on eyesight to detect food on moonlit nights). Previously, their observed average foraging range was 10.4km from overnight roosts (Gill et al. 1996).

Changes to agricultural practice: As highlighted on BBC ONE Countryfile programme 'Holkham' which was aired on 20th February 2022 there has been a recent change in growing practices of Norfolk farmers away from sugar beet ['beet']. Traditionally, the tops of tubers were left in the field post-harvest, providing a highly nutritious foraging resource for the

internationally important goose population. The geese did not cause any significant damage and merely recycled nutrients back into the soil.

However, in the last few years there have been significant changes to sugar beet production. Firstly, sugar beet production is less profitable, so the area of sugar beet production has declined. Secondly, changes to the way beets are processed has enabled sugar to be extracted from a greater proportion of the tuber. The cut height has been increased, consequently leaving a smaller top and less unharvested remains for foraging geese. Finally, drier winters have enabled seed drilling immediately post-harvest. Rather than sugar beet remains being left for several weeks, they can be ploughed straight back into the soil and lost to foraging geese as the field is immediately recultivated. Without sugar beet to feed on, geese can be attracted to areas of autumn / winter sown crops. Unlike feeding on waste sugar beet, this results in agricultural damage resulting in conflict with farmers.

Changes in goose behaviour: Anecdotally, there are fewer geese present in Norfolk for a shorter proportion of the winter and, whilst present, they are more mobile as flocks are repeatedly moved on whilst searching for undisturbed feeding sites. Geese from north Norfolk are now regularly observed making foraging flights to other parts of the county, more than 20km to the east of roost site at Cley, with PFGs also being regularly observed foraging within adjoining farmland to the north of The Wash in Lincolnshire and other parts of GB where they would not typically be reported. These negative changes in goose behaviours are of significant concern to local residents, farm and estate managers, reserve staff and nature conservationists.

Degraded baseline: Prior to these more recent changes in agricultural practice, herbivorous Pink-Footed Geese (PFGs) foraging amongst farmland were considered relatively insensitive to habitat loss / displacement. However, Natural England now believes the energetic effects of a reduced foraging resource represent the baseline against which development effects must be considered.

Precautionary principle: We note that currently there is a significant increase in linear sustainable development projects in Norfolk and Lincolnshire with a construction phase of around two years and therefore a potential increase in goose displacement/disturbance. For these projects it must be demonstrated that an Adverse effect on the Integrity of the North Norfolk Coast SPA and potentially The Wash SPA can be excluded beyond reasonable scientific doubt. The simplest way to exclude adverse effect is to avoid optimal goose foraging areas. Optimal goose foraging opportunity is localised (just certain fields planted with sugar

beet nearer the coast) and short-term (immediately post-harvest). It is our understanding that if avoidance is taken forward as mitigation for these projects the avoidance worst case scenario represents less than 1% of the total spatiotemporal construction window. But, if an Applicant/Developer is unwilling to agree a minimum level of avoidance, despite the relative sensitivity of pink-footed goose to the loss of foraging resource, Natural England believes that it would be acceptable for mitigation and/or compensation in the form of a feeding scheme to be conditioned, with the precise detail to be developed post-consent and suitably prior to the works commencing.

Avoidance and Mitigation: Natural England continues to encourage a standard approach for all NSIPs potentially impacting on the North Norfolk Coast PFGs in undertaking mitigation measures following project specific measures set out by Option 1 or via an alternative strategic measure set out in Option 2. These are set out as follows:

1. **Excluding impact Option 1: Project Specific Avoidance**

   In order to exclude an adverse effect on site integrity, Natural England advises the mitigation hierarchy is adopted and therefore the following is secured and implemented sooner rather than later to avoid significant project delays:

   a) An assessment to identify areas of potential goose displacement, where the route corridor overlaps with the species' foraging range from the overnight roost. This requires cropping practices to be mapped in every field within the DCO order limits (red line boundary) of the development route including a suitable buffer either side of the order limits within a range of 10km of the North Norfolk coast where the project route runs in a North-South direction. [NB: foraging distances are likely to be different on the Northern side of The Wash]. This data may be derived from landowner consultation and verified by published British Sugar data. As cropping practices rotate annually, this work would need to be repeated each year and presented well in advance of the beginning of the overwintering season.

   b) Between 1st November and 31st January inclusive, the works must avoid all areas that have been planted with sugar beet until 14 days after they have been harvested, or such a time after harvesting where the beet has been drilled in*.

      *(*It may be possible to reduce avoidance window from the point of harvest, but that will need to be considered on a case-by-case basis. See points d) and e) and the table below).*

   c) If the proposed works are both out with a beet field and more than 250m away from any geese that may be foraging on post-harvest sugar beet in a neighbouring field

(where a hedgerow separates the fields and helps screen the works) then works can proceed.

d) Natural England advises that this precautionary approach is set out in a Pink-Footed Geese Management Plan and agreed as part of consent. Avoidance should be demonstrated and agreed well in advance of the sensitive winter period in preference to relying on real-time data to inform the requirement for mitigation closer to the time of works within this period.

e) If the developer seeks to rely on a real-time assessment of the risk of AEoI for that overwintering period, based upon the number of remaining unharvested beet fields at the end of October, Natural England highlights the risk of delays to works while this is assessed by the competent authority in consultation with Natural England.

f) If even a minimum level of avoidance is not the preferred option, then to exclude adverse effect on site integrity complex modelling work might need to be undertaken to demonstrate birds are not energetically compromised, negatively affecting their fitness. If as suspected, this work was unable to reach a satisfactory conclusion, then some form of mitigation would still need to be delivered (see Option 2).

2. Excluding Impact Option 2 - Supplementary Feeding Strategic Approach

Independently of development-related issues, Natural England has already commissioned energetic modelling and started consulting with farmers about pink-footed goose management following changes to agricultural practice. Provisioning of grain and / or sugar beet at an undisturbed location elsewhere along the Norfolk coast could provide an alternative foraging resource, offsetting any effects of displacement due to development. It is anticipated such work could be delivered at a considerable cost-saving to developers; removing the need for crop-mapping, goose surveys and complex energetic modelling which might, regardless, still lead to a requirement for some form of mitigation. Such an approach is likely to be quicker, with an increased likelihood of positive ecological benefits to geese.

We advise the simplest and most effective and precautionary strategic measure the Applicant can secure at consent to avoid adverse impact, would be Supplementary Feeding in advance of the winter period during which works are undertaken. It is anticipated that this would facilitate a more beneficial approach for geese, while also providing comfort to regulators and developers that mitigation measures could be implemented which would avoid a shortfall in goose foraging opportunities resulting from development activities.

3. Avoidance and Mitigation Measures

In summary, Natural England suggest (but not exclusively) consideration of the following options that could enable works to proceed, with a preference for **Option 2**:

Stage	Option 1: Avoidance	Option 2 Strategic Approach
Advanced Commitments – no further sign off required		
1	Between1st November and 31st January inclusive; commit to avoiding construction activities within all mapped beet fields (through landowner consultation and verified by published British Sugar data) within the cable route DCO order limits (red line boundary) including a suitable buffer, to ensure suitable alternative foraging opportunities and minimise disturbance. Mapping must include the extent of the species' foraging range beyond the designated site boundary and/or roost location (approximately 20km for an East-West cable corridor and 10.4km for a North-South cable corridor).	Alternative Foraging: Provide an alternative foraging resource – conduct works irrespective of goose displacement.
2	Repeat above annually with ground-truthing to account for inter-annual variations in cropping practice.	
Pink Footed Goose Management Plan – further sign off required		
1	Through landowner consultation and verified by published British Sugar data map all beet fields within the cable route DCO order limits (red line boundary) including a suitable buffer, to ensure suitable alternative foraging opportunities and minimise disturbance. Mapping must include the extent of the species' foraging range beyond the designated site boundary and/or roost location (approximately 20km for an East-West cable corridor and 10.4km for a North-South cable corridor). This is to ensure feasibility that real time options are available. To be repeated annually	
2	Provide a watching brief along the cable route prior to works commencing, to monitor both crop harvest and goose activity.	
3	Delay works near goose foraging locations by implementing the following condition:	

Stage	Option 1: Avoidance	Option 2 Strategic Approach
	• Between 1st November and 31st January inclusive, the works must avoid all areas that have been planted with sugar beet until 14 days after they have been harvested, or such a time after harvesting where the beet has been drilled in. • If the proposed works are out with a beet field/ 250m away from foraging geese in a neighbouring post-harvest beet field separated / screened by a hedgerow then works can proceed.	
5	Demonstrate agreement with farmers not to plough in beat tops post-harvest to allow for alternative foraging locations.	
6	Undertake complex energetic modelling to demonstrate that potential impacts would not result in an AEoI. Allowing sufficient consultation time with LPA and Natural England.	
7	Where delays are unavoidable, deliver mitigation as described under option 2 - in line with results of modelling work.	
8	Delay works until mitigation is in place.	
9	NB: Should it be determined that real time decisions can't be made and mitigation measures successfully implemented to remove AEOI; works can only commence if Option 2 is implemented	

References

Gill. J.A. (1996a). Habitat choice in Pink-footed Geese: Quantifying the constraints determining winter site use. J. Appl. Ecol. 33: 884-892

Gill. J.A., Watkinson. A.R., & Sutherland. W.J. (1996b) The impact of sugar beet farming practice on wintering pink-footed goose *Anser brachyrhynchus* populations. Biological Conservation. 76: 95-100

BBC iPlayer 'Holkham'