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Sent: 08 February 2019 21:10
To: KJ Johansson; Kay Sully; Hornsea Project Three
Cc: Andrew Guyton; Stuart Livesey
Subject: Hornsea Project Three (UK) Ltd response to Deadline 6 (Part 3)

Dear Kay, K-J

Please find attached the 3rd instalment of documents.

Best regards,
Dr Dominika Chalder PIEMA
Environment and Consent Manager



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Appendix 5 to Deadline 6 submission - Comments on Condition Assessment for The Wash and North Norfolk Coast SAC

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1. Introduction

1.1 This note provides the Applicant's comments on the latest condition assessment for the Wash and North Norfolk Coast SAC, as updated in January 2019. This note is set out as follows:

- Section 2: Summary of the Natural England condition assessment for Annex I features and sub-features (summarised from the Natural England website) relevant to Hornsea Three, including reference to cabling impacts.
- Section 2.11: The Applicant's comments on the condition assessments, including availability of Race Bank data. The Applicant's position is therefore confined to Section 2.11 only, with Section 2 representing a summary of the Natural England condition assessment.

2. Summary of condition assessment for Annex I features and sub-features relevant to Hornsea Three

2.1 Natural England have published an updated (28 January 2019) condition assessment for the features of The Wash and North Norfolk Coast SAC. This updated condition assessment considered whether Annex I features were in favourable condition based on whether targets for the individual attributes for these features (and their relevant sub-features) have been met.

2.2 Table 2.1, Table 2.2 and Table 2.3 present a summary of the condition assessment of features relevant to Hornsea Three, as presented on the Natural England Designated Sites View webpage¹. Table 2.1 presents those Annex I features for the SAC where assessments are available. Note, the only Annex I feature further considered in this note is the Annex I Sandbanks feature (and associated sub-features), as for all other features, there is either no receptor-impact pathway, or where such a pathway has the potential to exist (e.g. Annex I reefs), there will be no significant effects due to appropriate measures in place (i.e. avoidance of reef features; (see Table 2.1). Table 2.2 presents the condition assessment for the individual sub-features of the Annex I Sandbank feature, with Table 2.3 presenting the relevant attributes and targets for those sub-features relevant to Hornsea Three where the condition is considered to be Unfavourable Recovering (i.e. Subtidal Mixed Sediments and Subtidal Coarse Sediments).

2.3 The Applicant has provided in paragraphs 2.4 et seq. below, a brief summary of the rationale for judgement for those attributes where the target has not been met, drawn from the information presented on the Natural England Designated Sites View website for the relevant sub-features².

¹ Available at (accessed 1 February 2019):

<https://designatedsites.naturalengland.org.uk/Marine/MarineFeatureCondition.aspx?SiteCode=UK0017075&SiteName=&SiteNameDisplay=The+Wash+and+North+Norfolk+Coast+SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=v>

² Subtidal mixed sediments available here:

<https://designatedsites.naturalengland.org.uk/MarineCondition/PublicFeatureAttributes.aspx?featureGuid=455dbf45-a650-e411-a6ba-000d3a2004ef&SubFeatureCode=A5.4&SiteCode=UK0017075v>

Subtidal coarse sediments available here:

<https://designatedsites.naturalengland.org.uk/MarineCondition/PublicFeatureAttributes.aspx?featureGuid=455dbf45-a650-e411-a6ba-000d3a2004ef&SubFeatureCode=A5.1&SiteCode=UK0017075>

Table 2.1: The Wash and North Norfolk Coast SAC Annex I features assessed. F: Favourable; U: Unfavourable; UR: Unfavourable recovering; UD: Unfavourable declining; NA: Not assessed.

Feature Number	Feature Name	Last Assessed	Condition
5357	H1110 Sandbanks which are slightly covered by seawater all the time	25/1/19	F:72%; UR:28%
5359	H1140 Mudflats and sandflats not covered by seawater at low tide. ^a	25/1/19	U:99%; UD:1%
5360	H1150 Coastal lagoons ^a	1/6/18	F:100%
5361	H1160 Large Shallow inlets and bays ^a	25/1/19	NA:1%; F:39%; U:60%
5362	H1170 Reefs ^b	25/1/19	NA:1%; F:1%; UR:37%; U:61%
^a Not considered within this note as no impact – receptor pathway. ^b Not considered further as Hornsea Three will avoid direct impacts on these, should these be recorded (no Annex I reefs have been recorded within the Hornsea Three offshore cable corridor to date).			

Table 2.2: H1110 Sandbanks which are slightly covered by seawater all the time – Sub-features condition assessment.

Sub-feature Code	Sub-feature Name	Condition	Confidence	Assessment date
Whole feature		N/A	N/A	Never
A5.1	Subtidal Coarse Sediment	Unfavourable No change	Low	25/1/19
A5.4	Subtidal Mixed Sediment	Unfavourable No change	Low	25/1/19
A5.3	Subtidal Mud ^a	Unfavourable No change	Low	25/1/19
A5.2	Subtidal Sand ^b	Favourable	Medium	25/1/19
^a Not considered within this note as no impact – receptor pathway. ^b Not considered further as the condition of this sub-feature is favourable and therefore there is no change to the assumptions and conclusions of the Hornsea Three RIAA.				

Table 2.3: Attributes and Targets for the Subtidal Coarse Sediment and Subtidal Mixed Sediment Sub-features of the Annex I Sandbank feature (Note: attributes and targets are identical across these sub-features, unless otherwise stated).

Attribute	Attribute Name	Target	Target met	Confidence
Hab_Att_1.01	Extent and distribution	Maintain the total extent and spatial distribution of Subtidal Coarse Sediment/Subtidal Mixed Sediment.	True	Medium
Hab_Att_3.01	Structure: species composition of component communities	<u>Subtidal Coarse Sediment</u> : Maintain the species composition of component communities.	False	Low
		<u>Subtidal Mixed Sediment</u> : Recover the species composition of component communities.	False	Low
Hab_Att_3.03	Structure: sediment composition and distribution	Maintain the distribution of sediment composition types across the feature.	True	Medium
Hab_Att_3.09	Structure: non-native species and pathogens	Restrict the introduction and spread of non-native species and pathogens, and their impacts.	False	Medium
Hab_Att_6.02	Supporting processes: water quality - contaminants	Restrict aqueous contaminants to levels equating to high status according to Annex VIII and good status according to Annex X of the Water Framework Directive, avoiding deterioration from existing level.	True	Medium
Hab_Att_6.03	Supporting processes: water quality – dissolved oxygen	Maintain the dissolved oxygen (DO) concentration at levels equating to High ecological Status (specifically ≥ 5.7 mg per litre (at 35 salinity) for 95% of the year), avoiding deterioration from existing levels.	True	Low
Hab_Att_6.04	Supporting process: water quality - nutrients	Maintain water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms do not affect the integrity of site and features, avoiding deterioration from existing levels.	True	Medium
Hab_Att_6.05	Supporting processes: water quality - turbidity	Maintain natural levels of turbidity (e.g. suspended concentrations of sediment, plankton and other material) across the habitat.	True	Low
Hab_Att_2	Distribution: presence and spatial distribution of	<u>Subtidal Coarse Sediment</u> : Maintain the presence and spatial distribution of Subtidal Coarse Sediment communities according to the map.	False	Low

Attribute	Attribute Name	Target	Target met	Confidence
	biological communities	<u>Subtidal Mixed Sediment</u> : Recover the presence and spatial distribution of Subtidal Mixed Sediment communities according to the map.	False	Low
Hab_Att_4.10	Structure and function: presence and abundance of key structural and influential species	[Maintain OR Recover OR Restore] the abundance of listed species*, to enable each of them to be a viable component of the habitat.	N/A ^a	N/A
^a Assessment date is noted as: Never.				

Rationale for judgement

- 2.4 As outlined above, Natural England have produced a rationale for their judgement on the condition of the features of The Wash and North Norfolk Coast SAC. Most of the attributes of sub-features relevant to Hornsea Three (i.e. Subtidal Coarse Sediment and Subtidal Mixed Sediment) achieved their target for the relevant attributes (see Table 2.3). For those attributes where the target was not met, the rationale, as presented on the Natural England Designated Sites View website, is summarised in the following paragraphs, with the Applicant's response to these and implications for Hornsea Three presented in section 3.
- 2.5 Attributes where the target has been met have not been further discussed.
- Hab_Att_3.01: Maintain/Recover the species composition of component communities.**
- 2.6 Using the Infaunal Quality Index tool (IQI) the faunal quality of the sub-feature should be maintained at Good Status, with no sustained deterioration within the status. Results from 2011 and 2015 give the site a value of Good which equates to favourable condition (Environment Agency, 2016). This is an improvement on the result from 2005, when the site was designated. This indicates that improvements in organic enrichment or pollution have been made and maintained (Environment Agency, 2016).
- 2.7 The attribute has failed due to fisheries using bottom towed gear being active in the site at levels which have the potential to impact the presence and spatial distribution of the species composition of component communities through abrasion, penetration and catching non-target species. Management measures for fisheries to protect coarse and mixed sediments have been proposed/are being considered by the Eastern Inshore Fisheries and Conservation Authority (IFCA) and the condition assessment will be updated once management measures are implemented in these areas.

- 2.8 Additionally, impacts from the installation of the Race Bank offshore wind farm cable in the Well area of the Wash embayment are said to have repeatedly negatively impacted the Subtidal Coarse Sediment/Subtidal Mixed Sediment species composition of component communities in this area. This is in addition to impacts from sand wave levelling, dredging and joint pit creation which are repeated impacts, that have also occurred in the Well. Race Bank cable installation operations are continuing and therefore impacts from cable installation are ongoing and the species composition of component communities have not yet had the chance to recover. The Lincs cable whilst currently not impacting the Subtidal Coarse Sediment/ Subtidal Mixed Sediment, if in the future cable maintenance works are needed in the vicinity of the Subtidal Coarse Sediment/Subtidal Mixed Sediment this assessment could be altered.
- 2.9 This assessment has been made using expert judgement based on knowledge of the sensitivity of Subtidal Coarse Sediment/Subtidal Mixed Sediment to activities that are occurring / have occurred in the site.
- Hab_Att_3.9: Restrict the introduction and spread of non-native species and pathogens, and their impacts.**
- 2.10 This attribute has failed as the following non-native species have been found at the site: Darwin's barnacle (*Elminius modestus*), soft shelled clam (*Mya arenaria*), pacific oyster (*Magallana gigas*), jack knife clam (*Ensis directus*) and the American slipper limpet (*Crepidula fornicata*)³.
- Hab_Att_2: Maintain/Recover the presence and spatial distribution of Subtidal Coarse Sediment/Subtidal Mixed Sediment communities according to the map.**
- 2.11 It has not been possible for Natural England to conduct a condition assessment using the full method outlined in the technical guidance. To aid the completion of the condition assessment a vulnerability assessment type approach has been used which requires that the attribute fails due to impacts from fisheries.
- 2.12 Fisheries using bottom towed gear are active in the site at levels which have the potential to impact the presence and spatial distribution of biological communities through abrasion, penetration and catching non-target species. Management measures for fisheries to protect coarse and mixed sediments have been proposed/are being considered by the Eastern Inshore Fisheries and Conservation Authority (IFCA) and the condition assessment will be updated once management measures are implemented in these areas.⁴
- 2.13 Additionally, impacts from the installation of the Race Bank cable in the Well area of the Wash embayment are said to have repeatedly negatively impacted the biological communities of the Subtidal Coarse Sediment/Subtidal Mixed Sediment in this area. This is in addition to impacts from sand wave levelling, dredging and joint pit creation which are repeated impacts, which has also occurred in the Well. Race Bank cable installation operations are continuing and therefore impacts from cable installation are ongoing and the biological communities have not yet had the chance to

³ Note: Offshore wind farm cabling would have no influence on this attribute; further discussed in paragraph 3.4 below.

⁴ Note: Hornsea Three would not hinder the implementation of these management measures and therefore would not affect the recovery of sub-features as a result of fisheries management.

recover. The Lincs cable whilst currently not impacting the biological communities within the Subtidal Coarse Sediment/Subtidal Mixed Sediment, if in the future cable maintenance works are needed in the vicinity of the Subtidal Coarse Sediment/Subtidal Mixed Sediment this assessment could be altered.

- 2.14 This assessment has been made using expert judgement based on knowledge of the sensitivity of Subtidal Coarse Sediment/Subtidal Mixed Sediment to activities that are occurring / have occurred on the site.

3. Applicant's comments on condition assessment

Implications for Hornsea Three assessments

- 3.1 The Applicant would first note that the condition assessment summarised above identifies that the main reason for the two sub-features described above currently being in unfavourable condition is due to fisheries activity in the areas using bottom towed gear, which has a repeated impact on biological communities over a relatively wide area. Due to the absence of direct monitoring data of the demersal fisheries, NE have adopted a vulnerability assessment-type approach as a proxy to assess the impact.
- 3.2 In contrast, impacts related to offshore wind farm cabling are more discrete and localised, with Hornsea Three affecting only one of the Annex I habitat features of the SAC, i.e. the Annex I Sandbank feature, and three associated sub-features. Where such effects on this Annex I feature and associated sub-features occur, Hornsea Three (alone and in-combination with other wind farms) will affect only a very small proportion of these broadscale habitat features with the majority of effects being short term, temporary and reversible, thereby not hindering the achievement of favourable condition. Furthermore, effects of cabling on benthic ecology are regularly monitored in order to demonstrate the predictions made in the corresponding project Environmental Statements (discussed further below for Race Bank).

3.3 The Wash and North Norfolk Coast SAC In-combination Assessment (REP3-024) considered the impacts related to the Race Bank and Lincs export cables, in-combination with those associated with Hornsea Three. This included consideration of the attributes outlined above (i.e. Species composition of component communities and Presence and spatial distribution of biological communities) for the Annex I Sandbanks feature and associated sub-features. With respect to impacts related to cable installation and/or remedial burial, it was concluded that effects would be limited to discrete areas of the Annex I Sandbank feature (and sub-features) and that full recovery would occur within up to five years following completion of cable installation. The Race Bank export cables were installed in 2017, with some remedial burial operations undertaken in 2018 over discrete areas of cable where sufficient burial was not achieved and further works (i.e. dredging and back filling) are to be completed in 2019 (subject to granting of a marine licence). These are outlined in Table 2-2 of The Wash and North Norfolk Coast SAC In-combination Assessment. It is therefore predicted that full recovery of the communities associated with the Subtidal Coarse Sediments and Subtidal Mixed Sediments sub-features would not yet be complete given initial cable installation was completed less than two years ago. This is reflected in the “Unfavourable Recovering” condition which has been applied to these sub-features, although the Applicant would highlight that this conclusion is made with low confidence and is likely to be over-conservative due to the small proportion of the Annex I features and associated sub-features affected (discussed further under Future Reporting below).

3.4 In conclusion, the Applicant’s position of no adverse effects on integrity of the Wash and North Norfolk Coast SAC remains valid and adequately conservative, even when considering the updated condition assessment. As outlined in the Report to Inform Appropriate Assessment (RIAA; APP-051) and subsequent submissions during Examination (e.g. REP3-024), Hornsea Three (alone and in-combination with other plans and projects) has the potential to affect only a small proportion (i.e. <0.3% for all in-combination effects) of Annex I Sandbank feature and associated sub-features which are broadscale in nature, with the vast majority of impacts being reversible and temporary. The latest condition assessment by Natural England is made with low confidence based on a precautionary assumption with respect to the impact of recent and ongoing cable laying activities in a discrete part of these broadscale habitat sub-features. Noting this overly precautionary condition assessment, only two attributes have been identified as being at risk from cabling and the condition assessment does not account for the recovery potential of the component communities of these sub-features (i.e. full recovery of these would be expected within five years post cable installation). It is therefore the Applicant’s position that Hornsea Three will not represent a risk to conservation objectives of the Wash and North Norfolk Coast SAC.

Invasive and non-native species

3.5 With respect to the attribute “*Restrict the introduction and spread of non-native species and pathogens, and their impacts*” there is no evidence that the existing cables within the SAC have influenced this target. Furthermore, as set out in the Wash and North Norfolk Coast SAC In-combination Assessment (REP3-024, paragraph 3.13), any risk to this target will be minimised by the designed-in measures adopted for Hornsea Three (and other projects), including a biosecurity plan and vessels complying with International Maritime Organisation ballast water guidelines.

Future reporting

- 3.6 As outlined above, there is low confidence in the condition assessment for these sub-features, due to the approach taken (i.e. a vulnerability assessment based on expert judgement), uncertainty with respect to the precise area of these sub-features impacted by Race Bank export cable and failure to account for recovery of communities following cable installation. This emphasises the importance of clear reporting and auditability of cable installation impacts within designated sites, as set out in the outline Cable Specification and Installation Plan (CSIP) provided by the Applicant at Deadline 5 (REP5-011). The proposed approach for Hornsea Three (as outlined in the outline CSIP) would ensure future condition assessments for SACs could be undertaken accurately without the need for precautionary assessments based on vulnerability assessments and expert judgement.
- 3.7 Noting the comments made in the condition assessment in relation to Race Bank and Lincs export cables (both Ørsted projects), Ørsted will provide Natural England with the most accurate and up-to-date information on the impacts of these projects on the relevant sub-features of the Annex I Sandbank feature as outlined above, to allow an evidence based condition assessment to be undertaken. This will include quantification of the cable lengths within sub-features and cable lengths/seabed areas affected by repeat disturbance (historic and future). Ørsted is also on schedule to deliver the latest benthic and bathymetric monitoring reports in an agreed format, in accordance with the accepted Environmental Monitoring Programme and appropriate marine licence conditions for the project. This is in line with the actions identified by Natural England to improve accuracy in the condition assessment, specifically "*Timely submission of post construction monitoring reports would help understanding the impacts and any potential recovery.*" It is not currently anticipated that these documents will be provided to the Ex.A as these are not directly relevant to the Hornsea Three DCO application.