THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES

2010

East Anglia TWO Offshore Windfarm

Appendix A1b to the Natural England Deadline 1 Submission

Comments to the Applicant Comments on Natural England's Relevant and Written Representation [AS-036] Offshore Ornithology

For:

The construction and operation of East Anglia Two Offshore Windfarm, a 900MW windfarm which could consist of up to 75 turbines, generators and associated infrastructure, located 37km from Lowestoft and 32km from Southwold.

Planning Inspectorate Reference: EN010078

2nd November 2020

Appendix A1b Natural England's comments on the Applicant's Review of Natural England's Relevant and Written Representations [AS-036] for Offshore Ornithology

This document is applicable to both the East Anglia ONE North (EA1N) and East Anglia TWO (EA2) applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's (ExA) procedural decisions on document management of 23rd December 2019. Whilst for completeness of the record this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it again for the other project.

1. Summary of Natural England's Offshore Ornithology Issues

1.1. Collision Risk Cumulative Impact Assessments

We note that the Applicant has deferred responses to cumulative impact assessment (CIA) comments until after the Secretary of State decision on the Hornsea Project 3 and Norfolk Vanguard projects were made. Natural England has provided comments on the outcome of those decisions within our response to the proceeding Offshore windfarm NSIP examination - Norfolk Boreas [REP14 – 066]

We understand that the rationale for the Applicant's approach is to prevent the cumulative and in-combination assessments being revised, interpreted by the Applicant and then reviewed by stakeholders, more times than is necessary. We agree with this approach. However, we have previously provided regulators with our advice regarding our concerns about predicted level of cumulative/in-combination impacts on North Sea seabirds, e.g. Environmental Impact Assessment (EIA) great black-backed gull at East Anglia 3 and Norfolk Vanguard, and Flamborough & Filey Coast (FFC) Special Protection Area (SPA) kittiwakes at Hornsea 2 and Norfolk Vanguard. These concerns have intensified given the three further offshore wind farm NSIPs now submitted to PINS (Norfolk Boreas, East Anglia One North, East Anglia Two) and with a further project planned to submit in the next 12 months (Hornsea 4). Therefore, we consider that without major project-level mitigation being applied to all relevant projects coming forward, there is a significant risk of large-scale impacts on seabird populations. Hence, as per our advice at Norfolk Vanguard and Norfolk Boreas, we recommend that for all relevant future projects located in the North Sea, raising turbine draught height as much as technically possible, should be considered as standard mitigation practice, and that where appropriate relevant proposals should include this measure in order to minimise their contributions to the cumulative/in-combination collision totals. We therefore advise that further raising the hub height of turbines is considered now, and not left until the later stages of

the examination process. 'Front-loading' such mitigation measures now will also mean a further reduction in the number of revised collision assessments. Natural England acknowledge that at the workshop on 28th July 2020 the Applicant has undertook a commitment to increase air-draft to 24m over MHWS. However, we are not clear why this cannot be increased to the same air-draft increases as the Norfolk OWF projects.

Therefore, Natural England queries if there is a reluctance to further raise the draft height due to potential increases in the scale of other significant issues e.g. impacts on the special qualities of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty. As highlighted in NEs Deadline 1 Appendix E1b we recognise that there is likely to be conflict between potential mitigation to reduce SLVIA concerns with those of offshore ornithology with opposing requirements in relation turbine heights in reducing the scale of particular thematic impacts. Therefore, the Examining Authority may need to weigh up the overall merits of potential mitigation proposals and how the project design could be further adapted to meet all of the varying mitigation requirements. For example, turbines with higher draft height could be located further away from shore to avoid an increase in visual impact while still providing a reduction to collision mortality.

1.2. Outer Thames Estuary SPA

We advise that the other critical area of outstanding concern for offshore ornithology, is the adverse effect on the Outer Thames Estuary (OTE) SPA red throated diver (RTD) distribution due to displacement effects from the proposed windfarms. Natural England considers that there is a clear case for mitigation through redesign of the East Anglia One North array area the turbines fall at least 10km – 12.5km from the SPA. We are concerned that no substantive response to Natural England's advice regarding this issue has been provided to date, , but we note that the Applicant intends to submit a document at Deadline 3 and we will continue to advise them on the drafting of said document, where appropriate, through our Discretionary Advice Service.

For more specific advice in relation to Outer Thames Estuary SPA red throated diver displacement impacts please see NEs Deadline 1 Appendix A4 and Appendix A5

2. Specific Comments on Offshore Ornithology

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
1	EA1N offshore windfarm (OWF) array area is immediately adjacent to the OTE SPA and, based on studies conducted at other windfarms, is likely to result in displacement of red-throated divers, leading to a long-term reduction in the abundance of divers within part of the SPA and a re-distribution of the interest feature, and result in an adverse effect on integrity (AEOI) from the project alone. **Natural England's advice is that to avoid an AEOI the boundary of the development should be amended so no part of the array is within 10 km of the boundary of the SPA.** The high level conservation objectives and supplementary advice for the OTE SPA can be found in the conservation advice package for the site, which is here. The conservation objectives for the OTE SPA are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: • the extent and distribution of the habitats of the qualifying features • the structure and function of the habitats of	The Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.	Whilst we welcome the Applicant's commitment to continued engagement with Natural England, we do note that the Applicant's consultant MacArthur Green has carried out a recent review of RTD displacement to inform The Crown Estate's Round 4 ornithology constraints for Offshore Wind leasing process (Furness, 2019). We also note the subsequent BioConsult report (Vilela et al. 2020) estimating diver displacement in the German North Sea calculated a displacement distance in spring of 10.2km. It is increasingly clear that there is a large and growing body of evidence that diver displacement from wind turbines can extend out to 10km and beyond, and we are not clear what is to be achieved by another review. Natural England considers that relocating both arrays beyond 10km of the OTE SPA has the potential to avoid an adverse effect on integrity (AEoI), subject to this being tested	

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	the qualifying features • the supporting processes on which the habitats of the qualifying features rely • the populations of each of the qualifying features • the distribution of qualifying features within the site The supplementary advice on the site's conservation objectives describes the range of ecological attributes that are most likely to contribute to a site's overall integrity. Natural England advises that the following attributes within the supplementary advice should be considered as key when determining whether the proposed development will impact upon the site's ecological integrity: • Maintain the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) • Reduce the frequency, duration and / or intensity of disturbance affecting roosting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed Natural England recommends that the Applicant		through a sufficiently detailed assessment of impacts. However, the methodology used to assess the magnitude of the displacement effect in the Environmental Statement (ES) does not allow such an assessment to be made. Currently, the report to inform the Appropriate Assessment (AA) does not assess the full extent of potential displacement. The assessment only considers displacement out to 4km and only considers one attribute (abundance) out of several that are relevant. The in-combination assessment also does not take account of the displacement from existing windfarms within the SPA. Therefore a full and robust assessment needs to be undertaken, using a series of 1km buffers out to at least 10km (at a workshop with the Applicant on 28th July **this was agreed to extend out to 12.5km**) for both EA1N and EA2 and other plans and projects causing displacement effects on the SPA, including all operational	

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	reviews the targets and supporting notes for the above attributes in the supplementary advice. The target sets out the desired state of the attribute and the supporting notes provide detailed evidence of displacement impacts on red-throated diver, through changes in habitat distribution and disturbance caused by offshore wind farms. The most significant ornithological issue for Natural England is that the proposed array is in close proximity to the OTE SPA. We note that the 4km buffer around the array area overlaps with 33.2km2 of the OTE SPA, which represents 0.88% of the SPA area. For baseline characterisation surveys, Natural England advises that the whole of the area within which a planned array may be built plus at least a 4km buffer around those areas is covered by surveys. Buffers serve a number of purposes including assessing areas contiguous to the proposed development that may also be within its zone of influence. There is now evidence suggesting that 4km is likely be an underestimate of the true extent of the displacement, though assuming a magnitude of 100% out to 4km is likely to be an over-estimate. Therefore, when considering impacts on regional or biogeographic populations at the EIA scale, the use of the two components of our current		windfarms within 10km of the SPA. This needs to consider both the absolute area of habitat within likely zones of influence around each development over which usage levels by divers will be reduced due to the displacement effect, and the number of divers estimated to be displaced by EA1N/EA2. Also, for existing OWFs within the SPA the relative abundance of divers within the OWF and buffers before and after construction should be estimated. This will help to inform consideration of the impact of the recommended mitigation of moving the arrays away from the SPA, and to properly assess the existing extent of displacement and these projects' contribution to them. <u>General points on the Appropriate Assessments</u> As stated in our relevant representations/written representations [RR-059] the revised assessments need to be made in the context of the Conservation Objectives for the OTE	

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	advice (a conservative estimate of extent and a precautionary estimate of magnitude within that extent) in combination, is considered to provide an appropriate estimate for EIA assessment, based on our current understanding of the evidence base. There is a strong and growing body of evidence that red-throated divers are displaced from areas of sea within OWFs and from the waters in their vicinity. There is no evidence to date of habituation. Although the distance around OWFs within which changes in the abundance of divers have been detected appears to vary between developments, in many studies the displacement effect can be detected well beyond the 4km distance which is typically used to inform baseline characterisation, including 8km (Webb and others 2017), 10km (Heinanan and others 2016), 13km (Petersen and others 2014). Mendel and others (2019) reports displacement up to 20 km from OWFs, with significant changes in densities at a distance of 16.5 km and the greatest changes in abundance within 10 km. Whilst we acknowledge that the level of displacement will not be 100% outside of the array itself and will likely show a gradient of diminishing effect with increasing distance from it, this body of evidence clearly demonstrates that displacement does occur beyond 4km (the extent of the buffer assumed in the SNCB		SPA. The conservation objectives for the OTE SPA are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: • the extent and distribution of the habitats of the qualifying features • the structure and function of the habitats of the qualifying features • the supporting processes on which the habitats of the qualifying features rely • the populations of each of the qualifying features • the distribution of qualifying features within the site The supplementary advice on the site's conservation objectives describes the range of ecological attributes that are most likely to	

<table>
<tr><th>Point</th><th>Natural England’s Relevant and Written Representations [RR-059]</th><th>Applicant’s Comments</th><th>Natural England’s Response to Applicant’s Comments</th><th>Risk</th></tr>
<tr><td></td><td>displacement advice published in 2017). Therefore, in the context of SPA impact assessment (as opposed to EIA scale assessment), Natural England’s current advice is that displacement effects are likely to occur up to 10km from the development and consequently the location of the array will result in a permanent or long term change in distribution of divers within the SPA as a result of the proposal. The Applicant acknowledges that, without modification, the project is likely to change the local distribution of red - throated divers in the part of the SPA in the vicinity of the proposed development. A change in distribution of divers on a continuing basis would not be consistent with fulfilling the conservation objectives for the OTE SPA. As the extent of available supporting habitat within the SPA will not be maintained as a result of the project alone, an AEOI cannot be ruled out. As a result, Natural England’s advice is that in order to avoid an AEOI on the OTE SPA, the boundary of EA1N should be amended to ensure an adequate distance between the array and the SPA, so as to minimise or avoid the re-distribution of divers within the SPA due to displacement.

Of relevance to this advice, we note that the approach adopted by The Crown Estate when</td><td></td><td>contribute to a site’s overall integrity. The outputs of these assessments should therefore be considered with respect to the following attributes:

<table><tr><th>Attribute</th><th>Target</th></tr><tr><td>Disturbance caused by human activity</td><td>Reduce the frequency, duration and / or intensity of disturbance affecting roosting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed.</td></tr><tr><td>Non-breeding population: abundance</td><td>Maintain the size of the non-breeding population at a level which is at or above 18,079 individuals, whilst avoiding deterioration from its current level as indicated by the latest</td></tr></table></td><td></td></tr>
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<tr><td></td><td>refining the boundary of the Round 4 Wash leasing region was to ensure no new proposed windfarms were within 10km of the Greater Wash SPA, based on a report from MacArthur Green (Furness and others 2019). The Report states "Since offshore wind farms can displace red-throated divers up to distances that in the extreme cases exceed 10km from the turbine, it may be prudent to trim the inshore boundary of Regions 3 and 4 so that these are a minimum of 10km from the outer edge of Greater Wash SPA."

The 10km distance from the SPA is set as a minimum value by MacArthur Green on the basis that several studies that it cites show values that exceed 10km. This conclusion is in line with a recent study by Diershcke and others (2016) which highlights strong evidence for displacement beyond 10km.

Natural England advises that a similar approach to the one taken by The Crown Estate in respect of the Wash Strategic Area for Round 4 be applied to EA1N and EA2. In other words, to rule out the risk of displacement impacts on red - throated diver in the OTE SPA, the boundary of the array should be set an appropriate distance from the SPA (i.e. a</td><td></td><td><table>
<tr><td></td><td>mean peak count or equivalent (our emphasis).</td></tr>
<tr><td>Supporting habitat: extent and distribution of supporting habitat for the non-breeding season</td><td>Maintain the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding) at the following levels: Subtidal sand (220,295.55); Subtidal coarse sediment (73,606.64); Subtidal mixed sediments (62,100.63 ha); Subtidal mud (12,549.14 ha);</td></tr>
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	minimum of 10km).		<table><tr><td></td><td>Circalittoral rock (335.2 ha); and Water column.</td></tr></table> The assessment should also fully consider the impacts of the construction phase (including cable installation) and Operation & Maintenance (O&M) works, in additional to effects from the array itself. This should consider vessel movements (including cabling vessels) and helicopter traffic. This will involve considering O&M works for the existing offshore windfarms where relevant. <u>Assessing impacts from EA1N/EA2 Alone</u> The first step is to determine what the full impact of displacement from EA1N/EA2 alone may be. This will require considering displacement effects beyond the 4km buffer currently considered in the Environmental Statement. Assuming that	

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			displacement effects extend only to 4km from the proposed array predicts impacts affecting 33.2km^2 of the OTE SPA, which represents 0.88% of the SPA area. However, when using a 10km buffer around the array the overlap with the SPA is 121.40 km^2, which represents 3.09% of the SPA that will be subject to some degree of displacement. We acknowledge that displacement will not be 100% throughout the distance over which displacement effects occur, and there will be a gradation of displacement which will decrease with distance from the windfarm. Nevertheless there is a growing body of evidence that displacement of RTD occurs at distances much greater than in earlier studies, which were limited by the size of the study area and/or use of inappropriate survey platform (boat-based surveys). As noted above, the recent BioConsult	

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			report (Vilela et al. 2020) estimating diver displacement in the German North Sea calculated a displacement distance in spring of 10.2km. The German Bight study was based on the entire study area and for all available data over an 18 year period. This, in tandem with other studies with a suitably extensive survey area, provides a robust evidence base for displacement occurring up to and beyond 10km from operational windfarms. Vilela et al. (2020) does caution that the available results can only be transferred to other areas outside the study area to a very limited extent, and therefore need to be tested on a case by case basis, but does provide evidence that divers are displaced up to 10km. This is consistent with the MacArthur Green report to The Crown Estate (Furness 2019) which advised that new offshore windfarm leasing areas should be a minimum of 10km from the outer edge of Greater Wash SPA, and the latest evidence from the OTE SPA. Natural	

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			England has recently provided comments on the draft final year post-construction ornithological monitoring report for London Array OWF, during which displacement effects have been detected out to 11.5km from the Array. Therefore we advise that an assessment is undertaken, based on the assumption of displacement occurring up to at least 10km (12.5km would be appropriate on the basis of the Heinanen at al 2020, which found displacement effects out to 10-15km, and 12.5km is the midpoint). We acknowledge that the range of displacement within each 1km band from the proposed windfarm will decrease the further the distance from the windfarm, and a range of displacement within each 1km. **As agreed at the workshop on 28th July 2020 the Applicant will undertake the assessment out to 12.5km.** <u>Assessing impacts against current levels of displacement from</u>	

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			<u>constructed offshore windfarm projects</u> It is important to consider what the additional displacement from this project will add to the current level of in-combination displacement from operational projects within the SPA, particularly in the absence of a Review of Consent for the OTE SPA covering all these projects. Natural England are already of the view that an AEoI on the OTE SPA cannot be ruled out (Natural England's response to BEIS dated 24th May 2013). Therefore in addition to an AEoI alone from EA1N, additional displacement from EA1N/EA2 will only increase the likelihood of an in-combination AEoI arising due to the conservation objectives relating to the distribution of divers not being fulfilled. The survey data that informed the current boundary of the SPA was based on surveys undertaken before most of the relevant OWFs were constructed. This fact, together with Natural England's advice that an AEoI	

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			cannot be excluded from existing windfarms, means it is crucial that the Examining Authority has a clear understanding of the existing level of impacts from the operational windfarms, in order to then consider in-combination effects. We advise that an assessment of the level of displacement from the projects that are now operational are considered including: • London Array • Gunfleet Sands I,II and III • Kentish Flats and Kentish Flats Extension • Greater Gabbard • Thanet. The outputs should be considered in-combination with those from the EA1N/EA2 assessment and with reference to the relevant Conservation Advice attributes. Evidence from existing windfarms indicates that an AEoI in-combination	

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			from existing OWFs cannot be ruled out. For the OWFs within the SPA the total windfarm footprint area alone equates to 4.2% of the SPA being affected by displacement, with a 2km buffer it is 9.9%, with a 4km buffer it is 17.7% and with a 10km then 47.43% of the SPA is subject to some degree of displacement. Therefore it is our view that based on the scale of the existing impacts an AEoI cannot be excluded from the additional loss of supporting habitat as proposed by the EA1N and EA2 projects. Therefore, we consider there being limited benefit in undertaking an assessment of the change in distribution of actual numbers of divers. As discussed at the workshop on 28th July 2020, as the Applicant wants to consider numbers of divers displaced, Natural England is content to see the assessment based on both area affected and numbers of birds displaced. As the analysis of numbers of divers is planned in addition to determining the area affecting RTD distribution and the	

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			quantification of reduced availability of supporting habitat, Natural England advises that the gradation is based on the figures on an average of distances from published studies (Webb et al. 2017; Vilela et al. 2020), assuming a gradient out to zero displacement at 12.5km, <u>In-combination assessment with other plans and projects</u> We note that the only project 'in planning' which is considered by the Applicant is the Sizewell C power station. It should also be noted that some projects are planned but not yet in the planning system, e.g. Greater Gabbard Extension. The location of the proposed 'extensions' are known, therefore it is possible to include such projects in the assessment of total area of SPA affected and numbers of RTDs displaced, based on the datasets held by JNCC and Natural England that have been provided to SPR.	

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2	Natural England notes that the level of vessel traffic associated with site maintenance has been quantified but consideration of the impact of this element has not been further considered. The operation of the site will necessitate an increase in the number of vessel journeys through the SPA, involving both boats and helicopters. As both have the potential to be disturbing to red-throated diver the impacts of these need to be considered and where appropriate mitigated.	The operation and maintenance port has not been confirmed at this stage. However, it is clear from consideration of the existing volume of shipping traffic through the region (***Chapter 14 Shipping and Navigation***, ***Appendix 14.2*** (APP-475) and ***Figures 14.3*** (APP-237) and ***14.4*** (APP-237)) which includes the Outer Thames Estuary SPA, that the addition of vessels transiting to and from the port and the windfarm (less than two vessel round trips per day) will have a negligible effect on the levels of shipping disturbance over and above the average of 71 vessel movements per day recorded within the shipping and navigation study area. NE have indicated for this Project and previous projects that, notwithstanding the low additional volumes of vessel traffic, they consider there is still the potential for an adverse effect due to operation and maintenance vessel movements. However, NE have also	As the location of the O&M port is not known at this stage, Natural England recommends that the Applicant commits to mitigating impacts from vessels in future by commitment to best practice vessel movements through the SPA with regard to birds such as RTD, including for example(as was done by Norfolk Vanguard and Norfolk Boreas): • Avoid and minimise maintenance vessel traffic, where possible, during the most sensitive time period for RTD i.e. between November and March inclusive. • Restrict vessel movements where possible to existing navigation routes. • Avoid over-revving of engines (to minimise noise disturbance). Avoid rafting birds either in-route to array from operational port and/or within the array (dependent on location) and where possible avoid	

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		advised that implementation of best practice guidance (as proposed by NE) on vessel operation whilst transiting the Outer Thames Estuary SPA during sensitive periods of the year (i.e. the red-throated diver nonbreeding season, or key parts thereof) will remove the likelihood of an adverse effect on the integrity of the Outer Thames Estuary SPA red-throated diver population. A best-practice protocol for minimising disturbance to red-throated divers during construction and operation will be adopted and will be provided as part of the project environmental management plan to be approved by the MMO and secured under condition 17 of the generation DML and condition 13 of the transmission DML. Once further information is available about the port(s) that will be used for construction, operations and maintenance, then appropriate vessel	disturbance to areas with consistently high diver density.	

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		traffic management measures including, where relevant, some or all of the below best practice examples can be formulated in agreement with the MMO and NE: • Restricting vessel movements to existing navigation routes (where the densities of divers are typically relatively low); • Where it is necessary to go outside of established navigational routes, selecting routes that avoid known aggregations of birds; • 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		

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		example, tool-box talks). Whilst the operational impact was not assessed, it can be considered in relation to the assessment undertaken for cable laying. ***Section 4.3.1.2.2*** of the ***Information to Support Appropriate Assessment Report*** (APP-043)) assesses the displacement during construction from two cable laying vessels operating simultaneously. For the purposes of the assessment it is assumed that these vessels are effectively stationary and therefore cause a constant displacement effect which (using NE's precautionary 100% displacement and 10% mortality rates) leads to annual mortality of up to 9.5 individuals. This results in an increase in background mortality by a maximum of 0.21 to 0.72% which would not result in an AEoI (see ***section 4.3.1.2.2*** of the ***Information to Support Appropriate Assessment Report*** (APP-043)). Also, note the Applicant's response to		

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		Point 5 of Offshore Ornithology below detailing additional precaution regarding the duration of cable laying activity. • NE is in agreement that the assessed cable laying effects do not represent an AEoI. Given that displacement impacts from cable laying vessel activity within the SPA would be of a higher magnitude than maintenance vessel impacts (as they are assessed as effectively stationary vessels) the Applicant considers that maintenance vessel trips would not result in an AEoI. If used, helicopters are a potential source of disturbance to red throated diver in the Outer Thames Estuary SPA. The minimum safe altitude for helicopters operating offshore is 1,000 feet above the highest known obstacle (i.e. wind turbine blade tips) within 5nm. It is considered that at these		

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		altitudes that any disturbance caused by the visual presence or noise of helicopters will be minimal and will not result in significant disturbance of red-throated diver.		
3	Natural England agrees that assuming a 100% displacement in a 2km buffer around the cable laying vessel is a reasonable approach. Whilst the level of displacement affecting up to 3.5% of the OTE SPA area would be significant, we do acknowledge that the displacement is short-term. We also note however that given the time this will take (identified in paragraph 213 as being 110 days) there is the potential to carry out this activity during the part of the year when red-throated divers are not present and so would not be exposed to displacement risks associated with this activity.	***Section 4.3.1.2.2*** of the ***Information to Support Appropriate Assessment Report*** (APP-043)) assesses the displacement during construction from two cable laying vessels operating simultaneously. For the purposes of the assessment it is assumed that these vessels are effectively stationary and therefore cause a constant displacement effect which (using NE's precautionary 100% displacement and 10% mortality rates) leads to annual mortality of up to 9.5 individuals. This results in an increase in background mortality by a maximum of 0.21 to 0.72% which would not result in an AEoI (see ***section 4.3.1.2.2*** of the ***Information to Support Appropriate Assessment Report*** (APP-043)). Also, note the Applicant's response to Point 5 of Offshore Ornithology below	Natural England's view is that an AEoI on OTE SPA from in-combination effects from operational windfarms cannot be ruled out. Therefore any further additional impacts should be avoided wherever possible. Although Natural England agree that it is unlikely that there will be an AEoI from offshore export cable laying from the project alone, it does not follow that no seasonal restriction is required, particularly given the existing pressures the SPA is subject to. We therefore maintain that cable laying should be restricted to avoid the key period when the largest numbers of RTD will be present, i.e. November to March.	

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		detailing additional precaution regarding the duration of cable laying activity. NE is in agreement that cable laying effects do not represent an AEoI for the project alone and therefore the Applicant considers that a seasonal restriction on cable laying is not required. NE is in agreement that cable laying effects do not represent an AEoI for the project alone and therefore the Applicant considers that a seasonal restriction on cable laying is not required. Additionally, whilst the duration of export cable installation programme is relatively short, it does comprise a number of independent activities including; any requirements for sand wave levelling; pre-lay grapnel run, near-shore works associated with the HDD punch out location and placement of mattresses / cable protection over existing cables at		

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		crossing locations. Delays to any of the activities, for example, due to inclement weather, could result in cable installation not being completed within the summer period and works having to be stood down until the following summer. This would present a significant risk to completing the construction programme on time and meeting Contract for Difference (CfD) contractual milestones for delivery of first power.		
4	Natural England notes that the Applicant states that the 4km buffer has an overlap with the SPA of 33.2km2 which represents 0.88% of the SPA. As the Applicant acknowledges, without modification the project would potentially change the local distribution and abundance of red-throated diver in this section of the SPA. As outlined in Point 1 above, this would not be consistent with fulfilling the Conservation Objectives for the OTE SPA, and recent studies have revealed that displacement extends to at least 10km. When using a 10km buffer around the array the overlap with the SPA is 121.40 km2, which represents 3.09% of the SPA.	The Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.	See response under Point 1 above.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
5	Natural England agrees with the conclusion that there is likely to be no adverse effect alone as a result of red-throated diver displacement due to cable laying. Our conclusion is based on the fact that the cable laying operations are of a temporary nature. However, given Natural England's view that we are already unable to rule out AEOI in-combination from displacement as a result of disturbance within the SPA, we maintain that a seasonal restriction in cable laying activity should put be in place to minimise the effects on red-throated diver.	Notwithstanding NE's concerns on wider in-combination displacement, the Applicant considers that the statement in **section 12.6.1.1.1 of *Chapter 12 Offshore Ornithology*** (APP-060) remains valid - on the basis that *"a maximum of 10 [rounded from 9.5] birds would die as a result of displacement over this period, a seasonal restriction is not considered to be justified (or proportionate)…in addition to the measures set out in the best practice protocol for red-throated divers"* Where applicable, best practice vessel management as described in the best practice protocol for red-throated divers will apply for cable laying vessels. Furthermore, the worst case assessment of 10 (rounded from 9.5) mortalities would occur in a single winter season, and the mortality would only reach this level if all of the worst	As stated under Point 3 above, given Natural England's view that we are already unable to rule out AEoI in-combination from displacement as a result of disturbance within the OTE SPA, we maintain that a seasonal restriction in cable laying activity should put be in place to minimise the effects on RTD.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		case parameters advised by NE are applied, i.e. 100% displacement, 10% mortality and cable laying within the SPA extending for the entire winter. Since the cable laying vessels will move at between 80-300m/hr, with an assumed 12 hour working day, the vessel will traverse the 25km of SPA in the cable route in 7 to 20 days. The winter period defined for red-throated divers is defined as approximately 240 days. Therefore, on the basis of the realistic duration of works, the precautionary assumption that this impact would last for the whole non-breeding season over-estimates the impact magnitude by 9 to 35 times. Thus, just on the basis of the time the vessels are expected to be present in the SPA, the worst case mortality of 10 is more likely to be no more than 0.3 to 1.1 individuals.		
6	Natural England does not agree with the Applicant's estimate that up to 33 individuals will be displaced within the SPA by the proposed EA1N project. Firstly, the extent of displacement effects is known to	The Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.	See response under Point 1 above.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	extend to beyond 10km, and therefore assuming that displacement effects only go out to 4km (even if assuming 100% displacement within that area) means the impacts are potentially underestimated. In addition, the permanent loss of the availability of SPA supporting habitat, due to the presence of the windfarm means the conservation objectives to maintain the extent of supporting habitat will not be met. If a 10km buffer is used, based on the recent OTE survey data Natural England calculates that 70 individuals would be displaced			
7	The focus on predicted mortality and the effect this would have on the abundance of red-throated divers within the SPA is not the only issue for assessing impacts on the SPA. As stated previously, the change in distribution of divers due to the close proximity of the proposed array to the OTE SPA also needs to be considered. Moreover, it is worth noting that the mortality rates are a relatively crude method of capturing a range of potentially deleterious effects that could arise from displacement, including reduced fitness for migration and reduced productivity during the breeding season. Therefore, we advise that further consideration is given to this matter.	The Applicant agrees that the application of mortality rates (as advised by NE) is a crude approach for considering the potential impacts of displacement. Furthermore, it is also the most precautionary, since impacts on adult survival for relatively long-lived, slow breeding species such as this will always have the greatest effect on the population. The other effects noted by NE (e.g. reduced reserves for migration or reproduction) will all have much lower overall impacts on the population.	See response under Point 1 above.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		The Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.		
8	As stated by the Applicant, there is a requirement to maintain the extent and distribution of supporting habitats for the designated species. Natural England does not agree with the statement that "this requirement is not strictly at risk". Although the turbines themselves are not proposed to be constructed within the SPA, the supporting habitat will be directly affected because red-throated diver avoid areas in the vicinity of wind turbines, even when they are many kilometres away. There will be a change in the distribution of qualifying features (i.e. red-throated diver) within the site local on a continuing basis, and consequently a change in availability, extent and distribution of the habitats of the qualifying features. Therefore, Natural England advises that an AEOI cannot be ruled out beyond reasonable scientific doubt for the project alone.	The Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.	See response under Point 1 above.	
9	There are in-combination effects from operational windfarms within the SPA. As noted by the Applicant, low densities within existing operational	The Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE	See response under Point 1 above.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	windfarms reported in Irwin and others (2019) provides evidence of the impact of operational windfarms on the distribution of red-throated divers within the SPA.Natural England is already of the opinion that an AEOI of the red-throated diver population of the OTE SPA cannot be ruled out beyond all reasonable scientific doubt, as a result of the scale of in-combination displacement due to consented and operational projects within the SPA (Natural England, 2019). Our advice remains that AEOI in-combination cannot be ruled out. Any additional effects in terms of reduced habitat availability and changing the distribution of red-throated diver within the SPA as a result of EA1N will only add to in-combination impacts.	in order to agree a way forward.		
10	Natural England acknowledges that the estimates of the red-throated diver population in the OTE SPA have recently increased significantly. Although there is a possibility that this reflects a real increase in abundance over time, this increase is most likely to be due primarily to the change in survey platform, moving from visual aerial to digital aerial surveys which have much higher detection rates, and fly at a higher altitude and are therefore less disturbing. In any event, in addition to considering the objective of	The Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.	See response under Point 1 above.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	maintaining abundance, it is important that the extent of available habitat within the SPA is maintained.			
11	Based on the predicted reduction in the availability of supporting habitat within the SPA, Natural England concludes that AEOI of the OTE SPA due to loss of habitat as a consequence of displacement of red-throated divers from the EA1N windfarm alone cannot be ruled out beyond reasonable scientific doubt. As stated in point 8, Natural England is already of the opinion that an AEOI of the OTE SPA cannot be ruled out beyond all reasonable scientific doubt due to the scale of in-combination displacement of red-throated diver due to consented and operational projects within the SPA.	The Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.	See response under Point 1 above.	
12	Natural England welcomes that the Applicant has incorporated uncertainty in seabird density, collision avoidance rates, flight heights and nocturnal activity in their collision assessments. This has been undertaken using the Band (2012) model and presenting multiple tables of the outputs using the variations in the various parameters, as presented in Annex 4 of Appendix 12.2 of the submission documents. Whilst we welcome that the Applicant has	Noted. The Applicant will continue to monitor the status of the MSS sCRM model throughout the examination period.	It is noted that the Applicant will continue to monitor the status of the MSS sCRM model throughout the examination period, which is prudent. Natural England anticipates in future to recommend use of the MSS sCRM, but until we have established the appropriate values for key parameters including avoidance rate we currently recommend the use of deterministic models. However, due to the	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	considered the uncertainty/variability in this way, we note that this does not allow the uncertainty/variability in the various input parameters to be fully integrated. Therefore, we recommend that if the Applicant undertakes any further collision risk modelling that this is undertaken using the Marine Scotland Science (MSS) stochastic collision risk model (sCRM), and that the log file produced by the sCRM is also included. We note that there are ongoing issues with the sCRM tool which need to be addressed, so we accept that the use of the sCRM tool is dependent on any coding errors in the tool being rectified.		considerable uncertainty/variability in the input parameter values used in the CRM, and in the model itself, to allow a robust assessment of potential collision impacts on populations it is important to take account of this uncertainty where possible and to indicate the range of confidence around the collision estimate. Therefore Natural England advises that for the key input parameters of monthly bird density, flight height, avoidance rate, and nocturnal activity factor, uncertainty around the parameter estimates should be considered on an individual parameter basis. This gives an indication of which parameters might have the most influence on the prediction of collision risk, recognising that individually these will not reflect the effect of uncertainty across all parameters.	
13	Natural England notes that the Band model (2012) and CRM Option 2 has been used. Use of Option 2 was accepted by Natural England during the Evidence Plan process in preference to Option 1 of	The Applicant has undertaken assessment of collision risks using option 2 of the Band (2012)42 collision risk model. Use of this model option	We acknowledge that the use of option 2 of the Band (2012) collision risk model, which uses generic Potential Collision Height data, was agreed in	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	the model, after it was communicated that APEM had no confidence in the site specific flight heights derived from digital aerial methods. The main assessment does not consider the CRM predictions from the Band Option 1 outputs, only those for Option 2. We note that in Annex 4 of Appendix 12.2 that the results using Option 1 are presented in Tables 21 and 22. The % Potential Collision Heights (PCHs) for these species from the site-specific data are significantly higher than those from the generic data, and the resulting CRM predictions are considerably higher than those from Option 2 (e.g. 57.99 kittiwake collisions from Option 2 compared to 261.79 from Option 1 for the central input values). Natural England acknowledges the concerns of the aerial survey contractors over the aerial survey data flight height figures, noting this was also the case at Thanet Extension, where aerial survey data flight height figures were also significantly higher than the generic flight heights. However, this dataset emphasises the critical importance of considering potential variability in flight heights when assessing collision risk impacts, rather than assuming the central input value necessarily represents the 'most	was agreed in consultation with NE and the RSPB through the Evidence Plan Process (see ***Appendix 12.1*** of ***Chapter 12 Offshore Ornithology*** (APP-060) and followed advice from the digital aerial surveyor that their method to estimate seabird flight height was insufficiently robust to be relied upon for use in the site specific (i.e. option 1) version of the Band model. Consequently, the Applicant does not consider that the option 1 collision estimates should be used in the assessment and this had been agreed with stakeholders. The collision assessments presented confidence intervals around the mean predictions derived from upper and lower 95% confidence intervals on the seabird density estimates, avoidance rates and generic flight heights (APP-470) and of these the estimates around density, which are the widest and therefore most precautionary, have been considered in the	consultation with NE and the RSPB.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	likely' impact. Accordingly, we recommend that the Applicant takes a more narrative approach to the assessment, and considers the Option 1 outputs for the above species in the context of the relevant Option 2 95% CIs, as part of a more range-based approach to consideration of CRM impacts. This should not just consider the mean/central predicted collision figures, but also those based on the range of predicted figures resulting from the Applicant's consideration of the uncertainty/variability in the input parameters.	assessment (e.g. through assessment of the change in background mortality expected for the mean, lower and upper estimates). Therefore, the Applicant considers that the collision assessment has given full consideration to the uncertainties in the input parameters and these have been presented in an appropriate manner.		
14	It is of concern that the predicted mortalities using CRM Option 1, based on site specific estimates of PCH are significantly higher than the outputs using Option 2, which is based on generic boat based estimates of flight height.	The Applicant provided the option 1 collision estimates at the request of NE but, as noted in response to the previous comment, they are not considered reliable and have not been considered in the assessment, as agreed with NE during the Evidence Plan Process.	We accept the use of Option 2 in the assessment, but advise that the Applicant's assessment still needs to consider that this approach may be underestimating potential collision. We note that there is an issue with the collection of accurate evidence on site-specific flight heights of seabirds, which highlights the need to collect real evidence on actual collisions. This lack of evidence also highlights the need for consideration of mitigation through raising turbine draught heights by as much as is possible.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
15	Natural England welcomes that the SNCB recommended Avoidance Rates have been used.	Noted.	No response required	
16	Natural England acknowledges that evidence from the ORJIP collision avoidance study indicates that Avoidance Rates for gannet may be higher than the Avoidance Rates currently recommended by the SNCBs. Natural England are content for the inclusion of Avoidance Rates from Bowgen & Cook (2018) within impact assessments, provided that they are presented alongside outputs based on the SNCB recommended Avoidance Rates.	Noted. The avoidance rates on which the conclusions of the assessment are based are those recommended by NE. However, where appropriate, collision estimates using the Bowgen & Cook (2018)43 gannet avoidance rate are presented alongside these.	No response required	
17	Natural England recognises from recent evidence presented by the Applicant that nocturnal activity levels for some species may be lower than the levels that equate to the nocturnal activity factors currently used in CRM. However, we also note that there is uncertainty about the empirical activity levels and uncertainty about how these might translate into nocturnal factors applicable to the Band model. Nevertheless, we do note and welcome that the Applicant has considered the range of Natural England advised nocturnal activity factors to be used with the Band (2012) and therefore we will consider	Noted.	No response required	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	the predicted impacts on the basis of the Natural England recommended rates for all species.			
18	Natural England welcomes the use of our recommended Avoidance rates and nocturnal activity factors, and accept that there is an argument to present the Applicant's preferred options alongside. However, given the significant difference in predicted mortality when Option 1 is used, we advise suggest that this demonstrates that overall assessments of collision risk may not be precautionary enough. The fact that predictions would be significantly higher using Option 1 adds strength to the argument that hub height should be increased to reduce the collision risk as much as possible.	The Applicant again notes the responses made to the previous comments (on the unreliability of the flight height estimates on which the option 1 estimates are based) and stresses that these figures should not be considered in the assessment. As a consequence, the Applicant disagrees that the value of the option 1 estimates indicates a need for increased precaution, since the estimates are known to be unreliable to an unknown extent.	Ongoing disagreement	
19	Natural England advises that the cumulative operational displacement assessment totals for red-throated diver are based on an incomplete data set. Table 12.37 excludes a number of projects including Gunfleet Sands, Kentish Flats, Kentish Flats Extension, London Array and Scroby Sands. These missing projects will reduce the confidence in the assessments and result in a significant under-estimation of the cumulative/in-combination assessments.	As shown in ***Table 12.3.7*** of ***Appendix 12.3*** **of** ***Chapter 12 Offshore Ornithology*** (APP-471), the cumulative assessment presented no displacement mortality estimates for these projects either because red-throated diver was a) not assessed in these windfarm assessments or b) only a qualitative assessment was presented. Therefore, it was not possible to include these projects in	We advise that it is still possible to undertake a cumulative RTD displacement assessment that includes all relevant projects even when figures are not presented in the individual Environmental Statements. An assessment similar to the EIA assessment presented at Thanet Extension could be undertaken, where a relative comparison using a single density surface, like SeaMaST is used,	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		the Applicant's red-throated diver cumulative assessment. It should be noted however, that the SeaMast dataset which has informed the assessment takes into account these projects given that the surveys were conducted while these projects were operational.	and shapefiles of individual windfarms and buffers are overlaid. The dataset in SeaMaST does not pre-date the projects listed (with the exception of Scroby Sands). We therefore advise that a thorough EIA cumulative assessment is undertaken, including all relevant projects.	
20	Natural England advises that the comparative approach to red-throated diver displacement assessment is welcomed. In Appendix 12.3,Table A12.3.9 it is noted that only five of the 38 projects listed have a higher relative contribution than EA2, and these (London Array, Gunfleet Sands, Kentish Flats and Scroby Sands) four are constructed within the OTE SPA.	The Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.	See response under Point 1 above.	
21	The disproportionate contribution that EA1N makes is clear in Table A12.3.9. EA1N alone contributes 9.1% of the cumulative total, whereas all other Tier 4 projects combined (i.e. excluding EA1N) contribute 5.6% of the relative contribution to potential displacement. Although the approach considering the relative contribution to the cumulative total is helpful, and identifies that EA1N does not make a significant, it	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a Secretary of State (SoS) decision on Norfolk Vanguard and Hornsea Project 3 has been made. With regards to the point regarding projects missing from the red-throated	Natural England advises that with reference to cumulative/in-combination consideration for RTD, particularly in relation to HRA issues relating to the OTE SPA, there is no benefit in waiting for decisions on Norfolk Vanguard and Hornsea Project 3 to progress matters.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	does not adequately consider the overall level of cumulative displacement. This is due to displacement from a number of projects not being included. See Point 18 Above	diver cumulative displacement assessment, refer to the Applicant's response to Point 19 of Offshore Ornithology.		
22	As mentioned in Point 18, Table 12.37 does not include a number of windfarms, which results in a significant underestimate of impact. Therefore the total annual mortality figure of 37 -409 individuals is a possible under-estimation. However, even as a potential underestimate, the predicted mortality of 37 – 409 birds as a result of displacement is significant, resulting as it does in an increase of 16.2% in the mortality rate of the total reference population of red - throated divers in this area in the non-breeding season (Appendix 12.3). When using the biogeographic estimate of individuals, the increase in mortality by between 0.6% and 6.6%, which is of concern.	With regards to the point regarding projects missing from the red-throated diver cumulative displacement assessment, refer to the Applicant's response to Point 19 of Offshore Ornithology. Regarding the predicted mortality of red-throated diver, the Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.	See response under Point 19 above.	
23	Whilst it is stated by the Applicant that the assessment includes several sources of precaution, it includes assumptions that may not reflect the full extent of diver displacement. Although Natural England welcomes that assumptions around 100% displacement out to 4km are used, we know that in some cases this may underestimate the degree of displacement if the	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made.	As stated under Point 21 we do not see any benefit in waiting for the decisions on Norfolk Vanguard and Hornsea 3 before progressing assessments for RTD. Given the close proximity of EA1N to the OTE SPA and Natural England's view that an AEoI alone cannot be ruled out we	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	extent of displacement is 10km or more in some cases. In addition, there are a number of OWF excluded from the analysis and it is therefore not considering the full extent of cumulative displacement.	With regards to the point regarding projects missing from the red-throated diver cumulative displacement assessment, refer to the Applicant's response to Point 19 of Offshore Ornithology. Regarding the cumulative displacement impact on red-throated diver, the Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.	advise that this matter is progressed. We understand that the Applicant will be submitting a document at Deadline 3 when we will provide further comment. .	
24	Due to the Applicant's worst case scenario assessment of minor adverse, and considering that some projects are not included in the assessment, Natural England is unable to rule out a significant adverse effect for cumulative operational displacement on red-throated diver at the EIA scale.	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made. With regards to the point regarding projects missing from the red-throated diver cumulative displacement assessment, refer to the Applicant's response to Point 19 of Offshore	See responses to Point 1, 19 and 21 above.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		Ornithology.		
25	Natural England welcomes that a quantitative cumulative estimate of gannet displacement has been included. We agree that effect of cumulative displacement for gannet is likely to be negligible at the EIA scale.	The Applicant notes that NE agrees that the effects of cumulative displacement on gannet is likely to be negligible at the EIA scale.	No response required.	
26	Natural England advises that the cumulative auk (razorbill and guillemot) operational displacement assessment totals are based on an incomplete data set. The following wind farm projects are missing from the assessments: Beatrice Demonstrator, Gunfleet Sands, Kentish Flats, Kentish Flats Extension, Methil, Rampion and Scroby Sands. Whilst these missing projects are likely to involve low numbers of auks, the missing data would reduce confidence in the assessments and due to the potential under-estimation of the cumulative assessments.	As described in ***section 12.7.3*** of ***Chapter 12 Offshore Ornithology*** (APP-060) a review of the BDMPS regions for guillemot and razorbill indicated that all the windfarms identified for inclusion in the CIA in ***Table 12.37*** of the chapter have the potential to contribute a cumulative effect. This table includes all of the projects highlighted by NE except Methil. However, for Kentish Flats, Scroby Sands, Gunfleet Sands and Beatrice Demonstrator there are no data on displacement mortalities available for these species from their assessments. It is acknowledged that Kentish Flats Extension, Rampion and Methil were not included in the EIA and no explanation was provided. The	NE notes that the addition of those projects may not add much to the overall totals. However, we advise that they should be included. Even if the numbers from these projects are zero or not available, they should be listed in the cumulative/in-combination tables so that future projects know what has been included and it is also clear that all relevant OWFs have been considered.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		Applicant can clarify that displacement mortality estimates for these projects were not included because: • Kentish Flats Extension – Razorbill were not included in the Kentish Flats Extension displacement assessment and no quantitative assessment of displacement mortality for guillemot was undertaken. It is noted that low numbers of guillemot (14) were recorded in the Kentish Flats Extension windfarm site and 2km buffer; • Rampion – a quantitative assessment of displacement mortality on razorbill and guillemot was not undertaken for this project; and • Methil – An assessment of operational displacement was not carried out for razorbill and guillemot in this project's EIA.		
27	It should be noted that at Vanguard, Natural England was unable to rule out a significant adverse effect for cumulative operational displacement on razorbill or	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address	It is noted that the Applicant will submit a revised document at Deadline 1	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	guillemot at the EIA scale. Furthermore, during the Vanguard examination, due to Natural England's concerns regarding the incomplete baseline surveys for the Hornsea 3 project, and the associated level of uncertainty as regards the potential impacts of that project, Natural England was not in a position to advise that an AEOI could be ruled out for the razorbill and guillemot features of the Flamborough and Filey Coast SPA (FFC SPA) for impacts in-combination with other plans and projects when Hornsea 3 was included in the in-combination total. Please see our comments on the Applicant's Deadline 8 updated auk displacement assessment submitted at Deadline 9, available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010079/EN010079-003190- DL9%20-%20Natural%20England%20-%20Deadline%20Submission.pdf The East Anglia OWFs are adding further birds to these totals, as would Hornsea 4, and therefore our assessment is that it is not possible to rule out a significant effect at cumulative EIA scale for guillemot and razorbill displacement, or an adverse effect on integrity of the guillemot and razorbill	cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made.		

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	features of the FFC SPA.			
28	The cumulative annual gannet collision risk prediction of 2,607 as set out in Table 12.42 differs to the totals agreed at the end of the Norfolk Vanguard examination, which was 2,735. It is not clear why these two totals differ. We seek clarification regarding this matter. We also note that the totals do not include figures from Hornsea 4. A PEIR for this project is available. Even without the additional figure from Hornsea 4, the total predicted annual mortality exceeds 1% of baseline mortality. Therefore these impacts require further consideration. Furthermore, during the Vanguard examination, due to Natural England's concerns regarding the incomplete baseline surveys for the Hornsea 3 project, and the associated level of uncertainty as regards the potential impacts of that project, Natural England was not in a position to advise that an AEOI could be ruled out for the gannet features of the Flamborough and Filey Coast SPA (FFC SPA) for impacts in-combination with other plans and projects when Hornsea 3 was included in the in-combination total.	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made.	It is noted that the Applicant will submit a revised document at Deadline 1	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
29	Natural England acknowledges that as built scenarios are an important issue with regard to cumulative/in-combination CRM predictions and assessments. However, without a legally secured reduction in the consented Rochdale envelope, and an agreed strategic approach and re-run CRM with the final design parameters, cumulative/in-combination assessments should be based on the CRM predictions that were consented. We note that EA1 is currently the only project to date to meet these tests.	See the Applicant's response to Point 34 of Offshore Ornithology below which reflects the Applicant's position on this matter.	We note the comments the Applicant has made in Appendix 4 on 'precaution within offshore ornithology impact assessments', and that this includes consideration of the mechanisms which would prevent 'build out' as envisaged by Natural England. Please see Natural England Deadline 1 response Appendix A3	
30	Natural England acknowledges that a higher avoidance rate of 99.5% for gannet has been recommended by Bowgen & Cook (2018) and that this would significantly reduce the cumulative total. Natural England and the other SNCBs are currently considering our response to the recommendations in Bowgen & Cook (2018). Our current advised avoidance rates are those set out in SNCBs (2014).	The Applicant welcomes the consideration by NE and the other SNCBs of the higher, evidence-based gannet avoidance rates described in Bowgen and Cook (2018). As agreed at an ETG meeting on the 20th June 2019, the Applicant has presented project-alone collision mortality estimates for gannet and kittiwake based on the 98.9% rate recommended by NE (see ***Table 12.34*** of ***Chapter 12 Offshore Ornithology*** (APP-060)) alongside the 99.5% Bowgen and Cook (2018) rate (see ***Table 12.35*** of ***Chapter 12 Offshore***	No further response	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		Ornithology (APP-060), the latter being presented for information only.		
31	Natural England acknowledges that assuming 25% nocturnal activity with gannet is precautionary, and that is why we have moved to a position of presenting a range of nocturnal activity between 0% and 25%. We note that the nocturnal activity factor from the review of nocturnal activity in gannets (Furness and others 2018) has not been used in the assessment.	Refer to the response at Point 36 of Offshore Ornithology.	This point remains under discussion	
32	It is acknowledged that if the higher avoidance rates in Bowgen & Cook (2018) are used, the overall impact significance will be reduced. However, Natural England advised that a significant (moderate adverse) impact on gannet at the EIA scale could not be ruled out due to cumulative collision totals at the end of the Vanguard hearing, and therefore adding more collisions from Boreas, the East Anglia projects and Hornsea 4 will not change this position.	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made.	We note that revised Collision Risk Modelling with be provided by the Applicant at Deadline 1	
33	The kittiwake cumulative collision risk assessment in Table 12.43 differs to the totals agreed by Natural England at the end of the Vanguard hearing. This agreed total was 4,114. There will also be a need to include the figures from Hornsea 4's PEIR. Before these figures are added there is already a 2.5% increase above baseline mortality.	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made.	We note that revised Collision Risk Modelling with be provided by the Applicant at Deadline 1	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
34	Whilst Natural England notes that some projects have built out to less than their consented capacity, we do not accept that it is appropriate to revisit the cumulative collision risk whilst consents for unused capacity remain in place and in the absence of re-run collision risk assessments using the built turbine parameters.	The Applicant acknowledges NE's position and has therefore based the cumulative assessments on project designs from original worst case ES assessments or updated ornithological assessments that have been undertaken as part of a non-material change (relevant for windfarms in England) or a varied Section 36 consent (relevant for windfarms in Scotland) application. ***Table A12.3.1*** in ***Appendix 12.3 - Information for the Cumulative Assessment*** (APP-471) clearly sets out the origin of each of the mortality figures used in the cumulative assessment (and indicates if a 'theoretical' or non-consented as-built figure is also presented). The only projects included in the CIA used in the ES which fit NE's description of "*consents for unused capacity* [which] *remain in place*" are for Inch Cape and Neart na Gaoithe – however in both these cases the projects did re-run the collision risk	See NE's Deadline 1 Appendix A3	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		assessments for the new worst case. In the case of these two projects, whilst NE may state that there is potential to build out under the old consents (as these have yet to be rescinded) the fact remains that the worst cases on which the original consents were based represent uneconomic or obsolete technology. For Neart na Gaoithe the turbines have already been procured as construction is underway44. The Applicant has produced a note on precaution within offshore ornithology impact assessments which discusses the use of 'as-built' mortality figures. This includes consideration of the mechanisms which would prevent 'build out' as envisaged by NE (see ***section 2.3*** of ***Appendix 4*** of this document). The Applicant also welcomes NE's recent submissions for the Norfolk Boreas project in which NE have agreed that '*there is likely to be some headroom; however the exact extent of*		

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		any potential headroom is not agreed'.45		
35	Natural England acknowledges that a higher avoidance rate of 99% for kittiwake has been recommended by Bowgen & Cook (2018) and that this would reduce the cumulative total. Natural England and the other SNCBs are currently considering our response to the recommendations in Bowgen & Cook (2018).	Noted. The Applicant would like to understand if there is potential for NE to reach a decision on this during the examination period.	Before the SNCBs are able to reach a decision on whether or not to accept the recommendations in Bowgen & Cook (2018) there is a requirement for more work to be undertaken. Accordingly Natural England's advice remains as set out in the 2014 SNCB advice note, although we will keep the Examining Authority updated should this evolve during the Examination. However, as agreed in the ETG process we are content with the outputs using Bowgen & Cook (2018) to be presented alongside those predicted using the SNCB currently recommended avoidance rates.	
36	Natural England notes the comments on nocturnal activity, and notes that reducing the nocturnal activity would result in a reduction in predicted mortality.	***Annex 4*** of ***Appendix 12.2*** (APP-470) presents various collision mortality estimates based upon a range of nocturnal activity factors relevant to each particular species. For kittiwake, lesser black-backed gull, greater	This remains under discussion	

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		black-backed gull and herring gull, the nocturnal activity rate on which the conclusion of significance of project-alone collision impact is based is 50%. However, the collision mortality estimate based on a nocturnal activity rate of 25% is also provided. For gannet, the nocturnal activity rate on which the conclusion of significance of project-alone collision impact is based is 25% however collision mortality estimates based on nocturnal activity rates of 8% during the breeding season and 4% during the non-breeding season (as described in Furness, et al, 201846) are also presented. Additionally, ***section 2.2.2.2*** and ***Table 2.2*** of ***Appendix 4*** of this document, describes the reductions in collision mortality estimates that could be achieved if lower, more realistic nocturnal activity rates are used. ***Table 2.2*** highlights potential project alone collision mortality reductions of 15.4% for kittiwake, 12.2% for lesser black-		

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		backed gull and 20% for gannet. It is not straightforward to accurately apply these updates to nocturnal activity rates cumulatively and so this has not been shown in ***Appendix 4***. However, it is clear that if similar reductions in overall mortality estimates were realised from an amendment to nocturnal activity rates at other projects, then the current cumulative mortality estimate for all species against which all offshore windfarm ornithology assessments are assessed is a significant overestimate.		
37	Natural England notes that taking into account some elements of potential precaution e.g. nocturnal activity rates will lead to a reduction in mortality estimates. However, there are elements of the assessment, such as the use of generic potential collision heights (PCHs) rather than site specific PCHs, which could result in an underestimate of collision risk. There is also the critical issue of variability in all of the input data, not least in bird density. In that context, Natural England advised that a significant (moderate adverse) impact on kittiwake	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made. The Applicant also considers that NE's approach to the assessment, which is	The focus of the Applicant's response is based on the incorrect assertion that Natural England's approach to the assessment is based on combinations of highly precautionary assumptions, resulting in conclusions that are over precautionary. However, it needs to be acknowledged that there is a significant degree of both uncertainty and variability in all the input parameters to Collision Risk Modelling	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	cannot be ruled out due to cumulative collision totals at the end of Vanguard, and therefore adding more collisions from Boreas, the East Anglia projects and Hornsea 4 will not change this position.	based on combinations of highly precautionary assumptions, results in conclusions that are over precautionary. For example, while it is reasonable to consider uncertainty about individual parameters within the collision model by modelling a range of values and giving due consideration to the higher mortalities obtained, if this is applied to multiple parameters simultaneously (e.g. nocturnal activity, avoidance rate and flight height) then there is a high risk of presenting extremely unlikely combined outcomes as realistic. Furthermore, when these are then combined with precautionary assumptions about foraging ranges, extended breeding seasons and density independence in population modelling, the final outcome may potentially be an extremely large over-estimate of realistic impacts magnitudes. The increase in over precaution in impact assessment has come about gradually in offshore wind impact	(CRM). As a result it is important to take account of this uncertainty where possible and to indicate the range of confidence around the collision estimate, in order to provide a robust assessment of potential collision impacts on populations. Therefore Natural England advises that for the key input parameters of monthly bird density, flight height, avoidance rate, and nocturnal activity factor, uncertainty around the parameter estimates should be considered on an individual parameter basis, and that a range-based approach to considering impacts is taken to acknowledge the level of confidence in CRM predictions.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		assessment as the process has become increasingly technical. The Applicant considers there to be an urgent need for NE to give detailed consideration to the level of combined precaution currently applied in ornithology impact assessment with the aim that this should be treated in a more proportionate manner. The Applicant has produced a note on precaution within offshore ornithology impact assessments (***Appendix 4*** of this document.		
38	As stated for gannet and kittiwake, whilst Natural England notes that some projects have built out to less than their consented capacity, we do not accept that it is appropriate to revisit the cumulative collision risk for lesser black-backed gull when consents for unused capacity (including phased builds) remain in place and in the absence of re-run collision risk assessments using the built turbine parameters. Please see comment 28 above.	See the response to Point 34 of Offshore Ornithology which reflects the Applicant's position on this matter.	See response to Point 34 above.	
39	As stated for gannet and kittiwake, Natural England notes that it is suggested that using a nocturnal activity factor of 3 (50%) in collision risk modelling is likely to be an overestimate nocturnal activity. For	The Applicant welcomes NE's agreement that a 50% nocturnal activity rate for gulls is probably too high.	As set out above at point 37	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	that reason we advise that a range between 25% and 50% are presented with the assessment.	Refer to the Applicant's response to Point 36 of Offshore Ornithology for more detail on the nocturnal activity rates presented within the assessment.		
40	Whilst Natural England acknowledges that there are elements of the cumulative assessment that result in a higher mortality total, we have concerns about use of Option 2 and the fact that much higher predicted collisions are predicted when using Option 1. However, we agree that the cumulative impact on lesser black- backed gull at the EIA scale is minor adverse (not significant).	The Applicant has undertaken assessment of collision risks using option 2 of the Band (2012) collision risk model. Use of this model option was agreed in consultation with NE and the RSPB through the Evidence Plan Process (see ***Appendix 12.1*** of ***Chapter 12 Offshore Ornithology*** (APP-060) and followed advice from the digital aerial surveyor that their method to estimate seabird flight height was insufficiently robust to be relied upon for use in the site specific (i.e. option 1) version of the Band model. Consequently, the Applicant does not consider that the option 1 collision estimates should be used in the assessment and this had been agreed with stakeholders. The Applicant welcomes that NE is in	This remains ongoing.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
		agreement with the conclusion of the cumulative assessment (for EIA) on lesser black-backed gull.		
41	An increase of 6% above baseline mortality for great black-backed gull based on the largest Biologically Defined Minimum Population Scale (BDMPS) is significant.	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made.	We acknowledge that the cumulative figure will need updating in light of the decisions on Vanguard and Hornsea 3. However, this will be unlikely to make a difference to Natural England's conclusions, as we have already advised that a significant adverse effect couldn't be ruled out for cumulative CRM for great black-backed gull at EA3 and further collisions have now been added from further windfarms (e.g. EA1N and EA2) irrespective of Vanguard and Hornsea 3.	
42	As stated above, whilst Natural England notes that some projects have built out to less than their consented capacity, we do not accept that it is appropriate to re-calculate the cumulative collision risk when consents for unused capacity (including phased builds) remain in place and in the absence of an agreed strategically re-run collision risk assessments using the built turbine parameters.	See the response to Point 34 of Offshore Ornithology above which reflects the Applicant's position on this matter.	See response to Point 34 above.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	Please see comment 28 above.			
43	Natural England notes that it is suggested that using a nocturnal activity factor of 3 (50%) in collision risk modelling is likely to be an overestimate of nocturnal activity. For that reason we advise that a range between 25% and 50% are presented with the assessment.	The Applicant welcomes NE's agreement that a 50% nocturnal activity rate for gulls is probably too high. Refer to the Applicant's response to Point 36 of Offshore Ornithology for more detail on the nocturnal activity rates presented within the assessment.	Please see NE response to point 37.	
44	The Population Viability Analysis (PVA) model outputs predicted populations being up to 7.7% smaller using the density dependent model, and up to 21.5% smaller than the un-impacted scenario using density independent outputs based on an annual mortality of 900. At the end of the Norfolk Vanguard examination Natural England's position was that we were unable to rule out a significant (moderate adverse) effect on great black-backed gull from cumulative collision mortality at an EIA scale, and that position has not changed.	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made.	See response to 41 above	
45	Natural England disagrees with the summary that concludes no greater than minor adverse significance for all species. At the end of Norfolk Vanguard we advised significant adverse effect at	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters	We note that the Applicant intends to submit revised CRM at Deadline 1	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	EIA for cumulative collision for gannet, kittiwake and great black-backed gull. Since then more birds have been added to these totals from Boreas, EA1N, EA2 and also Hornsea 4, and as a result our position on these species remains unchanged.	once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made.		
46	Natural England has previously provided regulators with our advice regarding our concerns about predicted level of cumulative and in-combination impacts on North Sea seabirds. For EIA we have been unable to rule out a significant adverse effect for cumulative operational impacts on: • kittiwake, gannet and great black-backed gull for cumulative collision impacts; • guillemot, razorbill and red-throated diver for cumulative displacement impacts • For HRA we have been unable to rule out adverse effect on integrity on: • kittiwake from FFC SPA due to in-combination collision impacts not including Hornsea 3, and gannet from FFC SPA due to in-combination collision impacts when Hornsea 3 is included. • guillemot and razorbill at FFC SPA due to in-combination displacement effects when Hornsea 3 is included. • lesser black-backed gull from Alde-Ore	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made. Regarding the impacts on red-throated diver in the OTE SPA, The Applicant is undertaking a review of available evidence on this matter and will continue engagement with NE in order to agree a way forward.	Regarding in-combination impacts on RTD, we would appreciate clarification regarding the anticipated completion of the review of evidence. We again note that the conclusions of such a review are unlikely to have changed since the MacArthur Green report for The Crown Estate (Furness 2019), which recommended that potential leasing areas for OWFs should be located at least 10km from SPAs that support non-breeding RTD as a qualifying feature.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	Estuary SPA due to in-combination collision impacts. • red-throated diver from Outer Thames Estuary SPA due to in-combination displacement effects. These concerns as expressed during the Vanguard examination are likely to only intensify given that additional birds from Boreas, the East Anglia projects and Hornsea 4 are being added to these totals. Natural England therefore considers that without major project-level mitigation being applied to all relevant projects coming forward, there is a significant risk of large-scale impacts on seabird populations. Natural England therefore recommends that EA1N and EA2 commit to raising turbine draught height, as has been done by other projects (e.g. Hornsea 2, East Anglia 3 and Vanguard), in order to minimise their contribution to the cumulative/in-combination collision totals by as much as is possible. We also strongly recommend that the boundary of EA1N and EA2 arrays are re-designed to ensure that arrays are at least 10km from the boundary of the OTE SPA to avoid displacement of red-throated			

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	diver within the SPA.			
47	Natural England welcomes the statement in the In Principle Monitoring Plan that the Applicant will engage with stakeholders and that the methodology would be developed through the Ornithological Monitoring Plan (required under Condition 14(1) (l) of Schedule 9 and 10 of the DCO). We agree with the Applicant that the aims of monitoring should be to reduce uncertainty for future impact assessment and address knowledge gaps. However, we disagree with the Applicant's assertion that displacement effects on red-throated diver would not create impacts of more than minor adverse significance during any biological season during construction and operation phases. Validating the extent of red-throated diver displacement will be the main priority for any post-consent monitoring. Natural England also disagrees that the risk to birds from cumulative collisions with wind turbines across all windfarms considered is assessed as no greater than minor adverse significance for all species. For kittiwake, gannet and great black-backed gull we are unable to rule out significant impact cumulatively.	As agreed at SoCG meeting 1 with NE, in order to avoid duplication of work, the Applicant will address cumulative/in-combination matters once a SoS decision on Norfolk Vanguard and Hornsea Project 3 has been made. Following this, the Applicant will consider this matter further. Additionally, the Applicant is currently preparing a clarification note with regard to red throated diver which will be discussed with NE and will be submitted during the Examination. As a result, NE's comments regarding ornithological monitoring are currently under consideration by the Applicant.	See response to points 1 and 46.	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	Given Natural England's previous advice at recent projects regarding our concerns about predicted levels of cumulative and in-combination impacts on seabirds and this project's likely contribution to those impacts should it be consented, we consider the aspects that are likely to be relevant for consideration for post-consent monitoring are as follows: • Validating levels of red-throated diver displacement; • Improving our understanding of collision risk (which could potentially include monitoring of collisions at the site via cameras on turbines, improvements to modelling, options for mitigation and reduction); • Collection of reliable data on seabird flight heights. Once the final impact figures are agreed, the key issues should be identified so that discussion can be held with relevant stakeholders and the Applicant to identify what it the most appropriate focus of post consent ornithological monitoring.			
48	Natural England notes that reference is made to supporting "joint industry projects or alternative site based monitoring of existing seabird activity inside	With regard to project-level ornithological monitoring, please see the Applicant's response to Point 23 of	We note and welcome SPR's input into the Offshore Renewables Joint Industry Programme (ORJIP), the	

Point	Natural England's Relevant and Written Representations [RR-059]	Applicant's Comments	Natural England's Response to Applicant's Comments	Risk
	the area(s) within the Order Limits in which it is proposed to carry out construction works with its potential wider benefits." It is not clear what is being proposed or what the mechanism may be to ensure that appropriate monitoring is undertaken. We therefore recommend that the most significant area or areas of ornithological uncertainty is identified, and an in-principle monitoring plan is agreed.	DCO, DMLs and Related Certified Documentation below. As noted above, the Applicant is a subsidiary of SPR and with regard to ornithological strategic monitoring, SPR has been at the centre of driving progress in the offshore wind industry, from advancing the deployment of innovative aerial survey techniques early on East Anglia ONE that saw their widespread uptake elsewhere in favour of boat based surveys, to providing technical and financial input into the Offshore Renewables Joint Industry Programme (ORJIP) Bird collision avoidance study at Thanet Offshore Wind Farm, and to hosting an annual Strategic Ornithology Conference comprising academics, regulators and offshore wind developers from across the UK to share updates on new science and understand knowledge gaps. SPR has also been a leading contributor to the recently completed	hosting of an annual Strategic Ornithology Conference, and the involvement in OWSMRF. However, if there is no mitigation and EA1N and EA2 are consented in their current layout, our view is that there will be an AEoI on the RTD feature of the OTE SPA. Given the significance of the predicted impacts on OTE SPA, Natural England believes that the monitoring should focus of validating the predicted impacts, if no mitigation is undertaken, and this needs to be secured through licence conditions.	

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		Offshore Wind Strategic Monitoring Forum (OWSMRF) pilot project which formed as an outcome of the 2018 Strategic Ornithology conference. OWSMRF brought scientific, regulatory and developer representatives together to discuss and document the strategic knowledge gaps facing the industry which were beyond the scope of individual offshore wind projects to address, with the aim of drafting scopes of work which could be taken forward by industry groups to close those gaps. Following completion of OWSMRF, SPR is co-ordinating engagement across the developer group to seek funding for taking forward the scopes of work through ORJIP, TCE Enabling Actions, developer partnerships and academia. However, this strategic support is not considered to be relevant to the application as strategic monitoring is not appropriate at a project level in the context of a DCO.		

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Natural England's key to RAG status	Risk
Purple Note for Examiners and/or competent authority. May relate to DCO/DML	
Red Natural England considers that unless these issues are resolved it will have to advise that (in relation to any one of them, and as appropriate) it is not possible to ascertain that the project will not affect the integrity of an SAC/SPA and/or comply fully with the Environmental Impact Assessment requirements and/or avoid significant adverse effect on landscape/seascape, unless the following are satisfactorily provided: new baseline data; significant design changes; and/or significant mitigation; Natural England feels that issues given Red status are so complex, or require the provision of so much outstanding information, that they are unlikely to be resolved during examination, and respectfully suggests that they be addressed beforehand.	
Amber Natural England considers that if these issues are not addressed or resolved by the end of examination then they would become a Red risk as set out above. Likely to relate to fundamental issues with assessment or methodology which could be rectified; preferably before examination.	
Yellow These are issues/comments where Natural England doesn't agree with the Applicant's position or approach. We would flag these at the PEIr stage with the view that they would be addressed in the Application. But otherwise we are satisfied for this particular project that it will not make a material difference to our advice or the outcome of the decision-making process. However, it should be noted that this may not be the case for other projects. Therefore it should be noted by interested parties that just because these issues/comments are not raised as part of our Relevant Representations in this instance it should not be understood or inferred that in other cases or circumstances Natural England will take this approach. Furthermore, these may become issues should further evidence be presented.	
Green Natural England supports the Applicant's approach.	