Date: 09 March 2023
Our ref: Case: 13622
Your ref: EN010098

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BY EMAIL ONLY

Dear Sir/Madam,

Planning Act 2008 and The Infrastructure Planning (Examination Procedure) Rules 2010

Application by Ørsted Hornsea Project Four Limited ("the Applicant") for an Order granting Development Consent for the proposed Hornsea Project Four Offshore Wind Farm ("Hornsea Project Four")

The following constitutes Natural England's formal statutory response to the Secretary of State's Request For Information dated 9th February 2023. To inform this response Natural England have reviewed G9.2 Applicant's Response to RFI dated 16th December.

Natural England has been invited to comment upon:

- **The adequacy of the updated models to assess the in-combination impacts on the kittiwake, razorbill, guillemot, gannet and the seabird assemblage features of the Flamborough and Filey Coast SPA; and whether an adverse effect on the integrity of each of these features can be excluded.**

  Natural England considers the updated material provided by the Applicant to be sufficient to assess the in-combination impacts on ornithology receptors at FFC SPA.

  Natural England's end of Examination position on adverse effect on integrity (AEoI) for FFC SPA can be found in Table 2 of REP7-104. Having reviewed the Applicant's updated assessments including SEP & DEP and Rampion 2, we now consider that an AEoI can be ruled out for Hornsea Project Four in combination with other consented offshore wind (OWF) projects, SEP & DEP and Rampion 2 for the gannet feature of FFC SPA.

  Our conclusions on the impacts of the Project alone and in-combination with other consented offshore wind (OWF) projects, SEP & DEP and Rampion 2 for the kittiwake, guillemot, razorbill and breeding seabird assemblage features remain unchanged.

  Since the end of the Hornsea Project Four Examination, Natural England has issued new interim guidance on avoidance rates for use in Collision Risk Modelling to several Developers including Sheringham and Dudgeon Extension Projects (Annex I). We have provisionally advised this be **used for Project alone assessments only** and it is likely that if applied to Hornsea Four, it would decrease the Project's predicted impacts on the kittiwake feature of the FFC SPA. This would not affect any of Natural England's conclusions regarding adverse effect, but could affect the level of compensation required for the project's impacts on FFC

SPA kittiwake. Natural England have included the interim guidance in Annex 1 of this response, but note that we anticipate the finalised report to be published by JNCC in the near future. We will keep the Applicant updated on this matter. In the meantime, if the Applicant wishes to submit revised mortality estimates to DESNZ using the interim guidance then Natural England would be content to review these.

- **The adequacy of the updated in-combination assessment of impacts on the red-throated diver and common scoter features of the Greater Wash SPA; and whether an adverse effect on the integrity of these features can be excluded.**

  Natural England considers the updated material to be adequate to assess the potential for in-combination impacts on ornithology receptors at Greater Wash SPA from Hornsea 4. Natural England's end of Examination position on adverse effect on integrity (AEoI) for the Greater Wash SPA can be found in Table 2 of REP7-104.

  Hornsea Four have made a commitment that construction and operational maintenance vessels will avoid high concentrations of rafting red-throated diver, which is welcomed. However, this mitigation forms part of a wider set of measures developed by Natural England as a Best Practice Protocol for vessels in red-throated diver SPAs (Annex 2). If Hornsea 4 were able to commit to incorporating the Best Practice Protocol in full within their Vessel Management Plan or another conditioned document, Natural England would be able to advise DESNZ that Hornsea Four would not make a contribution to in-combination effects on the Greater Wash SPA.

  On a point of clarification, Natural England wishes to advise DESNZ that the red-throated diver and common scoter baseline surveys for the Greater Wash SPA designation were carried out in 2002-2008, prior to the construction of OWFs in and around the SPA. It is therefore incorrect for the Applicant to state that the baseline for the SPA already incorporates disturbance/displacement effects from OWF.

- **If an adverse effect on integrity cannot be excluded, the adequacy of the proposed compensation measures to provide effective and deliverable compensation for the impacts of the Project.**

  Natural England's end of Examination position on the adequacy of the compensatory measures can be found in REP7-102 and remains unchanged. Whilst the measures proposed for kittiwake may be adequate to meet the Project's predicted impacts (following Natural England's advised methodology), there remains a high degree of uncertainty regarding both the deliverability and scalability of the measures proposed for auks. It is extremely unlikely that the proposed measures would be able to deliver against Natural England's predicted impacts for auks.

  During the Examination, Natural England advised that compensation measures should be judged against their ability to compensate for 1,131 guillemot and 114 razorbill adult mortalities per annum. Acknowledging that the feasibility study for predator eradication has not yet been completed, there remain many uncertainties. For example, our current understanding from the material provided is that the maximum predicted benefit from Herm (the primary location for eradication) is nest space for ~318 pairs of guillemot. ~200 of these are located at The Humps, where it is not currently known whether any rats are present. Were there to be no rats in this location, it would reduce the potential primary offer to ~118 pairs. Even if nest space for ~318 pairs of guillemot can be achieved, the expected productivity falls far short of the predicted impacts, with the benefit to the National Site Network likely to be considerably diluted compared to gains achieved on the Channel Islands. Please see Natural England's Examination submission REP4-056 regarding this matter.

  Similarly, there is significant uncertainty regarding the bycatch reduction measures. The

second year of bycatch reduction trials for the looming eye buoy are yet to be completed. We understand that the second year results will be less restricted by confidentiality agreements than the first year, which is welcome, but it remains unclear if sufficient data (and appropriate analysis) will be provided to determine the scale of reductions achievable by the measure, assuming that the trials can demonstrate some level of effectiveness.

Onshore Artificial Nest Structures (ANS)

We acknowledge that the Applicant has provided a refined search area for an onshore ANS, however our position regarding the inappropriateness of an onshore ANS as a compensatory measure for Hornsea 4 remains unchanged.

As regards this specific location, the map submitted in response to the December request for further information (G9.3) indicates that a number of adjacent kittiwake colonies along the North Yorkshire coastline are declining, the reasons for which are not understood. This strongly suggests that an ANS in this location may struggle to produce additional adult kittiwake into the biogeographic population from which FFC SPA draws its recruits. Further, the identified search area is within and/or within view of the North York Moors National Park. Depending on the location and design, an ANS could significantly impact on the statutory purposes of the National Park, making a planning permission challenging to secure. This casts further doubt on whether onshore ANS is a suitable intervention in this area of search.

For any queries relating to the content of this letter please contact me using the details provided below.

Yours faithfully,

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Annex 1: Interim guidance on collision risk modelling avoidance rates

This is a Natural England interim update to the current guidance on collision risk modelling (CRM) (SNCBs, 2014) summarising key changes to advice and parameter values relating to CRM. This guidance precedes the release of updated joint SNCB guidance, which is due to be released later this year. Users should be aware that as the joint SNCB guidance note has not yet been finalised there is a risk that these values may be subject to change, however NE consider this risk sufficiently low to issue these draft parameters to provide developers who are close to submission/examination the option of utilising this advice.

Natural England commissioned the BTO to undertake an update of Cook et al (2014), combining evidence from the sites presented in Cook et al. (2014) and any additional sites with available appropriate data (including the ORJIP offshore collision work (Skov et al 2018) to provide avoidance rates based on data across a range of sites (Cook 2021). MacArthur Green undertook a critical review of Cook 2021, which included concerns regarding the influence of one dataset on overall avoidance rates. In response to these concerns, JNCC commissioned a further review and sensitivity analysis (Ozsanlav-Harris et al in prep).

The key changes proposed within the emerging SNCB guidance are as follows:

- Support the use of the stochastic CRM (sCRM, McGregor et al 2018)
- The avoidance rates (ARs) have been updated following the review of the latest evidence base (Cook 2021) and re-analysis (Ozsanlev-Harris et al, in prep).
- The Extended Band model is no longer recommended for any species (i.e. Options 3 and 4)
- All ARs are taken from Ozsanlev-Harris et al (in prep) and are not species specific, instead species groups have been used; large gulls, all gulls, small gulls and all gulls and terns (see Table 1)
- There are some changes to the recommended nocturnal activity factors (see Tables 2 and 3)
- The suggested approach to gannet modelling is a novel methodology, which aims to account for three issues: firstly that all ARs calculated (by Ozsanlev-Harries et al, in prep, Cook 2021, Cook 2014) are ‘within-windfarm’ avoidance rates, secondly, there is not a gannet specific AR and thirdly that there is a clear evidence base that gannets display macro-avoidance. The methodology thus requires the reduction of density of birds in flight by an agreed macro-avoidance rate as an input to the CRM, followed by using an ‘all gulls’ AR within the CRM. An evidence report has been commissioned by NE to inform this rate using best available evidence. Until this is available, we suggest reducing the density of gannet in flight going into the CRM, either by a representative range of macro-avoidance rates of between 65% - 85% or by selecting a single rate of 70%

Table 1 - Recommended Avoidance Rates (AR) for Collision Risk Modelling taken from Ozsanlev-Harris et al (in Prep)

Species	Basic Band (2012) Model AR	Basic sCRM AR
Northern gannet*	0.992	0.993 (±0.0003)
Black-legged Kittiwake (All gulls rate)		
Lesser Black-backed Gull	0.994	0.994 (±0.0004)
Herring Gull		
Great Black-backed Gull (large gulls rate)		
Common Gull, Black-headed Gull (small gulls rate)	0.995	0.995 (±0.0002)
Sandwich tern (and all other marine species) (All gulls and terns rate)	0.990	0.991 (±0.0004)

* Macro-avoidance to be accounted for by a reduction of density of birds in flight based on

the level of macro-avoidance displayed by this species. A project has been commissioned by NE to inform this rate, in the interim NE advise the use of a range of macro avoidance rates between 65% - 85% or a single rate of 70%.

Table 2 – SNCB recommended parameters for the Basic Band model – Option 1 or 2 (Band 2012)

Species	AR	Flight Speed (m/s) [1]	NAF[2]	Body length (m) [3]	Wingspan (m)[4]	Flight Type	% of flights upwind
Northern gannet* (All gulls rate)	0.992	14.9	8 % 1.32	0.94	1.72	Flapping	50
Black-legged Kittiwake (All gulls rate)	0.992	13.1	25-50% 2-3	0.39	1.08	Flapping	50
Lesser Black-backed Gull (Large Gulls rate)	0.994	13.1	25-50% 2-3	0.58	1.42	Flapping	50
Herring gull (Large Gulls rate)	0.994	12.8	25-50% 2-3	0.6)	1.44	Flapping	50
Great Black-backed Gull (Large Gulls rate)	0.994	13.7	25-50% 2-3	0.71	1.58	Flapping	50
Sandwich tern (All gulls and terns rate)	0.990	10.3	Defer to Garthe and Hüppop (2004) or where empirical data is available consult SNCB	0.38	1	Flapping	50
Common gull, Black-headed gull (small gulls rate)	0.995	Consult SNCB		Consult SNCB	Consult SNCB	Flapping	50
Other marine species (All gulls and terns rate)	0.990	Consult SNCB		Consult SNCB	Consult SNCB	Consult SNCB	Consult SNCB

* See note above in Table 1 regarding macro-avoidance

[1] All flight speeds from Alerstam (1997) except for Gannet from Pennycuick (1987) and Sandwich Tern from Fijn and Gyimesi (2018)
[2]All based on Garthe & Hüppop (2004) other than Gannet which is from Furness et al (2018)
[3] All named species from Snow & Perrins (1987)
[4] All named species from Snow & Perrins (1987)

Table 3 – SNCB recommended summary data for the stochastic CRM model (McGregor et al 2018)

Species	AR	Flight Speed (m/s) [1]	NAF[2]	Body length(m) [3]	Wingspan (m)[4]	Flight Type	% of flights upwind
Northern gannet* (All gulls rate)	0.993 (±0.0003)	14.9 (0)	0.08 +-0.10	0.94 (0.0325)	1.72 (0.0375)	Flapping	50
Black-legged Kittiwake (All gulls rate)	0.993 (±0.0003)	13.1 (0.40)	Use central value 0.375 and SD of (0.0637) that results in 0.25 and 0.5 being captured in the 95% CI	0.39 (0.005)	1.08 (0.0625)	Flapping	50
Lesser Black-backed Gull (Large Gulls rate)	0.994 (±0.0004)	13.1 (1.90)		0.58 (0.03)	1.42 (0.0375)	Flapping	50
Herring gull (Large Gulls rate)	0.994 (±0.0004)	12.8 (1.80)		0.6 (0.0225)	1.44 (0.03)	Flapping	50
Great Black-backed Gull (Large Gulls rate)	0.994 (±0.0004)	13.7 (1.20)		0.71 (0.035)	1.58 (0.0375)	Flapping	50
Sandwich tern (All gulls and terns rate)	0.991 (±0.0004)	10.3 (3.4)	Defer to Garthe and Hüppop (2004) or where empirical data is available consult SNCB	0.38 (0.005)	1 (0.04)	Flapping	50
Common Gull, Black-headed Gull (small gulls rate)	0.995 (±0.0002)	Consult SNCB		Consult SNCB	Consult SNCB	Flapping	50
Other marine species (All gulls and terns rate)	0.991 (±0.0004)	Consult SNCB		Consult SNCB	Consult SNCB	Consult SNCB	Consult SNCB

* See note above in Table 1 regarding macro-avoidance

[1] All flight speeds from Alerstam (1997) except for Gannet from Pennycuick (1987) and Sandwich Tern from Fijn and Gyimesi (2018)
[2]All based on Garthe & Hüppop (2004) other than Gannet which is from Furness et al (2018)
[3] All named species from Snow & Perrins (1987)
[4] All named species from Snow & Perrins (1987)

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Annex 2: Best Practice Protocol for vessels in red-throated diver SPAs.

Natural England has developed the following text for licence conditions or vessel management plans for proposals where a Red Throated Diver (RTD) Best Practice Protocol is required. The Protocol is to be adopted where there is a need to minimise risk from vessel disturbance from activities like cable installation or where construction, operation and maintenance vessels will transit through a site designated for this species.

Vessel disturbance

Using best practice in the management of vessel traffic a significant disturbance to RTD can be avoided. Example of relevant best practice include:

- *Where possible avoid works during the over winter period 1st Nov – 31st March inclusive*
- *selecting routes that avoid known aggregations of birds;*
- *restricting (to the extent possible) vessel movements to existing navigation routes (where the densities of divers are typically relatively low);*
- *maintaining direct transit routes (to minimise transit distances through areas used by divers);*
- *avoidance of over-revving of engines (to minimise noise disturbance); and,*
- *briefing of vessel crew on the purpose and implications of these vessel management practices (through, for example, tool-box talks).*