



# Hornsea Project Four

## Applicant's comments on other submissions received at Deadline 2

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## Revision Summary

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## Revision Change Log

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## 1 Introduction

1.1.1.1 At Deadline 2 the following 38 submissions were received from 19 stakeholders:

- BP Exploration Operating Company Limited - Response to the Applicant's Deadline 1 submissions and response to the Examining Authority's first written questions (ExQ1) ([REP2-062](#));
- Bryan Cave Leighton Paisner LLP on behalf of National Grid Electricity Transmission Plc - Written Representations (WRs) ([REP2-063](#));
- Bryan Cave Leighton Paisner LLP on behalf of National Grid Gas Plc – Written Representations (WRs) ([REP2-064](#));
- CMS Cameron McKenna Nabarro Olswang LLP on behalf of NEO Energy (SNS) Limited - Summary of Written Representations (WRs) ([REP2-065](#));
- CMS Cameron McKenna Nabarro Olswang LLP on behalf of NEO Energy (SNS) Limited - Written Representations (WRs) ([REP2-066](#));
- CMS Cameron McKenna Nabarro Olswang LLP on behalf of NEO Energy (SNS) Limited - Responses to Examining Authority's First Written Questions (ExQ1) ([REP-067](#));
- East Riding of Yorkshire Council - Comments on the Local Impact Report (LIR) ([REP2-068](#));
- East Riding of Yorkshire Council - Responses to Examining Authority's First Written Questions (ExQ1). Local Plan Strategy Document. ([REP2-069](#));
- East Riding of Yorkshire Council Responses to Examining Authority's First Written Questions (ExQ1) ([REP2-070](#)); and
- East Suffolk Council – Comments on any other submissions received at Deadline 1 ([REP2-071](#)).
- Environment Agency - Responses to Examining Authority's First Written Questions (ExQ1) ([REP2-072](#))
- Environment Agency - Written Representations (WRs) ([REP2-073](#))
- Gordons LLP on behalf of Paul and Joanne Dransfield - Written Representations (WRs) ([REP2-074](#))
- Historic England – Responses to Examining Authority's First Written Questions (ExQ1) ([REP2-075](#))
- Historic England - Written Representations (WRs) ([REP2-076](#))
- Marine Management Organisation – Summary of Written Representations, Written Representations (WRs), Comments on submissions received at Deadline 1, Comments on responses to comments on Relevant Representations (RRs), Responses to Examining Authority's First Written Questions (ExQ1) ([REP2-077](#))
- Maritime and Coastguard Agency – Responses to Examining Authority's First Written Questions (ExQ1) ([REP2-078](#))
- Maritime and Coastguard Agency – Written Representations (WRs) ([REP2-079](#))
- Max Rowe on behalf of Harbour Energy – Written Representations (WRs) ([REP2-080](#))
- Ministry of Defence – Responses to Examining Authority's First Written Questions (ExQ1) ([REP2-081](#))
- Natural England – Responses to Examining Authority's First Written Questions (ExQ1) ([AS-028](#)).
- Natural England – Risk and Issues Log ([REP2-083](#))

- Natural England – Natural England review of REP1-068 - G1.46 Clarification Note on Marine Processes Supplementary Work Scope of Works Revision: 01 ([REP2-084](#))
- Natural England - Natural England review of G1.47 Auk Displacement and Mortality Evidence Review Revision: 01 ([REP2-085](#))
- Network Rail Infrastructure Limited – Written Representations (WRs) ([REP2-086](#))
- Network Rail Infrastructure Limited - Responses to Examining Authority's First Written Questions (ExQ1) ([REP2-087](#))
- Network Rail Infrastructure Limited - Summary of Written Representations (WRs) ([REP2-088](#))
- Royal Society for the Protection of Birds (RSPB) - Written Representation (WRs) ([REP2-089](#))
- Royal Society for the Protection of Birds (RSPB) - Responses to Examining Authority's First Written Questions (ExQ1) ([REP2-090](#))
- Royal Society for the Protection of Birds (RSPB) – Written Representation: Annex A: Offshore Ornithology ([REP2-091](#))
- Royal Society for the Protection of Birds (RSPB) – Written Representation: Annex B Derogation case: Bycatch reduction ([REP2-092](#))
- Royal Society for the Protection of Birds (RSPB) – Written Representation: Annex C Derogation case: Predator eradication ([REP2-093](#))
- The Corporation of Trinity House of Deptford Strond – Written Representations (WRs) and Response to Examining Authority's First Written Questions (ExQ1) ([REP2-094](#))
- The Crown Estate – Response to Examining Authority's First Written Questions (ExQ1) ([REP2-095](#))
- The UK Chamber of Shipping – Response to Examining Authority's First Written Questions (ExQ1) ([REP2-096](#))
- Viking Link – Response to Examining Authority's First Written Questions (ExQ1) ([REP2-097](#))
- Viking Link – Written Representations (WRs) ([REP2-098](#))
- Viking Link – Responses to comments on Relevant Representations (RRs) ([REP2-099](#))

1.1.1.2 The Applicant has reviewed all Deadline 2 submissions and responded on individual stakeholders' submissions in [Sections 2 to 10](#). The Applicant has responded to specific topics and points raised by that stakeholder where it was felt beneficial to do so within this document. Each respective section of this document tabulates the Applicants comments to a specific stakeholder, with comments relevant to the DCO uppermost in each tabulated response.

1.1.1.3 The following stakeholders are dealt with in separate response documents, due to their length and/or complexity, submitted at Deadline 3:

- [G3.17](#) Applicant's comments on Natural England's comments received at Deadline 2;
- [G3.2](#) Applicant's comments on Neo's comments received at Deadline 2; and
- [G3.10](#) Applicant's comments on Viking Link's comments received at Deadline 2.

- 1.1.1.4 The Applicant notes that some Deadline 2 submissions and comments do not appear to consider the submissions made by the Applicant at Deadline 1, and as such some of the comments have been superseded. The Applicant has not therefore sought to respond to each point raised by stakeholders at this stage, mindful that the relevant information has already been submitted into Examination and is therefore available for review and comment as deemed necessary by the relevant stakeholder.

## 2 Applicant's Comments to East Riding of Yorkshire Council

Reference	Stakeholder's Written Representation	Applicant's Response
<i>Responses to Examining Authority's First Written Questions (REP2-070): Comments on draft DCO and DML</i>		
	Comments on DCO by East Riding of Yorkshire Council	For a detailed list of updates please see <a href="#">C1.1.1 Draft DCO and DML Schedule of Changes</a> submitted at Deadline 3.
LV.1.17	ERYC requested that Requirement 9 should be amended to require the retention, management and maintenance of the landscaping scheme for the lifetime of project.	Provision for maintenance of landscaping during operation has been added to <a href="#">F2.8: Outline Landscape Management Plan</a> and submitted at Deadline 3, which is secured via Requirements 8 and 9 of the draft DCO. To address ERYC's concerns, additional wording has been added to Requirement 9 in the draft DCO submitted at Deadline 3.
PDS.1.14	ERYC considered that requests for working outside of core hours should be made in advance and approved in writing. This could be secured through a specific requirement or an amendment to the supporting documents to Requirement 17.	The Applicant considers that the current drafting of Requirement 17 is sufficient and appropriate when read alongside the <a href="#">F2.2: Outline Code of Construction Practice (REP1-027)</a> and that no further amendments to the draft DCO are necessary. The Applicant refers to its response to FWQ PDS.1.14 in <a href="#">REP2-038</a> .
<i>Responses to Examining Authority's First Written Questions (REP2-070): Other Matters</i>		
HE.1.9	ERYC agrees with the identified mitigation in paragraphs 5.11.1.30 – 32 and considers it could be secured through the Requirements subject to an acceptable detailed scheme being submitted during the examination process.	The Applicant refers to the responses provided to HE.1.9 in <a href="#">REP2-038</a> which sets out how mitigation measures are already secured.
LV.1.12	ERYC considers that the indicative landscape plan should be amended to provide an increased coverage of landscaping along the northern boundary of the site to further mitigate the effect on users of the surrounding PROW network. Subject to this, it is considered that reasonable steps to mitigate the visual effect of the proposed development have been taken.	Existing vegetation along the northern boundary of the OnSS site includes a dense band of hedgerow along the unnamed stream and two coppices of trees. This vegetation, combined with the additional planting to reinforce more open sections, as shown on the Indicative Landscape Plan ( <a href="#">A3.4 Landscape and Visual (APP-028)</a> , Figure 4.8 and in <a href="#">F2.8: Outline Landscape Management Plan (REP2-027)</a> ), will provide mitigation for receptors to the north of the OnSS site, including people using the PROWs immediately north of the site (WOODF07 and ROWLF12).  The north-eastern site boundary has been left more open on the Indicative Landscape Plan, due to the requirement for cables to be installed between the OnSS and the Creyke Beck substation. The

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>location of these cables is currently unknown but will be defined at detailed design stage. Requirement 8 of the Draft DCO gives ERYC effective control over the details of the landscape planting to be implemented as appropriate, within the definitions of DCO works numbers. An appropriate level of mitigation for receptors to the north-east, including users of PRowS (NCN Route 1 and SKIDB07) is therefore secured through this mechanism, subject to the presence of underground cables.</p>



## 3 Applicant's Comments to East Suffolk Council

Reference	Stakeholder's Written Representation	Applicant's Response
<i>Comments on any other submissions received at Deadline 1 (REP2-071).</i>		
REP2-071-A	<p>The uncoordinated approach to the delivery of ANSs in this region could lead to a significant oversupply of artificial nests which will never be filled by increases in colony sizes. The significant focus on the delivery of increased numbers of kittiwake pairs through the construction of ANSs also ignores other measures that could be implemented to not only help compensate for impacts but additionally help to address local issues which occur.</p>	<p>The Applicant notes that the main cause for East Suffolk Council's objection relates to the uncoordinated approach between offshore wind developers, and a need for a compensation measure to be addressed strategically. The Applicant supports a joined-up approach to marine ecological compensation and is committed to the responsible and effective deployment of compensatory measures on an industry level. The Applicants wider group, herein referred to as Ørsted, has led a developer collaboration to seek strategic solutions to compensation, which was formalised in August 2021 as the Offshore Wind Industry Council's "Derogation Subgroup." The timescales however for delivery of the compensation measures means that it is not feasible to rely solely upon the implementation of strategic compensation measures until further guidance has been issued or a process approved by regulators for how strategic delivery can be practically implemented. The Applicant notes the British Energy Strategy Security Strategy published on 7<sup>th</sup> April 2022 refers to "introducing strategic compensation environmental measures including for projects already in the system to offset environmental effects and reduce delays to projects". It is understood that further information regarding strategic measures will be forthcoming and the Applicant is ready to actively engage with government in this regard. The Applicant is focussed upon strategic delivery in parallel with securing the delivery of compensation at a project level.</p>
REP2-071-B	<p>ESC also has concerns regarding the legal protection which ANSs will require and the potential for this to adversely restrict important developments in this part of East Suffolk. Government guidance on Habitats Regulations derogations (February 2021) states that "If the area providing compensatory measures is not within the European site, it should become designated as part of the European site. Until that happens, it's protected by government planning policy." Government planning policy on this</p>	<p>The Applicant understands East Suffolk Council's concerns regarding the possible legal protection which ANS's may require, potentially restricting future developments in East Suffolk. The designation thresholds for an SPA are 20,000 seabirds or 1% of the UK and Irish population which for kittiwake would be around 3,800</p>

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	<p>matter is set out in paragraph 181(c) of the National Planning Policy Framework (NPPF 2021) which advises that sites required as compensatory measures for adverse effects on Habitats Sites (European designated sites) should be given the same protection as the Habitats Sites themselves.</p> <p>Such legal protection has the potential to restrict future developments in the area, both offshore and onshore. They will also place an additional burden on the Local Planning Authority as competent authority for developments consented under the Town and Country Planning Act 1990 (as amended) when considering and consenting new development in the area. This includes creating additional Habitat Regulations Assessment (HRA) requirements in relation to the policy protection needs for new ANSs. Opportunities for coordination between projects must therefore be fully explored and demonstrated by project promoters to minimise the abundance and need for ANSs to be located on our coastline</p>	<p>breeding pairs. Considering the scale of the compensation for Hornsea Four ANS required to compensate for 113 breeding pairs, it is considered unlikely that they will be designated as a Special Protection Area in their own right. It is acknowledged that the National Planning Policy Framework affords sites required as compensatory measures equivalent protection as the Habitats Sites however the latest joint guidance to competent authorities (February 2021) does not require designation, but instead states designation as something that may be required. As set out above, the implementation of an ANS would not meet the thresholds for designation.</p>
REP2-071-C	<p>The comments contained in this response are intended to assist the Examining Authority in understanding the procedural and planning constraints which can arise as part of the ANS delivery process. The submission also sets out ESC's concerns which are intended to help the Applicant avoid the same planning pitfalls experienced with other projects proposing similar compensation in our region. The comments provided should therefore be used by the Applicant in refining and confirming the proposed ANS measures before the end of the examination period.</p>	<p>The Applicant is grateful for the assistance received to date from East Suffolk Council. The site selection process for Hornsea Four has and shall continue to take account of lessons learnt from other projects including Hornsea Project Three. Planning constraints are being carefully considered as part of a Black, Red, Amber, Green (BRAG) assessment. The Applicant recognises that it is imperative to continue to work with the local planning authority throughout the site refinement process before finalising a location for onshore ANS, if required. The Applicant's preferred option is an offshore ANS and the Applicant will continue to focus priority on delivering additional nesting capacity offshore at either a repurposed or new nesting structure.</p>
REP2-071-D	<p>It is important to highlight that ESC has significant concerns regarding the proposed level of Local Authority involvement in the site selection process. It is noted in Section 4.1.1.1 (REP1-016) that stakeholder engagement proposed for offshore ANS following submission of the application and through-out the examination period will include Statutory Nature Conservation Bodies, The Crown Estate, Oil and Gas Operators and Regulators. However, no specific reference is made to the Local Planning Authority. Terrestrial planning considerations are equally important given the potential effects introduced on coastal communities through the introduction of ANS in coastal areas, whether onshore or located in the nearshore environment.</p>	<p>The search area for an Offshore ANS focusses upon locations outside of territorial waters (12 nautical miles). Further details on the site selection process and search area for offshore ANS was provided in the Application at (see <a href="#">B2.7.5 Compensation measures for FFC SPA: Artificial Nesting: Site Selection and Design (APP-191)</a>), with an update on the refinement of the search area provided in <a href="#">B2.7.2: Compensation measures for FFC SPA: Offshore Artificial Nesting Roadmap (REP2-007)</a>. This shows that the refined search area is</p>

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		<p>approximately 53km from the coast at its nearest point. The Applicant does not therefore propose to engage with local planning authorities for offshore ANS's. Under the onshore nesting compensation measure option, as stated in the Application, the preferred zone for installing onshore artificial nesting sites is located within the onshore to nearshore environment for which the Applicant will engage with the local planning authorities and has taken account of lessons learnt from Hornsea Three and sought to engage in more detail earlier.</p>
REP2-071-E	<p>As already stated, the preferred option is for the delivery of a repurposed offshore nesting structure in the southern North Sea off the Flamborough and Filey Coast SPA. However, should the preference change to that of an onshore or nearshore structure on the East Suffolk coastline, notwithstanding the significant concerns the Council has raised, it is considered that there may be other measures (beyond those described in the consultation documents) which could be implemented. These measures could be utilised to conserve and enhance the Suffolk kittiwake colonies to help compensate for impacts elsewhere. For example, this could include support for a Suffolk Coast kittiwake project/partnership as well as exploring other beneficial projects which will further help and support the local communities of East Suffolk. The compensation package could include the creation, implementation, and funding of the project (potentially centred on the main colony in Lowestoft) which not only delivered ANS but also worked on public liaison, engagement with businesses and stakeholders and other physical projects (such as advice on suitable deterrents and cleaning of problem areas) to improve the perception of kittiwakes in the area, along with their population size and condition. We would also be seeking contributions to secure funding for a post(s) to manage, coordinate and report on the kittiwake populations. We consider that this would provide a balanced package of compensation and would be of greater benefit to both kittiwakes and the communities of East Suffolk. Whilst ideally delivery of this should be shared between all relevant offshore wind farm projects to ensure holistic compensation is delivered, Hornsea Four could help to initiate it.</p>	<p>The Applicant notes the proposals for a package of measures to support the compensation measures. The Applicant is committed to supporting local initiatives to promote conservation in East Suffolk should the onshore ANS be located in the District. The Applicant notes the proposals by Hornsea Project Three regarding educational information and is aware of ongoing discussions relating to the Lowestoft Kittiwake Partnership. The Applicant will engage with East Suffolk regarding a compensation package of measures in advance of a planning application or marine licence application for a nearshore structure.</p>

## 4 Applicant's Comments to Environment Agency

Reference	Stakeholder's Written Representation	Applicant's Response
<i>Responses to Examining Authority's First Written Questions (REP2-072): Comments on draft DCO and DML</i>		
DCO.1.43	<p>During the decommissioning phase, we are interested in any ongoing interaction between the infrastructure left in situ and any flood infrastructure in the vicinity of the works. This may include ongoing works, or new flood infrastructure. Owing to the lifetime of the development, it is difficult to be prescriptive about what such works may entail, including any changes to flood risk strategy within the catchments.</p> <p>The current wording in Requirement 24 identifies the need for a decommissioning plan for onshore elements. The Environment Agency should be consulted on the decommissioning plan and have opportunity to comment on any remaining equipment and its interaction with flood infrastructure, so the requirement could be worded to reflect that if it was considered necessary.</p> <p>If changes to that plan are required, such as removal of infrastructure below watercourses or flood infrastructure, we would ask for it to be clear that the developer is responsible for such works and any associated costs. The Protective Provisions would again apply for any works within 8m (16m if tidal) of any 'main river' or its infrastructure, and may therefore provide further opportunity to review at the appropriate time.</p>	<p>The Applicant does not consider an amendment to Requirement 24 is necessary and no amendment to the draft DCO has been proposed.</p>
DCO.1.38	<p>The applicant has now provided the information on specific locations, which confirm that five 'main rivers' would require temporary bridge crossings. However, we would expect to see justification of why existing crossings cannot be used.</p> <p>At three of these locations (Watton Beck, Scurf Dyke and Driffield Canal) there are flood embankments within the cable corridor that we would not accept being utilised for temporary crossings unless they can be designed so as not to load, interact or disturb flood infrastructure (including embankments). Any temporary crossings at these locations would need to work independently of any flood defences, so as not to load or disturb those defences, and to allow ongoing access for inspection and maintenance.</p> <p>The watercourses in these locations are not considered to be 'minor', so bailey bridges are unlikely to be satisfactory. In a meeting with the applicant on 29 March 2022, we suggested to the applicant that</p>	<p>The Applicant has discussed this matter with the Environment Agency at a meeting on 8 April 2022. This discussion concluded that appropriate protections are in place that ensure the crossing design for main rivers, inclusive of any required bridges (in accordance with Co172), will be agreed with the Environment Agency prior to the construction of each crossing. It was agreed at this meeting that a sentence can be added to <b>F2.2: Outline Code of Construction Practice (APP-237, REP1-027)</b> to clarify this matter. The Applicant will submit an updated document at Deadline 4.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	they might make changes to Co172 in relation to these three specific locations, which would then be reflected within the Code of Construction Practice. We have agreed to provide them with further comments to their technical consents team to ensure that there is sufficient clarity.	

## 5 Applicant's Comments to Gordons LLP on behalf of Paul and Joanne Dransfield

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>General comment</p>	<p>The Applicant considers that it has adequately responded to the representations made on behalf of Mr and Mrs Dransfield in the Consultation Report (set out in pages 452 to 469 of <a href="#">B1.1.4: RP Applicant Regard to Section 42 Consultation Responses (APP-133)</a>) and the Applicant's response to RR-013 in Annex 4 of <a href="#">REP1-038</a>. The Applicant is therefore only responding specifically to two new points as set out in more detail below.</p> <p>The Applicant strongly rejects any assertions that the consultation process was unlawful.</p> <p>The Applicant reiterates its position that it has provided Mr and Mrs Dransfield with the requested documents or, if applicable, confirmed that no such documents exist.</p>
	<p>Section 44(4) of the Planning Act 2008 states:</p> <p><i>"(4)A person is within Category 3 if the Applicant thinks that, if the order sought by the proposed application were to be made and fully implemented, the person would or might be entitled—</i></p> <p><i>(a)as a result of the implementing of the order,</i></p> <p><i>(b)as a result of the order having been implemented, or</i></p> <p><i>(c)as a result of use of the land once the order has been implemented, to make a relevant claim..."</i></p> <p>The Applicant has identified our clients having Category 3 interests and this has been confirmed in correspondence. It is not lawful for the Applicants to now retrospectively attempt to row back from that by introducing the new term of "<u>potential</u> Category 3 interests". Again the Applicant appears to be focussing more on appearance than substance and this new nomenclature clearly is intended to mislead the tribunal into thinking that our clients have a lesser interest than previously confirmed and identified. This is unlawful and misleading. Either our clients hold category 3 interests under the Act or they do not and that decision was made a considerable time ago – our clients hold category 3 interests and were so identified by the Applicant early in the process. The Applicants have confirmed</p>	<p>The Applicant refers to the definition in s44(4) of the Planning Act 2008 and notes that a Category 3 person includes a person that the Applicant thinks "<i>might</i>" be entitled to make a relevant claim.</p> <p>As stated in its response to FWQ CA.1.3 (<a href="#">REP2-038</a>), in order to identify Category 3 persons a precautionary approach was taken to include a number of residential properties in the vicinity of the proposed OnSS and EBI as potential claimants. The Applicant reviewed all the technical data available and assessed each property in the vicinity of the OnSS and EBI on an individual basis. This resulted in all residential properties within 500m being included, as well as several other properties that might be affected.</p> <p>The Applicant notes that identification of Category 3 persons is relevant for the purposes of consultation under s42 of the Planning Act 2008, production of the Book of Reference and notification of the acceptance of the DCO application under s56 of the Planning</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>this to be the case on numerous occasions and were right to do so. The suggestion that the decision to include our clients was taken on a precautionary basis is new and our clients consider it is rather late in the process to be making these comments without any evidence to support them. Our clients hereby request disclosure of contemporaneous records of the decision taken and that it was done so on a "precautionary basis". In the absence of disclosure, our clients require these unsupported comments from the Applicants to be withdrawn.</p>	<p>Act 2008. It does not mean that the Category 3 person is automatically eligible to make a relevant claim. For example, in order to make a claim pursuant to Part 1 of the Land Compensation Act 1973, Mr and Mrs Dransfield would need to demonstrate a depreciation in the value of their property caused by the use of the authorised development and evidence that such depreciation is attributable to physical factors (such as noise). The Applicant reiterates its position that it considers it unlikely that Mr and Mrs Dransfield will have grounds to make a relevant claim due to the noise mitigation measures secured in the DCO.</p>
	<p>The failure to consult with Mr and Mrs Dransfield is the responsibility of the Applicant. It is trite law that as a matter of common law a notice is only validly served where it is actually received (see for example <i>Holwell Securities v Hughes</i> [1974]1 WLR 155 at 157-158). In <i>Beanby Estates v Egg Stores (Stamford Hill)</i> [2003] 1 WLR 2064, at p 2075 Neuberger J said that the notice in question was "<i>not served merely by putting it in the post...</i>"</p> <p>Where the server of a notice does not take any steps to ensure that the notices are either (a) sent out or (b) received, the server bears the risk of non-receipt. The Applicant must accept this to be the case, otherwise there would have been no need for the late consultation exercise it attempted with our clients. Our clients have requested evidence that any</p> <p>of the correspondence prior to July 2020 was actually sent out on many occasions, but it is clear there is no such evidence. It is therefore surprising that the Applicants keep saying that our clients "<i>were included in the mailing list</i>" as if that somehow would be sufficient to prove that the notices were (a) sent and (b) received.</p>	<p>The Applicant refers to s229 of the Planning Act 2008 which sets out the requirements for the service of notices and other documents under the Planning Act 2008. There is no statutory requirement to use a recorded delivery service for the section 42 consultation. This is demonstrated by the fact that s229(4) specifically excludes the use of first class post for certain types of notices under the Planning Act 2008 but this does not include any notice or other documents pursuant to s42 of the Planning Act 2008.</p> <p>In any event, the Applicant reiterates its position that it has complied with s42 of the Planning Act 2008 as Mr and Mrs Dransfield received and responded to a consultation letter pursuant to s42 of the Planning Act 2008 in July 2020. The Applicant has also complied with s49 of the Planning Act 2008 as it has had regard to the response to consultation received from Mr and Mrs Dransfield (as set out in the Consultation Report referred to above).</p>

## 6 Applicant's Comments to Historic England

Reference	Stakeholder's Written Representation	Applicant's Response
<i>Historic England Written Representation (REP2-076) Comments on DCO and DML</i>		
LV.1.2	<p>Historic England recommends that there should be a specific requirement in the DCO requiring submission of detail and sign off from Historic England to ensure that:</p> <ul style="list-style-type: none"> <li>A) the 'dynamic' photomontages are undertaken and assessed; and</li> <li>B) the planting/screening proposals and the colour palette for the proposed buildings are contained within a Construction Environmental Management Plan</li> </ul>	<p>The Applicant does not consider amendments to the draft DCO to be necessary.</p> <p>External Building Finishes and Application of Colour plus Screen Options are matters already included within <a href="#">F2.13: Outline Design Plan (APP-248)</a> secured by Requirement 7. Screening is also covered in F2.8: Outline Landscape Management Plan (<a href="#">REP2-027</a>) secured by Requirement 8. There is no need for additional requirements and there is no standalone Construction Environmental Management Plan for this project (instead an outline Code of Construction Practice has been submitted which is secured by Requirement 17).</p> <p>The use of 'dynamic' photomontages is not an approach typically used in landscape and visual impact assessment (LVIA). The standard approach in LVIA is to provide visualisations from viewpoints that are chosen to represent views experienced by particular receptor groups. This approach is established in Guidelines for Landscape and Visual Impact Assessment 3rd edition (Landscape Institute and Institute of Environmental Management and Assessment, 2013), which is the standard guidance on LVIA. LVIA does not consider assessment of impacts on setting, which is within the remit of the historic environment assessment (refer to <a href="#">A3.5 Historic Environment, APP-029</a>).</p> <p>The Applicant is not aware of any previous requests having been made by Historic England for additional viewpoints or alternative approaches to visualisation. The representative viewpoints used in the LVIA were agreed with stakeholders, see <a href="#">A3.4 Landscape and Visual (APP-028)</a> Table 4.4. The Applicant does not consider that the use of dynamic photomontages would materially add to the</p>



Reference	Stakeholder's Written Representation	Applicant's Response
		<p>assessment of effects on landscape and visual receptors or the historic environment.</p> <p>In addition to the Applicant's response above, the designated heritage assets listed by HBMCE were visited as part of the setting assessment. It was found that from within Risby Park (NHLE 1018600 and NHLE 1001419) and from Baynard Castle / Old Manor House in Cottingham (NHLE 1019823 / NHLE 1347016), the OnSS would not be visible due to the existing vegetation and residential development (in Cottingham). Photomontages from within these assets were therefore not considered useful, however a photomontage just to the east of Risby Park is provided. From the Scheduled Round Barrow (NHLE 1007731) views will be partially screened by the existing Creyke Beck NGET Substation. Further details and photographs are provided within Historic Environment DBA (<a href="#">APP-116</a>).</p>
<p><i>Responses to Examining Authority's First Written Questions (REP2-075) Comments on draft DCO and DML</i></p>		
HE.1.9	<p>Historic England recommended that there should be a specific requirement in the DCO requiring submission of detail and sign off from Historic England regarding the measures to be adopted by the applicant to ensure the safety of the Sanctuary stone and its setting during the works process.</p>	<p>The Applicant does not consider amendments to the draft DCO to be necessary. Mitigation for the Beverley sanctuary limit stone was secured at the point of DCO application in Section 6.6.3 of <a href="#">F2.2: Outline Code of Construction Practice (REP1-027)</a>. To further secure mitigation, additional text has been added to Section 6.6.3 of <a href="#">F2.10: Outline Written Scheme of Investigation for Onshore Archaeology (APP-235)</a> and an updated version submitted at Deadline 3. Requirement 16 requires the WSI to be approved by the local planning authority in consultation with Historic England prior to commencement of any relevant stage of the connection works. The Outline Code of Construction Practice will be updated at Deadline 4 to reflect the change to the outline WSI.</p>
10.2	<p>Historic England requested that the Construction Method Statement secured by Condition 13(1)(c) of Part 2 of Schedules 11 and 12 should also encompass referral to information derived from post-consent and pre-construction archaeological evaluation to inform delivery plans to avoid in-situ</p>	<p>The Applicant does not consider amendments to the draft DCO to be necessary as there is sufficient protection within the DML</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>archaeological sites as could be revealed through assessments conducted and completed post-consent and pre-construction.</p>	<p>conditions for archaeological features and there is no requirement for additional regulation.</p> <p>Condition 13(1)(c) contains provisions for marine archaeology by requiring that the construction method statement has "regard to any mitigation scheme pursuant to sub-paragraph 13(1)(f)."</p> <p>Condition 13(1)(f) states that no licenced activities may commence until details for the relevant stage of pre-construction monitoring surveys, construction monitoring, and post-construction monitoring and related reporting in accordance with conditions 17, 18 and 19 have been approved by the MMO.</p> <p>Condition 17 relates to pre-construction monitoring and surveys.</p> <p>Condition 17(1) requires a monitoring plan in accordance with the outline marine monitoring plan (which contains a marine archaeology section) for approval by the MMO and the relevant statutory body, which would include Historic England.</p> <p>Condition 17(2) requires the identification of archaeological exclusion zones (AEZs) and commitment to post consent monitoring of any AEZs.</p> <p>There is also further protection in condition 13(2) and 13(3) which secure a marine written scheme of archaeological investigation which must be approved prior to commencement of the licensed activities, and licensed works have to be carried out in accordance with the approved plan.</p>
<p><i>Deadline 2 Submission – Historic England Written Representation (REP2-076)</i></p>		
iv	<p>Furthermore, the Applicant to deliver a "proportional EIA approach" has produced accompanying documentation such as an "Impacts Register" (Volume A4, Annex 5.1) and a "Commitments Register"</p>	<p>As per Commitments Co166 and Co167 outlined in <a href="#">A4.5.2 Commitments Register (APP-050)</a> and Conditions 13(2) and 13(3) of</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>(Volume A4, Annex 5.2). We are aware that National Policy Statement for Renewable Energy Infrastructure (EN-3), paragraph 2.6.44, explains the consideration of flexibility by the Examination Authority with regards to necessary micro-siting of elements of a proposed wind farm during construction where requested at the application stage. We understand that the intension is that if previously unknown marine archaeology is discovered that wind farm infrastructure can be micro-sited and thereby enable such material(s) to be left undisturbed and in- situ. We are aware from the submitted documentation that there is an absence of complete geophysical survey data coverage and that geoarchaeological assessment was not completed at the time of application.</p>	<p>Schedules 11 and 12 of <a href="#">C1.1: Draft DCO including Draft DML (REP2-061)</a>, geophysical surveys and geotechnical campaigns undertaken during the life of the project will be subject to a full archaeological review in consultation with Historic England. The Applicant can confirm that a high-resolution side scan sonar survey will be undertaken as part of the pre-construction monitoring secured by Condition 17 of Schedules 11 and Schedule 12 of <a href="#">C1.1: Draft DCO including Draft DML (REP1-002)</a>. The results will inform further work and the extent of additional Archaeological Exclusion Zones which will be utilised when planning the final design of the project as well as areas where micro-siting will be applied to enable such material(s) to be left in- situ and undisturbed.</p>
2.10	<p>Paragraph 4.8.4.10 explains that if Gravity Base Structures (GBSs) are used for WTG that a maximum of 110 structures will be used. However, no detail is provided about the depth of seabed excavation required to install gravity base foundations. Paragraphs 4.8.4.16 - 18 provide summary details about seabed preparation as is likely to be required for GBSs, for example, seabed levelling to remove surface and subsurface debris. However, it is possible that presently buried and unknown archaeological materials could be encountered and therefore approved and supervised (archaeological) excavation may be required to enable access and recovery. We must therefore highlight the importance of adaptive mitigation strategies that can be implemented if necessary, which should be explained fully in an archaeological Written Scheme of Investigation.</p>	<p>Where avoidance, as per Archaeological Exclusion Zones and micro-siting, is not possible or is not assessed to be the best course of action for individual archaeological receptors, adaptive mitigation strategies as outlined in Section 5.4 of <a href="#">F2.4: Outline Marine Written Scheme of Investigation (APP-239)</a> can be implemented, following the production of a specific Archaeological Method Statement which is agreed with Historic England.</p>
2.11	<p>Paragraphs 4.8.4.19 - 22 mention scour protection measures and it is important that the determination of impact and consideration of risk needs to assess how presently unknown archaeological materials might be exposed through scour and therefore whether placement of scour protection materials also represent an impact requiring mitigation.</p>	<p>The potential effects of scour around any seabed element on archaeological receptors is outlined in <a href="#">A2.9 Marine Archaeology (APP-021)</a>, where Table 9.10 summarises the MDS for structures and associated scour protection. The placement and total seabed affected by the installation of scour protection materials is detailed in <a href="#">A1.4: Project Description (REP1-004)</a>.</p> <p>Scour, penetration, draw down and compression effects caused by seabed elements potentially impacting archaeological receptors and exposing such material to natural, chemical, or biological processes and causing or accelerating loss of the same is considered an impact during the operation phase (MA-O-7). All installation and</p>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>operations activities will adhere to the archaeological commitments within Conditions 13(2) and 13(3) of Schedules 11 and 12 of <a href="#">C1.1: Draft DCO including Draft DML (REP2-061)</a>, as well as Condition 12(1)(e) of Schedules 11 and 12 of <a href="#">C1.1: Draft DCO including Draft DML (REP2-061)</a> (Scour Protection Management Plan) and Condition 12(1)(a) of Schedules 11 and 12 of <a href="#">C1.1: Draft DCO including Draft DML (REP2-061)</a> (Design Plan) will be developed.</p>
4.2	<p>Paragraph 9.7.1.12 includes important information about the assessment of geophysical data and the identification of anomalies of potential archaeological interest as summarised in Tables 9.6 and 9.7. We are also aware of the explanation provided in paragraph 9.7.1.1.6 and the determination that the baseline presented gives an accurate estimation based on the survey data and review of desk-based sources of information. However, we anticipate that this baseline will require revision, should consent be obtained, and action is taken to finalise the engineering design of the development. It is therefore possible that anomalies presently identified could be revealed as being of considerable archaeological interest.</p>	<p>Please see the Applicant response to point iv of Historic England's Written Representation above.</p> <p>The Applicant notes that <a href="#">F2.4: Outline Marine Written Scheme of Investigation (APP-239)</a> will be updated to create a final Marine Written Scheme of Investigation including the additional results.</p>
4.3	<p>It is also important to differentiate between what might be identifiable "wreck" and whether it should be considered a heritage asset. It is therefore of limited use in an ES to identify five anomalies of "medium potential" and two anomalies of "high potential" if this is primarily based on how much they resemble a wreck site as indicated by available survey imagery. It is therefore inevitable that such readily identifiable sites will be contemporary (i.e. losses of vessels in the 20th century), for example as described in paragraph 9.7.1.13. However, it is possible that multiple sites presently identified as "low potential" which could represent archaeological sites of considerable antiquity that require attention and an appropriate assessment strategy, should consent be obtained.</p>	<p>The Applicant notes that <a href="#">A2.9 Marine Archaeology (APP-021)</a> summarises the results of the baseline assessments of which the archaeological assessment of geophysical data in combination with desk bases sources such as databases have been used to establish areas of archaeological potential. Additionally, <a href="#">A5.9.1 Marine Archaeology Technical Report (APP-085)</a> outlines the baseline assessment methodologies including an assessment of significance. Appendix C of <a href="#">A5.9.1 Marine Archaeology Technical Report (APP-085)</a> (see Section 6 of Archaeological Review of Geophysical and Hydrographic Data) outlines the methodology for establishing the archaeological potential of high, medium and low anomalies (Table 6) where Low is defined as "An anomaly potentially of anthropogenic origin but that is unlikely to be of archaeological significance – Examples may include; discarded modern debris such as rope, cable, chain or fishing gear, small, isolated anomalies with no wider context or small boulder-like features with associated magnetometer</p>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p><i>readings."</i> While possible that these anomalies prove to be of archaeological potential and/or significance all areas of direct impact will be further investigated ahead of construction and the baseline assessment will be updated. The Applicant held a workshop with Historic England in 2019 to illustrate the key interactions between site investigations and marine archaeology. Topics included the ground model, archaeological interactions with geotechnical surveys and archaeological interpretation of geophysical surveys.</p>
4.4	<p>Section 9.7.2 (Historic Seascape Characterisation) summarises how the proposed development may alter perceptions of historic seascape character. However, it is not immediately apparent that use has been made of the national database for HSC as was produced from England's Historic Seascapes: Demonstrating the Method. SeaZone Solutions Limited, 2011.</p>	<p>England's Historic Seascapes: Demonstrating the Method. SeaZone Solutions Limited (2011) was used for the HSC assessment, however the references within <a href="#">A2.9 Marine Archaeology (APP-021)</a>, references the individual reports (dated, 2009) rather than the ADS archive DOI.</p>
4.5	<p>Paragraphs 9.7.2.12 and 9.7.2.13 include statements that Hornsea Four will further alter the perception of the Historic Seascape (Character). Therefore, in reference to the statement made in paragraph 9.7.2.15, it is not immediately apparent how alteration of perception (in the context of guidance that developments should "... respect and retain cultural distinctiveness and legibility wherever possible") can be reconciled with a determination of "no significant change" in paragraph 9.7.2.16. It is our advice that "methodological development" should not be necessary given the existence of the national database for HSC (as referenced above), which we would have expected the Applicant to use in this ES.</p>	<p>The phrase "Hornsea Four will further alter the perception of the Historic Seascape within the sea surface and water column" references the addition of infrastructure within the multi- marine levels of HSC and agrees that there will be an alteration to the multi -marine level perception, but not the character type perception overall. England's Historic Seascapes: Demonstrating the Method. SeaZone Solutions Limited (2011) was used for the HSC assessment, however the references within <a href="#">A2.9 Marine Archaeology (APP-021)</a>, references the individual reports (dated, 2009) rather than the ADS archive DOI.</p>
4.6	<p>Section 9.7.4 (Data limitations) - Mentions that there could be "...a perceived increased risk to potential maritime archaeological receptors as parts of the seabed within the Order Limits have not been assessed for archaeological potential at the time of DCO application." We concur that there is potential for presently unknown marine archaeological receptors to be encountered during phases inclusive of pre- construction, construction, operation and maintenance and/or decommissioning, should consent be obtained. We note the statement that these data limitation will be minimised by future and ongoing seabed surveys, as well as by the marine archaeology "commitments". It is therefore important that we clarify the function of an archaeological Written Scheme of Investigation</p>	<p>As per Commitments Col166 and Col167 outlined in <a href="#">A4.5.2 Commitments Register (APP-050)</a> and Conditions 13(2) and 13(3) of Schedules 11 and 12 of <a href="#">C1.1: Draft DCO including Draft DML (REP2-061)</a>, geophysical surveys and geotechnical campaigns undertaken during the life of the project will be subject to a full archaeological review in consultation with Historic England.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>to specify how any post-consent and pre-construction survey work should be conducted to determine if any presently unknown and thus unexpected marine archaeological receptors are located in the proposed development areas. We therefore do not directly concur with the position advocated by the Applicant that there is "no increased risk from Hornsea Four..." we add that the approach adopted by the Applicant in the preparation of this ES is different to other offshore wind farm projects and therefore cannot be easily compared with other offshore wind farm projects.</p>	<p>The Applicant notes that <a href="#">F2.4: Outline Marine Written Scheme of Investigation (APP-239)</a> will be updated to create a final Marine Written Scheme of Investigation including any additional archaeological results deriving from surveys undertaken.</p> <p>Adaptive mitigation strategies as outlined in Section 7 of <a href="#">F2.4: Outline Marine Written Scheme of Investigation (APP-239)</a> can be implemented, following the production of a specific Archaeological Method Statement as agreed with Historic England. The production of a final WSI is secured through Conditions 13(2) and 13(3) of Schedules 11 and 12 of <a href="#">C1.1: Draft DCO including Draft DML (REP2-061)</a>.</p>
4.7	<p>Paragraph 9.8.1.2 describes that by adopting a "Proportionate Approach to EIA" the Applicant has "scoped out" particular impacts on the historic environment which is an approach that PINS was prepared to accept on the basis that Historic England will be consulted on the delivery of proposed mitigations strategies as set out within a Commitments Register. It is therefore an important matter for us to understand how these commitments will be formally secured as a component of any consent secured.</p>	<p>The commitments set out in <a href="#">A4.5.2: Commitments Register (APP-050)</a> are each secured through the specific certified documents and specified in the Register. The purpose of the Commitments Register is to provide a tool to review key information associated with all commitments, allowing easy cross reference with the Impacts Register, ES chapters and the relevant documents, plans, and/or protocols that secure their commitment and where those are secured in the DCO.</p> <p><a href="#">A4.5.2: Commitments Register (APP-050)</a> includes a column entitled "How is the Commitment secured". This column indicates how each individual commitment is secured via a DCO requirement and associated document, plan and/or protocol.</p> <p>An example of this is Co166, the commitment to undertake an offshore geotechnical survey (including UXO survey) prior to construction and subject to consultation with Historic England. This is secured via Conditions 13 (2) and 13(3) of Schedules 11 and 12 of <a href="#">C1.1: Draft DCO including Draft DML (REP2-061)</a> which require a Marine Written Scheme of Archaeological Investigation.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>The column entitled "Relevant Application Documents" then details any specific documents provided at DCO application that a stakeholder can review to confirm that this commitment has been included in the relevant document, plans and/or protocol to satisfy the DCO requirement. For the example of Co166 this is in the <a href="#">F2.4: Outline Marine Written Scheme of Archaeological Investigation (APP-239)</a>.</p>
4.8	<p>Paragraph 9.8.1.3 claims justification for "scoping out" some potential impacts (as listed in Table 9.8) based on other "... similar projects within the former Hornsea Zone, as well as other offshore wind farms located further afield, where location- specific impacts on marine archaeology have been successfully mitigated through the application of best-practice mitigation..." We must refer this matter to the Examination Authority to determine whether such an approach is justifiable in consideration of the risk that this project could encounter elements of the historic environment of importance which are presently unknown. On this matter we note the statement in paragraph 9.8.1.4 that the Commitments Register is included within the draft DCO as a document to be certified.</p>	<p>The proposed mitigation strategies (known as Commitments within the Hornsea Four DCO Application) relevant to marine archaeology are detailed in Table 9.9 of <a href="#">A2.9: Marine Archaeology (APP-021)</a>, alongside references to the DCO and DML conditions within which these commitments are secured <a href="#">C1.1: Draft DCO including Draft DMLs (REP2-061)</a>. These commitments are expanded on in <a href="#">F2.4: Outline Marine Written Scheme of Investigation (APP-239)</a> and consultation has been undertaken with Historic England during the pre-application stage in relation to this document and the commitments contained within.</p> <p>The Applicant continues to welcome dialogue on the delivery of the proposed commitments and notes that Condition 13(2) and 13(3) of Schedules 11 and 12 of <a href="#">C1.1: Draft DCO including Draft DML (REP2-061)</a> include for the provision for delivery of a marine written scheme of archaeological investigation to be agreed with the Marine Management Organisation (MMO) in consultation with Historic England prior to the commencement of construction activities.</p> <p>The Applicant hopes to continue engagement with Historic England through the Statement of Common Ground (SoCG) process in relation to the issues raised in their written representation.</p>
4.9	<p>It continues to be our advice that there could be significant impact to presently unknown archaeological materials during the following defined phases:</p> <ul style="list-style-type: none"> <li>• Construction (array area and export cable construction activities);</li> </ul>	<p>The Applicant notes that mitigation measures (commitments) are developed to eliminate or reduce any negative effects identified. In this context, commitments are taken to include design measures</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<ul style="list-style-type: none"> <li>• Construction (Intrusion of piling foundations disturbing or destroying archaeological receptors);</li> <li>• Construction (Compression of stratigraphic contexts containing archaeological material); and</li> <li>• Construction (cable laying operations).</li> </ul> <p>We acknowledge how the Applicant has referred to the use of Commitments (as set out in Table 9.9), should result in "negligible impact" on marine archaeology receptors . However, using previous (archaeological) assessments for other wind farms in the Hornsea Zone demonstrates the relevance of setting conditions for detailed post-consent and pre-construction assessment activities given the identification of possible impact and therefore the relevance of adaptive mitigation to avoid "likely significant effect". We therefore suggest that best practice could be demonstrated by combining:</p> <ul style="list-style-type: none"> <li>• embedded mitigation (i.e. avoiding presently known sites); and</li> <li>• adaptive mitigation (i.e. adjustment to implement an avoidance strategy where possible when sites are discovered).</li> </ul>	<p>(primary mitigation) and construction practices, as well as management actions (both secondary and tertiary mitigation). The Commitments Register identifies which type of mitigation is associated with which commitment (<a href="#">A4.5.2: Commitments Register (APP-050)</a>).</p> <p>The Applicant is utilising the terms Primary, Secondary and Tertiary (inexorable) as detailed in Section 5.4.2 of <a href="#">A1.4: Project Description (REP1-004)</a>.</p>
4.19	<p>Section 9.12 (Cumulative Effect Assessment) in paragraph 9.12.1.5 sets out that for the majority of potential effects for marine archaeology, planned projects were screened into the assessment case-by-case to represent the marine archaeology resources as might be encountered within the southern North Sea. However, we noted in Table 9.15 that the reason for inclusion was "cumulative effects on sediment movement and disturbance" for all the projects identified (mostly related to cables). It is our advice that this this assessment could also have considered offshore wind farm array areas constructed or otherwise planned for the southern North Sea and that consideration of marine archaeology resources could have given attention to how such development might compromise scientific activities to explore and map the complexity of prehistoric landscapes as known to exist within and under the contemporary seabed. We note that paragraph 9.12.1.8 does mention "palaeoenvironmental information" as could be affected by changes in sedimentary conditions attributable to seabed development.</p>	<p>Palaeoenvironmental information has a potential to be affected by changes in sedimentary conditions attributable to seabed development. The enhanced understanding of submerged landscapes by wider studies and dissemination of the results is secured through the embedded mitigation, Co167 (<a href="#">A4.5.2: Commitments Register (APP-050)</a>). Positive impacts and other relevant projects utilised for the assessment of palaeogeographic potential within the Southern North Sea is outlined in Appendix D of <a href="#">A5.9.1 Marine Archaeology Technical Report (APP-085)</a>.</p>
4.22	<p>Section 9.14 (Inter-Related Effects), Table 9.17 does not consider impacts associated with construction when the majority of seabed disturbance including scour, penetration, draw down and compression will occur.</p>	<p>Inter-related effects are considered for the construction, operation or decommissioning of Hornsea Four as per Sections 9.14.1.1, 9.14.1.3 of <a href="#">A2.9: Marine Archaeology (APP-021)</a> and Table 9.17. The third column within Table 9.17 outlines the results from the assessment alone, where impacts were scoped out during construction. The fourth column acknowledges that seabed disturbance including scour, penetration, draw down and</p>



Reference	Stakeholder's Written Representation	Applicant's Response
		compression, could occur within the construction and decommissioning phases. The assessment concludes that there are no inter-related impacts of greater significance compared to the impacts considered alone in respect of the construction, operation or decommissioning of Hornsea Four on marine archaeology receptors.
4.24	Although no crashed aircraft sites have been identified at this stage there was no acknowledgment that should the remains of military aircraft be found that all such sites are automatically afforded designated status as 'protected places' under the Protection of Military Remains Act 1986.	The Applicant can confirm that it is aware that wrecks of all aircraft crashed in military service as well as designated vessels (protected places) are afforded statutory protection by the Ministry of Defence under the Protection of Military Remains Act 1986, meaning that additional restrictions apply. Although none of these have been identified within the Hornsea Four marine archaeology study area to date, due to the great numbers of historic aviation losses across the UK; the possibility remains that previously unknown sites may be encountered as detailed in both <a href="#">A2.9: Marine Archaeology (APP-021)</a> and <a href="#">F2.4: Outline Marine Written Scheme of Investigation (APP-239)</a> .
4.25	No detail appears to be provided about how cable laying operations will be conducted at any coastal landfall location. No strategic approach was presented to assess the heritage interest of any heritage assets that this project might encounter prior to or during construction. We consider this a relevant matter given the attention in Table 9.12 to how major, moderate or low beneficial "impacts" could be identified. For example, information as could be derived from archaeological technical reports produced out of the assessment exercises conducted for this proposed project, as necessary to inform any construction programme, should consent be obtained.	Information on cable laying operations at landfall is presented in Section 4.9 of <a href="#">A1.4 Project Description (REP1-064)</a> . The Applicant can confirm that landfall geophysical and geotechnical survey data acquired in the summer of 2021 will inform the construction programme in addition to the known archaeological receptors identified within <a href="#">A2.9 Marine Archaeology (APP-021)</a> and <a href="#">A3.5 Historic Environment (APP-029)</a> which will be avoided as per Co146.
7.4	Paragraph 3.4.1.5 mentions the <i>Adventure</i> which the text indicates was lost in 1882 but was not considered of archaeological significance due to it being modern or due to the absence of other information. We do not agree with this conclusion.	The Applicant can confirm that the <i>Adventure</i> (recorded as DEAD and not seen during the geophysical surveys) is outside the Order Limits and has therefore not been considered for significance. The reference to modern sinking date refers to the fishing vessels Linda Louise (1983).
8.1	In paragraph 7.1.1.2 we recommend that the following Historic England guidance is referenced: 'Deposit Modelling', 'Environmental Archaeology' and 'Waterlogged Organic Artefacts'.	Relevant forthcoming relevant method statements and the final Marine Written Scheme of Investigation will ensure these references to Historic England publications are updated.

Reference	Stakeholder's Written Representation	Applicant's Response
8.2	In paragraph 7.4.1.4 it is our advice that scientific dating should also be added to the list of considerations to be addressed by individual Method Statements.	The final Marine Written Scheme of Investigation will ensure scientific dating specifically outlined rather than covered within assessment and analysis.
8.3	In section 7.10 (Human Remains) should reference all the relevant guidance, including the Historic England 'The Role of the Human Osteologist in an Archaeological Fieldwork Project' guidance.	The Applicant can confirm that the final WSI will ensure that the reference is included.
<i>Responses to Examining Authority's First Written Questions (REP2-075)</i>		
HE.1.3	<p>Question: HE 1.3 Impact on historic seascapes Does HE accept the Applicant's assessment [APP-021 para 9. 7.2.18] that " .. it is considered that the impact on the historic seascapes by the introduction of wind farm infrastructure does not warrant further methodological development or mitigation" and if not, why not? HBMCE Response <i>We are prepared to concur that further methodological development in terms of how spatial perceptions of historic seascape character can be generated is not required. In our Written Representation we have referred to the completed and published methodology available online (via the Archaeological Data Service). The important task for the Applicant is to demonstrate the use of this methodological approach to demonstrate how they have produced their perception of how historic character and whether change can be accommodated as proposed. The consideration of change as could be introduced by this project should be set out as narrative text and supported by spatial analysis informed by the Maximum Design Scenario.</i></p>	The Applicant is satisfied that the correct baseline data and guidance was used for the Historical Seascape Characterisation (HSC) assessment which has been demonstrated as a narrative and no further methodological development is required (Historic England 29th March 2022).
<i>Written Representations (REP2-076)</i>		
REP2-076: 9.1 – 9.8	<p>Paragraph 7.2.1.5 infers that scientific dating will only form part of the post-excavation analysis stage. However, scientific dating must form an integral part of the post-excavation assessment stage to determine evidential and interpretative value, design a fit-for-purpose scientific dating programme, refine research questions, etc., for the post-excavation analysis stage of the project.</p> <p>Paragraph 7.7.1.5: Regarding the reporting of archaeological discoveries, in addition to the ORPAD Implementation Service, etc., provision should be made to notify the Humber Archaeological Partnership (archaeological advisors to the local authority) of any significant discoveries as a matter of course.</p>	<p>The Applicant has updated Section 7.6 (Paragraph 7.6.1.3) of <b>F2.10: Outline Written Scheme of Investigation for Onshore Archaeology (APP-245)</b> (oWSI) to provide additional details to HBMCE of the safety and protection of the Beverley Sanctuary Limit Stone during construction. Reference to the Mitigation Method Statement will be added to the Outline Code of Construction Practice at Deadline 4.</p> <p>The Applicant has also updated the oWSI in response to Historic England's comment to remove reference to scientific dating at analysis stage (Paragraph 7.2.1.5), provide an update on ORPAD (Section 7.7), to confirm prompt reporting of discoveries to HAP</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>Paragraph 7.7.1.9: As above with regard to reporting archaeological discoveries.</p> <p>Paragraph 10.7.1.9 should state that samples will be processed and sorted for the post-excavation assessment (as per the Historic England 'Environmental Archaeology' guidance).</p> <p>Paragraph 10.8.1.2 states "The soil sampling strategy for each SPE and SMS area will be informed by the results of the evaluation works..." However, how will the sampling strategy for any outstanding evaluation works be designed?</p> <p>Paragraph 10.8.1.3 states that flotation samples "...will typically be up to 40 litres in size." Forty litres is actually the minimum; the Historic England 'Environmental Archaeology' guidance stipulates that flotation samples should be between 40 and 60 litres in volume.</p> <p>Paragraph 10.8.1.5 should also mention coarse-sieved samples in addition to the other sample-types listed.</p> <p>Section 10.9 should reference all the relevant guidance, including the Historic England 'The Role of the Human Osteologist in an Archaeological Fieldwork Project' guidance</p>	<p>(Paragraph 10.7.1.9), to provide clarity of sample sizes and types, to provide reference to undertaking environmental sampling, processing, assessment and analysis in accordance with Historic England's 'Environmental Archaeology' guidance (Section 10.8), and to include reference to the appropriate standards for dealing with human remains (Paragraph 10.9.1.1).</p> <p>It should be noted that Paragraph 10.8.1.2 of the oWSI refers to the soil sampling strategies for SPE and SMS areas only as this section presents model clauses for archaeological mitigation and not evaluation, and therefore no update/amendment to the text has been made. In response to the question raised by Historic England, the soil sampling strategy for the evaluation works would be undertaken in accordance with best practice but also consider the findings of the geoarchaeological work, where relevant.</p>

## 7 Applicant's Comments to Marine Management Organisation (MMO)

Reference	Stakeholder's Written Representation	Applicant's Response
<i>Written Representations - MMO comments on the revised Development Consent Order (DCO) and Deemed Marine Licences (DMLs) (REP2-077)</i>		
	Comments on DCO by MMO	In general the comments on the draft DCO by the MMO have been accepted by the Applicant. Where these have not been accepted, or clarification is required, this has been provided in the below comments. For a detailed list of updates please see <a href="#">C1.1.1 Draft DCO and DML Schedule of Changes</a> submitted at Deadline 3.
	The MMO reiterated its request for documents to be submitted for approval at least six months prior to the intended commencement of the relevant stage of licensed activities, rather than four months proposed by the Applicant.	<p>The Applicant refers to its response to RR-029-APDX:A-10.</p> <p>Condition 14(1) of Part 2 of Schedules 11 and 12 of the draft DCO was updated at Deadline 1 to provide for a six-month period for submission of the marine written scheme of investigation, fisheries coexistence and liaison plan, design plan, offshore cable installation plan and HVAC booster station lighting plan (as relevant to each DML).</p> <p>Note the Applicant has also now updated condition 13(2) of Schedules 11 and 12 to refer to a six-month period for submission of the marine written scheme of investigation as there was a minor inconsistency with the addition of condition 14(1). The Applicant has also removed reference to the HVAC booster station lighting plan from Schedule 11 as it was included in error and is not relevant to the generation assets authorised by that DML.</p>
2.3.2	<p>General comments</p> <p>2.3.2 The MMO does not agree with the current seasonal piling restrictions of "between 1st September to 16 October each year" in Schedule 12, Part 2, Condition 23 and requests that this is updated to "between 1st August and 31st October each year". Details of the reasoning for this request are set out within sections 3.7.32 to 3.7.36 of RR-020 and are not repeated here.</p>	With regards to the proposed seasonal piling restriction, please see the Applicant's response to the Examiners questions at Deadline 2 ( <a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a> ), specifically the response to ME.1.4. Additionally, the Applicant has provided responses to the MMO's comments at Deadline 2 ( <a href="#">G2.6: Applicant's Comments on Other Submissions Received at Deadline 1 (REP2-043)</a> ) and has submitted an updated clarification note at Deadline 2, taking into

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>account the MMO's feedback (<a href="#">G1.10: Clarification Note on Peak Herring Spawning Period and Seasonal Piling Restriction (REP2-032)</a>).</p> <p>Based on the evidence and analysis presented in <a href="#">G1.10: Clarification Note on Peak Herring Spawning Period and Seasonal Piling Restriction (REP1-039)</a>, the Applicant considers it appropriate to conclude that the proposed seasonal restriction for Hornsea Four (1st September – 16th October – secured by Condition 23 of Schedule 12 of <a href="#">C1.1: Draft DCO including DML (REP1-002)</a>) acts to effectively cover the “peak” of the spawning season, with additional conservatism incorporated into the proposed dates beyond that required based on the back-calculations as informed by available literature (and as requested by the MMO), and as a result provides a robust mitigation of the potential effects of piling of the HVAC booster station on herring spawning.</p> <p>The Applicant continues to engage with the MMO on the seasonal piling restriction through the Statement of Common Ground (SoCG) process.</p>
2.4.1	The MMO has concerns regarding the transfer of the DMLs based on the current drafting and requests that all references to the MMO and DMLs should be removed from Article 5 of the DCO.	<p>The Applicant does not consider amendments to the draft DCO to be necessary.</p> <p>It is standard for the Secretary of State to be the consenting authority for the transfer of the benefit of the deemed marine licences as envisaged by Article 5 of the draft DCO. The role of the Secretary of State as the relevant consenting authority for this purpose has been included in all recently granted offshore wind farm DCOs including the Hornsea Three Offshore Wind Farm Order 2020, the Norfolk Boreas Offshore Wind Farm Order 2021, the Norfolk Vanguard Offshore Wind Farm Order 2022, the East</p>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>Anglia ONE North Offshore Wind Farm Order 2022 and the East Anglia Two Offshore Wind Farm Order 2022.</p> <p>It is essential to ensure the smooth transfer of benefit of the provisions of the Order (including the DMLs) that a single regulator is responsible for approving (as necessary) the transfer.</p>
2.6.12	<p>The MMO requested the addition of an additional paragraph to condition 2 of Part 2 of Schedules 11 and 12:</p> <p>"(h) the disposal of drill arisings in connection with any foundation drilling up to a total of 399,776 cubic metres"</p> <p>or clarity added to condition 2(a) on the volumes of drill arisings.</p>	<p>The Applicant refers to its response to REP-020-2.4.3.</p> <p>The Applicant notes that Schedule 11 condition 1(9) states: "The wind turbine generators comprised in the authorised project must be constructed in accordance with the parameters set out in the pro-rata annex."</p> <p>Schedule 12 condition 1(13) states: "The offshore electrical installations comprised in the authorised project must be constructed in accordance with the parameters set out in the pro-rata annex."</p> <p>Table 1 of the pro-rata annex provides the total "drilling spoil" and the drilling spoil per position (turbine foundation and substation foundation (where relevant)).</p> <p>The Applicant therefore considers that the licensed volume of drill arisings is sufficiently precise and secured and no updates to the draft DCO are necessary.</p>
2.6.15	<p>The MMO welcomed the addition of paragraph 9 of Part 1 of Schedules 11 and 12 but continued to express concern with the use of the terms "immaterial changes" and "materially new or materially greater environmental effects".</p>	<p>The Applicant refers to its response to RR-020-2.1.16.</p> <p>The drafting of paragraph 9 is standard and similar wording has been included in all recently granted offshore wind farm DCOs including the Hornsea Three Offshore Wind Farm Order 2020, the Norfolk Boreas Offshore Wind Farm Order 2021, the Norfolk Vanguard Offshore Wind Farm Order 2022, the East Anglia ONE North Offshore Wind Farm Order 2022 and the East Anglia Two Offshore Wind Farm Order 2022.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
		The Applicant does not consider amendments to the draft DCO to be necessary.
2.6.19	The MMO stated that the term "maintenance works" is not currently defined and in Schedules 11 and 12.	The Applicant does not consider amendments to the draft DCO to be necessary as condition 4(3) of Part 2 of Schedules 11 and 12 already provides details of maintenance works.
2.6.21	The MMO requests that the phrase "under its control" is deleted from condition 5(1) of Part 2 of Schedules 11 and 12 as the MMO's view is that it restricts the provision to only those vessels under the direct control of the undertaker and not agents or contractors.	The Applicant disagrees with the MMO's interpretation and does not consider amendments to the draft DCO to be necessary. The phrase "under its control" ensures the condition applies to vessel's operating under the control of the undertaker's agents and contractors.
2.6.23	The MMO requests clarity on the definition of "transport managers" within the draft DCO.	The Applicant has reviewed this term and updated it to "offshore operations manager" which is a more accurate description of the role. An offshore operations manager is the person responsible for marine coordination and licensing activities on behalf of the Applicant.
2.6.24	The MMO requested clarity on what the "confirmation form" is as referred to in condition 7(1)(b) of Part 2 of Schedules 11 and 12 and queried whether it should be included under Part 1 Article 1(1).	The confirmation form is a form from the relevant agents/contractors confirming receipt of a copy of the licence. The Applicant considers the meaning to be clear in the context in which it is used and does not consider amendments to the draft DCO to be necessary.
2.6.27	The MMO queried whether the reference in condition 7(8)(b) of Part 2 of Schedules 11 and 12 to the term "all offshore activities" is sufficiently clear.	The Applicant considers the reference is sufficiently clear and covers activities carried out below MHWS and therefore within the scope of the DMLs. The Applicant does not consider amendments to the draft DCO to be necessary.
2.6.28	The MMO queried whether the reference in condition 7(10) of Part 2 of Schedules 11 and 12 to the term "construction activities" is sufficiently clear.	The Applicant considers the reference is sufficiently clear as this is a widely used term which is commonly understood. The Applicant does not consider amendments to the draft DCO to be necessary.
2.6.29	The MMO requested that "within 24 hours of the notification" is added to the end of condition 7(11) of Part 2 of Schedules 11 and 12.	The Applicant does not consider that 24 hours provides sufficient time to deal with any technical issues which may arise with the associated confirmation or uploads. This time period would unnecessarily put the undertaker at risk of breaching the marine licence condition, which is disproportionate.

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>The Applicant is however willing to accept a requirement to send the MMO a copy of such notifications within 5 days of the notification to the UK Hydrographic Office. This timeframe has been included within the Norfolk Boreas Offshore Wind Farm Order 2021, the Norfolk Vanguard Offshore Wind Farm Order 2022, the East Anglia ONE North Offshore Wind Farm Order 2022 and the East Anglia Two Offshore Wind Farm Order 2022.</p>
2.6.36	<p>The MMO noted that condition 11(2) of Part 2 of Schedule 11 is worded differently to the one within Schedule 12, which adds "guidelines approved by Health and Safety Executive and the Environment Agency."</p> <p>The MMO requested clarity as to whether "the Environment Agency" should be included within condition 11(2) of Schedule 11.</p>	<p>Schedule 11 authorises licensable activities solely in the offshore area (the generating assets) where the Environment Agency does not have a statutory function. As such an amendment to Schedule 12 of the draft DCO is not appropriate or necessary.</p>
2.6.41	<p>The MMO queried why the Applicant had amended the period for reporting of dropped objects in condition 11(10) of Part 2 of Schedules 11 and 12 of the draft DCO from 24 to 48 hours.</p>	<p>The Applicant notes that condition 11(10) of Part 2 of Schedule 11 referred to a 48-hour period at DCO application, and condition 11(10) of Part 2 of Schedule 12 was updated at Deadline 1 to correct the reference to a 24-hour period.</p>
2.6.42	<p>The MMO also advised including a 6-hour period for reporting dropped objects which are considered a danger or hazard to navigation.</p>	<p>The Applicant requires a 48-hour period for notification to allow sufficient time for the vessel to transit back to port, vessel demobilisation, completion of vessel and equipment audit, determination/identification of dropped/lost object and notification of the relevant authorities. The 48-hour period therefore allows sufficient time to conclude the necessary steps prior to the confirmation of dropped objects and the notification to the MMO.</p> <p>The Applicant notes that all necessary steps will be taken to ensure that the notification happens as quickly as possible, and the 48-hours is the maximum period allowed. A shorter time-period</p>



Reference	Stakeholder's Written Representation	Applicant's Response
		would unnecessarily put the undertaker at risk of breaching the marine licence condition which is disproportionate.
2.6.44	The MMO advised that condition 12 of Part 2 of Schedules 11 and 12 is not necessary as there is already a defence under Section 86 of the Marine and Coastal Access Act 2009 for action taken in an emergency in breach of any licence conditions.	The Applicant wishes to clarify that condition 12 is not seeking to duplicate the provisions of the Marine and Coastal Access Act 2009 which provide a defence for action taken in an emergency, rather condition 12 obliges the Applicant to notify the MMO if emergency unauthorised deposits are made.
2.6.47	The MMO queried whether the term "Chart Datum" should be defined in the DMLs.	The Applicant considers this to be a widely used and commonly understood term and that no changes are therefore necessary.
2.6.49	The MMO queried whether contact details for the National Record of the Historic Environment are required to be included within the DMLs.	The Applicant notes that the submission the National Record of the Historic Environment is online and so considers that the DMLs are sufficiently precise, and that no contact details are required.
2.6.55	The MMO queried the purpose of condition 13(8) of Part 2 of Schedules 11 and 12.	<p>The Applicant can confirm the purpose of condition 13 paragraphs (7) – (9) is to ensure collaboration between undertakers in the event of any transfer of benefit of the DMLs and was included in response to the MMO's RR-020-2.1.1 which was:</p> <p>"The dDCO contains 2 DMLs consisting of one for the generation assets (Schedule 11) and one for the transmission assets (Schedule 12). Splitting the assets into two separate DMLs ensures smooth transitions during the transfer of benefit. If a transfer of benefit were to happen, it is unclear what mechanisms would be in place to ensure two different asset holders working in the same area would collaborate together, especially with regard to incombination effects. This is considered a potential risk to the project by the MMO. The MMO is therefore considering requesting the inclusion of a collaboration condition to go within the DML. The MMO will confirm this within its next written response."</p> <p>The text is based on similar provisions included in the Hornsea Two Offshore Wind Farm Order 2016.</p>
2.6.57	The MMO noted that "HVAC booster station lighting plan" is not defined within Schedule 11 but that a definition is included within Schedule 12.	A definition of "HVAC booster station lighting plan" is not required in Schedule 11 as the HVAC booster station is part of the marine

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>licensable activities (i.e. transmission works) authorised by Schedule 12 only.</p> <p>The Applicant has deleted reference to the HVAC booster station lighting plan within condition 14(1) of Part 2 of Schedule 11 which was included in error.</p>
2.7.9	The MMO queried whether the reference to "UK Hydrographic Office" should state "United Kingdom" and not "UK" as currently drafted.	The Applicant notes that "UK Hydrographic office" is the term used by the UK Government, specifically the Ministry of Defence, and as such does not consider any amendments to the DCO to be necessary.
2.7.13	The MMO queried whether the term "works" is sufficiently clear in condition 2(b) of Part 1 of Schedules 11 and 12.	The Applicant considers the term to be sufficiently clear and precise and that no amendments to the DCO are necessary
2.7.15	The MMO queried whether it was beneficial to have specific subparagraphs for each of the work numbers.	The Applicant has adopted a standard approach to identifying Work Nos. which it considers to be sufficiently clear and precise and as such does not consider that amendments to the DCO are necessary.
2.7.32	The MMO requested that "within 24 hours of the notification" is added to the end of condition 10(2) of Part 2 of Schedules 11 and 12.	<p>The Applicant does not consider that 24 hours provides sufficient time and unnecessarily puts the undertaker at risk of breaching the marine licence condition, which is disproportionate.</p> <p>The Applicant is however willing to accept a requirement to send the MMO a copy of such notifications within 5 days of the notification to the Defence Infrastructure Organisation Safeguarding and the Civil Aviation Authority. This timeframe has been included within the Norfolk Boreas Offshore Wind Farm Order 2021, the Norfolk Vanguard Offshore Wind Farm Order 2022, the East Anglia ONE North Offshore Wind Farm Order 2022 and the East Anglia Two Offshore Wind Farm Order 2022.</p>
2.7.57	The MMO queried why there is no requirement for an ornithological monitoring plan in condition 13(1) of Part of Schedule 12 as there is in Schedule 11.	The ornithological monitoring plan is relevant to the generation assets (i.e. wind turbines) which are licensed activities for the purposes of Schedule 11. It is not relevant to the transmission assets which are licensed activities for the purposes of Schedule 12.

Reference	Stakeholder's Written Representation	Applicant's Response
<a href="#">3. Comments on any other submissions received at Deadline 1 (REP2-077)</a>		
<p>3.2.1</p>	<p>3.2 Historic England Written Representation (RR-015)</p> <p>3.2.1 The MMO concurs with point 4 of Historic England's written representation that: "This is the first Nationally Significant Infrastructure Project where we have encountered the use of a Commitments Register and therefore we are uncertain as to how it will be enacted as it does not appear to be identifiable within the articles of the draft Development Consent Order including (draft) deemed Marine Licences for generation assets (Schedule 11) and transmission assets (Schedule 12). We also note that the Commitments Register is included in the list of "documents to be certified" within the draft Development Consent Order (Schedule 15)."</p>	<p>With regards to how the Commitments Register will be enacted, please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to ES.1.21.</p> <p><a href="#">A4.1.1: How To Read This ES (APP-035)</a> provides supporting information to guide the reader in navigating the various documents and registers that have been provided to support the proportionate approach to EIA promoted in the Hornsea Four application for development consent.</p> <p>The commitments set out in the Commitments Register are each secured through the specific certified documents and specified in the Register. The purpose of the Commitments Register is to provide a tool to review key information associated with all commitments, allowing easy cross reference with the Impacts Register, ES chapters and the relevant documents, plans, and/or protocols that secure their commitment and where those are secured in the DCO.</p> <p>Both <a href="#">A4.5.2: Commitments Register (APP-050)</a> and the <a href="#">A4.6.4: Compensation Commitments Register (APP-060)</a>, include a column entitled "How is the Commitment secured". This column indicates how each individual commitment is secured via a DCO requirement and associated document, plan and/or protocol. An example of this is Co. 166, the commitment to undertake an offshore geotechnical survey (including UXO survey) prior to construction and subject to a full archaeological review in consultation with Historic England. This is secured via DCO Schedules 11 and 12, Part 2, Conditions 13 (2) and 13(3), which require a Marine Written Scheme of Archaeological Investigation.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>The column entitled "Relevant Application Documents" then details any specific documents provided at DCO application that a stakeholder can review to confirm that this commitment has been included in the relevant document, plans and/or protocol to satisfy the DCO requirement. For the example of Co. 166 this is in the <a href="#">F2.4: Outline Marine Written Scheme of Archaeological Investigation (APP-239)</a>.</p>
3.5.4	<p>3.5.4 Whilst the MMO support the use of Expert Geomorphological Assessment (EGA) to assess the potential impacts on Smithic Bank, we understand that there are no Guidance/Best Practise documents for this. It is the MMO's experience that the best advice from EGAs come where a panel or group is established with experts of differing views and then a consensus is developed.</p>	<p>With regards to the additional scope of works described in <a href="#">G1.46: Marine Processes Supplementary Works Scope of Works (REP1-068)</a>, please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to MC.1.20.</p> <p>The Applicant confirms the scope of works presented in <a href="#">G1.46: Marine Processes Supplementary Works Scope of Works (REP1-068)</a> were submitted into Examination at Deadline 1 and comments received from the MMO and Natural England will be addressed within this workstream as appropriate. Further meetings should they be required will be held between the Applicant, the MMO and Natural England on the outputs from this workstream.</p> <p>Further, the Applicant has secured the services of external independent expert Prof Mike Elliot, Director of International Estuarine &amp; Coastal Specialists Ltd. An update on this workstream is expected to be submitted into Examination at Deadline 3.</p>
3.5.5	<p>3.5.5 Alternatively, the EGA can be reviewed by the ETG (i.e. by NE, MMO and Cefas and potentially external independent experts) before an agreed position is developed. Whatever model is setup, it should include experts of differing views in order to provide a challenge.</p>	<p>Please see the Applicant's response to point 3.5.4 above.</p>

[5. Responses to the ExA's First Written Questions \(ExQ1\) \(REP2-077\)](#)

Reference	Stakeholder's Written Representation	Applicant's Response
<p>CF Commercial Fishing and Fisheries - 1.2</p>	<p>1.2 Cumulative effect of potential Marine Conservation Zone (MCZ) potting restrictions. Please comment in detail on the representation [AS- 026] from the NFFO that it cannot agree with the assessed likely 'minor' magnitude of impact on UK potting fleets of the inclusion of MCZs in the ES Chapter 6 consideration of cumulative effects, [APP-018, section 6.12.2.18] because the prohibition of bottom-contacting fishing in MCZs has potential to affect potting activity that should be taken account of in the assessment of cumulative impact for this Proposed Development. If it were to be included what implications would this have for the conclusions drawn in the ES? (If not fully addressed in the Applicant's Deadline 1 responses to Relevant Representations. Cross-reference may also be made to relevant responses to ExQ1 Marine Ecology.)</p> <p><i>MMO Response:</i> The MMO notes that the Applicant intends on continuing to engage with the NFFO. The MMO encourages this engagement.</p> <p>The MMO is however, reviewing the details of this question and defers to a subsequent Deadline for this question.</p>	<p>With regard to how fishing activity in MCZs has been taken account in the assessment of cumulative impacts, please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to CF.1.2.</p>
<p>ES Environmental Impact Assessment (EIA) and Environmental Statement – 1.7</p>	<p>1.7 Dudgeon and Sheringham Shoal Extension</p> <p>In light of the Secretary of State's Norfolk Vanguard decision letter and the publication of the proposed Dudgeon and Sheringham Shoal Extension projects' Preliminary Environmental Impact Report (PEIR) on 29 April 2021, are any changes needed to the cumulative assessment, given that some topics were screened out at the time of the assessment due to low data confidence?</p> <p><i>MMO Response:</i> The MMO defer to Natural England (NE) as the Statutory Nature Conservation Body for this question.</p>	<p>With regard to the potential for changes needed to the cumulative assessment, please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to ES.1.7 which confirms no changes are required.</p> <p>It is important to note that Natural England (<a href="#">AS-028</a>) provided the following response to this question: "Natural England are not aware of any changes needing to be made to the cumulative assessment. Additional receptors do not need to be added back in."</p>
<p>ES Environmental Impact Assessment (EIA) and</p>	<p>1.18 Plans required before commencement of marine licensed activities</p> <p>The following plans are required to be produced before commencement of marine licensed activities (draft DCO [APP-203]):</p> <ul style="list-style-type: none"> <li>• a construction project environmental management and monitoring plan (including a marine pollution contingency plan, a marine biosecurity plan, and a vessel management plan);</li> </ul>	<p>Please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to ES.1.18 which confirms the drafting of condition 13 has been updated and explains the purpose of the Outline Cable Specification and</p>

Reference	Stakeholder's Written Representation	Applicant's Response
<p>Environmental Statement – 1.18</p>	<ul style="list-style-type: none"> <li>• a scour protection management plan;</li> <li>• a piling marine mammal mitigation protocol;</li> <li>• a cable specification and installation plan;</li> <li>• an aid to navigation management plan;</li> <li>• a site integrity plan (assumed to relate to the Southern North Sea Special Area of Conservation (SAC)); and</li> <li>• an ornithological monitoring plan.</li> </ul> <p>Condition 13 mentions only the Site Integrity Plan and Piling Marine Mammal Mitigation Protocol in relation to a need to accord with an outline plan listed in Schedule 15 and secured through Article 38 of the draft DCO [APP-203].</p> <p>On what basis would the other plans be produced to ensure that the remaining effects fall within the scope of those predicted in the ES?</p> <p>What is the purpose of the submitted Outline Offshore Cable Installation Plan [APP-250]?</p> <p><i>MMO Response:</i> The MMO are currently reviewing the list of plans to be produced and will address this question at Deadline 4.</p>	<p>Installation Plan (formerly the Outline Offshore Cable Installation Plan).</p>
<p>Marine and Coastal Geology, Oceanography and physical processes -1.2</p>	<p>1.2 Further geophysical surveys</p> <p>Chapter 4 of the ES [APP-010] notes that pre-construction, high resolution geophysical surveys were yet to be undertaken at the time of writing, but that they were planned for 2021 and that interpretation will be available Q4 2021. Could the Applicant provide an update and all invited parties comment on any implications?</p> <p><i>MMO Response:</i> The MMO awaits the Applicant's response to this question and will contribute at a Deadline 3.</p>	<p>Please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to MC.1.2 and MC.1.3 which confirms the Applicant's intention to provide an update on this workstream by means of a <a href="#">G3.6 Clarification Note on the Justification of Offshore Maximum Design Scenarios</a> which will be submitted at Deadline 3.</p>
<p>Marine and Coastal Geology, Oceanography and physical processes – 1.4</p>	<p>1.4 Sign-off of any further geophysical surveys</p> <p>Natural England [RR- 029] suggests that further commitments and regulator sign-off would be necessary in relation to any preconstruction geophysical surveys. What is the Applicant's and MMO's reaction to this suggestion?</p> <p><i>MMO Response:</i></p>	<p>Please see the Applicant's response to RR-029-5.34 at Deadline 1 (<a href="#">G1.9: Applicant's comments on Relevant Representations (REP1-038)</a>).</p>

Reference	Stakeholder's Written Representation	Applicant's Response
Marine and Coastal Geology, Oceanography and physical processes – 1.9	<p>1.9 Cable protection volume</p> <p>Table 4.26 of ES Volume A1 Chapter 4 Project Description [APP-010] details a total area of cable protection of 1,510,000m<sup>2</sup> and a total volume of 1,449,000m<sup>3</sup>. Is there a discrepancy between the volumes presented in the ES and Requirement 5(6) of the draft DCO [APP-203]? If so, why, and does it need to be corrected?</p> <p><i>MMO Response:</i></p> <p><i>The MMO awaits the Applicant's response to this question and will contribute at a subsequent Deadline if appropriate.</i></p>	<p>Please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to MC.1.9.</p>
Marine and Coastal Geology, Oceanography and physical processes – 1.14	<p>1.14 Location of the Flamborough Front</p> <p>The information provided to the Examination suggests different views are held about the location of the Flamborough Front.</p> <p>The ES [APP-013, paras 1.7.9.2 and 1.7.9.3] suggests it is south of the proposed array area. Natural England's Relevant Representation [RR- 029, Appendix E, entries 8, 74 and 97] argues that Figure 37 of the Marine Processes Technical Report [APP-067] shows the array area to be located within a zone of 90-100% occurrence of the Front. If the location of the Front is not fixed, to what extent does it vary and over what time frame? What implications does this have for turbulent wakes and their effects? What are the implications of the inclusion of the noncylindrical, gravity base structure foundations in the array, and what level of certainty can be applied to the consequent wakes, their interactions, and potential direct impacts on the Flamborough Front and indirect impacts on seabirds and marine mammals through changes to its productivity?</p> <p><i>MMO Response:</i></p> <p><i>The MMO is seeking technical advice on this question and as such defers to a subsequent Deadline. The MMO notes that the Marine Processes Supplementary Report(s) are due to be submitted by the Applicant at Deadline 3, which is only a week before the ExA's planned Issue Specific Hearings and 2 weeks before Deadline 4 and advises that this does not provide adequate time for Interested Parties to review the documents robustly.</i></p> <p><i>The MMO is seeking technical advice on this question and as such defers to a subsequent Deadline. The MMO notes that the Marine Processes Supplementary Report(s) are due to be submitted by the</i></p>	<p>Please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to MC.1.14.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p><i>Applicant at Deadline 3, which is only a week before the ExA's planned Issue Specific Hearings and 2 weeks before Deadline 4 and advises that this does not provide adequate time for Interested Parties to review the documents robustly.</i></p>	
<p>Marine and Coastal Geology, Oceanography and physical processes -1.15</p>	<p>1.15 Sensitivity of the Flamborough Front                      Natural England [RR- 029, Appendix E, entry 56] suggests that the Flamborough Front feature should have a high sensitivity rather than medium (as allocated in the ES [APP-013]), given that the novelty of the situation and information gaps should lead to a precautionary approach that cannot, on current understanding, rule out more significant impacts and Adverse Effects on Integrity in relation to three European sites. Can the Applicant provide anything further to close such gaps and provide corroborative evidence for the medium sensitivity, or should this be changed to high? If so, a reassessment and further consideration of mitigation would be required. This would be required in the Examination as soon as possible. When would any results be available? (If not fully addressed in the Applicant's Deadline 1 response to Relevant Representations.)</p> <p><i>MMO Response:</i>                      The MMO is seeking technical advice on this matter and will await the Applicant's answer, as such we defer to a subsequent Deadline.</p>	<p>Please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to MC.1.15.</p>
<p>Marine and Coastal Geology, Oceanography and physical processes – 1.17</p>	<p>1.17 Dredgings disposal site                      Is there any progress in discussions between the Applicant and the MMO over the updating of application documents in respect of defining a preferred dredgings disposal site, and over the final agreement about the site or sites to be used? If this matter is not yet resolved, is it likely to be so before the close of the Examination?</p> <p><i>MMO Response:</i>                      The MMO are in ongoing discussions with the Applicant and will aim to provide an update on the status of discussions on the disposal site at a subsequent Deadline.</p>	<p>Please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to MC.1.17. The Applicant has informed the MMO through the SoCC process of its intention to accommodate the Dogger Bank A&amp;B Export Cable Corridor (ECC) (intertidal and offshore) by exclusion of the Dogger Bank A&amp;B disposal sites from the defined disposal sites for the Proposed Development.</p>
<p>ME Marine Ecology: Fish and Shellfish Ecology - 1.5</p>	<p>1.5 Mitigation of suspended sediment impacts on herring                      The MMO [RR-020] disagrees with the Applicant's ES in relation to the magnitude of impact on herring spawning grounds in the ECC through direct damage and temporary increases in suspended sediment. It points to the International Herring Larvae Surveys data reproduced in the Applicant's</p>	<p>Please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to ME.1.5.</p>



Reference	Stakeholder's Written Representation	Applicant's Response
	<p>Fish and Shellfish Ecology Technical Report [APP-071] to support its position that the impact would be greater than minor.</p> <p>Could the Applicant indicate whether further assessment and mitigation is necessary, and, if not, why not? Would the extended seasonal piling restriction (for noise effects) proposed by the MMO adequately mitigate these direct damage and suspended sediment effects, or would further spatial restrictions also be considered necessary? The MMO's position on this is not clear in its Relevant Representation, so could clarification be provided please?</p> <p><i>MMO Response:</i> The MMO provided an updated suite of advice on this matter within REP1-076. The MMO will review the Applicant's response to this question and provide a response if applicable at a subsequent Deadline.</p>	<p>The Applicant continues to engage with the MMO through the SoCG process and welcomes discussion on this matter once the MMO has reviewed the Applicant's response to this question.</p>
<p>Noise, Vibration, Electromagnetic Fields (EMFs) and Light - 1.1</p>	<p>1.1 Transboundary noise effects on fish</p> <p>Could the MMO clarify its position in relation to potential transboundary effects from underwater construction noise. On one hand, the Relevant Representation [RR- 020] seems to suggest that the Proposed Development has the potential to affect fish in Netherlands waters (though in the absence of behavioural response impact range noise contours it is said not to be possible to determine the extent).</p> <p>On the other hand, the Relevant Representation states that, given the distances involved, "the MMO agree that the risk of significant impact of potential transboundary effects is likely to be low."</p> <p>Does the Applicant intend to provide any further analysis to test for any such transboundary underwater noise impacts, and, if not, why not?</p> <p><i>MMO Response:</i> The MMO is reviewing this question alongside our technical advisors, as such we defer to a subsequent Deadline.</p>	<p>Please see the Applicant's response to RR-020-3.6.12 and RR-020-3.6.13 at Deadline 1 (<a href="#">G1.9: Applicant's comments on Relevant Representations (REP1-038)</a>).</p>
<p>Noise, Vibration, Electromagnetic Fields (EMFs)</p>	<p>1.6 At-source mitigation of underwater noise for cetaceans</p> <p>Co110 of the Commitment Register [APP-050] is noted, but is it necessary in addition for the Applicant to refer specifically and to commit to the at source underwater noise reduction measures that were included as mitigation measures in the underwater noise assessment? If such</p>	<p>Please see the Applicant's response to the Examiners questions at Deadline 2 (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to NVL.1.6.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
and Light – 1.6	<p>commitments are not made, what are the implications for the EIA and the HRA in relation to the harbour porpoise interest feature of the Southern North Sea SAC?</p> <p><i>The MMO supports the position that specific mitigation commitments should be secured within the DCO/DML, and that if they are not, they would impact conclusions of impact assessments where mitigation is relied on.</i></p>	
Noise, Vibration, Electromagnetic Fields (EMFs) and Light – 1.7	<p>1.7 Concurrent piling</p> <p>The MMO [RR-020] notes the Outline Marine Mammal Mitigation Protocol statement that there would be no concurrent piling between the array area and the HVAC booster stations in the export cable corridor but suggests that this is not made clear in Co85 of the Commitment Register [APP-050]. Does this need to be clarified in the Commitment Register? If not, why not?</p> <p><i>MMO Response:</i> <i>The MMO believe that this should be clarified in the Commitment Register.</i></p>	<p>Please see the Applicant's response to RR-020-4.3.3, RR-029-APDX:A-9 and RR-029-APDX:D-B at Deadline 1 (<a href="#">G1.9: Applicant's comments on Relevant Representations (REP1-038)</a>) and (<a href="#">G2.2: Applicant's Response to the ExA's First Written Questions (ExQ1) (REP2-038)</a>), specifically the response to NVL.1.7.</p> <p>Further, the Applicant will update the wording associated with Co85 of the Commitment Register (<a href="#">APP-050</a>) at a future deadline.</p>

## 8 Applicant's Comments to Maritime and Coastguard Agency

Reference	Stakeholder's Written Representation	Applicant's Response
<i>Written Representations - comments on the revised Development Consent Order (DCO) and Deemed Marine Licences (DMLs) (REP2-078)</i>		
	Comments on DCO by the Maritime and Coastguard Agency	In general the comments on the draft DCO by the MCA have been accepted by the Applicant. For a detailed list of updates please see <a href="#">C1.1.1 Draft DCO and DML Schedule of Changes</a> submitted at Deadline 3.
<i>Responses to Examining Authority's First Written Questions (ExQ1) (REP2-078)</i>		
NAR.1.4	<p>Single Line of Orientation justification</p> <p>Safety Justifications for single line of orientation are accompanied by a proposed turbine layout design which is normally received post-consent. MCA has not received a proposed layout design and is unable to comment on the safety justification at this stage.</p>	<p>Whilst the Applicant notes that <a href="#">A4.9: Safety Justification for Single Line of Orientation Layout (APP-047)</a> was submitted into Examination in line with Marine Guidance Note (MGN) 654 requirements. It is understood the MCAs preference is to review and comment on such justification at the point of layout approval post-consent and pre-construction.</p>
NAR.1.7	<p>Navigational risk assessment for gap between arrays</p> <p>1. MCA has reviewed the NRA and is satisfied with the conclusions for shipping transiting through the gap between the two arrays.</p> <p>2. The list of proposed risk controls in section 19.3.10 in APP-082 is accepted as appropriate. The list of proposed risk controls during construction and maintenance in section 23 of APP-082 is also appropriate. These are additional risk controls to the list of embedded risk controls in APP-019 and whilst they are appropriate for reducing navigational risk, MCA would consider several of them to be embedded risk controls and we note that within the hazard log (Table B.1 of APP-083 NRA Part 3) it does not list any additional controls in the column titled "Further Mitigation and Additional Comments".</p> <p>3. It is expected that all appropriate risk controls for construction and operation phases will be captured in the DCO/DML and in post-consent plans where there will be consultation with the MCA and other navigation stakeholders, as appropriate.</p>	<p>1. The Applicant welcomes the MCAs written representation regarding the assessment and conclusions associated with the gap between Hornsea Four and Hornsea Two Offshore Wind Farms.</p> <p>2. The MCAs comments on <a href="#">A2.7 Environmental Statement Volume A2 Chapter 7 Shipping and Navigation (APP-019)</a> are noted and the Applicant confirms that all requested and necessary mitigation measures (Commitments included as part of Hornsea Four) have been accepted and therefore no additional controls were required to reduce risk to ALARP levels.</p> <p>3. The Applicant is working through the Statement of Common Ground process to reach agreement with the MCA that the DCO and DMLs contain all appropriate risk controls (the document <a href="#">G1.25 Statement of Common Ground between Hornsea Project Four and the Maritime Coastguard Agency (REP1-053)</a> will be submitted at Deadline 3 to reflect the latest status.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
NAR.1.8	<p>MCA is content with the applicant's response and commitment to traffic monitoring during the construction period. However, the wording of the conditions in the Deemed Marine Licence requires an amendment to provide the reports to Trinity House in addition to the MCA and MMO:</p> <ul style="list-style-type: none"> <li>• Schedule 11 Part 2 condition 18(2)(b)</li> <li>• Schedule 12 Part 2 condition 18(2)(a)</li> </ul> <p>The wording of the conditions should read:</p> <p><i>Construction monitoring must include vessel traffic monitoring by automatic identification system for the duration of the construction period. An appropriate report must be submitted to the MMO, Trinity House and the MCA at the end of each year of the construction period.</i></p> <p>MCA would also expect vessel traffic monitoring after construction, however it is noted there is no condition within the DML to capture this requirement other than a commitment to provide post-construction monitoring plans at a later date. The standard wording of the condition MCA would like included in the DML is:</p> <p><i>Post construction monitoring must include vessel traffic monitoring by automatic identification system for a duration of three consecutive years following the completion of construction of authorised project, unless otherwise agreed in writing by the MMO. An appropriate report must be submitted to the MMO, Trinity House and the MCA at the end of each year of the three year period.</i></p>	<p>The Applicant confirms that the wording of conditions in the Deemed Marine Licences have been updated to ensure provision of the requested reports to Trinity House in addition to the MCA and MMO.</p> <p>The Applicant has reviewed the request for additional vessel traffic monitoring to be implemented post-construction and confirms this is accepted and included in the latest version of the dDCO as submitted at Deadline 3 (<a href="#">C1.1: draft DCO including draft Deemed Marine Licence (DML)</a>).</p>
<i>Written Representation</i>		
1	<p>Gap between Hornsea 4 and Hornsea 2.</p> <ol style="list-style-type: none"> <li>1. The decision to reduce the Red Line Boundary of the project and create a gap or 'corridor' between the site and Hornsea Project Two provides a more direct route for merchant vessels transiting to and from the west coast of UK to European ports. This gap is a 'bow-tie' shape with the narrowest point between the north-west turbine of Hornsea 2 and the likely closest turbine of Hornsea 4 assessed as 2.2nm. When measured from blade tip to blade tip this distance reduces to 1.9nm. The gap widens at both sides after the narrowest point and with the predicted low probability of vessel encounter, MCA is content with the assessment and conclusions that it will not pose an unacceptable navigational risk.</li> <li>2. The recommended risk controls are accepted for ensuring the risks are As Low As Reasonably Practicable (ALARP). In addition, MCA requests that a hydrographic survey of the gap is carried out by Ørsted to update hydrographic data and navigational charting information. This is recommended due</li> </ol>	<ol style="list-style-type: none"> <li>1. The Applicant welcomes the MCAs written representation regarding the assessment and conclusions associated with the gap between Hornsea Four and Hornsea Two Offshore Wind Farms.</li> <li>2. The Applicant has reviewed the MCAs request for a hydrographic survey of the gap between Hornsea Two Offshore Wind Farm and Hornsea Four and confirms this provision has been included in the latest version of the dDCO submitted at Deadline 3 (<a href="#">C1.1: draft DCO including draft Deemed Marine Licence (DML)</a>).</li> </ol>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>to the expected changes in traffic patterns where traffic is diverted through the gap and where vessels will transit over the Viking Link cable route. It is requested this is a condition in the DCO/DML.</p> <p>3. If the project receives Ministerial development consent, MCA will give consideration for proposing an IMO Recommended Route between Hornsea 4 and Hornsea 2 to show the expectations for complying with the International Regulations for Preventing Collisions at Sea (COLREG) when vessels transit through the gap. This would be marked on navigation charts to show it is a narrow channel. The process for introducing a Recommended Route in UK waters is led by the MCA who will make the appropriate consultations and proposals to the UK Safety of Navigation Committee.</p>	<p>3. The Applicant notes the MCAs written representation regarding the IMO Recommended Route and will await further confirmation post-consent.</p>
4	<p>Emergency Response and Search and Rescue.</p> <p>1. A SAR checklist based on the requirements in MGN 654 Annex 5 will need to be completed in agreement with MCA before construction starts. This will include the requirement for an approved Emergency Response Co-operation Plan (ERCoP) and will be incorporated as a condition of the Marine Licence.</p> <p>2. During SAR discussions, particular consideration will need to be given to the implications of the site size and location. Attention should be paid to the level of radar surveillance, AIS and shore-based VHF radio coverage and give due consideration for appropriate mitigation such as radar, AIS receivers and in-field, Marine Band VHF radio communications aerial(s) (VHF voice with Digital Selective Calling (DSC)) that can cover the entire wind farm sites and their surrounding areas. It will be expected that Hornsea 4 provide this AIS and VHF capability to the MCA with direct access to HM Coastguard systems.</p> <p>3. In addition to the number of incidents per turbine in the UK it would be useful to know the number of incidents per wind farm.</p> <p>4. We would suggest the PIANC guidance on Electromagnetic Radiation would be a useful reference document for this chapter.</p> <p>5. It mentions there have been construction vessel allisions at low speed, however we note the Island Panther allided with Sheringham Shoal offshore wind farm at 12kts which would not be considered a slow speed.</p> <p>The increased presence of industry resources and the benefits they can bring to third party SAR and in responding to their own resources is recognised, however there is still an increase workload to SAR both through coordination and on the resources, hence MCA's need for access to AIS and VHF capability to HM Coastguard. For example, between 2020 and 2022 at Hornsea 1 and Hornsea 2</p>	<p>1. The Applicant confirms the Search and Rescue (SAR) checklist, based on the requirements in Marine Guidance Note (MGN) 654 Annex 5, will be completed in agreement with MCA prior to construction commencing. This is secured through Condition 15 of the draft DCO (<b>C1.1: draft DCO including draft Deemed Marine Licence (DML)</b>).</p> <p>2. It is at the pre-construction stage the Applicant will engage with the MCA concerning items such as, but not limited to, consideration of levels of radar surveillance, Automatic Identification System (AIS) and Very High Frequency (VHF) radio coverage requirements.</p> <p>3. With regard to the number of reported incidents per wind farm, the Applicant can confirm that as of March 2022 there are 39 operational windfarms in the United Kingdom (UK) Renewable Energy Zone (REZ) and therefore there have been 0.3 incidents per windfarm to date.</p> <p>4. The Applicant has noted the request for consideration of PIANC guidance on Electromagnetic Radiation (MarCom Wg 161: Interaction Between Offshore Wind Farms and Maritime Navigation (2018)). Following consultation with the MCA on the 7 April 2022, the Applicant has confirmed that the MCAs expectation is that this document will be given consideration post-consent when considering the final layout design and that no further commitment or action is required at this point.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>offshore wind farms, there were 13 recorded medical incidents (6 required a SAR helicopter), a minor environmental spill and an AIS alert for a man overboard that resulted in an extensive investigation but was a false alarm. It is important to recognise that while Hornsea 4 will have self-help capability, this does not preclude the need for SAR support in the event of an incident.</p>	<p>5. With regard to how the vessel 'Island Panther's' speed is referred to in the NRA, the Applicant notes that in <a href="#">A5.7.1 Environmental Statement Volume A5 Annex 7.1 Navigational Risk Assessment Part 1 (APP-081)</a> Table 13.1 the Island Panther is referred to anonymously (second incident on the 21 November 2022) and the description does note that the vessel was operating at a moderate speed. Whilst the impact (risk) assessment within <a href="#">A2.7 Environmental Statement Volume A2 Chapter 7 Shipping and Navigation (APP-019)</a> gives consideration of lower speed incidents during construction, this text is referring in general to the likelihood of speed playing a factor and based on all incidents that have occurred to date. The higher speed incidents recorded within Table 13.1, whilst noted, are not considered to affect the impact (risk) assessment.</p>
5	<p>Construction scenarios. We would expect to see some form of linear progression of the construction programme avoiding disparate construction sites across the development area, and the consent needs to include the requirement for an agreed construction plan to be in place ahead of any works commencing.</p>	<p>An indicative construction programme for Hornsea Four is presented in Figure 4.4 of <a href="#">A1.4: Project Description (REP1-004)</a>. The programme illustrates the likely duration of the major installation elements, and how they may relate to one another in the construction campaign. The level of detail is not yet available regarding the sectionalised construction programme for each activity at a specific location across the development area. This level of detail will not be available until nearer construction, when an installation contractor is appointed to provide a programme of works based on the overall timescales to construct the project. The Applicant confirms a construction programme to include details of the proposed construction start date; timings for mobilisation and installation works; and an indicative construction programme for all offshore infrastructure is a requirement for approval by the MMO in consultation with, where relevant, Trinity House and the MCA under Condition 13 of Schedules 11 and Schedule 12 of <a href="#">C1.1: Draft DCO including Draft DML (REP1-002)</a>.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
9	<p>Shipping and Navigation Commitments.</p> <p>It is understood that the list of commitments in Table 7.10 of APP-019 is the list of embedded risk controls that should be included in the NRA. Referring to a 'commitments register' reference in the NRA hazard log (Table B.1) makes it inefficient for the reader when reviewing the hazard log which is a necessary and lengthy appendix in the document. As such, a risk control log as required under the IMO's Formal Safety Assessment guidance and MCA's NRA methodology guidance documents, has been omitted from the NRA. MCA would not recommend this practice is used and requests all future NRAs submitted by Ørsted includes an appropriate risk control log.</p>	<p>The Applicant notes the MCAs concerns in relation to the links between the <a href="#">A5.7.1 Navigational Risk Assessment Part 1 (APP-081)</a> to <a href="#">Part 3 (APP-083)</a>, the <a href="#">A2.7 Shipping and Navigation (APP-019)</a> and the <a href="#">A4.5.2 Commitments Register (APP-050)</a> and will therefore submit at Deadline 4 an updated version of the Hazard Log to ensure more clarity between the hazards, risk and embedded or additional mitigations in line with MCA requirements and terminology. Therefore a Risk Control Log is provided at Deadline 4 as an update to the Hazard Log previously provided as Appendix B of <a href="#">A5.7.1 Navigational Risk Assessment Part 3 (APP-083)</a>.</p>
10	<p>Shipping and Navigation Commitment Co177.</p> <p>MGN372 is guidance to mariners who are unfamiliar of navigating in and around offshore renewable energy installations and to provide them with necessary information and expectations so they can plan their safe voyage accordingly. It is not intended as guidance for developers and their contracted vessels in complying with maritime legislation and MCA would not consider this as a relevant risk control.</p>	<p>The Applicant notes that MGN 372 is included as an embedded mitigation (or Commitment included as part of Hornsea Four) given that it includes advice for mariners on how to navigate in proximity to an offshore windfarm. Whilst the Applicant recognises that this is not a physical mitigation, it is an important part of the risk (impact) assessment process given it provides an indication of how vessels are likely to navigate in proximity to Hornsea Four, allowing the Applicant to better define any other additional mitigations that are required.</p>
11	<p>Hazard Log (APP-083 - Appendix B)</p> <p>Equipment failure, including onboard navigation equipment, could be added as possible causes of allision in the construction and operation phases.</p>	<p>The Applicant confirms this hazard will be added to the Risk Control Log to be provided at Deadline 4 as an update to the Hazard Log previously provided in Appendix B of <a href="#">A5.7.1 Navigational Risk Assessment Part 3 (APP-083)</a>.</p>

## 9 Applicant's Comments to Royal Society for the Protection of Birds (RSPB)

Reference	Stakeholder's Written Representation	Applicant's Response
<i>Written Representations - RSPB comments on the revised Development Consent Order (DCO) and Deemed Marine Licences (DMLs) (REP2-082)</i>		
	<p>The RSPB suggested that future iterations of the draft DCO should include the full version of the draft Schedule on Ornithology Compensation Measures.</p>	<p>The Applicant refers to its response to HRA.1.24.</p> <p>The Applicant has provided a standalone document containing the without prejudice compensatory measures drafting for all species at <a href="#">G3.12 Without Prejudice Derogation Draft Development Consent Order Schedules</a> of its deadline 3 submission.</p>
<i>Responses to the (RSPB Written Representation (WRs) (REP2-089)</i>		
1.12-1.15	<p>The RSPB also repeats its requests made at the Preliminary Meeting that the Applicant provides a timetable for when it proposes to update key application documents related to offshore ornithology and compensation measures. This combined with the information on the scope of the new documents will enable the RSPB to plan its work to be able to respond appropriately in order to assist the examination and Examining Authority. Therefore, the RSPB has serious concerns over whether sufficient updated information will be available in a timely manner for it to be able to make constructive contributions to ISH5 and ISH 6 at the end of April 2022.</p>	<p>The Applicant notes the RSPB concerns and has provided Examination Deliverables summary (<a href="#">G1.43</a>) at Deadline 1 [<a href="#">REP1-065</a>] and Deadline 2 [<a href="#">REP2-036</a> and <a href="#">REP2-037</a>] setting out the documents that we intend to submit into examination. These are categorised according to key issue areas (e.g. ornithology), with the content specific to address and close out comments raised by stakeholders (e.g RSPB) and to answer questions from the ExA.</p> <p>The Applicant is doing all it can to address the comments and issues raised post-Application by RSPB and others as swiftly as possible. However, the Applicant considers that there is sufficient quality and detailed information within the Hornsea Four DCO Application as supplemented by DL1 – DL3 submissions to make constructive progress on issues at ISH.</p>
4.1-4.2	<p>There are two fundamental issues with the assessment, which are:</p> <ul style="list-style-type: none"> <li>• the manner in which the baseline site characterisation has been carried out; and</li> <li>• the presentation of the outputs of the modelling of population scale impacts.</li> </ul>	<p>The Applicant, like the RSPB, strongly advocate robust assessments to inform the development of projects and, given the extensive and constructive engagement with RSPB for almost four years via the Ornithology Technical Panel Meetings, is disappointed by the tenor and timing of these comments.</p>



Reference	Stakeholder's Written Representation	Applicant's Response
	<p>These are described below. Both mean that the assessment is inadequate, and therefore insufficient for the robust consideration required to enable a proper understanding of the likely impacts of the scheme. In addition to these fundamental inadequacies, there are also a number of issues with the assessment, again these are discussed below. The RSPB reserves the right to add to and/or amend its position on these and other aspects of the assessment in light of changes to and/or any new, information submitted by the Applicant, in particular if and when the Applicant presents information to resolve the two fundamental issues highlighted above. But for now we wanted to be clear that the assessment currently before the Examination is not fit for purpose.</p>	<p>The methodology and assessments presented by the Applicant have been the subject of detailed consultation with the RSPB and SNCB, with reviews and updates throughout the DCO pre-application processes from Scoping through PEIR to DCO Application. This included 15 ornithology technical panel meetings. While the Applicant is seeking and will continue to seek to address comments through further submissions and updates, the Applicant refutes the suggestion that the assessment currently before the Examination is inadequate.</p>
4.3	<p>The RSPB is also concerned with the prejudicial use of language throughout the assessment, whereby recommended methods and parameters are described as, for example, "overly precautionary". Where this language has been used, it is in cases that the assessment has been carried out using the SNCB recommended methods and parameters and these parameters are described as "worse case scenario". These have been drawn up in consultation with leading experts and we consider it inappropriate to constantly undermine and challenge these recommendations while presenting the Applicant's own preferred methods as the most accurate and as "evidence led". The SNCB guidance is designed to be suitably precautionary, particularly in the context of the huge amount of uncertainty inherent in the assessment process; it is not set out to be overly precautionary and is revised considering any new evidence. The Applicant does not present any new evidence that has not been considered by the SNCBs or the Secretary of State in recent decisions.</p>	<p>The Applicant notes the RSPB concerns. Please see detailed responses on this matter provided in the Applicant's comments on Relevant Representations (<a href="#">G1.9</a>) (e.g. Responses RR-029-5.12 and RR-033-J).</p>
4.8	<p>However, there are a number of concerns with how the Applicant has applied the methods and a lack of clarity as to how data has been treated or whether there has been consideration of model performance. We understand, through our participation in the Expert Topic Groups, that Natural England also have a number of related concerns and anticipated that we would be involved in efforts to resolve them. However, there has been no further discussion with the RSPB around this issue. As this modelling is fundamental to the whole assessment, it is impossible to reach any conclusions with regard to significance of impacts on birds without reassurance that it has been done correctly. As such all the conclusions on AEOL given above can only be considered tentative.</p>	<p>The Applicant notes the RSPB's position on AEOL.</p> <p>The Applicant also notes RSPB's general acknowledgement that MRSea is a robust method subject to correct and transparent application. The Applicant is progressing discussions with Natural England and CREEM on the technical and methodological concerns raised and has provided updates to Examination at Deadline 3 to which the RSPB can comment (see Appendix A in <a href="#">G2.10: MRSea Baseline Sensitivity Report Gannet</a>).</p>
4.9-4.11	<p>However, there are a number of concerns with how the Applicant has applied the above methods and a lack of clarity as to how data has been treated or consideration of model performance. Natural</p>	<p>The Applicant refers the RSPB to the updated <a href="#">G2.10 MRSea Baseline Sensitivity Report Gannet</a>). Part 1 and Appendix A set out the methodology and model validation approach as agreed in</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>England also have a number of related concerns and have detailed them in their Relevant Reps (points 63-69, Appendix B, RR-029). These include:</p> <ul style="list-style-type: none"> <li>• There is no justification of why model based approach has been used. Such justification should include a comparison with the outputs of a design based approach:</li> <li>• There is insufficient detail in the methodology as to model validation</li> <li>• It is unclear how population and density estimates were derived (seemingly using different approaches) from the modelled surfaces.</li> <li>• There is insufficient detail as to how populations and densities were apportioned to different behaviours</li> <li>• It is unclear how Confidence interval and Co-efficients of Variance (SD/mean or SE/mean) were estimated using model-based approaches for total populations, densities, apportioned behaviours and corrected apportioned behaviours.</li> </ul>	<p>consultation with Centre for Research into Ecological &amp; Environmental Modelling (CREEM) and Natural England. Part 2 and 3 presents Confidence Intervals (CI) for model-based approaches (MRSea_v1 and MRSea_v2) and design-based totals, densities and behaviours.</p>
4.13	<p>The RSPB has outstanding issues with the manner in which the bio-seasons definitions from Furness (2015) have been defined for gannet and kittiwake, effectively excluding the early and later months of the season. This is caused by using the "migration-free" seasonal definition as opposed to full breeding season. For example, the kittiwake breeding season is defined as May to July, when evidence from colony monitoring shows birds are present April at least to August. While in the latter part of the season all birds will have fledged, individual birds will still be present with both young and adult birds coming back to the cliff. These are still SPA birds, and those most likely to be affected by impacts from the development.</p>	<p>The Applicant's preferred method to assess gannet and kittiwake and the compilation of relevant bio-seasons for both species is supported from evidence from the site-specific survey data (<a href="#">APP-074</a>). These data provide evidence that substantial proportions of birds outside of the migration-free breeding season pass through the Hornsea Four array area. The presence of migrating adults at the beginning of the breeding season and immature birds towards the end of the breeding season would lead to an over-estimate of the mortality that would be attributable to the Flamborough and Filey Coast SPA.</p> <p>In relation to seasonal definitions please refer to <a href="#">G1.9 Applicant's comments on Relevant Representations</a> (APDX:B-82, within RR-029) (<a href="#">REP1-038</a>).</p>
4.14	<p>In order to assess the mortality that could arise from avian collision with turbine blades, the Applicant has used the stochastic version of the Band Collision Risk Model (sCRM) 47,48. This approach is welcomed by the RSPB. This method combines a series of parameters describing the turbine design and operation with estimates of a birds' size and behaviour to generate a predicted number of birds that would collide with a turbine over a given time period. The stochastic formulation was initially developed by Masden (2015) and then produced in an easier to use interface by McGregor et al, (2018).</p>	<p>Extensive consultation between the Applicant, the model developers (DMP Stats), Natural England and the RSPB was undertaken during the Evidence Plan (EP) process to resolve any concerns relating to the appropriateness of the sCRM, which resulted in agreement from all parties being reached on running the sCRM deterministically for use in assessing collision risk for Hornsea</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>The stochastic version allows for some account of uncertainty and variability in parameters to be made. However, the Applicant has used the model in such a manner that only deterministic outputs are provided, in other words, while this formulation allows for uncertainty and variability to be accounted for, the Applicant has not made use of this functionality, and therefore has not given a full account of uncertainty and variability. An explanation is required as to why they have taken this approach.</p>	<p>Four (OFF-ORN-2.21 &amp; 2.26, as set out in Evidence Plan Logs which are appendices to the Hornsea Four Evidence Plan (<a href="#">B1.1.1: Evidence Plan (APP-130)</a>). The rationale as to why the sCRM was not run stochastically related to there being no stochastic avoidance rates which SNCBs were confident in advocating for use within the model. The RSPB agreed with this conclusion and stated in EP#8 "the RSPB would be happy if the sCRM was run deterministically".</p>
4.15-4.19	<p>For these reasons the Avoidance Rate used by the Applicant for gannet in the breeding season is likely to be too high, resulting in an underestimate of collision mortality.</p>	<p>For collision risk assessments the Applicant has followed the Joint SNCB Position Note (2014) to select an appropriate avoidance rate for gannet.</p>
4.20-4.22	<p>In their assessment of displacement, the Applicant appears to have only used birds on the water, rather than including those flight. The legend to Table 2 in Volume A5 Annex 5.2 Offshore Ornithology Displacement Analysis (page 12, APP-075) clearly states: "Bio-season mean peak abundance and density estimates of key bird species for Hornsea Four disturbance and displacement assessment (sitting birds)" and 1.6.1.3 makes clear "for guillemot, razorbill and puffin only sitting birds were included, given the species foraging behaviours". As such the assessment differs from standard methodology and is contrary to statutory advice. Without the full numbers of birds on the water and in flight put into the matrix, it is impossible to reach conclusions on the significance or otherwise of impacts arising from displacement and barrier effects</p>	<p>The Applicant has revised its displacement assessment of auks (see Section 1.4 and Tables 2-27) to include all birds (flying and sitting) as recommended to account for any possible barrier effects. The results are presented in <a href="#">A.5.5.2 Volume A5, Annex 5.2: Offshore Ornithology Displacement Analysis (REP2-003)</a>.</p>
4.23	<p>Furthermore, in calculating displacement for guillemot, the Applicant has used weighted mean, rather than mean peak density of abundance during the non-breeding season. The Applicant claims this was agreed following consultation at the Evidence Plan meeting on 4<sup>th</sup> March 2021. The RSPB were unable to attend this meeting, but no detail is given in Table 5.4. "Consultation Responses" in Volume A2 Chapter 5 Offshore and Intertidal Ornithology (page 20, APP-017) of such an agreement and the statement is contrary to Natural England's Relevant Representations (RR-029), which state: "Natural England do not agree with the Applicant's approach to weighting the seasonal mean peak abundance estimate in the non-breeding season for guillemot." While the RSPB agree that the high numbers of auks recorded in August and September may require a modified approach, the weighted mean approach is not suitably precautionary and is likely to underestimate the total number of impacted birds.</p>	<p>In relation to assessment of guillemot in the non-breeding bio-season please refer to the Applicant's comments in response to Offshore Ornithology Relevant Representations (RR-029-APDX:B-50) and Section 1.4 of <a href="#">REP2-003</a>.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
4.24	<p>The RSPB has outstanding issues with the manner in which apportioning of predicted mortalities to relevant SPAs has been carried out. As a basis for apportioning adults, the Applicant has used theoretical generalised stable age structure derived from population models. The RSPB would prefer that these are presented alongside site specific data on the age of birds recorded during survey. The Applicant has acknowledged the importance of these data in section 3.4.9 of Volume A5 Annex 5.1 Offshore and Intertidal Ornithology Baseline Characterisation Report (page 21, APP-074) as follows: "consideration of whether any potential impact(s) might occur to an adult bird that is part of the breeding population of a specific colony or designated site (an SPA) or if it might occur to an immature bird that is not associated with the breeding population of a particular colony or SPA".</p> <p>The Applicant then goes on to highlight that "a detailed breakdown of seabird age classification" is presented. It is therefore not clear why this detailed breakdown has not been used in the assessment.</p>	<p>In relation to age structure and apportionment please refer to the Applicant's comments in response to Offshore Ornithology Relevant Representations (RR-029-APDX:B-44) (<a href="#">REP1-038</a>).</p>
4.25-4.27	<p>As such, it is wrong to disassociate the two metrics; aside from the question of comprehension, they are very similar, the only key difference is that CPGR does not include the length of time that the wind farm will be operational. This is crucial as there is considerable uncertainty surrounding most of the aspects of an assessment of the potential impacts of an offshore wind farm. However, the length of time that the development is operational is one of the few aspects not subject to this uncertainty as it is legally fixed. It is also a crucial consideration into the scale of impact. Therefore, the effect of using CPGR in isolation is to remove important contextual information, operational time, complicating the interpretation of impact, thereby increasing uncertainty and the need for precaution.</p>	<p>In relation to PVA modelling please refer to the Applicant's comments to G1.9 Applicant's comments on Relevant Representations (APDX:B-18, within RR-029) (<a href="#">REP1-038</a>).</p> <p>The Applicant's is currently undertaking further analysis of the validity of the NE Seabird PVA tool (2019) and suitability of both outputs for assessment, the results of which will be shared at Deadline 4 and updated for Deadline 5 in the Ornithology Assessment Sensitivity Report.</p>
4.28	<p>Furthermore, the RSPB has run one of the PVA scenarios for gannet and found inconsistencies in the model output reported by the Applicant (Table 3). Using the same Natural England PVA tool and following the PVA parameter log for Hornsea Four alone in the B2.2 Report to Inform Appropriate Assessment Part 11: Appendix H: Offshore Ornithology Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Population Viability Analysis (Appendix C, Seabird PVA Tool Input Log; Hornsea Four alone gannet FFC SPA PVA log, page 53, APP-177) inconsistencies were found in both CPGR and the Reduction in Growth Rate. These inconsistencies are indicative of the impacts not having been adequately assessed by the applicant, either through such errors in the modelling process or by misrepresenting the output metrics.</p>	<p>Without examining the input parameters used by the RSPB in the running of their own PVA results, the Applicant is unable to comment on any discrepancies between the Applicant's and RSPB's results. The Applicant would like to point out however that this is a stochastic model and therefore variability in the results is inevitable when trying to replicate the modelling. Considering the very minor discrepancies between the Applicant's and RSPB's results (as set out in RSPB Table 3) this could simply be caused by the inherent variability in a stochastic model.</p> <p>The difference in the values provided by the RSPB do not represent significant differences indicative of the impacts not having been</p>

Reference	Stakeholder's Written Representation	Applicant's Response
6.6	<p>The Applicant has provided no evidence of a Northern Gannet colony establishing on an artificial structure, the evidence of such behaviour is limited to three case studies of Australasian gannets. Therefore, the RSPB considers the concept of artificial nesting structures is a wholly unproven compensation measure for Northern Gannets.</p>	<p>adequately assessed by the Applicant. Therefore, such differences are not considered to provide inconsistencies or errors in the modelling process or misrepresenting the output metrics.</p> <p>The Applicant has presented a detailed review of evidence, demonstrating the ecological efficacy of the compensation measures for Northern gannet within the ecological evidence report: <a href="#">B2.7.1 Compensation measures for FFC SPA: Offshore Artificial Nesting: Ecological Evidence (APP-187)</a>.</p> <p>The Applicant notes that within the RSPB's Relevant Representation response (RR-033-LL when referring to the initial response from the Applicant within their Comments on Relevant Representations and Deadline 1: <a href="#">G1.9</a>) RSPB state: <i>The RSPB accepts that there are examples where northern gannets have nested or attempted to nest on artificial structures (see Table 5, and paragraphs 4.2.1.3 – 4.2.1.6 in <a href="#">B2.7.1 Compensation measures for FFC SPA Offshore Artificial Nesting Ecological Evidence</a>).</i></p> <p>The Applicant would welcome clarification from RSPB on what appears to be a change in position.</p>
6.13	<p>RSPB make the following comments on its perceived uncertainties with artificial nesting structure compensation for kittiwake:</p> <ul style="list-style-type: none"> <li>• Whether the selected location will have access to a good food supply to help secure good productivity over time;</li> <li>• Whether nesting habitat is a limiting factor for the breeding population of kittiwakes in the southern North Sea; and therefore</li> <li>• Whether artificial nesting structures will be colonised and whether these will be additional breeding adults, as opposed to existing breeding adults choosing to redistribute themselves;</li> <li>• Whether and over what timescale any new colony will achieve the target population and recruitment of breeding adults into the Eastern Atlantic biogeographic population and thereby to provide benefit to the kittiwake SPA network, including the FFC SPA;</li> </ul>	<p>As presented within the Applicant's <a href="#">B2.7.1 Compensation measures for FFC SPA: Offshore Artificial Nesting: Ecological Evidence (APP-187)</a>, there is a large body of evidence which exists to support the measure. The Applicant would like to direct the RSPB to the updated Roadmaps (Revision 3 of <a href="#">B2.7.2: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Kittiwake Offshore Artificial Nesting Roadmap (REP2-007)</a> and <a href="#">B2.7.4: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Kittiwake Onshore Artificial Nesting Roadmap (REP2-009)</a>) regarding further updates on site selection for the compensation measures.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<ul style="list-style-type: none"> <li>Whether the selected location will be exposed to additional pressures e.g. collision risk from current and planned offshore wind farms.</li> </ul> <p>In order to address these uncertainties, we recommend that a meta-population analysis is carried out to clarify the dynamics between potential purpose-built artificial nest sites and SPA and other colony populations. Due to immigration from other colonies being required for recruitment into the artificial colonies, conventional population analysis, which are based on closed populations, are not suitable. A method for the theoretical quantification of connectivity between colonies has been described by Miller (2020) and Miller et al (2020) for the Shetland meta-population of kittiwake, and a similar method for a regional metapopulation of East Atlantic would elucidate the feasibility of the establishment of the colonies. Furthermore, it would investigate the consequences of such colony establishment on the populations of other colonies, in particular that of the FFC SPA. There is additional complexity due to the number of emerging proposals for artificial nesting structures as compensation from other wind farm developers.</p>	<p>The Applicant is confident that the required compensation population can be readily delivered at both a new or repurposed offshore structure with the use of optimal kittiwake nesting habitat design and measures (such as decoys and play back of kittiwake calls) to encourage colonisation and recruitment, if required.</p> <p>The Applicant has proposed the provision of additional artificial nesting opportunities for kittiwakes within the specified search zones to enhance productivity and therefore be effective as a compensatory measure to meet Habitats Regulations requirements. The establishment of breeding colonies at the structure would produce young that would become part of the wider biogeographic population of kittiwake as part of the east Atlantic breeding population of the species. This population includes individuals from the Flamborough and Filey Coast SPA (Stroud et al., 2016), with the proposed compensation measures to be undertaken within this populations breeding and migratory range.</p> <p>This approach was agreed by the SoS for the recent decision for East Anglia One North<sup>1</sup> and East Anglia Two<sup>2</sup>, where the implementation of artificial nest structures in each case were found to ensure the overall coherence of the national site network (i.e. at a wider biogeographic scale).</p> <p>The suggested meta-population analysis relies on Bayesian state-space models fitted to population time series. The work of Miller (2020) &amp; Miller et al. (2019) may present a theoretical approach to assess meta-population dynamics, however, these rely on fitting models to existing data (e.g. long term mark-recapture datasets).</p>

<sup>1</sup> <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010077/EN010077-009803-EA1N%20-%20Habitats%20Regulations%20Assessment.pdf>

<sup>2</sup> <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-010066-EA2%20-%20Habitats%20Regulations%20Assessment.pdf>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>Various parameters need to be accurately known for the target population and a number of assumptions need to be made to run these models. Miller et al. (2019) admit that there is a large uncertainty in these models and that "in the absence of empirical rates of connectivity, precaution remains with the assumption of a closed-system".</p> <p>Considering these uncertainties in the connectivity rates between SPA colonies and new artificial nesting structures, the Applicant considers it unfeasible to undertake such work in relation to the request posed by RSPB.</p> <p>The Applicant believes that the uncertainties mentioned (e.g. whether nesting habitat is a limiting factor for the breeding population; whether artificial nesting structures will be colonised and over what timescale any new colony will achieve the target population) cannot be robustly analysed using the methods stated above.</p> <p>The Applicant has already provided a response to a number of the uncertainties mentioned above in their responses in their Relevant Representations at Deadline 1 (including RR-029-APDX:C-B, RR-029-APDX:C-P).</p> <p>The Applicant is cognisant of compensation measures for kittiwake being delivered by other projects. However, the Applicant notes that not all other developers have secured locations for their compensation.</p>
6.15 Timings	- We refer the Examining Authority to our generic comments in section 5 on both the lead-in times for compensation and the lifetime of compensation measures in relation to damage.	The Applicant has carefully considered the ecological evidence, technical delivery and held discussions with Natural England in recognition of Natural England's concerns regarding the

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>Therefore, we do not accept the Applicant's proposals of a nesting structure being in place for a minimum of 2 breeding seasons (new structure) or 1 breeding season (repurposed structure) prior to operation of the wind farm.</p> <p>Like Natural England, we consider these lead-in times are very short, do not recognise basic kittiwake breeding ecology (they do not breed until they are 4+ years old), and fail to acknowledge that it is highly unlikely that the compensation will be delivering at the scale required before the impacts occur or during any period of colony establishment.</p> <p>In this respect, we further agree with Natural England's comments on timing (page 9, Appendix C, RR-033) that implementation before impact is not the same as delivering of the functional compensation before impact (see Table 4 above). Determining what comprises functional compensation is related to agreement on detailed compensation objectives and how success should be measured, which in turn will be related to relevant breeding ecology metrics.</p>	<p>commitment to allow for one breeding season prior to operation if there is an existing colony or two years if there is no existing colony.</p> <p>The Applicant has considered Natural England's comment regarding lead-in timescales for artificial nesting and as set out in Response RR-029-APDX:A-22 of the Applicant's Comment on Relevant Representations at Deadline 1 (reference <a href="#">G1.9</a>) with the Applicant now making a commitment to implement the nesting structure three breeding seasons ahead of operation of the windfarm.</p> <p>The Applicant would like to direct the RSPB to the updated Roadmaps submitted at Deadlines 1 and 2 (for example Revision 3 of <a href="#">B2.7.2 Volume B2, Annex 7.2: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Kittiwake Offshore Artificial Nesting Roadmap (REP2-007)</a> and <a href="#">B2.7.4 Volume B2, Annex 7.4: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Kittiwake Onshore Artificial Nesting Roadmap (REP2-009)</a>).</p> <p>The updated Roadmaps present a high-level programme (Table 1 of the document) which is applicable to the implementation and delivery of the onshore/ offshore artificial nesting compensation measures (repurposed and new in relation to offshore).</p> <p>The timing of implementation of an artificial nesting structure is provisional as the timeframe for Examination, consent award, reaching final investment decision (FID) and Contracts for Difference Allocation Round, have not yet been set. The programme has been carefully considered to ensure timely delivery of the compensation measure with the Applicant committing to the implementation of a single structure at least three kittiwake breeding seasons ahead of</p>



Reference	Stakeholder's Written Representation	Applicant's Response
		<p>operation.</p> <p>The relevant documents (including the DCO ) have been updated accordingly to reflect this. Please see <a href="#">Deadline 2 Submission - An updated version of the draft Development Consent Order (dDCO) (tracked) (REP2-060)</a>.</p>
6.19	<p>The RSPB does not accept that bycatch reduction can be described as a compensation measure, primary or otherwise, and considers this proposal is experimental research.</p>	<p>The updated Roadmaps submitted at Deadline 2 (e.g. Revision 3 of <a href="#">B2.8.2: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Guillemot and Razorbill Bycatch Reduction: Roadmap (REP2-011)</a>) set out the implementation studies and bycatch reduction selection phase which is being undertaken to select the most appropriate bycatch reduction method.</p> <p>Preliminary findings from the implementation studies are promising, with an initial reduction in bycatch of auks identified from the bycatch reduction selection phase. The significance of the bycatch reduction will be fully analysed following completion of the bycatch reduction selection phase.</p> <p>Bycatch reduction as compensation will reduce the number of mortalities of guillemot and razorbill within an active commercial fishery in a known bycatch hotspot.</p> <p>The Applicant has demonstrated through the package of compensation measures that the compensation is viable, effective and can be readily secured and delivered.</p>
6.21	<p>The Applicant is proposing gillnet bycatch reduction measures, yet there are currently no recommended technical measures for gillnet bycatch mitigation. The measures that are proposed and trialed are unproven and fail to meet the ACAP Best Practice Seabird Bycatch Mitigation Criteria and Definition.</p>	<p>The Applicant has provided a full and detailed response within RR-033-GG within the Relevant Representations at Deadline 1.</p> <p>The Applicant acknowledges the concerns raised by RSPB regarding the uncertainties around success of a bycatch reduction technique.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>To address these uncertainties, the Applicant has begun the bycatch reduction selection phase (commenced in November 2021) to identify the success rate of the Looming Eyes Buoy (LEB) within the same fisheries which bycatch reduction has been evidenced to be highest risk for guillemot and razorbill (within the English Channel) (see bycatch risk mapping in Section 7 of <a href="#">B2.8.1. Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence (APP-194)</a>).</p> <p>The Applicant notes previous agreement of the target fishery and location by Natural England and RSPB during Hornsea Compensation Workshop (28th May 2021).</p> <p>Technology for the bycatch reduction technology selection phase was based on the most readily available technology which has been developed by the RSPB (see Rouxel et al., 2021). The RSPB during consultation with the Applicant supported the use of LEB with the Applicants technology selection phase.</p> <p>The Applicant is aware of the ACAP guidance mentioned by the RSPB (full reference; ACAP (2014) Best Practice Seabird Bycatch Mitigation Criteria and Definition. In: ACAP Eighth Meeting of the Advisory Committee. AC8 Doc 12 Rev 1, Punta del Este, Uruguay). The guidance is in relation to the deployment of a technology rather than the selection phase, which is the level the Applicant is currently operating at. A number of the ACAP best practice criteria have already been met by the Applicant at this stage. For example, the Applicant has followed the correct design approach for the selection phase (<i>such as comparing the performance of candidate mitigation technologies to a control of no deterrent, where possible,</i></p>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>or to status quo in the fishery, yields definitive results) which provide a robust foundation for data collection.</p> <p>It is important to note that bycatch experts employed the by the RSPBs sister organisation BirdLife International and Natural England have been supportive of the proposed approach to the technology selection phase and in recent discussions supportive by the study design (such as location, fisher acceptance and inclusion, monitoring and paired net approach) undertaken by the Applicant. Furthermore, the RSPB is also currently trialling the same technology (LEB) within an active commercial fishery in the SW of England and has plans to use the technology in a further project in Iceland.</p> <p>In summary, the Applicant has followed and exceeded previous attempts by other organisations of best practice in order to provide stakeholder confidence to the technology selected. More importantly, the Applicant is ensuring as best as is possible that the technology selection phase will deliver a reduction technology which will meet the ACAP criteria.</p>
6.24	<p>If the proposed bycatch mitigation measures were proven effective per se, based on our considerable experience in this field we are concerned about the achievability of uptake and implementation over a period of more than 35 years. This places a significant burden of proof on the Applicant to demonstrate how such sustained uptake will be achieved. This needs to be confirmed and guaranteed before the end of the examination so that it can scrutinised by the Examining Authority and interested parties.</p>	<p>The Applicant has provided detail previously within its Comments on Relevant Representations at Deadline 1: <a href="#">G1.9</a> response RR-033-GG. The Applicant would be interested to receive from the RSPB evidence, data and reports detailing their considerable efforts in this field. For the avoidance of doubt, we assume the term "field" means bycatch technology selection and implementation.</p> <p>Proof of uptake by fishers and implementation within an active gillnet fishery will be provided by means of detailed monitoring, by using a duel camera system to record all bycatch during fishing trips. This is in line with suggestions by the RSPB in their D2 submissions, Annex B – <i>"The RSPB would recommend avoiding self-reporting in</i></p>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p><i>preference of Remote Electronic Monitoring with cameras or at least some form of automated/electronic monitoring”.</i></p> <p>The Applicant has an excellent relationship with the fishing industry which as a result has led to all fishers included within the bycatch technology selection phase agreeing to have vessels installed with dual camera monitoring system. A concurrent trial is being undertaken by RSPB &amp; BirdLife International which is also using the LEB and within the SW of England. The RSPB &amp; BirdLife International are relying on a bycatch self-reporting system for this trial and therefore the Applicant’s monitoring goes above and beyond current practice.</p> <p>The Applicant will continue to build on this already strong relationship with the fishers during the technology selection phase to ensure long-term implementation of the measure. It is important to note that the Applicant is also undertaking predator eradication to benefit both species (guillemot and razorbill) which will be delivered as a suite of measures. Both measures are scalable and flexible which provides resilience to the Applicant’s compensation package.</p>
6.30	<p>The RSPB recognises that predator eradication or island restoration (IR) offers some potential to benefit guillemots and razorbills. However, we consider it premature to describe IR as a primary compensation measure for these two auk species.</p>	<p>The Applicant confirms that we are proposing predator eradication and not island restoration, which is a term used only by RSPB. The Applicant brings this to the attention of the ExA as the two terms of not synonymous and to ensure the avoidance of doubt.</p> <p>The Applicant has presented a detailed review of evidence, demonstrating the ecological efficacy of the compensation measures and resilience measure for each seabird species with the ecological evidence report (<a href="#">B2.8.3 Compensation measures for FFC SPA: Predator Eradication: Ecological Evidence (APP-196)</a>).</p>

Reference	Stakeholder's Written Representation	Applicant's Response
6.32	<p>A full-scale Feasibility Study carried out by a suitable eradication expert contractor to international best practice standards in order to firmly establish that the removal of Invasive Non-Native Species (INNS) for each island to be restored is feasible. This must be assessed against the 7 feasibility criteria set out in Table 1 on page 18 of the Manual of the UK Rodent Eradication Best Practice Toolkit (2018).<sup>81</sup> This will include but is not limited to detailed assessments of the selected islands regarding:</p> <ul style="list-style-type: none"> <li>• the presence/absence of the beneficiary seabird species and its historic and current population status;</li> <li>• Habitat suitability survey to determine the extent of unoccupied but suitable habitat available to the beneficiary seabird species;</li> <li>• Up to date survey to establish the presence of INNS of concern, on both target islands and areas from where they could invade;</li> <li>• A good understanding of the vulnerability of the beneficiary seabird species to the INNS to be targeted for removal on the selected islands and evidence to show how they will benefit from the IR proposal;</li> <li>• Detailed biosecurity and emergency response plans, based on a proper understanding of the risk of reinvasion by the target INNS and to be funded in perpetuity;</li> <li>• Evidence that full community support for the IR scheme (eradication, biosecurity and emergency response) has been obtained;</li> <li>• Evidence that relevant landowner/occupier consents have been obtained;</li> <li>• Evidence that relevant legal consents to carry out IR have been obtained where required.</li> </ul>	<p>The Applicant is aware of the potential complexity associated with predator eradication and has undertaken a detailed review of predator eradication (presented within <b>B2.8.3 Compensation measures for FFC SPA: Predator Eradication: Ecological Evidence (APP-196)</b>).</p> <p>The Applicant has already undertaken site visits to the Isles of Scilly and Guernsey (including Herm and Sark) (August 2021) and is working with the Alderney Wildlife Trust to identify, at an early stage, potential issues and solutions which would increase the success of eradication.</p> <p>The Applicant has furthermore employed international eradication experts to undertake a detailed implementation study (as described within Revision 3 of <b>B2.8.4 Compensation measures for FFC SPA: Predator Eradication: Roadmap (REP2-013)</b>) of Herm, The Humps, Jethou, Sark and the surrounding islands and islets. Due to the expertise and experience of the team undertaking the work, the approach set out within the Manual of the UK Rodent eradication Best Practice Toolkit (2018) will be followed.</p> <p>Further detail is provided by the Applicant in RR-033-BB of G1.9: Applicant's comments on Relevant Representations Revision (REP1-038) at Deadline 1.</p>
6.42-6.50	<p>6.42 In addition to the points made above the RSPB also wishes to highlight the additional concern regarding some of the proposed compensation measures being outside the UK as set out in the Applicant's Hornsea Project Four: Derogation Information: Predator Eradication: Roadmap (Volume B2, Annex 8.4: Compensation measures for FFC SPA: Predator Eradication: Roadmap, APP-197).</p> <p>6.43. Also, we understand that more information will be produced, the draft DCO provisions included within the Predictor Eradication Roadmap (APP-197) include (on pages 18 and 19):</p>	<p>The Applicant has produced a Connectivity Note (<b>Compensation measures for FFC SPA: Compensation Connectivity Note G3.4 and the Annex G3.4.1</b>) for Deadline 3 which demonstrates connectivity of non-UK sites with the national site network in detail .</p> <p>Please also see the updates to the predator eradication roadmap document, particularly in relation to the advancement of the Applicant's implementation study and updated DCO wording –</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p>Gannet Guillemot and Razorbill Compensation Measures based on the strategy for gannet, guillemot and razorbill compensation set out in the gannet guillemot and razorbill compensation plan and to include:</p> <p>a) in the event that the undertaker must implement predator eradication and/or predator control measures</p> <p>i. details of locatons [sic] where compensation measures will be deployed;</p> <p>ii. details of how any necessary access rights, licences and approvals have or will be obtained and any biosecurity measures will or have been secured;</p> <p>iii. an implementation timetable for delivery of the predator eradication and/or predator control measure that ensures that the measure has been implemented two years prior to operation of any turbine forming part of the authorised development;</p> <p>6.44. The Applicant (on page 20) explains following questions being raised as to whether it is possible for a Generator to secure compensation measures outside England and the UK Continental Shelf, that, "The latest draft DEFRA Guidance dated July 2021 does not preclude the implementation of compensation measures outside of the affected area, but states that in the case of mobile species, connectivity between populations should be considered (see Appendix A of B2.8.1 Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence) for evidence of how guillemot and razorbill originating from North Sea colonies (i.e. in proximity to FFC SPA) are likely to migrate through or disperse to the waters in the English Channel. Depending on how mobile a species is, this may need to be considered in discussions with the Devolved Administrations. The Applicant has engaged with the Northern Irish government and with the State of Guernsey. The Applicant considers their continued support to be key to the delivery of the compensation measures."</p> <p>6.45 The Applicant also seems to be relying on sites chosen e.g. at Alderney and Herm, being protected (page 20, paragraph 11.1.1.2, APP-197):  <i>"...under the Convention on Wetlands of International Importance ("the Ramsar Convention"). These sites are located outside of the national site network. Nonetheless these sites are afforded the protection of Ramsar status. The National Planning Policy Framework in England affords Ramsar Sites and Proposed Ramsar Sites the same protection as European Sites. This is a policy position in England that cannot be reflected in Guernsey as they are a Crown Dependency and have never been subject to EU Law. The relevant applicable Ramsar policy is the 2020 Strategy for Nature. The Applicant has engaged with the</i></p>	<p>(Revision 3 of <b>B2.8.4 Volume B2, Annex 8.4: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Predator Eradication: Roadmap (REP2-013) &amp; Deadline 2 Submission - An updated version of the draft Development Consent Order (dDCO) (Tracked) (REP2-060)</b>).</p> <p>In relation to point (1) the Applicant has demonstrated the deliverability of these measures via the following documents:</p> <ul style="list-style-type: none"> <li>• <b>B2.8: Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Gannet, Guillemot and Razorbill Compensation Plan (APP-193);</b></li> <li>• <b>Deadline 2 Submission - B2.8.2: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Guillemot and Razorbill Bycatch Reduction: Roadmap (Clean) - Revision: 03 (REP2-011);</b> and</li> <li>• <b>Deadline 2 Submission - B2.8.4: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Predator Eradication: Roadmap (Clean) - Revision: 03 (REP2-013).</b></li> </ul> <p>In relation to point (2) it is important to note that the Applicant is not seeking to obtain planning consent or land rights to deliver the compensatory measures via the DCO. The question of "jurisdiction" of the Secretary of State or the MMO is not therefore relevant. The draft provisions set out in the roadmap, which can be included in the Order made by the Secretary of State if he cannot rule out AEoI, contain a restriction on the operation of the wind turbine generators (which are the subject of the DCO application and within the remit of the Secretary of State) until the predator eradication measure has been carried out. The fact that the predator eradication measure may be carried out in a location outside of the UK (but with connectivity to the national site network) has no bearing on the</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	<p data-bbox="311 236 1346 373"><i>State of Guernsey and has confidence that despite formal designation as an SPA not being possible, the 2020 Strategy for Nature envisages a proportionate level of protection. Further engagement with the State of Guernsey will continue to ensure the measure can be successfully implemented and monitored for the operational lifetime of Hornsea Four."</i></p> <p data-bbox="311 421 1346 628">6.46. Although we appreciate both the Ramsar site protections and the relevant Guernsey policy, these in our view are not sufficient on their own to overcome concerns with these measures being fully secured and if necessary subject to enforcement measures. We also appreciate that the use of Grampian conditions - i.e. conditions requiring something to be done outside of the boundaries of the application site - are well precedented for planning permissions and therefore we may not have an issue, in principle.</p> <p data-bbox="311 676 1346 700">6.47. However we believe there are two key points which would need to be considered:</p> <p data-bbox="311 748 1346 804">(1) whether the Examiner and the Secretary of State can be satisfied that these compensation measures would/could be delivered and</p> <p data-bbox="311 820 1346 844">(2) how the requirements would be enforced if not delivered or effective?</p> <p data-bbox="311 892 1346 1139">6.48. In respect of point (2) above, it is not entirely clear whether the provision of compensation outside the UK could properly be made a requirement of the DCO or deemed marine licence condition since outside the Secretary of State and/or the MMO's jurisdiction. More critically, perhaps, is how any failure to fulfil DCO requirements could be enforced. It may be possible that enforcement measures included the operation of the application (not just commencement of use) be stopped until measures were put in place and/or effective, since the commencement and the operation of application is within UK jurisdiction.</p> <p data-bbox="311 1187 1346 1375">6.49. In respect of point (1), assuming that the matters raised above can be satisfactorily addressed, the question remains as to certainty of delivery and enabling the Examiners and the Secretary of State to have confidence in the measures proposed. The Applicant must demonstrate their ability to secure the necessary interest or rights in the land likely to be required for the compensation, provide detail on what consents might be required in order to carry out the measures and provide evidence that those consents would be forthcoming – in order for confidence to be had in these measures.</p>	<p data-bbox="1368 236 2069 700">ability of the Secretary of State to enforce this provision against the Applicant. It is not necessary for the Secretary of State (or the MMO) to also be responsible for permitting or property rights over the area in which the compensation measures are located. A parallel can be drawn with artificial nest structures for kittiwake (accepted on five DCOs to date). The Secretary of State is not responsible for permitting the structures (this will be the local planning authority onshore or the MMO offshore). Property rights are granted by private landowners or The Crown Estate. Responsibility for permitting or granting land rights has no bearing on the ability of the Secretary of State to secure the compensatory measures, and if it were ever necessary, to enforce the provisions of the DCO against the relevant undertaker.</p>

Reference	Stakeholder's Written Representation	Applicant's Response
	6.50. Currently the only information made available is lacking in these details and therefore as matters currently stand we do not believe confidence can be had in these, not matter what enforcement action may be included within the draft DCO.	
Section 7		The Applicant has created a separate document for the Schedules relating to compensation ( <a href="#">G3.12 Without Prejudice Derogation Draft Development Consent Order Schedules</a> ) submitted at Deadline 3, as requested at Issue Specific Hearing 1. The Applicant refers to the responses 6.13, 6.32 and 6.42 – 6.50. regarding further details and deliverability of the compensation measures.
<i>RSPB Deadline 2 Submission - Responses to Examining Authority's First Written Questions (ExQ1)</i>		
HRA 1.2	Research findings	As Hornsea Four did not record red-throated divers within the proposed array area and 4 km buffer the changes in guidance do not affect the assessment process for Hornsea Four for this species.
HRA 1.8	In-combination assessment for kittiwake	The Applicant recognises the RSPB's position on this topic but would refer the Examining Authority to the position recently agreed between the Secretary of State (SoS) and Natural England on this topic through recent consent decisions. Within the recent consent decisions for Hornsea Project Three, Norfolk Vanguard, Norfolk Boreas, East Anglia One North and East Anglia Two the SoS and Natural England agreed with the appropriate measures put forward for compensating for the loss of kittiwakes from the Flamborough and Filey Coast (FFC) SPA for any projects requiring compensation measures for this species and recommended that such impacts be removed from any future in-combination assessments.
HRA 1.10	Offshore ornithology modelling	Following additional consultation on the use of MRSea for Hornsea Four with Natural England and the developer of the model (Lindesay Scott-Haywood) the Applicant provided an update at Deadline 2 on the comments received on the modelling ( <a href="#">G2.10 MRSea Baseline Sensitivity Report (Gannet) (REP-046)</a> ). A further, more detailed testing of the MRSea model and subsequent re-run of the model following receipt of additional guidance on the use of MRSea is



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		<p>contained within Part 2 and 3 and Appendix A of <a href="#">G2.10 MRSea Baseline Sensitivity Report Gannet (REP2-046)</a>, submitted at Deadline 3.</p> <p>Following consultation on the revised MRSea (MRSea_v2) Report, the Applicant will seek agreement on the most appropriate data set to use to inform any revised assessments for Hornsea Four following consultation with Natural England ahead of Issue Specific Hearing (ISH) 3. Any updates to the assessments will be presented to Examination at Deadline 4 in the Ornithology Assessment Sensitivity Report. The Applicant also intends to provide updated PVA (Applicant and SNCB positions) for those species concerned, once the final data set is agreed as appropriate to inform any revised assessments (at Deadline 4 and updated for Deadline 5 in the Ornithology Assessment Sensitivity Report).</p>
HRA 1.15	Comparison with Sula Sgeir gannet colony	<p>The Applicant reviewed the PVA report on the Sula Sgeir gannet population (Trinder, 2016) in order to understand the effects of chick harvesting rates on the population level of gannets at Sula Sgeir, off the Scottish coastline. Between 2004 – 2014 the gannetry at Sula Sgeir increased by an average rate of 2.2% per annum despite an annual harvest of up to 2,000 chicks. This is 0.7% lower than the national average Scottish gannet population annual growth rate, as to be expected when considering the harvesting occurring. For reference the recent annual average growth rate of the FFC SPA calculated from the period of 2008 – 2017 is over 8%, significantly higher than that of Sula Sgeir and Scottish national average, suggesting the overall health and stability of the colony is significantly greater than Sula Sgeir and it is therefore logical to assume the FFC SPA would have greater resilience to any impacts. Using the national average survival rates for gannet, as used within the compensation calculations, the likelihood of gannet surviving to</p>

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		<p>adulthood is roughly ~26%. These survival rates also match that used within the PVA modelling by Trinder (2016).</p> <p>Trinder (2016) modelled additional harvesting rates of up to an additional 2,000 chicks per annum (this is on top of the current harvesting rate of 2,000 chicks per annum), which when considering the likelihood of a chick reaching adulthood is ~26% equates to an effective harvesting rate of up to 1,040 breeding adults per annum. The results of the modelling predicted that population growth rate remained positive when considering a harvesting rate of between 2,000 (current rate; ~520 breeding adults) to 3,000 chicks (~780 breeding adults). At harvest levels above 3,500 (~910 breeding adults and above), the majority of simulations still predicted positive growth for the colony.</p> <p>These results provide evidence of the resilience of gannetries and strong evidence that when considering the combined in-combination impacts of collision risk and displacement predicted for the FFC SPA of ~480 breeding adults (when considering a 80% displacement rate and 1% mortality for all projects), this predicted impacted would not lead to an AEol for the gannet feature of the FFC SPA.</p>
<i>RSPB Deadline 2 Submission - Annex A: Offshore Ornithology</i>		
Section 2	Northern Gannet ( <i>Morus bassanus</i> )	<p>The Applicant welcomes the information provided through this submission, most of which relates to the gannet breeding feature of the FFC SPA. The Applicant reviewed and / or incorporated all publicly available information on this species from FFC SPA at the point of application into the Hornsea Four baseline characterisation and impact assessments. The Applicant also reviewed the tracking data available at the point of application to inform the assessment process for gannets from FFC SPA. The Applicant is aware that gannet tracking data varies considerably from year to year as well as in response to the location within the FFC SPA colony that tagged</p>

Reference	Stakeholder's Written Representation	Applicant's Response
		birds are nesting. Therefore, the Applicant would not rely on tracking data (2018) from such a small sample size of gannets (n=10) from a single breeding season.
Section 3	Black-legged kittiwake ( <i>Rissa tridactyla</i> )	The Applicant welcomes the information provided through this submission, most of which relates to the kittiwake breeding feature of the FFC SPA. The Applicant reviewed and / or incorporated all publicly available information on this species from FFC SPA at the point of application into the Hornsea Four baseline characterisation and impact assessments. The Applicant also reviewed the tracking data available at the point of application to inform the assessment process and welcome the RSPB's additional graphical outputs that demonstrate Hornsea Four to be outside of the main concentrated foraging areas used by kittiwakes from FFC SPA. The Applicant is aware that kittiwake tracking data varies considerably from year to year as well as in response to the location within the FFC SPA colony that tagged birds are nesting. Therefore, the Applicant would not rely on tracking data from such a small sample size of kittiwakes (n=33) from just two breeding seasons (2017 / 2018).
Section 4	Common Guillemot ( <i>Uria aalge</i> )	The Applicant welcomes the information provided through this submission, most of which relates to the guillemot breeding feature of the FFC SPA. The Applicant incorporated this information into the Hornsea Four baseline characterisation and impact assessments. The Applicant also welcomes the RSPB's recognition that, as evidenced by the last count (2017), the guillemot population at FFC SPA has been increasing (up 81% from the count in 2000) and in a favourable conservation status, which is evidenced further from this submission.
Section 5	Razorbill ( <i>Alca torda</i> )	The Applicant welcomes the information provided through this submission, most of which relates to the razorbill breeding feature of the FFC SPA. The Applicant incorporated this information into the Hornsea Four baseline characterisation and impact assessments. The Applicant also welcomes the RSPB's recognition that, as

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>evidenced by the last count (2017), the razorbill population at FFC SPA, we with other colonies on the east coast of England, has increased (up 228% since the count in 2000) and in a favourable conservation status, which is evidenced further from this submission.</p>
<p><i>RSPB Deadline 2 Submission - Annex B Derogation case: Bycatch reduction (REP2-092)</i></p>		
N/A	N/A	<p>The Applicant has undertaken a significant amount of work to advance the industry and scientific understanding of gillnet bycatch and reduction methods. The Applicant's bycatch reduction technology selection phase is the most advanced study undertaken to date to understand potential bycatch reduction method by using the most advanced technology (LEB and SeaScope dual camera monitoring system) and developing an impeccable relationship with the fishing industry (which has resulted in all vessels agreeing to having a continuous dual camera system installed on their vessel).</p> <p>The RSPB did not consider the Applicant's Deadline 1 submissions (<a href="#">G1.42: Gannet Bycatch Reduction &amp; Evidence Review (REP1-064)</a> and <a href="#">B2.8.2: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Guillemot and Razorbill Bycatch Reduction: Roadmap (REP2-011)</a>) within their Annex B submission which provide an update and clarity to a number of points. Both documents highlight the significant advancement which has been made on the gannet derogation case where the Applicant is actively consulting fishers and the wider fishing industry to understand the scale of gannet bycatch. Additionally, the Applicant has organised and held numerous meetings with BirdLife International bycatch experts and RSPB to discuss bycatch generally, with a particular focus on gannet to increase their understanding based on the experience held by BirdLife International. Furthermore, the Roadmap (<a href="#">B2.8.2: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Guillemot and Razorbill Bycatch Reduction: Roadmap</a></p>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p><a href="#">(REP2-011)</a> provides an update on all aspects of the bycatch reduction compensation measure.</p> <p>A number of the points raised by the RSPB within 'Annex B' have been responded to elsewhere within this Deadline 3 response by the Applicant. For example, the Applicant's Response 6.21 highlights how the Applicant is already meeting best practice criteria relevant to the current phase of the implementation of a bycatch reduction method.</p> <p>Annex B of RSPB's response draws on perceived errors in location and timing. However, the Applicant notes previous agreement of the target fishery, location and timing by Natural England and RSPB during Hornsea Compensation Workshop (28th May 2021). This was further supported by Natural England during its most recent response (ENO10098-001251-Natural-England – Responses to comments on RRs) where it was stated "Natural England agree with the reasoning for the identified locations for auks". The Applicant has followed best practice (i.e. that set out within Bradbury <i>et al.</i>, 2017) in order to determine bycatch locations and has consulted with regional IFCA's and academia to obtain a current understanding on fishing practices in the North East (in proximity to Flamborough and Filey Coast SPA) and other coastal areas of England. This information has been incorporated into the Applicant's submission.</p> <p>It is worth noting that the core document (<a href="#">B2.8.1 Volume B2, Annex 8.1: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Bycatch Reduction: Ecological Evidence (APP-194)</a>) which forms the basis of the RSPB Annex B response was extremely well received by Natural England who provided supportive feedback during compensation workshops</p>

Reference	Stakeholder's Written Representation	Applicant's Response
		(such as the workshop held 14/02/2022) and within written feedback (such as Natural England's response to the Hornsea Four Compensation Workshop 3 (18/06/2021)).
<i>RSPB Deadline 2 Submission - Annex C Derogation case: Predator eradication (REP2-093)</i>		
N/A	N/A	<p>The RSPB did not consider the Applicant's Deadline 1 submissions (<b>G1.33: Predator Eradication Island Suitability Assessment: Bailiwick of Guernsey (REP1-061)</b> and <b>B2.8.4: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Predator Eradication: Roadmap (REP2-013)</b>) within their Annex C RSPB submission which provide an update and clarity to a number of points. Both documents highlight the significant advancement which has been made in relation to progressing predator eradication as a compensation measure for the benefit of guillemot and razorbill. The Applicant also suggests the following <b>G3.4 Connectivity Note: Compensation measures for FFC SPA: Compensation Connectivity Note</b> (which will be submitted by the Applicant at Deadline 3) is read alongside the other updated submissions listed above.</p> <p>A number of the points raised by the RSPB within 'Annex C' have been responded to elsewhere within this response at Deadline 3.. For example, the Applicant's Response 6.32 within the Deadline 3 submission highlights how the Applicant has employed international eradication experts to undertake a detailed implementation study of Herm, The Humps, Jethou, Sark and the surrounding islands and islets, which will follow the approach set out within the Manual of the UK Rodent eradication Best Practice Toolkit (2018) (as described within Revision 3 of <b>B2.8.4 Compensation measures for FFC SPA: Predator Eradication: Roadmap (REP2-013)</b> and was also detailed within Revision 2 submitted at Deadline 1). The Applicant is also working closely with Alderney Wildlife Trust to develop a detailed</p>

Reference	Stakeholder's Written Representation	Applicant's Response
		<p>understanding of the scale of rat presence across the islands and islets of Alderney.</p> <p>It is worth noting that the work undertaken to date in relation to the Applicant's implementation study has been welcomed and supported by Natural England during its most recent response (ENO10098-001251-Natural-England – Responses to comments on RRs) where it was stated "Natural England welcomes that evidence on the abundance and species of predators present at potential sites is being collected (RR-029-APDX:C-84)".</p> <p>The Applicant is pleased to see that the RSPB agree rats (both brown rat and black rat) are identified as a risk to the population of guillemot and razorbill. However, the Applicant would like to point out that due to the low lying and high accessible nesting habitat used by guillemot across the Channel Islands (in the absence of large amounts of inaccessible cliff habitat), the species is likely to have the same vulnerability to rat predation as razorbill. It is important to note that all locations being considered by the Applicant support both black or brown rat, and current or historic populations of guillemot and razorbill.</p> <p>Additionally, all landowners and managers for the locations being considered have provided letters of comfort (i.e. the Alderney Wildlife Trust and the States of Guernsey) in support of a predator eradication as compensation for Hornsea Four.</p>

## 10 Applicant's Comments to Trinity House

Reference	Stakeholder's Written Representation	Applicant's Response
<i>Written Representations (WRs) and Response to Examining Authority's First Written Questions (ExQ1) (REP2-094)</i>		
	Comments on DCO by Trinity House	In general, the comments on the draft DCO by Trinity House have been accepted by the Applicant. For a detailed list of updates please see <a href="#">C1.1.1 Draft DCO and DML Schedule of Changes</a> submitted at Deadline 3.



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