Schedule – Further Information Request

1. General Matters

a) In providing its response to the matters raised in this request for Further Information, the applicant is requested to clearly annotate any proposed amendments to the EIAR, NIS and other documentation submitted and cross reference clearly revised/new information across the submitted documentation as appropriate. It is requested that all changes are clearly identified.

b) The scientific information provided as part of the planning application documentation should be based on up-to-date survey reports and data. Accordingly, the applicant is requested to confirm/provide justification/verification that the information submitted in support of the planning application remains relevant and appropriate at the point of submitting further information or to update same as required.

c) The applicant is requested to confirm whether any on-going or additional surveying has been carried out since the application was lodged and, if so, the applicant is invited to submit any further survey data results and analysis and update the planning application documentation, as appropriate.

d) The applicant is requested to provide details of an operational monitoring programme for the proposed development. In this regard, the applicant is advised that the proposed operational monitoring programme should fully inform the requirements of any future decommissioning plan(s) and justify any adaptive mitigation measures required. The proposed operational monitoring should be provided at appropriate intervals, for appropriate periods, and provide for adequate reporting to the relevant compliance authorities.

e) Having regard to Sections 5.3 and 5.4 of the *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*, August 2018, and the volume of documentation comprising the planning application, the applicant is requested insofar as possible to make all text in the soft/digital copy documentation fully searchable.

f) In relation to the MAC boundary, the applicant is requested to confirm the following having regard to the provisions of section 286(3) and (4) of the Planning and Development Act 2000 (as amended) (2000 Act):

i. the temporary construction activities (including, *inter alia*, turbine installation) required to undertake the proposed development in the maritime area are to be undertaken within the spatial representation (map) of the MAC consent area,

ii. that all permanent development (including blade sweep) can be accommodated within the spatial representation (map) of the MAC consent area,

iii. how the design flexibility approved by the Board with respect to the siting of turbines will interact with the MAC consent area.

g) The applicant is requested to provide the location of the following proposed infrastructure used in the coastal processes models for each design option applied for:

- All offshore wind turbines and offshore substations including scour protection,
- All cables including scour and cable protection.

Please see Appendix A attached to this report.

2. Search and Rescue Requirements & Navigation – Site Layout

a) The Irish Coast Guard (IRCG), through the Department of Transport, has raised concerns in relation to the layout of the proposed development with respect to search-and-rescue (SAR) access. The applicant is requested to consult with the IRCG, in addressing these concerns, and provide further information and clarification on such matters.

b) The EIAR under Chapter 17, Shipping and Navigation, states that as part of embedded mitigation, the fixed layouts for Project Option 1 and Project Option 2 comply with MGN 654 requirements (UK guidance, Maritime and Coastguard Agency, 2021). The applicant is advised that the Department of Transport Marine Survey Office (MSO) states that the proposed layout does not comply with guidance provided in MGN 654 and the MSO strongly

disagrees with the summarisation of the risk to the safety of navigation posed to commercial shipping, fishing vessels, and recreational craft transiting in proximity to the southeastern corner and the Rockabill GAP. The applicant is requested to consult with the Department of Transport MSO in addressing these concerns and provide further information and clarification on such matters.

3. National Marine Planning Framework Policies: Habitats and Noise

The Board notes the information contained in Appendix 3.1 of Volume 8 of the EIAR, titled 'National Marine Planning Framework Compliance Report', which sets out how the project meets the requirements of the NMPF. The Board also notes the March 2024 *Commission Notice on the threshold values set under the Marine Strategy Framework Directive 2008/56/EC and Commission Decision (EU) 2017/848*, in particular the four thresholds established for habitat loss (D6C4), adverse effects on habitats (D6C5), impulsive noise (D11C1) and continuous noise (D11C2) listed in the Annex to this Commission Notice.

The Board considers the use of these thresholds would assist in achieving consistency in the presentation of the results across Irish Sea Phase 1 ORE projects, and would facilitate the assessment of the relevant NMPF policies based on EU agreed indicators and thresholds.

The applicant is therefore requested to:

a) Model, map and present the areal and temporal extent of the potential impact of the proposed development (accounting where appropriate for each design option), for the full construction and operation campaign, on the following indicators:

   i) the potential spatial extent of habitat lost (D6C4),
   ii) the potential spatial extent of habitat adversely effected (D6C5),
   iii) the modelled impulsive noise (D11C1) with and without abatement, and
   iv) the modelled continuous noise (D11C2)

b) Assess the results obtained for potential habitat loss and habitat adversely affected in a) above, to be assessed against the 2% thresholds established for

habitat loss (D6C4) and the 25% threshold for adverse effects on habitats (D6C5) for the MSFD Celtic Seas North Inner Marine Reporting Unit, see Ireland's Draft Marine Strategy Part 1 Article 8, 9 and 10 report 2024 including its annexes, published in July 2024.

c) Assess the results obtained from modelled impulsive (with and without abatement) and continuous noise in a) to be assessed against the relevant thresholds values for impulsive and continuous noise set out in the above referenced Commission Notice.

d) Incorporate the output from a), b) and c) and all other relevant updates made as a result of this request for further information, into a revised assessment of the NMPF policies, particularly Biodiversity Policy 2, Seafloor Integrity Policies 1, 2 and 3, Fisheries Policy 5 and Underwater Noise Policy 1. This revised assessment should fully account for the distinction the NMPF places on '*important'* species and habitats as defined on page 35 and 36 of the NMPF.

The spatial extent of the modelled potential habitat loss, habitat adversely effected and impulsive and continuous noise should be provided in GIS format, see Technical Note Appendix A.

4. Ecosystem Functions and Services Assessment

The documentation submitted does not provide specific detail, assessment, or review of the range of ecosystem functions and services which could be impacted by the proposed development. The National Marine Planning Framework (NMPF) states that proposals to protect, maintain, restore, and enhance coastal habitats for ecosystem functioning and provision of ecosystem services will be supported, subject to the outcome of statutory environmental assessment processes. Seafloor and Water Column Integrity Policy 3 of the NMPF also requires proposals to take account of the space required for coastal habitats, for ecosystem functioning and the provision of ecosystem services and to demonstrate that they will, in order of preference, avoid, minimise or mitigate for net loss of coastal habitats.

The applicant is requested to update the EIAR to include an assessment of impacts (both positive and negative) on relevant ecosystem functions and services and include mitigation measures, as appropriate. The applicant is also requested to submit a synopsis report of the relevant impacts on ecosystem functions and services. In identifying the relevant ecosystem services for assessment, including those services classified as provisioning, regulation and maintenance, and cultural services, the applicant is advised to consider the full range of ecosystem services set out in the report 'Valuing Ireland's Blue Ecosystem Services' (SEMRU of NUI Galway, 2018), as referenced in the NMPF. The report should also consider the need for an adaptive management framework for ongoing assessment and should include provision for appropriate monitoring of any mitigation measures and operational management strategies, as well as provision for decommissioning.

5. Cumulative Assessment

The Board notes that cumulative assessment was addressed under each topic-specific chapter in the EIAR and addressed within Chapter 38 Cumulative and Inter-related Effects Assessment (CEA) (and associated Appendices 38.1 and 38.2).

The Marine Institute in their observation raises concerns in relation to the methodology applied in the submitted cumulative effects assessment and the manner in which the information is presented, noting the lack of a standard Irish methodology in relation to CEA. The applicant is advised that guidance exists in the UK, namely Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment - GOV.UK, September 2024 (NSIP, 2024).

The applicant is requested to revise the submitted cumulative assessment in line with NSIP (2024) and submit a standalone document to clearly demonstrate the CEA conclusions. In the interests of consistency and transparency, the applicant is requested to complete the assessment in accordance with the templates provided in the NSIP (2024), namely "*Appendix 1: Matrix 1 – Identification of 'other development' for CEA*" and "*Appendix 2: Matrix 1 – Assessment matrix*" (see attached Appendix B). This assessment should include each of the Irish Sea Phase 1 ORE Projects, namely (Oriel WF (ABP-319799-24), Arklow WF (ABP-319864-24), Codling Wind Park (ABP-320768-24), and Dublin Array WF (ABP-321992-25), and all other

relevant projects in the International Council for the Exploration of the Sea (ICES) Celtic Sea and Greater North Sea ecoregions, regardless of project type. It is further requested that the applicant confirm that the now published documentation pertaining to the Irish Sea Phase 1 ORE projects, which have all been submitted to the Board for planning consent since this application was submitted, have been fully incorporated into the cumulative effects assessment.

In accordance with NSIP (2024) tiered approach, it is requested that the subject proposal and each of the Irish Sea Phase 1 ORE projects be classified under Tier 1 ("*Other existing and, or approved development submitted applications under the Planning Acts or other regimes but not yet determined*").

The applicant is requested to update the application documentation, where relevant.

In the interests of comprehensiveness and for ease of reference, the applicant is strongly encouraged to liaise with the other Irish Sea Phase 1 ORE Project applicants in the preparation of the above assessment and drafting of the tables attached in Appendix B.

6. Site Selection

The Board notes that a number of observations have raised concerns in relation to the assessment of site alternatives and suitability of the site for development having regard to the location of the site within the recently designated North-west Irish Sea (NWIS) cSPA.

Having regard to:

- the recent designation of the North-west Irish Sea cSPA, with the proposed development site located within the NWIS cSPA site area,
- the criteria that avoidance of designated sites is typically an important parameter in a site selection process, as highlighted in Chapter 5 of the EIAR,
- the proximity of Rockabill SPA (c.150m from array), in addition to 10 SPAs and 9 SACs in the wider area, which are all within the envelope of the NWIS cSPA and/or are ecologically connected,

the applicant is requested to review Chapter 5 in relation to site selection and the rationale for choosing this site for development and provide further justification and rationale regarding the suitability of the site for the proposed development, in light of the above.

7. Marine Geology, Oceanography and Physical Processes

Methodology

a) Chapter 10 of the EIAR addresses Marine Geology, Oceanography and Physical Processes and is supported by Appendix 10.2 Marine Process Modelling Report. The Board notes that statistical and timeseries calibration plots for the hydrodynamic modelling (water levels and currents) undertaken has been provided in the submitted EIAR, however, this has not been provided for wave modelling. The applicant is requested to provide statistical and timeseries calibration plots for the wave modelling, in addition to the submitted statistical (scatter) plots. The applicant is requested to specify the % variance between model and recorded current speeds for spring and neap tidal cycles.
b) The labels on the directional plots on Figures 4.11 and 4.13 within Chapter 10 of the EIAR are incorrect. The applicant is requested to address this issue.
c) The applicant is requested to submit time series plots comparing simulated wave events relative to recorded wave buoy data including direction, period and wave height or water surface elevation (WSE).

Model Set-up and Approach

d) The modelling undertaken in support of Chapter 10 of the EIAR does not demonstrate spatial variation of bed friction or bed shear stress values across the model domain. The applicant is requested to address this issue in a review of the modelling undertaken.
e) The applicant is requested to characterise the existing environment in terms of the sediment transport regime in the form of coupled wave, wind, hydrodynamic and sediment transport modelling. As indicated in Appendix 10.2, the SWAN model was utilised for the assessment of waves and the

MIKE21FM (Flexible Mesh) 2D modelling package was utilised for hydrodynamic modelling. The separation of the wave, hydrodynamics and wind influences does not allow for a comprehensive assessment of the impact of the proposed development on marine processes. The applicant is requested to submit a coupled model in order to demonstrate the interaction between waves, hydrodynamics and wind influences. The applicant is also requested to undertake a greater range of sensitivity runs to examine the coupled model performance. Model scenarios should include an assessment of extreme events e.g. 10%, 5%, 2%, 1%, 0.5%, 0.2% annual exceedance probability (AEP) events and joint probability occurrences of tidal, surge and wave conditions. The applicant is requested to assess these probabilities in modelling scenarios and provide for climate change.

f) In Appendix 10.2, Marine Processes Review of Project Options, the applicant has selected a plume height release of 3m above seabed in the trenching simulation. The applicant is requested to justify the release height of 3m based on the dredging technique/equipment proposed.

g) There are two extrusion pits proposed as part of the development. It is stated in Chapter 8 of the EIAR (construction strategy) that 'the drilling of both bores may be carried out simultaneously to accelerate the works programme'. Only one is modelled in terms of potential impacts. It is requested that the drilling of both extrusion pits be assessed and in a concurrent scenario.

h) The location of the extrusion pits related to the export cables are indicated to be within the surf zone (section 6.2.1 of Appendix 10.2). The applicant is requested to include an assessment of the impact of the extrusion pits at this location within the surf zone on coastal processes, and also include an assessment of the impact of the proposed temporary mounds at these locations on coastal processes.

i) The modelling domain appears to be of insufficient extent to address potential impacts to the hydrodynamics of the Western Irish Sea Gyre and the cumulative impact with other projects, including Irish Sea Phase 1 ORE projects. The applicant is requested to extend the modelling domain to address this issue.

<u>Blockage Modelling</u>

j) The applicant is requested to include the impact of wind blocking on coastal processes. It is requested that this be addressed through site specific wake and wind field modelling, considering the entire windfarm layout.

k) The applicant is requested to use coupled modelling of the leeward environments between the proposed array and the coastal zone to assess the combined impact of tidal, wind and wave blockage.

Dredge Modelling Scenarios

l) It is unclear if the particle tracking modelling accounted for the flocculation of finer particles. The applicant is requested to address this issue.

m) The applicant is requested to expand upon the dredge modelling information submitted by providing for a range of modelled scenarios representing different timelines and configurations of dredging activity. The applicant is requested to include assessment of sediment disturbance for all activities proposed, including the pre lay grapnel runs proposed for the entire dredge campaign. This is requested to allow for a simulation of entire campaigns and not just select locations as submitted in the EIAR, and to enable an assessment of the cumulative impact on sediment transport, waves processes, and tidal currents.

n) The applicant is requested to assess the longer-term impact of the dredge dispersal modelling on the seabed morphology.

o) Appendix 10.3 provides an assessment of spoil mounds which are expected to develop when a trailer suction-hopper dredger (TSHD) discharges sediment at various locations across the array area. The impact of dredging with a backhoe and barge is not captured in the modelling. The applicant is requested to address this issue.

p) In relation to all sediment disturbance modelled, the applicant is requested to provide the following:

    i. Statistical maximum for sediment deposition depths (cm) and suspended sediment concentration (mg/l) across the model domain for the entire construction campaign presented in the form of heatmaps. This should include heatmaps of predicted percentage change relative to the baseline across the relevant key temporal periods. The applicant should confirm that the modelling used reflects the baseline conditions

in terms of the modelled particle size used, i.e. the modelling should be aligned to known baseline conditions. These heatmaps and other relevant model outputs should be used to inform any further ecosystem and cumulative assessments such as smothering or impaired foraging within the relevant sections of an updated EIAR.

ii. Similar to (i) above, the sediment deposition depths and suspended sediment concentration across the model domain for the entire operational campaign should be presented as heat maps of the percentage change relative to baseline and used to inform relevant EIAR ecosystem and cumulative assessments.

iii. Results should be illustrated on appropriately scaled drawings/maps and be provided in GIS format (see Appendix A, Technical Details).

Morphodynamic Modelling

q) The longer term morphodynamic impact of the development including cable armouring, scour protections and wind turbine foundations is not assessed. This requires coupled wind, wave, hydrodynamic, and sediment transport modelling. The applicant is requested to submit modelling of the morphodynamic response of the coastline to the proposed development. Morphodynamic Modelling should be extended over a series of longer time horizons, operational plus decommissioning, ie 40+ years, and compared with the non-developed scenario for the same time period.

r) Any additional modelling in relation to physical processes, which increase the existing significance of effect in that chapter and in interrelated chapters, 'Chapter 10 Marine Geology, Oceanography and Physical Processes', and / or 'Chapter 11 Marine Water & Sediment Quality' to 'Significant' or greater, will also require revised consideration as part of any updates in assessments associated with 'Chapter 12 Benthic Subtidal and intertidal Ecology', 'Chapter 13 Fish and Shellfish Ecology', 'Chapter 14 Marine Mammal Ecology', 'Chapter 15 Offshore Ornithology', and also the NIS (chapters 14 and 15 should only be considered for any revised assessment in relation to "habitat supporting prey species" and "provision / maintenance of prey species").

NOTE: The applicant is referred to Appendix A.

8. Offshore Ornithology

a) Baseline Environment and Data

i. Roseate Tern: Perrow *et al.* (2019) studied the at-sea foraging distribution of the Rockabill colony over one breeding season (2018), showing the species uses the nearby proposed array area. The EIAR discusses tracking data from Perrow *et al.* (2019) in the Technical Baseline (Appendix 15.1), however, unlike the accounts of other species, the relevant section of the EIAR appendix does not provide a summary figure of the Roseate Tern tracking data. Considering the importance of the area to Roseate Tern, available data should be considered in further detail and used to inform the assessment. The applicant is requested to present the information provided by Perrow *et al.* (2019) in the technical baseline and to consider the tracking data when assessing potential impacts to Roseate Tern.

ii. Red-throated Diver: The desktop review summarised in Table 15.3 of Chapter 15 of the EIAR does not appear to include the results generated from a series of Digital Aerial Surveys (DAS) undertaken over marine waters off Gormanstown (HiDef, 2019) that was commissioned by the Marine Institute and referenced in the National Parks and Wildlife Service (NPWS) Conservation Objective document for the NWIS cSPA. This survey data indicates a high density of Red-throated Diver *Gavia stellata* in the area of the coast west of the array, and overlapping with the proposed cable route. Densities were notably larger than those densities that informed the applicant's assessment of mortality caused by displacement-disturbance effects for this proposed development (i.e. 3.26 individuals km^{-2} on 29/12/2018; 1.35 individuals km^{-2} on 16/01/19; 3.45 individuals km^{-2} on 04/02/19; 2.99 individuals km^{-2} on 23/03/19).

As well as being important for assessment of Red-throated Diver, the HiDef/Gormanstown 2019 surveys are also likely to be relevant for the assessment of other species that the applicant is requested to reconsider (e.g. Great Northern Diver *Gavia immer*, Common Scoter).

As such, the applicant is requested to include the HiDef/Gormanstown 2019 survey data in the assessment of impacts on the marine birds of the NWIS cSPA in relation to this proposed development, including in the assessment associated with the cable route. The applicant is requested to review the EIAR and NIS accordingly.

iii. Red-throated Diver is a species known to be highly sensitive to offshore wind farm developments due to displacement effects. A 4km displacement buffer is applied in the application documentation. The Board note that for Red—throated Diver best available evidence as presented in the UK Joint SNCB 'Interim Advice On The Treatment Of Displacement For Red-Throated Diver' (SNCB, 2022) states that:

"*For non-breeding red-throated diver, a pragmatic displacement buffer of at least 10km is recommended for use in site characterization, impact assessments and post-consent monitoring where a plan or project is within 10km of a Special Protection Area (SPA) designated for non-breeding red-throated diver. Where a plan or project is further than 10km from a SPA designated for non-breeding red-throated diver, a standard displacement buffer of 4km should continue to be used*".

The DAU in their observation identifies the following papers which further indicate displacement impacts of greater than 4 km for Red-throated Diver: Heinänen *et al.* (2016); Žydelis *et al.* (2016); Webb *et al.* (2017); Mendel *et al.* (2019); Heinänen *et al.* (2020); Vilela *et al.* (2020); and APEM (2021).

The Board notes that the proposed development is located entirely within the NWIS cSPA, for which Red-throated Diver is a SCI, and given the evidence sources available, the Board requests that the applicant reconsiders screening out displacement effects on Red-throated Diver associated with the array area.

The information available from HiDef (2019) surveys indicates the known extent of Red-throated Diver and their densities, and shows the species concentrating in shallower coastal areas. This therefore provides an evidence base for waters of 5-20m, however the species can also use water depths up to 30m (Natural England, 2012). There appears to be a data gap between the

HiDef survey boundary and the array area boundary. The applicant is requested to overlay the application survey maps with the HiDef survey maps and, where there is a data gap, the applicant is requested to undertake additional survey work to address the data gap. The survey should provide sufficient coverage to reliably characterise the distribution and abundance of Red-throated Diver from the proposed array area western boundary to a distance of 10 km towards the coast (west).

The applicant is requested to assess displacement of Red-throated Diver to a distance of at least 10 km from the proposed array area due to project infrastructure, having regard to recent best available evidence as presented in the UK Joint SNCB Interim Displacement Advice Note (SNCB, 2022), and update the EIAR and NIS accordingly.

Note: Due to the water depth within the array area and low numbers of Red-throated Diver observed in the existing DAS (May 2020 to October 2022), two full winter seasons may not be required to be surveyed to address any data gap, where it is detected. It is requested that the applicant considers undertaking targeted surveys covering one winter period, with two surveys per month undertaken in critical months for wintering Red-throated Diver. This would comprise one survey per month to be undertaken in November and December; two surveys per month in each of January, February, and March, and one survey to be undertaken in April.

iv. Migratory Waterbirds: Chapter 15 of the EIAR, and NIS Appendix 19 Offshore and Intertidal Ornithology Migration Collision, address migratory waterbird species.

The DAU notes that a significant number of migratory waterbirds (in terms of species and absolute numbers) migrate to and from Ireland across the Irish Sea. The DAU observation raises concerns in relation to the lack of sufficient collection of spatially relevant field data at key migration times (i.e. spring and autumn) in the EIAR, combined with the acknowledged low confidence levels applied in relation to avoidance rates in the migratory Collision Risk Modelling (mCRM) Tool. The DAU states the information submitted is insufficient to assess the migratory movements of birds through the development area. The

DAU has concerns that the proposed development has the potential to have significant impacts upon migratory waterbirds and the Conservation Objectives of the SPAs for which they are listed. The DAU recommends that the applicant develops and implements more appropriate survey methodologies to detect and robustly characterise and assess the level of bird migration through the proposed development area, working collectively with the other Irish Sea ORE applicants.

The Board notes the Vantage Point survey results submitted by the applicant have spatial limitations in terms of robustness and have not been used in quantifiable assessments. There is also limited information on flux or passage of birds through the proposed array area itself during migration (east-west and north-south). The data query is only partially filled by the applicant's approach to assessing collision risk, where GIS and straight-lines have been applied to identify potential migration pathways/flight routes to assess the proportion of flights (as a proxy for population) which may pass through the proposed array area.

Having reviewed all the information presented, the Board requests that further assessment is carried out regarding impacts to migratory species. The applicant is requested to address the purported data gap relating to migratory birds to enable the assessment of potential impacts of the proposed development. Radar (horizontal and vertical surveys) (or similar) at the array area during peak migration periods should be utilised to provide site-specific data, which could be used to support the applicant's current assessment and provide quantitative information on passage of birds to feed into collision modelling. Should radar not be conducted and an alternative survey methodology utilised, comprehensive justification for the alternative should be provided. Peak migration periods during which data are to be collected can be further informed through review of existing data and published literature relevant to the project area and region. Whilst the DAU makes reference to the key migration times being spring and autumn, the Board considers that migration information during the winter months would also be of assistance to the assessment (e.g. irruptive cold weather movements from the continent and UK). The applicant is invited to consider this aspect for inclusion also.

The applicant should note reliance on literature to fill knowledge gaps, while useful, does not provide adequate data to ensure a comprehensive assessment of potential effects on birds.

v. Terrestrial Bird Species: The DAU considers there to be deficiencies in the assessment of land-based avifauna, with CRM data based on general assumptions. The DAU recommends additional data and consideration of survey/monitoring options such as targeted deployment of passive acoustic devices at headlands and offshore nocturnal boat transects; review of available ringing/tracking data for migratory species and/or species which are known/likely to conduct staging/dispersal movement; and thermal imaging devices (hand-held/drone) surveys targeted at likely peak periods of passage.

The Board requests that further assessment is carried out regarding impacts on terrestrial bird species. The applicant is requested, having regard to the above comments to address the purported data gap and potential impacts of the proposed development on terrestrial birds.

vi. Baseline Data Vintage: The Board queries the age and relevance of the submitted aerial and boat-based survey data used in the application, in particular considering the 2022 Highly Pathogenic Avian Influenza (HPAI) season, which had significant negative impacts on a range of seabird species. The applicant is requested to provide justification that the original digital aerial surveys and boat-based data remains relevant and appropriate at the point of submitting additional information to support the proposed development.

vii. Regional Breeding Population: The robustness of population calculations used within Chapter 15 Ornithology, and associated appendices, is important in assessing the potential effects of the proposed development. The Board notes that the EIAR (Chapter 15, Table 15.17 and Appendix 15.1, Table 2.12) presents two methods for estimating regional breeding season populations against which impacts are assessed in the EIAR. Method 1 (applied in the EIAR and used to inform assessment conclusions) involves the number of breeding adults in the breeding season plus the number of immatures in the previous non-breeding season. Method 2 (presented in the EIAR but not used to inform assessment conclusions) applies the ratio of adults to immature

birds in the population to the number of breeding adults in the breeding season. The applicant is requested to provide evidence-based justification for applying its chosen method.

Method 2 is considered to be the more appropriate and precautionary method to apply for estimating regional breeding season populations and the applicant is requested to use this methodology to inform assessment conclusions. The applicant is requested to clearly present the values and equations used to derive the population estimates, including their sources (e.g. a list of colonies or sites included within the reference populations), to allow validation of the methodology. The applicant is requested to also address this issue in the Cumulative Effects Assessment (CEA) chapter.

viii. Regional Reference Populations: The applicant has used the Ireland-wide populations of Black-headed Gull *Ichthyaetus ridibundus* and Common (Mew) Gull *Larus canus*, resulting in an overestimation of the reference population which may be affected by the project and, therefore, underestimation of potential impacts. The applicant is requested to apply more appropriate regional population estimates to these species and revise the baseline and assessment accordingly.

ix. Breeding Season of Common Guillemot: The Board does not agree with the applicant's determination that the Irish east coast Common Guillemot *Uria aalge* breeding season ends at the end of June. The evidence presented by the applicant is based on a study conducted at a colony in Scotland (Dunn, 2020, 2022) and suggests that the breeding season 'ends' around 10 July, although the July DAS were flown on 18 July 2020, 05 July 2021, and 04 July 2022. There are consequences to regarding the July period as non-breeding which results in the breeding mean peak count bio season for the proposed array area plus 2 km, to be 1,813 (95% Cis 1,258 – 2,385) individuals as opposed to 13,703 (95% Cis 8,940 – 18,414) individuals (see Table 3-1 of Appendix 15 of the EIAR / Appendix 17 of the NIS, Offshore and Intertidal Ornithology Displacement Analysis). This has consequences when apportioning estimated mortality figures arising from displacement impacts to Common Guillemot populations breeding at Lambay Island SPA, Ireland's Eye SPA and others. The applicant is requested to apply the UK seasons

(Furness, 2015) for Common Guillemot (breeding season: March to July; non-breeding season: August to February), aligning with the approach taken for other species assessed.

x. The DAU notes there appear to be miscalculations or typographical errors with the display of the survey data and its analyses in relation to Common Guillemot. Table 2.40 of Appendix 12 Offshore and Intertidal Ornithology Technical Baseline presents a zero count of Common Guillemot for the November 2020 survey. This is at odds with the non-zero density Common Guillemot heat map for November 2020 (page 84), and it does not correspond to the estimate of density and abundance for Common Guillemot for November 2020. The Common Guillemot Density Heat map (dated February 2021, page 85) indicates that no Common Guillemots were present during that particular survey, which corresponds to the zero count in Table 2.40 but which appears to be at odds with the non-zero estimates of abundance and density for Common Guillemot for February 2021. The applicant is requested to address the issues raised.

b) Sensitivities and Screening

i. The applicant has concluded that several wader species have a low sensitivity to displacement effects citing a study which only looks at seabirds and does not mention these species (Bradbury *et al.*, 2014, 2017). The applicant is requested to provide and cite an appropriate source providing justification for determining waders as having a low sensitivity to disturbance, which should be cited in the submitted documentation or amend the relevant documentation accordingly.

ii. The applicant is requested to provide further justification in relation to the screening out of European Shag *Gulosus aristotelis* and Great Cormorant *Phalacrocorax carbo* for several SPAs (NWIS cSPA, Skerries Islands SPA, Ireland's Eye SPA, and Lambay Island SPA). A contradictory statement is included in Section 5.4.2 of the submitted NIS: "*all species were screened in with the exception of cormorant and shag, which are not considered at risk of offshore impacts of collision effects (based on flight height data) or displacement impacts (with evidence of birds even being attracted to OWFs*

and roosting on the structures) (Bradbury et al.*, 2014, Dierschke* et al.*, 2016)*". The applicant is requested to review this and amend their documentation accordingly to address this issue.

c) Impact Assessment and Methodology

i. Displacement Methodology: The Board is satisfied that the applicant has used the industry standard Displacement Matrix approach. However, the Board notes that the applicant has based conclusions in relation to displacement on its preferred rates for displacement and mortality of auks and Northern Gannet (50% displacement and 1% mortality for auks, 70% displacement and 1% mortality for Northern Gannet *Morus bassanus*) instead of on industry recommended rates, and has taken these rates forward to Population Viability Analysis (PVA). The Board queries the applicant's use of preferred rates in relation to auks, due to NISA's close proximity to the coast and to breeding Common Guillemot and Razorbill *Alca torda* colonies (NWIS cSPA, Lambay Island SPA, and Ireland's Eye SPA). The applicant is requested to review the EIAR and NIS to apply rates more appropriate to the location and scale of the development, and in line with industry recommendations (60% displacement and 1-5% mortality for auks; and 70% displacement and 1-3% mortality for Northern Gannet; NatureScot, 2023), to inform assessment and enable comprehensive conclusions. Where impacts with these rates result in a >1% increase in baseline mortality rate, the mortality estimates should be taken forward to PVA.

ii. Black-legged Kittiwake Displacement: Appendices 15.7, 15.8 and 15.9 document a proposed method statement for ornithology for the Irish Sea Phase 1 ORE projects, which was responded to by the NPWS, with a further response by the applicant to the NPWS response. The issue of Black-legged Kittiwake *Rissa tridactyla* displacement has been set out in the EIAR and within the appendices referenced. The Board notes that the species is a SCI for the NWIS cSPA, as well as Lambay Island SPA and Ireland's Eye SPA within foraging range of the proposed array area. Black-legged Kittiwake has variable responses to OWFs, ranging from up to 45% displacement effects to mild attraction effects, varying at different latitudes, distances from colonies, and seasons (e.g. Peschko *et al.*, 2020; Pollock *et al.*, 2024). Having reviewed

the information presented, the Board disagrees with the screening out of Black-legged Kittiwake for displacement for reasons related to the proximity of the proposed development to the coast and to breeding colonies. The applicant is requested to use the displacement matrix approach, as for other species. Here, a 30% displacement rate should be applied, and mortality rates should be based on best available evidence, but with a range of rates presented, from 1% to 3%, as advised by NatureScot (2023). The applicant, based on the revised findings, is requested to re-analyse the displacement impacts on the regional population of Black-legged Kittiwake in the EIAR and against the Conservation Objectives of the relevant SPAs and cSPA in the NIS to ensure comprehensiveness of appropriate assessment conclusions.

iii. Red-throated Diver Displacement: The Board requests that the applicant reconsiders screening out displacement effects on Red-throated Diver associated with the array area. As noted in point a(iii) above, Red-throated Diver is highly sensitive to displacement effects associated with OWFs and vessel traffic (e.g. Furness *et al.*, 2013; Bradbury *et al.*, 2014a-b, Fliessbach *et al.*, 2019). As described in point a(iii) and the references therein, Red-throated Diver can be displaced by OWFs up to 10 km. The species is a SCI of the NWIS cSPA and the region supports an important wintering population (HiDef, 2019). The applicant is requested to use appropriate data (as discussed in points a(ii) and (iii) above) to assess potential displacement impacts to the regional and the cSPA Red-throated Diver populations in the EIAR and the NIS. The applicant should consider displacement effects up to 10 km from the proposed array area during operation.

iv. Collision Risk Modelling: It is noted that Roseate Tern flight height data and its analysis were not presented in the Johnston *et al.* (2014a-b) paper referenced in Appendix 18. The DAU in their observation recommends that clarification be sought as to the sources of the precise parameters for Roseate Tern flight behaviour used in the CRM as well as a statement regarding the robustness of such data. The applicant is requested to address this issue.

v. The Board notes that Natural England have accepted a 70% reduction in Northern Gannet collision mortality estimates to account for macro-avoidance for other offshore wind farm developments, such as Hornsea 4. However,

given the proximity of the proposed development to the coast and to the nearest breeding colony at Ireland's Eye (c. 15km away), a more precautionary approach is recommended. The applicant is requested to revise the approach taken in relation to Northern Gannet collision estimates so they are not reduced by 70% to account for macro-avoidance.

vi. Any potential specific mitigation measures to minimise the effects of the project on birds, such as painting of turbine blades, the use of curtailment systems in particular conditions or at particular times etc, if considered appropriate, should also be included and addressed in the application documentation.

vii. Impacts to Prey Species: The DAU in their observation states that the documentation submitted does not appear to include any consideration of potential indirect effects of the proposed development on the likely prey-base (i.e. Atlantic salmon *Salmo salar*) for resident Common Kingfisher *Alcedo atthis*, an Annex I species and a SCI for the River Boyne and Blackwater SPA. The DAU also state that there does not appear to be any consideration of the potential effects with respect to either the associated construction works and/or operation of the development on the Conservation Objectives of the River Boyne and River Blackwater SPA; which is connected to the River Boyne SAC, Boyne Coast and Estuary SAC, and the offshore marine waters of the Irish Sea. The applicant is requested to address the issues raised.

viii. The applicant is requested to fully assess the potential impacts on Atlantic herring *Clupea harengus* potential spawning habitat. The applicant is requested to review the application in this regard and clarify potential effects on seabird prey populations.

d) Cumulative and Transboundary Effects

i. Cumulative Effects Assessment: Impacts on birds in the CEA (Section 15.9 of Chapter 15, and Chapter 38) are presented and assessed against annual populations only. Having regard to points a(vii) Regional Breeding Population and c(i) Displacement Methodology above, the applicant is requested to revise the CEA to ensure impacts are presented and assessed against the breeding and non-breeding season populations separately.

ii. Migratory Waterbird Species: Migratory birds have not been included in the Cumulative and Inter-related Effects Assessment presented in the application documentation. As stated previously (points a(iv) Migratory Birds and a(v) Terrestrial Birds), the Board has requested further assessment of the impact on migratory birds for the project, and further data to inform the assessment. The applicant is requested to assess cumulative impacts to migratory bird populations, considering effects of the Irish Sea Phase 1 ORE projects and other existing or currently proposed plans and projects that may affect the same migratory populations. The applicant is requested to update the application documentation, as required.

e) Natura Impact Statement

i. Foraging Range Screening: Within the document 'Supporting Information for Screening for Appropriate Assessment', Section 3.4.3.1, it is stated that in Table 3.13 "*For SPAs beyond 300km, only features which have breeding season connectivity were included (based on foraging ranges in Table 1.8), for example gannet and kittiwake due to their larger foraging ranges*". The last table in that section is numbered 3.12 and, notwithstanding the labelling, does not include any SPAs beyond 300 km. The applicant is requested to clarify this discrepancy and present screening determinations for all SPAs within the species-specific foraging ranges, including those beyond 300 km from the proposed array area.

ii. Gull Screening for Likely Significant Effect: The applicant is requested to provide further justification to screen out Black-legged Kittiwake and Lesser Black-backed Gull *Larus fuscus* for the Seas off Wexford cSPA, given that this cSPA is within the species-specific foraging ranges of the proposed development or alternatively provide further consideration of these species in the NIS.

iii. Purple Sandpiper Disturbance: The applicant has used a 300m disturbance buffer for Purple Sandpiper *Calidris maritima*, citing a study looking at pedestrian-related disturbance (Goodship and Furness, 2022). Justification for applying this buffer, or use of an alternative source that is more appropriate, is

requested, or alternatively provide further consideration of these species in the NIS.

iv. North-west Irish Sea cSPA Conservation Objectives: The NWIS cSPA is designated for 21 bird species. It is a Conservation Objective of the NWIS cSPA to restore the favourable conservation condition of Black-legged Kittiwake, European Herring Gull *Larus argentatus*, Atlantic Puffin *Fratercula arctica*, Northern Fulmar *Fulmarus glacialis*, Great Cormorant, and European Shag. This 'restore' objective also applies to the same SCIs within the ecologically connected SPAs in this area. It is noted that having regard to survey data related to Atlantic Puffin and the NWIS cSPA population and applying the industry standard recommended rates (60% displacement, 1-5% mortality; NatureScot, 2023) results in >1% increase in baseline mortality, thus would constitute 'Likely Significant Effect' and require Appropriate Assessment in the NIS. This species should therefore be assessed in the NIS for the NWIS cSPA, following the industry standard displacement matrix approach using the recommended displacement and mortality rates (NatureScot, 2023). The applicant is requested to review the SCIs of the aforementioned species to ensure and to clarify that they are appropriately assessed in the NIS, with regard to the objective to restore these species.

v. North-west Irish Sea cSPA Red-throated Diver: As discussed in points a(ii), a(iii), and c(iii) above (regarding Red-throated Diver and Displacement), Red-throated Diver is a SCI for the NWIS cSPA and is highly sensitive to disturbance and displacement effects. The Board queries the applicant's approach where the species is screened out of displacement effects associated with the proposed array area. The applicant is requested to use appropriate data and to screen Red-throated Diver in for displacement effects associated with the proposed array area and vessel traffic. The NIS should be updated accordingly.

vi. North-west Irish Sea cSPA Common Guillemot: The DAU observation states that the proposed development would reduce the habitat suitability for Common Guillemot of an area equating to 8.5% of the NWIS cSPA, which would contravene the Conservation Objective for the SPA to maintain its favourable conservation condition. The applicant is requested to justify its

interpretation of the data in relation to Common Guillemot and, where appropriate, re-evaluate the data and re-interpret the consequences for the impacts on the Conservation Objectives of the NWIS cSPA, having regard to the observation from the DAU.

vii. Displacement Assessment: The Board notes that model-based assessment of displacement effects has not been included in the NIS. Such approaches are only applicable to a small number of species during the chick-rearing period, however, provide important context and can support the assessments undertaken using displacement matrices. Models such as SeabORD (Mobbs *et al.*, 2018; Searle *et al.*, 2018) take an individual-based approach and incorporate energetics associated with displacement into the assessment. Such approaches are standard practice. The applicant is requested to review the NIS in this regard.

9. Benthic Subtidal and Intertidal Ecology

OSPAR Habitats

a) Much of the North Irish Sea Array (NISA) array area is characterised as 'Burrowing megafauna *Maxmuelleria lankesteri* in circalittoral mud' (SS.Smu.CfiMu.MegMax) (e.g. Chapter 12 Figure 12.5, Table 12.7). This biotope forms part of the OSPAR Threatened and / or Declining habitat of 'Sea-pen and Burrowing Megafauna Communities', (as evidenced in the Joint Nature Conservation Committee (JNCC) correlation tables; https://hub.jncc.gov.uk/assets/62a16757-e0d1-4a29-a98e-948745804aec#201801-MarineHabitatsCorrelations.xlsx). These tables identify evidenced relationships between habitats in the Marine Habitat Classification for Britain and Ireland, the marine section of the EUNIS classification, and those listed as being important for conservation under various legislative instruments (e.g. Annex I habitats, OSPAR habitats). While this biotope is extensive across the array area, and is of conservation and commercial value, the submitted EIAR does not include it in any Valued Ecological Receptor (VER) Group representative of this OSPAR habitat (see MC6216 in Table 12.11 of Section 12.3.5). The applicant is requested to provide confirmation of the presence of this

biotope and provide a detailed map of where sampling has shown it to be present, including if available stills or video evidence associated with the sampling. Any additional evidence will support the assessment of potential impacts to this important OSPAR habitat.

b) It is noted that the applicant concludes that the 'sensitivity' of the 'Burrowing megafauna *Maxmuelleria lankesteri* in circalittoral mud' (SS.Smu.CfiMu.MegMax) biotope is 'high'. The Board agrees that this is appropriate for a biotope with this conservation importance. It would be expected, however, given the extent of the biotope across the array area, that 'magnitude' may be 'low' or 'medium' rather than 'negligible' noted in the EIAR. Given that a high sensitivity and a medium magnitude leads to a result of 'Significant' in EIA terms, the applicant is requested to review the justification provided for their magnitude of 'negligible', and either provide further evidence for this in the EIAR, or provide a reconsideration of magnitude for this receptor. If any magnitude values are changed, the applicant is requested to ensure that these feed through the impact assessment process. Following the provision of a revised assessment, the applicant should reconsider their pre-, during and post-construction benthic monitoring requirements and plans as necessary.

<u>Sublittoral Rock Habitats</u>

c) The intertidal survey data is unclear in relation to the potential presence of reef across the NISA landfall and nearshore shallow infralittoral ECC areas. The applicant is requested to clarify the extent of reef at this location. Depending on the location of the horizontal direction drill (HDD) exit points seaward of low water, and subsequent cable trenching, there may be a localised risk to shallow sublittoral rock, if it is present. The applicant is requested to consider this potential impact. The Marine Institute in their observation states circalittoral rock and biogenic reef and infralittoral rock and biogenic reef should be avoided.

<u>Impact Pathways</u>

d) Within Section 12.5.3.1 Chapter 12 of the EIAR, it is indicated that for Project Option 1, the '*Long-term or permanent subtidal habitat loss/change from the presence of foundations, scour protection and cable protection'* equates to approximately 276,296m² of the array area and ECC representing approximately

0.22% of the combined areas, while for Project Option 2 the figures are 297,510m² and 0.24%. While spatially the impact will be highly localised within the array and ECC areas, it will be long-term and / or permanent, dependent on decommissioning. Assessment of magnitude for this pressure pathway was 'negligible'. In comparison, 'low' (not 'negligible') magnitude is assigned for colonisation of hard substrate in the EIAR. The applicant is requested to justify or amend the assigned magnitude impact rating of 'negligible' for '*Long-term or permanent subtidal habitat loss/change from the presence of foundations, scour protection and cable protection'*.

e) The impact pathways of accidental release of contaminated sediments through sediment disturbance, and accidental release of pollutants, have been assessed together as '*Reduction in water and sediment quality through release of contaminated sediments and / or accidental contamination'* (Chapter 12, table 12.1; table 12.14; sections 12.5.2.4, 12.5.3.6 and 12.5.4.3; table 12.21). The applicant is requested to complete separate assessments for the two impact pathways, as different considerations are required to conclude magnitude of impact(s).

Mitigation

f) It is noted that development of an Offshore Environmental Plan (OEMP) was not listed as a measure under the operation phase of the project, where it had only been listed under construction and decommissioning (section 12.4.5; table 12.13). The applicant is requested to clarify if an OEMP is considered a mitigation measure under the operation phase.

g) The Board notes that potential impacts from EMF on benthic habitats has not been assessed. The applicant is requested to provide further analysis in this regard.

Lambay Island Special Area of Conservation

h) The in-combination section of the NIS (Section 6.1; table 6.1) does not include Lambay Island Special Area of Conservation (SAC). The applicant is requested to include Lambay Island with regard to in-combination considerations.

10. Marine Mammals

Underwater Noise – Noise Abatement

a) The details that have been submitted in relation to underwater noise arising from the proposed development acknowledges the potential for impacts to arise on marine fauna from both Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS) over significant areas. The Wildlife Act 1976, as amended, lists marine mammals, including all dolphin, porpoise, seal and whale species as protected, (with subsequent regulations also applying protections to all species of marine turtles and basking sharks) stating that it is an offence to hunt, injure, or wilfully interfere with/destroy the resting or breeding place of such species. The January 2014 'Guidance to Manage the Risk to Marine Mammals from Man-Made Sound Sources' published by the Department of Arts, Heritage and the Gaeltacht (NPWS (2014)), notes that sound sources with the potential to induce TTS in a receiving marine mammal has the potential to cause both disturbance and injury. This guidance has a statutory basis under Regulation 71 of SI No. 477 of 2011, and refers to the "offence to injure" under the Wildlife Act, 1976, noting that TTS "may constitute such an injury".

Having regard to information submitted in the EIAR, the NPWS underwater noise guidelines (NPWS, 2014), the strict protections afforded to marine mammals under the Wildlife Act 1976, as amended, in addition to observations from prescribed bodies and observers, the Board requires a comprehensive suite of noise abatement measures to be proposed and assessed in addition to the existing mitigation measures referenced in the planning application documentation. The applicant is therefore requested to submit:

i. A comprehensive review of relevant mitigation, in addition to what is currently contained in the submitted documentation, specifically appropriate noise abatement measures, which could be applied to the proposed development to reduce/restrict the propagation of noise through the marine environment and provide realistic values for the reduction in sound level possible from these technologies. The review must consider the range of suitable abatement measures available, including consideration of, at a minimum, bubble curtains, casings,

resonators, and alternative hammer/piling technologies to reduce noise emissions, and set out in detail the suitability of such measures for the construction of the proposed development at this location, including restrictions in relation to their suitability, where relevant.

ii. The applicant must also consider and draw on the best available technology and thresholds, including as applied in other EU jurisdictions (e.g. Germany; Belgium; Netherlands; Denmark), to identify and provide for suitable noise abatement to reduce the level and extent of potential noise impacts arising from the proposed development. Examples include the German 160 dB re 1 µPa²s SEL*ss* and 190 dB re 1 µPa SPL*peak* thresholds that must not be exceeded at a distance of 750m from a piling site; or the frequency weighted SEL*cum* PTS thresholds (e.g. harbour porpoise 155 dB re 1µPa*2*s) that must not be exceeded for a fleeing animal with a starting distance of 200m in Denmark.

iii. Revised noise modelling and mapping which provides detailed consideration of the noise abatement strategy selected in response to (i) above and include:

1. The modelled SPL_{peak} and SEL_{cum} PTS and TTS contours, for each functional hearing group potentially present, emanating from the existing locations proposed in the application, which are at the periphery of the proposed development, to demonstrate the full potential spatial extent of underwater noise propagation. Modelling must also show the noise level (SPL_{peak}, SEL_{ss}) at 750m from the locations of each of the piling activities selection.

2. The modelled SEL_{ss} contours for 120-180 dB re 1µPa2s at 5 dB increments at the locations in the point above. Mapping provided must show the relevant noise contours in the context of implementing the abatement technologies/ measures identified at (1) above, and should be displayed alongside the noise contours in the absence of any such noise abatement measures being implemented.

3. Revised details showing the change in total impacted individuals of each species before and after consideration of noise abatement technologies.
4. Modelling must be performed for monopiles and pin piles, as both are under consideration within the project design envelope.
5. Any additional abatement and / or mitigation measures should also be considered in the context of their potential for reduction of cumulative effects with other projects in terms of underwater noise.

b) The applicant is invited to submit any details of monitoring/reporting available from previous experience of offshore development in other EU jurisdictions which demonstrates the efficacy of mitigation measures adopted in relation to underwater noise.

c) Further to point a) above, there is a lack of clarity and certainty in the submitted documentation as to whether Acoustic Deterrent Devices and Noise Abatement Systems (NAS) will be used, with wording varying across the documentation between 'may' be used and 'will' be used. There is also uncertainty in terms of the efficacy of the mitigation measures that are proposed given proposed future re-modelling based on unknown factors which may or may not have an impact in terms of noise ranges and frequencies (Chapter 14, table 14.45). The applicant is requested to address these issues in the submitted documentation. Such information should also include a consideration of any in-combination effects with surrounding anthropogenic noise sources and estimation of individuals of each species that are likely to be affected. The applicant is requested to address these areas of uncertainty.

<u>Surveying</u>

d) With reference to the Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects Part 2, April 2018 by the Department of Communications Climate Action and Environment (DCCAE) (DCCAE (2018) Guidance), the applicant is requested to justify:

i. The selection of a 4km buffer area extending around the array area. The DCCAE (2018) Guidance recommends a minimum buffer of 10 km for cetaceans and seals, with monthly haul-out site surveys.

ii. The lack of empirical acoustic data, noting the Department of Housing, Local Government and Heritage, Development Application Unit (DAU) observation which states the omission of acoustic monitoring does not allow the site to be fully characterised for all Annex IV species.

iii. The lack of vantage point surveys at the cable landfall location.

e) The applicant is requested to confirm whether any on-going or additional surveying has been carried out on the site in relation to mobile species since the application was lodged. If so, the applicant is invited to submit any further survey data results and incorporate these into the assessments within the application documentation as appropriate.

Modelling

f) The applicant is requested to more clearly define the methodology for the dose-response assessment. The studies on which the dose-response assessment is based (Graham, 2017a; 2019) are explained in detail, however the process of applying the dose-response curve to density maps to determine number of individuals disturbed is not clearly elaborated upon (e.g. description of density calculation within each isopleth and summing). The applicant is requested to address this issue.

g) The Board notes the use of NOAA Level B Harassment Threshold (National Marine Fisheries Service, USA) for the assessment of behavioural disturbance rather than more recently defined thresholds in European jurisdictions (e.g. Danish threshold of 143 dB re 1µPa (or 103 dB re 1µPa VHF-weighted) single strike sound exposure level (SELss) (Tougaard, 2021). The Board further notes the threshold values recommended by TG Noise (Sigray et al., 2023) and thresholds used in Ireland's Draft Marine Strategy Part 1, Article 8, 9 and 10 report 2024 and its Annex III. The applicant is requested to consider these thresholds and justify why they have not been used in the assessment.

h) The applicant is requested to fully assess disturbance from operational turbines in the context of the size and the number of turbines proposed, and ensure that the assessment of the combined noise effects of all turbines be examined and relevant disturbance ranges identified.

i) Chapter 14 of the EIAR and Appendix 14.1 Underwater Noise Modelling Report considers underwater construction noise impacts. The applicant is requested to clarify whether Ultra-short Baseline (USBL) positioning systems will be used during pre-construction surveys. If so, the applicant is requested to include these systems in the assessment.

j) The EIAR includes an analysis of the likely effect of PTS on minke whale, having regard to their estimated hearing range. The applicant is requested to supplement the analysis with additional literature on the hearing range of minke whale or impact of underwater noise on this species.

k) The applicant is requested to provide supporting reference/s for the statement in Chapter 14 that minke whales can 'tolerate temporary displacement from foraging areas due to their large size and capacity for energy storage'.

l) The worst-case number of piling events does not account for contingency of having to move and re-pile if substrate does not accept the pile. The applicant is requested to add in this consideration or provide justification for its exclusion from the worst-case scenario.

m) The DAU state in their observation that when assessing the risk of collisions between marine mammals and vessels, the applicant must include all data relevant to Irish waters and not solely rely on reports from UK monitoring programmes, e.g. those reported in Irish Whale and Dolphin Group Cetacean Stranding Schemes and Irish Whale & Dolphin Group Deep Diving and Rare Species Investigation Programme (both supported by NPWS funding). The applicant is requested to address this issue and incorporate the findings of these data sources in the submitted documentation.

<u>Mitigation and Monitoring</u>

n) The DAU notes that monitoring for pinniped species at the location where the proposed development interacts with the shore was not carried out by the applicant and therefore there is no information on whether harbour and grey seals use this site. The applicant is requested to submit further information by

means of specific surveys of the site for pinnipeds and that this should also be set in the context of seasonal changes in distribution of these species. The applicant is requested to refer to the most up-to-date NPWS seal data and Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects Part 2, April 2018, DCCAE.

o) The applicant is requested to update the Marine Mammal Mitigation Protocol (MMMP) (Appendix 14.4 of EIAR and Appendix 10 of NIS) to include reference to TTS, as this may constitute injury under Irish legislation and guidance.

p) The MMMP states the development will follow standard DAHG (2014) guidelines, however it describes the use of Passive Acoustic Monitoring (PAM) as a form of mitigation under hours of darkness. The guidelines state: *'Pile driving activities shall only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring, as determined by the MMO, is not possible the sound-producing activities shall be postponed until effective visual monitoring is possible'*. The following text is also noted: '*Once an appropriate and effective Ramp-Up Procedure commences, there is no requirement to halt or discontinue the procedure at night-time, nor if weather or visibility conditions deteriorate nor if marine mammals occur within a 1,000m radial distance of the sound source, i.e., within the Monitored Zone'*. According to standard practice, there is no requirement for piling to stop once daylight fades, however if there is a break in pile driving sound output for a period greater than 10 minutes (e.g. due to equipment failure, shut-down or location change), the piling must not resume until daylight hours. Although the proposed development will be able to employ PAM to aid in identifying the presence of cetaceans, to begin before daybreak would constitute a deviation from the DAHG (2014) Guidance. As per DAHG (2014) Guidance, PAM may be used as a supplementary mitigation tool to optimise marine mammal detection, but not as a primary mitigation tool. The applicant is requested to clarify the relevant mitigation measures to be utilised.

It is requested that all elements of the MMMP comply with NPWS (2014) Guidance including: soft start times, delay durations, mitigation zone sizes,

and mandatory ramp-up procedures, and defined reporting requirements. Furthermore the use of distance estimation formula should follow the same approach suggested for distance estimation by the Joint Nature Conservation Committee (JNCC) (refer to Marine Mammal Observer Association article on the subject of distance estimation using reticular binoculars for further explanation) and use standard trigonometric equations for calculation.

q) The applicant is requested to address the possibility for temporal mitigation, for example limiting piling to periods that do not overlap with the harbour or grey seal pupping season or the harbour porpoise calving season, to further limit effects on nearby SACs.

Cumulative

r) The applicant is requested to provide further information regarding the piling schedule outlined in Chapter 14 of the EIAR and Appendix 14.6 to provide a more comprehensive assessment of potential adverse effects of cumulative noise (airborne and underwater) from concurrent pile driving across the Irish Sea Phase ORE 1 projects in the Irish Sea.

s) The applicant is requested to map maximum masking and behaviour impacts in the cumulative noise impact assessment on marine mammals, and fish and behavioural impacts for shellfish. The cumulative assessment should model impacts based on concurrent construction with and without noise abatement with at least one other windfarm in the Irish Sea. Critical periods of breeding and spawning should be identified and if these are associated with any known vocalisations.

t) Notwithstanding the rationale provided in relation to the assessment of impacts of operational underwater noise on marine megafauna (Chapter 14, pg 14-42, of the EIAR), the applicant is requested to assess potential impacts from operational underwater noise on marine mammals in terms of the cumulative assessment with other Irish Sea Phase 1 ORE projects.

11. Fish and Shellfish Ecology

Atlantic Herring

a) The assessments relating to Atlantic herring omit the potential spawning habitat in Dundalk Bay (MPA Advisory Group, 2023, Ecological sensitivity

analysis of the western Irish Sea to inform future designation of Marine Protected Areas (MPAs, 2023), focusing instead on the known Mourne spawning ground (Dickey-Collas et al., 2001, The location of spawning of Irish Sea herring (*Clupea harengus*). *Journal of the Marine Biological Association of the United Kingdom*, 81(4): pp. 713-714) to the northeast of Dundalk Bay (including the potential spawning grounds). The two areas are defined within Chapter 13, Figure 13.5. The Dundalk Bay potential spawning habitat and Mourne spawning grounds are located outside of the Zone of Influence (ZoI) for seabed disturbance effects (12 km). However, Figure 13.13 and Figure 13.14 in Chapter 13 clearly show areas being located within the ZoI for underwater noise effects (70 km) and subsequently within the modelled impact ranges for Temporary Threshold Shift (TTS) effects (186 dB re 1µPa² / 186 dB SELcum). If it is the case that both spawning grounds are included in the assessment and collectively termed 'the Mourne spawning ground' as a result of their close proximity, the applicant is requested to clarify this in the text so the assessment of both spawning grounds is clear. Otherwise, the applicant is requested to review their assessment of underwater noise for Atlantic herring to include both areas.

b) The applicant is requested to consider the inclusion of additional data pertaining to potential spawning grounds in their assessments. Data aggregate sites including those provided by the Marine Institute (Marine Data Centre | Marine Institute) may provide further evidence to aid in increasing confidence relating to the population distribution of these species, specifically where spring spawning season data is available in addition to autumn spawning season data. These may be beneficial in developing understanding and assessment of the Mourne herring spawning grounds extent, and whether the Dundalk Bay grounds should be considered as a separate ground, or as a component of the extensive Mourne spawning grounds.

c) Within the review arising from a) above, the applicant is requested to consider the updates by Kyle-Henney *et a*l. (2024) and Reach *et al*. (2024) to the Reach *et al*. (2013) and Latto *et al*. (2013) methodologies to identify potential spawning habitats for Atlantic herring and potential supporting habitats for

sandeel Ammodytidae. The applicant is requested to update the Fish and Shellfish Ecology chapter to take account of these methodologies.

d) Given the extensive distance of Temporary Threshold Shift (TTS) on fish with a swim bladder used in hearing (69 km), the location of sensitive Atlantic herring spawning grounds, and the limited spatial extent of potential spawning habitat available in the region, as referenced above under the heading of marine mammals, the applicant is requested to assess the possibility for the use of Noise Abatement Systems (NAS) to reduce the spatial impact of underwater noise associated with impact piling beyond soft start procedures so that TTS extent would not overlap with the spawning grounds. Reference to NAS should contain appropriate links with and inform other relevant chapters (eg Chapter 14 Marine Mammal Ecology), in which NAS may be applicable.

Fishing

e) Given the concerns raised in observations regarding potential impacts to Norway lobster (*Nephrops norvegicus*) fisheries, the applicant is requested to present a figure / figures for both inshore and offshore fishing grounds relative to the development area, rather than focussing on inshore fisheries (Figure 13.11). Offshore fishing grounds and distribution boundaries are requested to be added to Figure 13.11 as an addition to inshore fisheries information, and subsequently referred to in text.

f) The applicant is requested to strengthen relevant cross references to commercial fisheries (Chapter 16) within Chapter 13 Fish and Shellfish Ecology, to support assessment conclusions as appropriate.

g) The applicant is requested to consider disturbance to fish, basking shark and sea turtles from underwater noise generated by wind turbines during the operational phase of the proposed development.

12. Commercial Fisheries

The NMPF provides that the proposed development should be considered in the context of co-existences with existing marine activities in the area, including fisheries and aquaculture. Having regard to the provisions of the NMPF, the submitted EIAR

(including the Fisheries Management and Mitigation Strategy, Appendix 16.2), and all observations made:

a) The applicant is requested to address observations by prescribed bodies and observers who raise concerns in relation to the potential impacts on commercial fishing arising from the proposed development within both the array and the cable route corridor areas, specifically relating to the practicality and uncertainties of co-existence with reference to Co-existence Policy 1 in the NMPF.

b) The applicant is requested to address observations by prescribed bodies and observers who raise concerns in relation to the displacement of fishing effort during operational activities. In particular, the Marine Institute submit that the displacement of fishing effort would potentially increase fishing pressure and competition in neighbouring areas and have an impact on smaller vessels which cannot travel beyond their main area of activity. The applicant is requested to consider, in a holistic and integrated manner, cumulative impacts (see also point 5 above) associated with the potential effects of such displacement of fishing effort associated with other Irish Sea Phase 1 ORE projects in this area.

13. Seascape, Landscape, and Visual

a) The Board notes the concerns raised by Fáilte Ireland in respect of the subject application. The applicant is requested to provide further detail and justification in relation to the effects on tourism, having regard to the Failte Ireland observation.

b) Meath County Council raises concerns in relation to the submitted assessment of the visual impact of the proposal on views from historic sites within Meath, in particular from Brú na Bóinne (located circa 30km inland and west of the array area). Having regard to the sites UNESCO World Heritage designation, the applicant is requested to assess the proposed development having regard to the World Heritage Convention UNESCO Guidance Notes as they relate to visual impact assessment and wind energy projects, including the documents ‘Guidance and Toolkit for Impact Assessments in a World Heritage Context’ (UNESCO, 2022), ‘Guidance for Wind Energy Projects in a World Heritage Context’

(UNESCO, 2023), and available UNESCO case studies relating to the assessment of offshore projects on World Heritage sites.

c) Having regard to the Regional Seascape Character Assessment for Ireland 2020 and to observer observations, the applicant is requested to provide an analysis of the proposed development's potential impact on the coastal area's sense of place and cultural identity for local communities.

d) Meath County Council raise concerns in relation to the lack of consideration of permitted onshore windfarm and other large onshore developments in the cumulative impact assessment within Chapter 29 of the EIAR. The applicant is requested to address this issue. The cumulative impact of projects in the Irish Sea should also be considered in terms of cultural heritage and the cultural ecosystem services provided by the coastline and seascape.

e) The GIS substation building at Bremore is located adjoining lands zoned for residential development, which are the subject of a recently published draft Local Area Plan, 'draft Flemington LAP, September 2024'. It is stated within the submitted Planning Report (section 6.7.2.3) that at the time of lodgement of the application a consultation paper only was available which was insufficient to enable the applicant to assess the proposed development's compliance with the objectives of the Flemington LAP. The applicant is requested to review the draft LAP (or adopted LAP, where updated at time of this observation) and update the submitted application documentation accordingly, having regard in particular to potential for visual impacts from the substation on the draft LAP lands, potential traffic implications given the proposed access to the LAP lands directly adjoins the proposed access to the substation, and potential noise implications from the substation on the adjoining residential zoned lands.

14. Archaeology – Offshore and Onshore

a) Chapter 18 of the EIAR relates to Offshore Archaeology and Cultural Heritage. Section 18.3.2.5 states that at the time of writing of the EIAR the results of an additional intertidal and shallow water marine geophysical survey at the nearshore of the ECC was unavailable to determine the AEZ of the recorded wreck of the Belle Hill which is a national monument located c. 150m north of the

EEC. The applicant is requested to submit the results of the referenced geophysical survey and update the chapter and associated analysis accordingly.

b) Appendix 25.4 is titled 'Draft Cultural Heritage Mitigation Strategy'. The applicant is requested to confirm if this is the most up-to-date report available and to update said report in relation to any issues arising as a result of the observation of the DAU and other observations.

15. Offshore Bats

a) The Board notes the observation from the DAU in relation to the assessment of coastal foraging bats. The DAU notes there is some evidence of Leisler's bats throughout the summer and autumn at Rockabill, which is c. 5/6km from the proposed offshore array and therefore the proposed development is within the foraging range of this species. The DAU observations notes a potential roost of pipistrelles on Rockabill needs further investigation. The applicant is requested to include the use of the data collected during vessel and headland surveys in 2024, as well as further surveys of the buildings at Rockabill Island to determine if a bat roost is present and address the potential for any interaction between foraging bats on Rockabill and the offshore development area.

b) Whilst the applicant has stated that any risk to migrating bats has been ruled out, the DAU notes that data collected by the applicant, particularly in relation to Leisler's bats, provides the strongest indication to date that this species may migrate between the UK and Ireland. The DAU recommend that further data should be acquired or more data analysed to allow further consideration of the implications of the proposed development on offshore bat activity. These analyses should include use of the data collected during vessel and headland surveys in 2024 as well as further surveys of the buildings at Rockabill Island to determine if a bat roost is present and should address the potential for any interaction between bats on Rockabill and the offshore development area. The applicant is requested to respond to the observation made by the DAU and address concerns raised.

c) With regard to artificial lighting at night, the applicant is requested to provide a more comprehensive assessment for the effects due to Artificial Lighting at Night (ALAN) and the extent to which it may displace bats. The applicant is requested to provide an assessment (with reference to appropriate lux contours) having regard to the submitted Lighting and Marking Plan to determine the extent to which WTG and OSP lighting may disturb or displace bats.

d) The applicant is requested to clarify what specifically are the 'optimisation strategies' utilised by bats and how are they relied upon to mitigate risks from the proposed development for bats.

e) As indicated within Chapter 35 of the EIAR, some bat species, which are known to have migratory behaviours, have a foraging height of approx. 40m above ground level (as per studies relating to onshore windfarms). The applicant is requested to review the EIAR in the context of the most up-to-date literature available, which claims that certain species regularly fly above 40m. In light of this literature, the application is requested to reconsider the tidal range and its impact on the available gap between the swept area and water level and the factor which flight height plays in the risk to foraging and migratory bats.

f) The applicant is requested to examine the need for mitigation measures, in addition to monitoring during the operational phase, to reduce potential impacts on bats, and is requested to provide details in relation to potential mitigation measures, for example, including, *inter alia,* measures such as curtailment or feathering of blades under certain conditions.

16. Gas Interconnector

There is an existing gas interconnector pipeline located on the seabed between Ireland and Scotland, which is stated in the EIAR to be located c. 400-500m northwest of the array area (Appendix 17.1 Navigational Risk Assessment and Chapter 20). Section 15 of Appendix 17.1 relating to cumulative impacts incorrectly states there are no subsea cables/pipeline within 2nm. The applicant is requested to

address the proximity of the existing gas interconnector pipeline to the north of the array area, having regard to NMPF Transmission Policy 5.

17. Aviation and Radar

a) 'EI-D1' is an area of airspace surrounding Gormanston Airfield, utilised by the Irish Defence forces. The applicant is requested to confirm, following consultation with the Irish Air Corps, and having regard to NMPF Defence and Security Policy 1, that the proposed development will not significantly impact on the operation of Gormanston Military Practice and Exercise Area.

b) The applicant is requested to confirm through consultation with Dublin Airport Authority and Air Nav Ireland (the national Air Navigation Service Provider (ANSP)) that the layout and reduced height of 311m above LAT applied to a number of turbines for layout Option 2 is satisfactory, having regard to the location of the area within the 3nm buffer areas of Dublin Airport's ATCSMAC sectors 1 and 2.

18. Transboundary Consultation

The Board notes that the observation received by the Territorial Sea Committee on behalf of the Isle of Man, raises, *inter alia*, concerns in relation to the lack of consideration of designated Manx sites, with potential for transboundary impacts in particular in relation to birds, fish/shellfish, and marine mammals. The applicant is requested to address the Isle of Man observation.

19. Onshore Traffic and Transportation

a) The Board acknowledges concerns raised by Fingal County Council and a number of observers in relation to the scale and duration of onshore road closures proposed to facilitate the development. Having regard to the anticipated traffic disruption, the applicant is requested to consider, in consultation with Fingal County Council, mitigation measures to address the predicted length of road closures, including consideration of lane closures with significant traffic management measures, nighttime road closures and

measures to reduce road closure timelines such as increased resources. The applicant is also requested to submit, further to consultation with Fingal County Council, proposals for a phasing plan.

b) Chapter 8 and associated Appendix 8 of the planning application documents address access points from the road network. The applicant is requested to address the obvservation made by Fingal County Council, who raise concerns in relation to sightlines and the level of information provided in relation to new vehicular entrances

c) The applicant is requested to review section 24.3 of Chapter 23 in relation to Baseline Environment to ensure any road network upgrade works, such as the installation of active travel measures/cycle paths at Corduff NS and along the R132 (The Five Roads to Corduff), and at any other location, are reflected accurately in the baseline and subsequent assessment.

20. Onshore Biodiversity

a) Chapter 23 of the EIAR and the NIS both refer to Cutts, N., Phelps, A. & Burdon, D. (2009) Construction and waterfowl: defining sensitivity, response impacts and guidance. Institute of Estuarine & Coastal Studies (IECS) The University of Hull. The Waterbird Disturbance Mitigation Toolkit (Cutts, N., Hemingway, K. & Spencer, J. (2013), Waterbird Disturbance Mitigation Toolkit. Informing Estuarine Planning & Construction Projects, Institute of Estuarine and Coastal Studies (IECS) University of Hull, Version 3.2) has been published since this paper and incorporates some newer information. Please confirm whether the conclusions drawn based on the 2009 paper are still valid in light of the more recent toolkit.

b) Fingal County Council raise a number of issues in relation to tree protection/removal, landscaping plans and the submitted Habitat and Species Management Plan. The applicant is requested to address the issues raised.

c) The applicant is requested to clarify what, if anything, will be visible above ground at the landfall site when the development is complete. The applicant is requested to elaborate on proposed groundworks and landscaping works in

this area, with specific reference to the areas on proposed cable route map sheet 03 and 04 of 64.

21. Airborne Noise

a) The applicant is requested to submit further details in relation to the applied scope and methodology in relation to operational airborne noise from the proposed WTGs. The applicant is also requested to further consider the issue of mitigation where relevant.

b) The applicant is requested to address observer concerns with regard to impact of airborne noise from WTGs, specifically in relation to verifying the source of the assumed SPL of the WTGs, details in relation to cut-in wind speed, cut-out wind speed and sound power level data.

Appendix A

a. Technical Note - GIS Data Submission

Submission Format: Geodatabase, Geopackage and Shapefiles. GeoTIFF and raster spatial data frames should be submitted in projected Irish Transverse Mercator ITM (IRENET95. Heatmap generation in either .csv or .zarr file format. Shapefiles (.shp) to allow plotting in spatial analysis software (e.g. QGIS or R).

For proposed infrastructure entirely within the Nearshore (up to 3NM from the HWM) the coordinate reference system can be Irish Transverse Mercator (ITM) (EPSG:2157) or ETRS 1989 (EPSG:4258).

For proposed infrastructure in the Outer Maritime Area (3NM and greater from the HWM) the coordinate reference system shall be ETRS 1989 (EPSG:4258) or ETRS1989 UTM Zone 28N (EPSG:25828), 29N (EPSG:25829) or 30N (EPSG:25830) as relevant. For proposed infrastructure in the Outer Maritime Area (beyond 3NM) that cover multiple UTM Zones the coordinate reference system ETRS 1989 LAEA (EPSG:3035).

*See **'Guidance Note on Providing Spatial Data on Strategic Infrastructure Developments and Strategic Housing Developments."***

b. Technical Note - Models and Submitting Model Outputs

The information provided should include full details on the models themselves to include the model name, resolution, relevant pressure, purpose, summary of activities, assumptions, justification, limitations (if any), validation, post construction infrastructure included, along with any other relevant information. A concise description of the model outputs (including pressure modelled, units, background level, change relative to baseline (e.g. %), list of activities assessed, as well as construction, operational and decommissioning phase consideration) should also be included.

Heat and contour maps showing the distribution of pressure (static or dispersive) over space and/or time should be produced and provided in paper format and also in high-

quality Tagged Image File Format (TIFF) of minimum 300dpi and include suitable location identifying information. The resolution of the underlying grid used to produce heatmaps should be appropriate to visualise patterns and/or presented at scale(s) relevant to a particular feature of interest. It is anticipated that multiple heatmaps (and associated data) may be required to adequately visualise all modelled output scenarios.

Appendix B - NSIP Templates

Templates from guidance document 'National Significant Infrastructure Projects – Advice on Cumulative Effects Assessment', Planning Inspectorate UK, September 2024 - Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment - GOV.UK

- 'Appendix 1: Matrix 1 – Identification of 'other development' for CEA'
- 'Appendix 2: Matrix 1 – Assessment Matrix'

Appendix 1: Matrix 1 - Identification of 'other development' for CEA

Matrix 1 provides a means of summarising Stage 1 and Stage 2 of the CEA. It can be used to demonstrate that a systematic approach to identifying development for inclusion in CEA has been adopted. When cross referencing to evidence documents to support the conclusions, the specific document and section/paragraph number should be provided. The populated boxes below are designed to give an example of the type of information to be included.

'Other development' details						Stage 1		Stage 2			
ID	**Application Reference**	**Applicant for 'other development' and brief description**	**Distance from project**	**Status**	**Tier**	**Within ZOI?**	**Progress to Stage 2?**	**Overlap in temporal scope?**	**Scale and nature of development likely to have a significant effect?**	**Other factors**	**Progress to Stage 3/4?**
1	*Xx/xx/xxxx*	*Energy Developer Land east of village 350MW CCGT District/ County Council name Brief details…*	*1.5km*	*DCO Approved 21/09/2014 Including any policy status…*	*Tier 1*	*Falls within landscape, transport, noise, air quality and socio-economic ZOI.*	*Yes*	*Yes Construction dates Operation dates*	*Yes The (x)ha site would be visible in the same field of view from local AONB viewpoint as the proposed NSIP (Paragraph x of Energy Developer's ES). Construction programmes overlap with potential to give rise to cumulative traffic, noise, air quality and socio-economic effects.*	*n/a*	*Yes*
2	*Xx/xx/xxxx*	*Small housing development District/ County Council name Brief details…*	*0.5km*	*Approved 27/10/2011 Including any policy status…*	*Tier 1*	*Falls within transport and noise ZOI*	*Yes*	*No Construction dates Operation dates*	*No Small development of less than (x)ha*	*n/a*	*No*
3	*Xx/xx/xxxx*	*Highways Developer Junction upgrade scheme description, location NSIP/Planning Inspectorate Brief details…*	*5km*	*EIA scoping application 10/05/2007 Including any policy status…*	*Tier 2*	*Would fall within distance based criteria for landscape ZOI but is not within Zone of Theoretical Visibility for scheme due to topography*	*No*	*n/a*	*n/a*	*n/a*	*n/a*

Appendix 2: Matrix 1 - Assessment matrix

Matrix 2 is an example assessment matrix that provides a means of summarising the potential adverse or beneficial cumulative effects of the project with 'other development'. It can be used to demonstrate that a systematic approach to CEA has been adopted. When cross referencing to evidence documents to support the conclusions, the specific document and section/paragraph number should be provided. The populated boxes below illustrate the type of information that could be included, which may be supported by further detailed assessments/appendices as required.

ID	Tier	Application Reference	Applicant for 'other development' and brief description	Assessment of cumulative effect with NSIP	Proposed mitigation applicable to NSIP including any apportionment	Residual cumulative effect
Insert name of topic being cumulatively assessed						
ID Number to be carried through from Matrix 1	*Tier Number to be carried through from Matrix 1*	*Details to be carried through from Matrix 1*	*Details should build on information provided in Matrix 1 and Stage 3 evidence gathering as relevant*	*Provide relevant baseline description and assessment of effects, cross reference to any detailed information provided as supporting appendices to the CEA, where relevant. Set out any potential likely significant cumulative effects.*	*Set out proposed mitigation measure(s) to address cumulative effect(s).* *Cross reference to how stated mitigation is proposed to be secured e.g. reference DCO requirement number.* *Provide a statement regarding the contribution of each proposed development to the cumulative effect. If developments contribute equally to an effect, it may be reasonable to propose shared mitigation.* *If another development would contribute the majority of a cumulative effect, it may be appropriate to apportion the main burden of mitigation to that 'other development'. However, this should not be used as the basis for avoiding the need to provide appropriate mitigation measures in accordance with the EIA Regulations, and it is expected that appropriate mitigation for the proposed NSIP's effects would be incorporated within the application documents.* *Set out any joint mitigation proposals that have been achieved through consultation with 'other development' promoters*	*State residual significance of effect and whether beneficial or adverse.* *Provide brief commentary on the effectiveness of mitigation e.g. if mitigation reduces but does not avoid an impact or the residual effect is the same as the pre-mitigation effect*