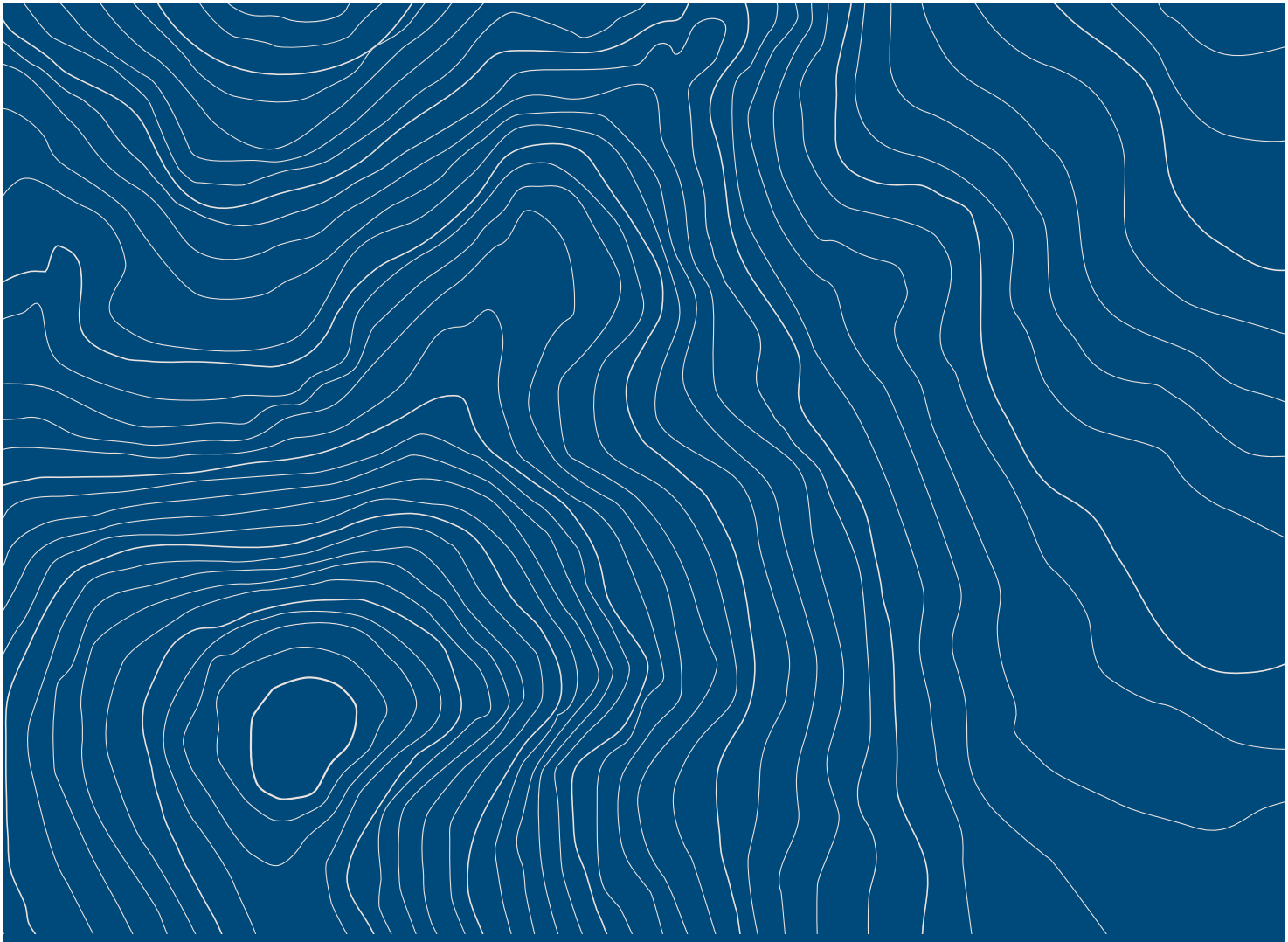

DublinArray
Generation for generations

EIAR Volume 4: Offshore Infrastructure Technical Appendices Appendix 4.3.5-8: Derogation Licence Application

Kish Offshore Wind Ltd

RWE SLR GoBe APEM Group

www.dublinarray-marineplanning.ie

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Application for Derogation Licence

Under the European Communities (Birds and Natural Habitats) Regulations 2011 – 2021

Prepared by the Department of Housing, Local Government and Heritage

npws.ie

- This form is to be used by any person applying for a derogation licence under Regulation 54 or by the Minister under Regulation 54(A)
- Please ensure that you answer questions fully in order to avoid delays
- If you experience any problems filling in this form, please contact the Wildlife Licensing Unit;

Wildlife Licensing Unit,

Department of Housing, Local Government and Heritage

National Parks and Wildlife Service

Wildlife Licensing Unit, R. 2.03

90 North King Street

Smithfield

Dublin 7 D07 N7CV

Email: wildlifelicence@housing.gov.ie

Part A. The Applicant: Personal Details

These questions relate to the person responsible for any proposed works and who will be the **named licensee**. As the licensee you will be responsible for ensuring compliance with the licence and its conditions, even though you may employ another person to act on your behalf.
If this application is being submitted on behalf of a third party please also complete Part B below.

1. (a) Name of Applicant

Title (Mr/Mrs/Miss/Ms/Dr)	Forename(s)	Surname
Mr	Peter	Lefroy
(b) Address Line 1	Kish Offshore Wind Limited (on behalf of Kish Offshore Wind Limited and Bray Offshore Wind Limited)	
Address Line 2	Unit 5, Desart House, Lower New Street,	
Town	Kilkenny,	
County		
Eircode	R95 H488	
(c) Contact number	+353 56 7715782	
(d) Email address	peter.lefroy@rwe.com	
(e) Address where works are to be carried out if different from (b) above.		
Address Line 1	Kish Bank and Bray Bank (refer Figure 1 in attached Risk Assessment Report)	
Address Line 2		
Town		
County		
Eircode		

Part B. Details of Person Submitting Application on Behalf of Applicant/Licensee

Information relating to the person (e.g. ecologist) responsible for submitting the application on behalf of the applicant/licensee should be entered below:

1. (a) Name of Person/Ecologist

Title (Mr/Mrs/Miss/Ms/Dr)	Forename(s)	Surname
Mr	Randal	Counihan
(b) Company Name	RWE Renewables Ireland Ltd	
Address Line 1	Unit 5, Desart House,	
Address Line 2	Lower New Street,	
Town	Kilkenny	
County	Kilkenny	
Eircode	R95 H488	
(c) Contact number	+353 (0) 87 2405263	
(d) Email address	randal.boroughcounihan@rwe.com	

(e) Relationship to Applicant	Employee

Part C. The Application

1. **Species of Animal:** Please indicate which species is affected by the proposed works:

- Bat ☐
- Otter ☐
- Kerry Slug ☐
- Natterjack Toad ☐
- Dolphin ☒
- Whale ☒
- Turtle ☐
- Porpoise ☒

2. Please detail the exact species (scientific name): harbour porpoise (*Phocoena phocoena*), minke whales (*Balaenoptera acutorostrata*), bottlenose dolphin (*Tursiops truncatus*), and common dolphins *(Delphinus delphis).*)

3. Please provide the maximum number of individuals affected* See section 6.

4. Please provide the maximum number of breeding or resting sites affected* See section 6.

5. Please provide the maximum number of eggs to be taken* Nil

6. Please provide the maximum number of eggs to be destroyed* Nil

*If no figures can be provided for the maximum number of individuals, breeding sites, resting places and eggs to be covered by the derogation please provide reasons why.

Certain activities during construction (namely geophysical surveys, foundation piling activity, and other construction activities) may cause disturbance to Annex IV species. Disturbance from these activities has been determined as Slight Adverse and therefore Not significant in EIA terms, and no significant adverse residual effects have been predicted, in respect to Annex IV cetacean species. This conclusion considers the project design features and other avoidance and preventative measures. Therefore, these activities will not be detrimental to the maintenance of FCS for the populations of the species in their natural range to which the Habitat Directive relates to (i.e. Annex IV cetacean species).

It is extremely difficult to predict the number of animals that may be disturbed by the activities during construction, after the application of project design features and avoidance or preventative measures. There are a number of uncertainties in the assessment (see Section 8.3 of the *Assessment of the Likelihood of Risk to Marine Annex IV Species: Dublin Array*, submitted with this form) which preclude the quantification of the number of animals that may be disturbed. Nevertheless, the overall residual magnitude of the disturbance impact is assessed as Low.

A Low magnitude reflects that any disturbance will:

- Not result in any changes to the population size or trajectory;
- Only lead to temporary changes in distribution, at a local scale, in a low or medium proportion of the population (dependent on species);
- Only lead to temporary effects with regards to the maintenance of habitat.

Similarly, it is not possible to quantify the number of breeding or resting sites affected. Cetaceans are highly mobile species. Dolphin and porpoise species may breed and rest

throughout their natural range, with no defined “breeding or resting sites”. Whilst breeding sites for some species of baleen whales are better understood, Ireland is not known to be a breeding site for minke whales or any other species of baleen whale.

A precautionary approach has been taken and a suite of measures are proposed which will further reduce the risk of disturbance as a result of the proposed activities (see Section 6 of the *Assessment of the Likelihood of Risk to Marine Annex IV Species: Dublin Array*, submitted with this form). These measures align with commitments made in the application for permission for all components of the proposed development under Section 291 of the Planning and Development Act 2000, as amended (as inserted by the Maritime Area Planning Act 2021).

7. **Species of Plant:** Please indicate which species is affected by the proposed works:

- Killarney Fern ☐
- Slender Naiad ☐
- Marsh Saxifrage ☐

8. If you previously received a derogation for any species of animal or plant please state licence number and confirm that you have made a return to NPWS on the numbers actually affected by that licence

Not applicable

9. **Proposed Dates for Works:** Please indicate the timeframe that you propose to carry out works. Dates set by NPWS may differ from dates proposed here.

Start Date:	Subject to obtaining planning permission and proceeding to construction
End Date:	Subject to obtaining planning permission and proceeding to construction

10. **Please tick which reason below explains How this Application Qualifies under Regulation 54(2)(A-E) of the European Communities (Birds and Natural Habitats) Regulations:**

a.	In the interests of protecting wild flora and fauna and conserving natural habitats	☐
b.	To prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property	☐
c.	In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment	☒
d.	For the purpose of research and education, of re-populating and re-introducing these species and for the breeding operations necessary for these purposes, including artificial propagation of plants	☐
e.	To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species to the extent specified therein, which are referred to in the First Schedule	☐

11. **Report Checklist: Please append a detailed report to support this application and ensure that it contains the following information:**

11.1	Explanation as to why the derogation licence sought is the only available option for works and no suitable alternative exists as per Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations.	☒
11.2	Evidence that actions permitted by a derogation licence will not be detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range as is required under Section 54(2) of the European Communities (Birds and Natural Habitats) Regulations.	☒
11.3	Details of any mitigation measures planned for the species affected by the derogation at the location, along with evidence that such mitigation has been successful elsewhere.	☒
11.4	As much information as possible to allow a decision to be made on this application.	☒

Part D. Declaration

I declare that all of the foregoing particulars are, to the best of my knowledge and belief, true and correct. I understand that the deliberate killing, injuring, capturing or disturbing of protected species, or damage or destruction of their breeding sites or resting places or the deliberate taking or destroying of eggs is an offence without a licence and that it is a legal requirement to comply with the conditions of any licence I may be granted following this application. I understand that NPWS may visit to check compliance with a licence.

Please note that under Regulation 5 of the European Communities (Birds and Natural Habitats) Regulations 2011-2021 an authorised officer may enter and inspect any land or premises for the purposes of performing any of his or her functions under these Regulations or for obtaining any information which he or she may require for such purposes.

Signature of the Applicant  **Date** 18th February 2025

Name in BLOCK LETTERS Peter Lefroy

PRIVACY STATEMENT

Please note that under Data Protection legislation Department staff may only discuss licence applications with the applicant, and not with any third party. See Privacy Statement at www.npws.ie/licences

npws.ie

Department of Housing, Local Government and Heritage

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Dublin Array Offshore Wind Farm

Assessment of the Likelihood of Risk to Marine Annex IV Species: Dublin Array.

Construction Activities

Contents

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Acronyms

Term	Definition
ADO	Aalternative Design Option
APB	An Bord Pleanála
AA	Appropriate Assessment
CI	Confidence Interval
CJEU	Court of Justice of the European Union
CTV	Crew Transfer Vessel
CWP	Codling Wind Park
DAHG	Department of Arts, Heritage and the Gaeltacht
DDV	Drop-Down Video
DHLGH	Department for Housing, Local Government and Heritage
ECC	Export Cable Corridor
EDR	Effective Deterrent Range
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
EU	European Union
FCS	Favourable Conservation Status
FHG	Functional Hearing Group
HF	High Frequency
IRCG	Irish Coast Guard
IROPI	Imperative Reasons of Overriding Public Interest
IWDG	Irish Whale and Dolphin Group
JNCC	Joint Nature Conservation Committee
LAT	Lowest Astronomical Tide
LF	Low Frequency
MAC	Maritime Area Consent
MAG	Magnetometer
MAP	Maritime Area Planning
MARPOL	International Convention for the Prevention of Pollution from Ships
MBES	Multi-Beam Echo Sounder
MDO	Maximum Design Option
MHWS	Mean High Water Springs
MMMP	Marine Megafauna Mitigation Plan
MMO	Marine Mammal Observer
SMPA	Marine Protected Area
MP	Monopile
MU	Management Unit
NAS	Noise Abatement System
NIS	Natura Impact Statement
NE	Northeast
NMFS	National Marine Fisheries Services

Term	Definition
NMPF	National Marine Planning Framework
NPWS	National Parks Wildlife Service
NRA	Navigational Risk Assessment
O&M	Operations and Maintenance
OCC	Onshore Compensation Compound
OES	Onshore Electrical System
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
PAM	Passive Acoustic Monitoring
PDA	Planning and Development Act
PEMP	Project Environmental Management Plan
PP	Pin pile
PTS	Permanent Threshold Shift
RED	Renewable Energy Directive
ROV	Remotely Operated Vehicle
RWE	RWE Renewables Ireland Ltd (a wholly owned subsidiary of RWE AG)
SAC	Special Area of Conservation
SBP	Sub-Bottom Profiler
SCANS	Small Cetaceans in European Atlantic waters and the North Sea
SE	Southeast
SISAA	Supporting Information for Screening for Appropriate Assessment
SEL	Sound Exposure Level
SEL_{cum}	Cumulative Sound Exposure Level
SEL_{ss}	Single Strike Sound Exposure Level
SL	Sound Level
SOLAS	Safety of Life at Sea
SPL_{peak}	Peak Sound Pressure Level
SSC	Suspended Sediment Concentration
SSS	Side Scan Sonar
TJB	Transition Joint Bay
TTS	Temporary Threshold Shift
UHRS	Ultra High Resolution Seismic
UK	United Kingdom
USBL	Ultra-short Baseline
VHF	Very High Frequency
VMP	Vessel Management Plan
WTG	Wind Turbine Generator

Units of Measurement

Term	Definition
µPa	Micropascal
dB	Decibels
GW	Gigawatt
kHz	Kilohertz
kJ	Kilojoules
km	Kilometres
m	Metres
MW	Megawatt
RMS	Root Mean Square

1 Introduction

1.1 Context

1.1.1 Dublin Array Offshore Wind Farm (hereafter referred to as the "Proposed Development") is a proposed offshore wind farm ("OWF") on the Kish and Bray Banks, off the east coast of Ireland, immediately south of Dublin city, and off the coast of counties Dublin and Wicklow (see Figure 1).

1.1.2 The Applicant is in the process of finalising its application for planning permission for the proposed development. The Applicant will be submitting the application to An Bord Pleanála ("ABP"), pursuant to Section 291 of the Planning and Development Act 2000, as amended (the "Planning Act") imminently.

1.1.3 As the Department of Housing, Local Government and Heritage (DHLGH) is a prescribed body for the purpose of statutory consultation, National Parks and Wildlife Service (NPWS) will be served with a full copy of the planning application, to include the Environmental Impact Assessment Report (EIAR), Supporting Information for Screening for Appropriate Assessment ("SISAA") and the Natura Impact Statement ("NIS"). The full application will also be available to view at the following website from the date of submission of the planning application: [http://www.dublinarray-marineplanning.ie/].

1.1.4 Prior to submission of the planning application, on a precautionary basis and without prejudice to the Applicant's view that any disturbance occurring is not 'deliberate' within the meaning of Article 16b(2) of the Renewable Energy Directive as amended, , the Applicant has decided to make an application to NPWS for a derogation licence in respect of marine mammals, pursuant to Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011 to 2021 as amended ("Birds and Habitats Regulations") (transposing Article 16 of the Habitats Directive).

1.1.5 The purpose of submitting the precautionary derogation licence application *before* the planning application is to enable ABP to take account of the terms of any derogation licence that may be granted, and any mitigation measures that may be conditioned, as part of its environmental impact assessment ("EIA") and appropriate assessment ("AA") before deciding whether to grant development consent, and to reflect such matters in its reasoned conclusions. It will also be relevant to ABP's assessment of compliance with Biodiversity Policy 4 of the National Marine Planning Framework (NMPF). For completeness, the Applicant will also provide a copy of this derogation licence application to ABP as part of the planning application (as *Volume 4, Appendix 4.3.5-8: Derogation Licence* of the EIAR). Once NPWS has decided the application, the Applicant will write to ABP to confirm the outcome and provide a copy of any derogation licence granted, for consideration by ABP and public consultation if required.

1.1.6 Because of the links between the derogation licence application and the planning application, the Applicant requests that NPWS consider the relevant parts of the planning application when determining whether a derogation licence is needed and if so, whether to grant it. The relevant parts of the planning application are identified throughout this application.

1.1.7 A legal opinion from Senior Counsel is enclosed with this application, to facilitate NPWS in applying the relevant regulatory regime to its consideration of this application. In particular, in relation to the position that any disturbance occurring is not 'deliberate' within the meaning of Article 16b(2) of the Renewable Energy Directive as amended.

1.2 Project Introduction

1.2.1 The proposed development is comprised of the offshore wind farm array and associated infrastructure, including landfall/transition joint bay (TJB), the Operations and Maintenance (O&M) base and the Onshore Electrical System (OES). These can be summarised as follows:

- Offshore Wind Farm Infrastructure: this will comprise between 39 and 50 wind turbine generators (WTG) with a maximum blade tip height (when a rotor blade is in a vertical orientation) of 309.6 metres (m) and a minimum blade tip height (air gap) of 31.6 m (both dimensions above LAT -Lowest Astronomical Tide); associated offshore infrastructure including turbine foundations, subsea inter array electricity cables, an Offshore Substation Platform (OSP) and offshore subsea electricity export cables.

- Landfall and Transition Joint Bay (TJB): this will comprise the landfall location where the offshore export cables will come ashore and the TJB will be located. The proposed landfall/TJB is located at Shanganagh Cliffs, Shanganagh.

- O&M base: this will be located at Dún Laoghaire Harbour and will comprise the operations and maintenance location for the proposed wind farm. Once the O&M Base is operational, it will also be used to support the construction management of the offshore wind farm.

- OES: this comprises the related onshore works that are necessary to facilitate the operation of the wind farm. This includes underground electricity transmission cables; an onshore substation (OSS); and underground electricity cable circuits connecting the OSS to an existing EirGrid 220 kilovolts (kV) electricity substation at Carrickmines.

1.2.2 The full description of the proposed development is set out within *Volume 2, Chapter 6: Project Description* of the EIAR that accompanies the planning application.

1.2.3 This chapter of the EIAR also addresses the entitlement of the Applicant to flexibility in its planning application. In particular, ABP issued an opinion under section 287B(2) of the Planning Act, on 03 December 2024, confirming that, due to the specific circumstances of the development, it was satisfied that the proposed application could be made before certain details of the application are confirmed. These details are limited to the following elements of infrastructure;

- Wind Turbine Generator (model):
  - Number of turbines;
  - Maximum rotor diameter;
  - Minimum rotor diameter;
  - Maximum blade tip height; and
  - Lower blade tip height.
- Offshore Substation Platform:
  - Height (m above LAT);
  - Width; and
  - Length.
- Array Layout (wind turbine generators and offshore substation platform):
  - Layout Options; and
  - Locational Limits of Deviation.
- Foundation Type (wind turbine generator and offshore substation platform):
  - Foundation types and dimensions; and
  - Foundation scour protection techniques.
- Offshore Cables (inter array and export cables):
  - Length and layout; and
  - Locational limits of deviation.

1.2.4 This flexibility is necessary in the circumstances, which are currently prevailing in the offshore wind industry, where technological developments are advancing at such a rapid pace and continuously innovating. It is for this reason that certain final details of the proposed development are unconfirmed at the planning application stage.

1.2.5 The parameters for each option have been fully assessed in the EIAR, SISAA and NIS, by the creation of a "maximum design option" (MDO) and "alternative design option" (ADO). In particular, the MDO reflects the combination/option which will give rise to the greatest magnitude of effect on the environment in an Environmental Impact Assessment (EIA) context, or on a relevant European site in an AA context. It is specific to each effect, not to each design option. For example, the greatest noise effect may occur in design option X, whereas the greatest collision risk may arise in design option Y. Hence, the MDO may be different depending on the effect in question. Importantly, the MDO always represents the greatest magnitude of effect. Whereas, the ADO reflects the option(s) which will give rise to a lower magnitude of effect. Insofar as this derogation licence application is concerned, it is the view of the authors that the MDO adequately represents the greatest likelihood of risk of offence occurring, with respect to Regulation 54 of the Birds and Habitats Regulations and Article 12 of the Habitats Directive. That is because the methodology employed for EIA and AA considers effects on Annex IV species. To illustrate, it is considered that all cetaceans have a high value because they are Annex IV species, hence there is no other value level considered when defining the sensitivity of the receptor in question in the assessment. Furthermore, this assessment for the derogation licence application has specifically considered the magnitude of the potential disturbance, as it provides information on the extent, duration, frequency, probability and consequence of the potential disturbance, rather than utilising the determination of the significance of the potential effect in EIA terms, as the EIAR assesses effects at the population level which is a lower threshold for disturbance compared to the protections under Regulation 54.

1.2.6 Component selection and the final layout of the proposed wind farm will be optimised within the constraints and limitations as set out in the planning application, and assessed in the EIAR and NIS, and any conditions which are attached to the development permission. The components, layout, design, and associated activities of the final development will be selected to ensure that the nature, magnitude, and duration of the environmental effects will not exceed, or be materially different from, those assessed and quantified in the accompanying EIAR and NIS. In this respect, the final construction works carried out, which may be the subject of a derogation licence, will similarly not give rise to environmental effects which exceed, or are materially different from, those assessed and quantified in this derogation licence application.

1.3 Purpose of this Report

1.3.1 Kish Offshore Wind Limited and Bray Offshore Wind Limited have commissioned GoBe Consultants Ltd to prepare a report in relation to the risk of deliberate disturbance of marine Annex IV species, particularly during the period of breeding, rearing, hibernation and migration, occurring from construction of the offshore elements of the proposed development, contrary to Regulation 51(b) of the Birds and Habitats Regulations and Article 12(1)(b) of the Habitats Directive.

1.3.2 This report provides the information required by NPWS to assist them in making an informed decision on whether the proposed construction activities require a derogation licence on this basis and, if so, why a derogation licence may be granted. This report should be read in conjunction with the Regulation 54 Application Form that has been prepared and the accompanying Senior Counsel opinion in relation to the applicable regulatory regime.

1.3.3 For the avoidance of doubt, this assessment is based on the MDO, as explained above. This means the greatest risk of an offence occurring is considered.

1.4 Derogation Application Area

1.4.1 The proposed development is located on the Kish and Bray Banks (see Figure 1). The Kish and Bray Banks are located approximately 10 kilometres (km) off the east coast of Ireland. The proposed development will be located within an area of approximately 59 km^2, in water depths ranging from 2 m to 50 m at LAT.

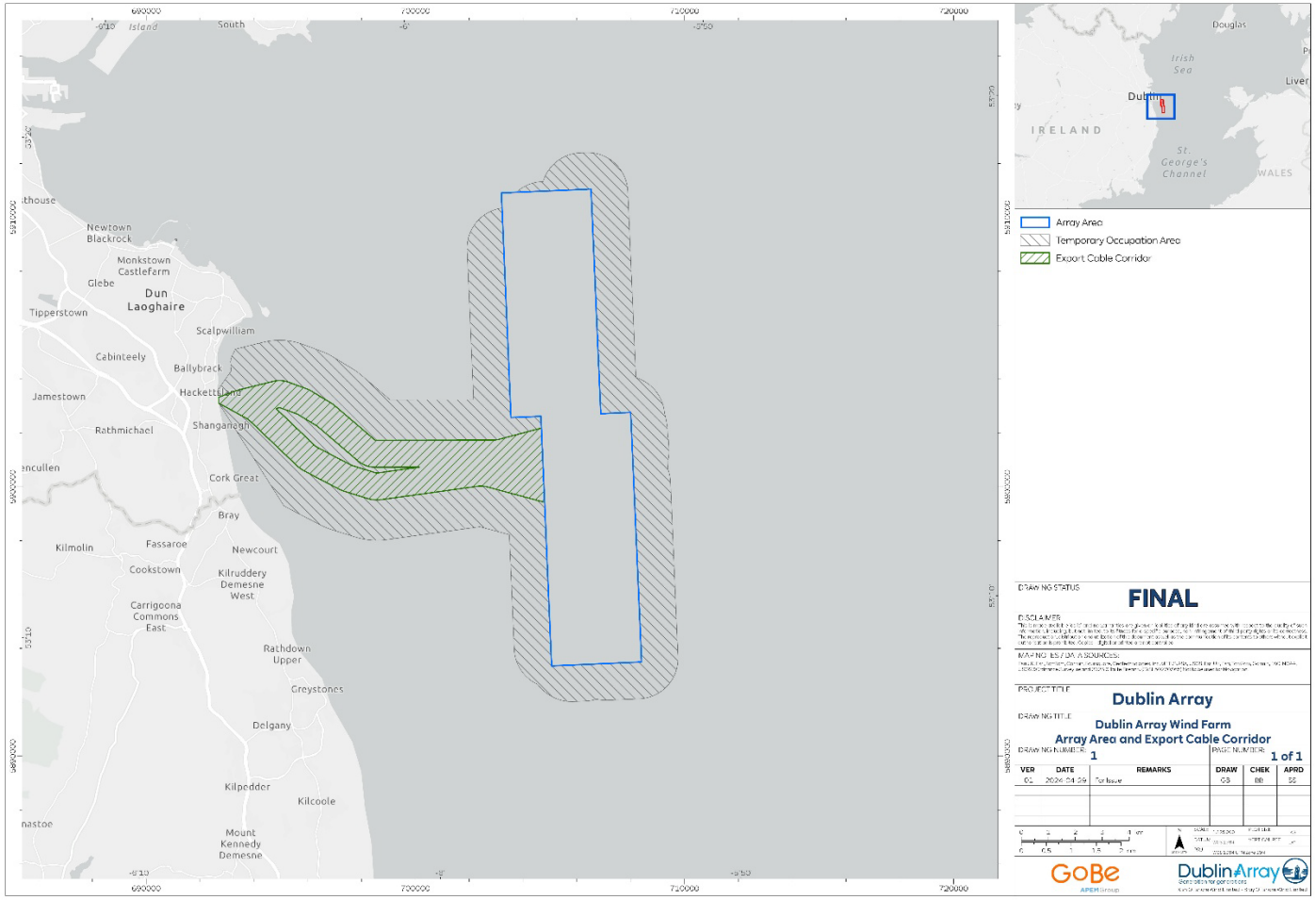

Figure 1 Wind Farm Array Area and Export Cable Corridor

1.5 Description of Activities

1.5.1 The activities that have been considered for this derogation licence application are presented in Table 1 below, and described in the following paragraphs. The potential disturbance to Annex IV species that may arise from these activities is detailed in Section 4 and assessed in Section 5.

Table 1 The activities that have been considered for this derogation application

Activity	Phase	Location
Geophysical surveys	Construction	Array Area and Export Cable Route
Foundation piling	Construction	Array Area
Other construction activities (cable laying, dredging, drilling, rock placement, trenching, and vessel noise)	Construction	Array Area and Export Cable Route

Geophysical surveys

1.5.2 Geophysical surveys prior to the start of construction may include:

- Multi-Beam Echo Sounder (MBES);
- Side Scan Sonar (SSS);
- Sub Bottom Profiler (SBP);
- 2D/3D Ultra High Resolution Seismic (UHRS) reflection profiling;
- Ultra-short Baseline (USBL) - underwater positioning;
- Drop-Down Video (DDV);
- Magnetometer (MAG) - passive measurement; and
- Additional survey activities may also be required including Remotely Operated Vehicle (ROV) or diver inspections of cable routes and identified seabed anomalies.

1.5.3 Of these, the MBES, SSS, SBP, UHRS and USBL are sources that emit and use active acoustic signals.

1.5.4 The MAG, DDV and ROV are passive sound systems therefore there is no pathway for disturbance to cetaceans from these systems. These sources are therefore not assessed further in this report.

1.5.5 The expected frequency ranges for MBES is between 200 - 400 kiloHertz (kHz) and for SSS is between 300 and 900 kHz. Both systems are outside the hearing range of cetaceans (Southall *et al.*, 2019), and so will not lead to an acoustic impact such as disturbance. These sources are therefore not assessed further in this report.

1.5.6 As SBP, USBL and UHRS operate within the auditory bandwidth for cetacean species, these sources are taken forward in this report.

Foundation piling activity

1.5.7 Various foundation options are being considered; the final choice will depend on factors such as turbine selection, seabed conditions, water depth, wind and wave patterns, and cost efficiency. The foundation types being considered include:

- Steel Monopile Foundations: These are large, welded steel tubular structures installed by being driven deep into the seabed by a large crane-mounted hammer or similar equipment. Stability is achieved through the frictional forces between the pile walls and the surrounding seabed geology, which provides lateral resistance.
- Multileg Foundations:
  - Driven or Drill-Piled Multileg Foundations: These use piles to secure the legs of the foundation into the seabed, with resistance provided by the separation of the legs and friction against the seabed; and
  - Suction Bucket Foundations: These are large, cylindrical structures resembling inverted buckets that are "sucked" into the seabed. They provide stability through the creation of a vacuum beneath the bucket.

1.5.8 Two foundation scenarios under the MDO were considered in the EIAR *Volume 4, Appendix 4.3.5-7: Dublin Array – Underwater noise assessment* and are used for the purposes of this assessment:

- A monopile foundation scenario, installing a 13 m diameter pile with a maximum blow energy of 6,372 kilojoules (kJ). One monopile foundation installed in a 24-hour period; and
- A jacket pile (multileg) foundation scenario, installing a 5.75 m diameter pile with a maximum blow energy of 4,695 kJ. Four pin-piles installed in a 24-hour period, comprising up to 12 hours active piling time per 24 hours.

Other construction activities

1.5.9 Whilst piling will likely be the loudest noise source during the construction phase, there will also be several other construction activities that will produce underwater noise. These include dredging, drilling, cable laying, rock placement and cable trenching, as well as noise generated by the presence of construction vessels. These are assessed within this report.

1.5.10 As presented in the EIAR *Volume 4, Appendix 4.3.10-1: Navigation Risk Assessment* and assessed in *Volume 3, Chapter 5: Marine Mammals* there will be a maximum total of 66 construction vessels on site at any one time. This will involve up to 813 round trips to port by construction vessels, and an additional 1,825 round trips by smaller vessels such as Crew Transfer Vessels (CTVs). Altogether, representing a total of 2,638 round trips over the construction period.

Proposed schedule

1.5.11 The construction works will last for a minimum of 18 months and a maximum of 30 months on obtaining planning permission and proceeding to construction.

1.6 Report Structure

1.6.1 The report contains the following information:

- **Section 1** – Provides an overview of the context and purpose of this application, and a description of the activities that are the subject of this derogation licence application.
- **Section 2** – Identifies the relevant legislation and guidance that applies to the consideration of this derogation licence application.
- **Section 3** – Identifies and describes the relevant Annex IV cetacean species that are the subject of this derogation licence application.
- **Sections 4 and 5** – Provide an overview of the environmental disturbance impacts from construction of the proposed development and an assessment for each activity which may give rise to an offence, after the application of project design features and avoidance or preventative measures.
- **Section 6** – Outlines the project design features and avoidance or preventative measures with respect to the Annex IV species that are in place for the proposed development and have been considered in the assessment.
- **Section 7** – Provides the scientific conclusion as to why the assessment has led to the proposed development applying for this licence at this point in time.
- **Section 8** – Identifies the relevant legal test that must be complied with in order for NPWS to grant this derogation licence, and describes how the Applicant complies with the test.
- **Section 8.5** – Provides the references for this report.

1.6.2 This report draws upon modelling and site-specific studies undertaken in support of the EIAR, and the EIAR assessments, to inform the application, where appropriate. Relevant chapters and appendices of the EIAR referenced throughout this application include:

- *Volume 2, Chapter 2: Contents, Legislation, Policy and Guidance:* to be referenced for a summary of the main legislation, policies and plans that are relevant to the proposed development (note that specific legislation and policy is referenced within the individual EIAR chapters as opposed to within this general chapter);
- *Volume 2, Chapter 5: Consideration of Alternatives:* to be referenced for a detailed review of alternative options considered for the proposed development, including site location and associated infrastructure;
- *Volume 2, Chapter 6: Project Description*: to be referenced for the full development details and further information in relation to design flexibility;
- *Volume 3, Chapter 5: Marine Mammals:* to be referenced for impacts arising from the proposed development on marine mammal receptors including Annex IV species;
- *Volume 3, Chapter 4: Fish and Shellfish Ecology*: to be referenced for impacts arising from the proposed development on fish species, which could indirectly impact marine mammals;
- *Volume 4, Appendix 4.3.5-7: Dublin Array: Underwater noise assessment* to be referenced for the underwater noise modelling methods and results;
- *Volume 4, Appendix 4.3.5-1: Technical Baseline Report – Marine Mammals*: to be referenced for further information on the marine mammal baseline;
- *Volume 4, Appendix 4.3.10-1*: *Navigation Risk Assessment* (hereafter referred to as the NRA): to be referenced for the existing levels of vessel activity in the area.

1.6.3 An assessment of the impacts arising from the construction, operation and maintenance and decommissioning of the offshore infrastructure on European sites and their supporting species and habitat qualifying interests is presented in the NIS (planning application *Part 4: Habitats Directive Assessments*) that accompanies the planning application.

1.6.4 A Vessel Management Plan (VMP) (*Volume 7: Planning Stage Plan, Appendix 7.61*) has been submitted as part of the planning application.. Specifically, the VMP mitigates against impacts relating to vessel disturbance by outlining procedures for the operation and management of vessels during construction, maintenance and decommissioning of the proposed development.

1.6.5 The Marine Megafauna Mitigation Plan (MMMP) (EIAR, *Volume 7, Appendix 7.4 Marine Megafauna Mitigation Plan*) is the primary mitigation tool for marine mammals and supports the planning application for the proposed development. The MMMP ensures appropriate controls are in place to manage the environmental risks associated with the construction and operation of the Dublin Array infrastructure, as assessed in the EIAR. This includes a relevant Annex:

- Noise Abatement Systems (NAS) Review (EIAR, *Volume 7, Appendix 7.4, MMMP Annex A – NAS*)

2 Relevant Legislation and Guidance

2.1 Protection for Annex IV species

2.1.1 Species listed on Annex IV of the Habitats Directive are protected wherever they occur, and it is an offence to do as follows:

(a) deliberately capture or kill any specimen of these species in the wild,

(b) deliberately disturb these species particularly during the period of breeding, rearing, hibernation and migration,

(c) deliberately take or destroy eggs of those species from the wild,

(d) damage or destroy a breeding site or resting place of such an animal, or

(e) keep, transport, sell, exchange, offer for sale or offer for exchange any specimen of these species taken in the wild, other than those taken legally as referred to in Article 12(2) of the Habitats Directive.

2.1.2 Article 12 of the Habitats Directive establishes and implements a strict protection regime for animal species listed in Annex IV of the Habitats Directive across their entire natural range within the European Union (EU). The Habitats Directive has been transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) as amended. These Regulations provide for the protection of cetaceans (dolphins, whales and porpoises) and deem any of the actions detailed at 2.1.1 above as being a criminal offence.

2.1.3 Prior to the preparation of this derogation licence application, a desk-based review was undertaken to determine whether there is a reasonable foreseeability that the offshore construction activities could give rise to the commission of an offence in respect of Annex IV species, on *any* of the five grounds referred to at Section 2.1.1 above. It was concluded that there is no risk of an offence with regards to the protections under Sections (a), (c), (d) and (e), however there may be a risk with regards to the protection under Section (b); *disturbance*. In particular, the desk-based review concluded that there is a reasonable foreseeability that the proposed development will disturb an Annex IV cetacean species and that it consciously accepts this as a possibility. Accordingly, this derogation licence application is in respect of the risk of disturbance only. The desk-based review, with respect to disturbance, is underpinned by the assessment in Sections 3-6 of this report, with the conclusions of this review presented in Section 7 of this report.

2.2 Deliberate Disturbance and RED III

2.2.1 The use of the word "deliberate" has been considered by the Court of Justice of the European Union (CJEU) in a number of cases, including C-103/00 and C-221/04, and by the European Commission in its 2021 Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. Of note are the following extracts from the guidance:

- *'Deliberate' actions are to be understood as actions by a person who knows, in light of the relevant legislation that applies to the species involved, and the general information delivered to the public, that his action will most likely lead to an offence against a species, but intends this offence or, if not, consciously accepts the foreseeable results of his action.*

- *In other words, the provision applies not only to a person who fully intends to capture or kill a specimen of a protected species but also to a person who is sufficiently informed and aware of the consequences his or her action will most likely have and nevertheless still performs the action, which leads to the capturing or killing of specimens (e.g. as an unwanted but accepted side effect).*

- *It is clear that any activity that deliberately disturbs a species to the extent that it may affect its chances of survival, breeding success or reproductive ability, or leads to a reduction in the occupied area or the relocation or displacement of the species, should be regarded as a 'disturbance' under the terms of Article 12.*

2.2.2 However, Directive (EU) 2018/2001 as amended by Commission Delegated Regulation (EU) 2022/759 of 14 December 2021, Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023, Commission Delegated Directive (EU) 2024/1405 of 14 March 2024 and Directive (EU) 2024/1711 of the European Parliament and of the Council of 13 June 2024 (the "**Renewable Energy Directive as amended**") has sought to change the position. In particular, the newly inserted Article 16b(2) provides as follows:

> *Where a renewable energy project has adopted necessary mitigation measures, any killing or disturbance of the species protected under Article 12(1) of Directive 92/43/EEC and Article 5 of Directive 2009/147/EC shall not be considered to be deliberate. Where novel mitigation measures to prevent as much as possible the killing or disturbance of species protected under Directives 92/43/EEC and 2009/147/EC, or any other environmental impact, have not been widely tested as regards their effectiveness, Member States may allow their use for one or several pilot projects for a limited time period, provided that the effectiveness of such mitigation measures is closely monitored and appropriate steps are taken immediately if they do not prove to be effective.*

2.2.3 In addition, Recital 37 of Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 ("**RED III**"), which is the amending Directive, recites as follows:

> *The construction and operation of renewable energy plants can result in the occasional killing or disturbance of birds and other species protected under Directive 92/43/EEC or under Directive 2009/147/EC of the European Parliament and of the Council (20). However, such killing or disturbance of protected species should not be considered to be deliberate within the meaning of those Directives if the project for the construction and operation of those renewable energy plants provides for appropriate mitigation measures to avoid such killing, to prevent disturbance, to assess the effectiveness of such measures through appropriate monitoring and, in the light of the information gathered, to take further measures as required to ensure that there are no significant adverse impact on the population of the species concerned.*

2.2.4 The legal opinion prepared by Senior Counsel that accompanies this application should be consulted in relation to the applicability of the above provisions to NPWS' consideration of this application. Further, the Opinion of Advocate General Kokott delivered on 6 February 2025 in Case C-784/23 Voore Mets and Others (a Request for a preliminary ruling from the Supreme Court of Estonia), should also be considered. Paragraphs 61- 67 of the Opinion are of particular note.

2.3 Regulation 54 Derogation

2.3.1 If a derogation licence is deemed to be required, it may be granted pursuant to Regulation 54 of the Birds and Habitats Regulations, and Article 16 of the Habitats Directive. The requirements in order to be able to avail of a derogation are as follows:

- There is no satisfactory alternative; and
- The derogation is not detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a Favourable Conservation Status (FCS) in their natural range; and
- The derogation licence is:
  - in the interests of protecting wild fauna and flora and conserving natural habitats;
  - to prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property;
  - in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment;

- for the purpose of research and education, of repopulating and re-introducing these species and for the breeding operations necessary for these purposes, including the artificial propagation of plants; or
- to allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species to the extent specified therein, which are referred to in the First Schedule to the 2011 Regulations.

2.3.2 FCS is defined in the Habitats Directive as the following:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable element of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

2.3.3 This legal test, and how the Applicant fulfils it, is addressed in more detail later in this application and in the legal opinion prepared by Senior Counsel that accompanies this application.

2.3.4 Any derogation licence granted may be subject to conditions, restrictions, limitations or requirements which the consenting authority considers appropriate.

2.4 Guidance

2.4.1 This report has been produced in accordance with the following guidance:

- Guidance document on the strict protection of animal species of Community interest under the Habitats Directive: A summary (European Commission, 2021; 2007a);
- Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive (92/43/EEC) (European Commission, 2019);
- Guidance document on Article 6(4) of the Habitats Directive (92/43/EEC). Clarification of the concepts of: Alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence. (European Commission 2007b);
- Guidance on the Strict Protection of Certain Animal and Plant Species under the Habitats Directive in Ireland, NPWS, DHLGH (2021); and
- Guidance to Manage the Risk to Marine Mammals from Manmade Sound Sources in Irish Waters, NPWS, Department of Arts, Heritage and the Gaeltacht (DAHG) (2014).

2.4.2 DAHG (2014) has been used to inform the risk assessment of anthropogenic acoustic impacts on relevant marine mammal species presented in this report:

- Sound sources which may be introduced into the marine environment by specific human activities and which may give rise to detrimental impacts on protected marine mammal populations or individuals;
- A structured approach to the assessment of risk and informed decision making with respect to those activities;
- Practical measures to avoid, prevent and/or reduce risk which must be considered to minimise the potential effects of sound sources on the natural ecology of marine mammal species.

3 Annex IV Species

3.1 Overview

3.1.1 The approach to determining the relevant Annex IV species for inclusion in this derogation licence application has been to consider the presence of these species during the site-specific surveys, in combination with information from the relevant literature.

3.1.2 The species identified in this derogation licence application are consistent with the presence/absence conclusions outlined for cetaceans within the Marine Mammal Technical Baseline (*Volume 4, Appendix 4.3.5-1: Technical Baseline Report - Marine Mammals*) and the subsequent assessment presented within the Marine Mammals chapter of the EIAR (*Volume 3, Chapter 5: Marine Mammals*). The species inclusion also considers and reflects the findings in the Fish and Shellfish Ecology Technical Baseline (*Volume 4, Appendix 4.3.4-1: Technical Baseline Report – Fish and Shellfish Ecology*) and the corresponding assessment within the Fish and Shellfish Ecology chapter of the EIAR (*Volume 3, Chapter 4: Fish and Shellfish Ecology*).

3.1.3 Of the 24 cetacean species reported in Ireland, the species that have been recorded in the site-specific surveys and are considered in this assessment are harbour porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncatus*), minke whale (*Balaenoptera acutorostrata*), and common dolphin (*Delphinus delphis).*

3.1.4 All Annex IV cetacean species assessed herein (listed above) have an overall FCS in Irish waters (NPWS, 2019).

3.2 Harbour porpoise

3.2.1 The harbour porpoise is the most widely distributed and common cetacean species in the waters of Britain and Ireland (NPWS, 2019). They occur in all parts of the British and Irish continental shelf and are recorded year-round within most of their range. Harbour porpoise was the most commonly sighted marine mammal during the site-specific surveys (undertaken in support of the EIA for the construction and operation of the proposed development) conducted between June 2019 and April 2021. The average abundance was 55 porpoise within the Survey Area throughout the 19 surveys. Porpoise were sighted throughout the survey area, and spatial modelling showed that density estimates were generally higher on the south-eastern side of the Survey Area. While sighting rates and resulting density estimates were high in November 2019 and September 2020, overall there was no evidence of a seasonal pattern in the sightings.

3.2.2 During the Small Cetaceans in European Atlantic waters and the North Sea (SCANS) III survey effort in 2016, harbour porpoises were surveyed through the use of aerial survey techniques in the block E, covering the east coast of Ireland (Hammond *et al.*, 2017). Results from this survey conclude that harbour porpoises in block E had an estimated abundance of 8,320 individuals with lower and upper Confidence Intervals (CIs) of 4,643 and 14,354 respectively. Density estimates for this block were concluded to be 0.239 porpoise/km^2.

3.2.3 During the SCANS IV survey effort in 2022, harbour porpoise were surveyed through the use of aerial survey techniques in block CS-D, covering the east coast of Ireland (Gilles *et al.*, 2023). Results from this survey conclude that harbour porpoises in block CS-D had an estimated abundance of 9,773 individuals with lower and upper CIs of 4,764 and 18,215 respectively. Density estimates for this block were concluded to be 0.2803 porpoise/km^2.

3.2.4 In summary, there have been several studies of harbour porpoise in the Irish Sea and in the vicinity of the proposed development, resulting in a range of density estimates for the area, from 0.239 porpoise/km^2 (SCANS III block E) to 2.03 porpoise/km^2 (IWDG Report: North County Dublin) (Table 2). The site-specific survey data are considered the best representation of harbour porpoise density in the proposed development.

Table 2 Harbour porpoise density estimates (porpoise/km2)

Data source	Reference	Density estimate
Site-specific surveys	Burt (2020); Chudzinska and Burt (2021)	0.2076
SCANS IV block CS-D	Gilles *et al.* (2023)	0.2803
SCANS III density surface	Lacey *et al.* (2022)	Grid cell specific Max <0.5 in the proposed development area
SCANS III block E	Hammond *et al.* (2017)	0.239
SCANS II block O	Hammond *et al.* (2013)	0.335
ObSERVE summer Stratum 5	Rogan *et al.* (2018)	Season 1: 0.696 Season 3: 1.046
ObSERVE winter Stratum 5	Rogan *et al.* (2018)	Season 2: 0.867 Season 4: 0.924
Welsh and Irish Sea distribution	Evans and Waggitt (2023)	Grid cell specific Max 0.39 in the proposed development area
IWDG Irish Sea Block A	Berrow *et al.* (2011)	1.585
IWDG North County Dublin	Berrow *et al.* (2008)	2.03
IWDG Dublin Bay	Berrow *et al.* (2008)	1.19

Data source	Reference	Density estimate
IWDG Rockabill to Dalkey Island SAC (2021)	Berrow *et al.* (2021)	0.83
IWDG Rockabill to Dalkey Island SAC (2016)	O'Brien and Berrow (2016)	1.55
IWDG Rockabill to Dalkey Island SAC (2013)	Berrow and O'Brien (2013)	1.474
Codling Wind Park (CWP) site-specific density estimate	Codling Wind Park Limited (2024)	0.1225
Arklow Bank site-specific density estimate	SSE Renewables (2024)	0.38
NISA site-specific density estimate	ARUP (2024)	0.38
Oriel site-specific density estimate	RPS (2024a)	0.57

Movement patterns, resting and breeding habitats

3.2.5 In general, harbour porpoises show a preference to coastal areas with high tidal energy (Baines and Evans 2012; Isojunno *et al.* 2012; Evans *et al.* 2015). The density models produced from Evans and Waggitt (2023) predicted that the main areas of high density are likely to include the outer part of Cardigan Bay, the eastern Irish coastal area (particularly from south Dublin to Waterford), west Pembrokeshire in Wales, and the area between north Anglesey and the Isle of Man.

3.2.6 The desk-based review indicates the harbour porpoise are likely to be present throughout the year. The site-specific surveys (2019-2021) were conducted in all months of the year with the exception of February. Of the 19 months surveyed, all had at least one harbour porpoise sighting except October 2019. These site-specific surveys estimated peak abundance and density during the winter and spring months with November 2019 having the highest density (0.9123 porpoise/km^2) and estimated abundance (243 individuals) (Burt, 2020; Chudzinska and Burt, 2021). However, other studies (e.g. Berrow *et al.*, 2008, Rogan *et al.*, 2018) observed higher densities and abundance during the summer months.

3.2.7 In the British Isles, the harbour porpoise breeding season typically occurs between June and September, with most births taking place in in June (Lockyer, 1995). As a slowly reproducing species, harbour porpoises give birth to a single calf annually, making them reliant on a successful breeding season (Kesselring *et al.*, 2017). Dynamic energy budget modelling has shown that female harbour porpoises are most vulnerable to disturbance (e.g., reduced food intake) from the time the calf is born until it can acquire some food independently, typically from June to September (Harwood *et al.* 2020). Further modelling conducted specifically for the proposed development identified the latter half of July as the most sensitive period (Booth *et al.*, 2024). During this period of breeding and early lactation, the population is particularly vulnerable to disturbance. It is likely that harbour porpoises are present in the vicinity of the proposed development during the breeding season.

3.3 Bottlenose dolphin

3.3.1 Bottlenose dolphins are described as being one of the most frequently recorded and familiar cetaceans occurring in Ireland, occurring in group sizes between three and 30 in coastal waters, and larger groups of hundreds of individuals in offshore waters (NPWS, 2019). Bottlenose dolphin sightings during the ObSERVE (Rogan *et al.*, 2018) surveys were mainly located in the west and the south of Ireland. Site-specific surveys undertaken to support the construction of the proposed development identified a total of four groups across the 13 surveys undertaken.

3.3.2 There are a few surveys that have recorded bottlenose dolphins in the vicinity of the proposed development, including the site-specific surveys, the SCANS surveys and the ObSERVE surveys. The density estimates from all surveys was fairly low, ranging between 0.00 and 0.02 dolphins/km^2 (Table 3). There were insufficient sightings of bottlenose dolphins to calculate a density estimate from the site-specific surveys.

Table 3 Bottlenose dolphin density estimates (dolphins/km^2)

Data source	Reference	Density estimate
Site-specific surveys	Burt (2020)	Not calculated
Welsh and Irish Sea distribution	Evans and Waggitt (2023)	Grid cell specific Max 0.001 in the proposed development area
SCANS IV block CS-D	Gilles *et al.* (2023)	0.2352
SCANS III density surface	Lacey *et al.* (2022).	0.025-0.05
SCANS III block E	Hammond *et al.* (2017)	0.008
SCANS II block O	Hammond *et al.* (2013)	0.005
ObSERVE summer stratum 5	Rogan *et al.* (2018)	Season 1: None sighted Season 3: None sighted
ObSERVE winter stratum 5	Rogan *et al.* (2018)	Season 2: None sighted

Data source	Reference	Density estimate
		Season 4: 0.02 (model-based) Season 4: 0.036 (design-based)
NISA site-specific density estimate	ARUP (2024)	0.002

Movement patterns, resting and breeding habitats

3.3.3 Studies have also found that these animals travel large distances, both within Ireland (O'Brien *et al.*, 2009) and beyond. Evidence of movements from the Atlantic to the North Sea (Robinson *et al.*, 2012), including the East of Scotland, confirms individual exchange between previously considered discrete populations in the United Kingdom (UK) and Ireland.

3.3.4 The density models produced by Evans and Waggitt (2023) predicted that bottlenose dolphins are present throughout the Irish Sea and Bristol Channel, with consistent distribution patterns that predicted the primary areas of high density as Cardigan Bay and west Anglesey, with some concentrated densities predicted along the southwest coast of England. In contrast, predicted densities along the east coast of the Republic of Ireland, relevant to the proposed development, were comparatively very low.

3.3.5 Although insufficient data were available from studies conducted near the proposed development to infer seasonal presence, bottlenose dolphins have been recorded year-round in Irish waters (Berrow *et al.*, 2012).

3.3.6 In the Shannon Estuary, bottlenose dolphins are known to calve between June and September (Baker *et al.*, 2017), while in Cardigan Bay, the majority of calves are born from July to September (Norman *et al.*, 2015). Given the demonstrated connectivity between dolphin populations on the east and west coasts of Ireland, as well as potential connectivity with the Cardigan Bay population, it is anticipated that any calving in the vicinity of the proposed development would occur within this same timeframe. Therefore, it is likely that bottlenose dolphins are present in the vicinity of the proposed development during their breeding and calving season.

3.4 Minke whale

3.4.1 Minke whales are observed throughout Irelands coastal and offshore waters, and both the continental slope and shelf. A total of 50 minke whales were sighted during the Dublin Array site specific surveys, all of which were sighted in the spring and summer months. Minke whales were also the most frequently sighted mysticete species during the ObSERVE (Rogan *et al.*, 2018) surveys from 2015 to 2016.

3.4.2 There have been a few studies of minke whales in the Irish Sea and in the vicinity of the proposed development. While there are a range of density estimates available (Table 4), all data sources have shown that minke whales are present in the spring/summer months. While minke whales were sighted in five of the 19 site-specific surveys, most sightings occurred in one month (May 2020), resulting in an average density estimate for that month of 0.1871 whales/km^2.

Table 4 Minke whale density estimates (whales/km^2)

Data source	Reference	Density estimate
Site-specific surveys	Burt (2020); Chudzinska and Burt (2021)	Max: 0.1871 Average: 0.01581
Welsh and Irish Sea distribution	Evans and Waggitt (2023)	Grid cell specific Max 0.012 in array area
SCANS IV block CS-D	Gilles *et al.* (2023)	0.0137
SCANS III density surface	Lacey *et al.* (2022)	Grid cell specific <0.02 in the proposed development area
SCANS III block E	Hammond *et al.* (2017)	0.017
SCANS II block O	Hammond *et al.* (2013)	0.024
ObSERVE summer stratum 5	Rogan *et al.* (2018)	Season 1: 0.045 Season 3: 0.016
CWP site-specific density estimate	Codling Wind Park Limited (2024)	0.0019
Oriel site-specific density estimate	RPS (2024a)	0.04

Movement patterns, resting and breeding habitats

3.4.3 The density models produced from Evans and Waggitt (2023) predict that minke whales are present throughout the Irish Sea and Bristol Channel, with varying distribution and seasonal patterns. Predicted high density areas include the Irish Sea (from St George's Channel westwards, encompassing Pembrokeshire, the Celtic Deep, Co. Wexford, and Co. Dublin), Isle of Man, Bristol Channel, and the Celtic Sea.

3.4.4 Minke whales exhibit seasonal variation in their presence in the Irish Sea, with sightings more frequent during the summer months in the vicinity of the proposed development (Rogan *et al.*, 2018; Chudzinska and Burt, 2021). The minke whale is known to perform seasonal migrations, travelling between high-latitude feeding grounds in the summer and low-latitude breeding and calving areas in the winter months (Risch *et al.*, 2014). Their increased presence in the summer aligns with this migratory pattern, suggesting that minke whale observed near the proposed development are likely engaged in feeding behaviour and that the wider region encompassing the proposed development area forms part of their migratory route.

3.5 Common dolphin

3.5.1 Common dolphins are one of the most frequently recorded dolphin species in Irish waters, occurring in group sizes ranging from a few individuals to over a thousand individuals in the open sea (NPWS, 2019). They have a wide distribution and occur in both coastal and offshore waters off Ireland. While available density estimates for common dolphins in the vicinity of the proposed development are somewhat lacking (Table 5), they were sighted during the site-specific surveys with a total of five groups (21 individuals) of common dolphins being sighted.

Table 5 Common dolphin density estimates (dolphins/km^2)

Data source	Reference	Density estimate
Site-specific surveys	Burt (2020)	Not calculated
Welsh and Irish Sea distribution	Evans and Waggitt (2023)	Grid cell specific Max 0.0004 in the proposed development area
SCANS IV Block CS-D	Gilles *et al.* (2023)	0.0272
SCANS III density surface	Lacey *et al.* (2022)	0.07 in array area
SCANS III Block E	Hammond *et al.* (2017)	0
SCANS II Block O	Hammond *et al.* (2013)	0.018
ObSERVE summer Stratum 5	Rogan *et al.* (2018)	None sighted
CWP site-specific DAS density estimate	Codling Wind Park Limited (2024)	0.2810
CWP site-specific boat-based density estimate	Codling Wind Park Limited (2024)	0.0026
NISA site-specific density estimate	ARUP (2024)	0.04

Movement patterns, resting and breeding habitats

3.5.2 The density models produced from Evans and Waggitt (2023) predicted that common dolphins are present throughout the Irish Sea and Bristol Channel, with consistent distribution patterns. Predicted high density areas include the south coast of the Republic of Ireland, the southwest coast of England, and the southwest coast of Wales.

3.5.3 Although short-beaked common dolphins are reported in Irish waters year-round, densities in the western central Irish sea show seasonal variation. Higher densities of these animals are observed from late spring to autumn, with a notable absence during the winter months (Wall *et al.*, 2013).

3.5.4 Common dolphins produce calves during the summer months, from May to August (Robinson *et al* 2010). Therefore, during these summer months, calves and breeding individuals may be present in the vicinity of the proposed development.

4 Potential Environmental Impacts

4.1 Overview

4.1.1 With respect to construction, the activities identified in Section 1.5 have the potential to give rise to disturbance effects to Annex IV species. For each activity in Section 1.5, a disturbance effect to Annex IV species could arise from the impact pathways outlined in the EIAR (*Volume 3, Chapter 5: Marine Mammals*). The numbering of the impact pathways in this application has been aligned with the numbering in the EIAR (see Section 5.13 of the EIAR) to facilitate ease of review. This specifically comprises:

- Geophysical surveys: auditory injury (Impact 1) and behavioural disturbance (Impact 2);
- Foundation piling activity: auditory injury (Impact 5) and behavioural displacement and disturbance (Impact 6);
- Other construction activities (Impact 7). Specifically, auditory injury and disturbance from cable laying, dredging, drilling, trenching, rock placement; and Permanent Threshold Shift (PTS) and disturbance from vessel noise;
- Increases in suspended sediment concentrations (construction) (Impact 9); and,
- Changes in prey availability and distribution (construction) (Impact 10).

4.1.2 Impacts relating to UXO clearance (Impact 3: PTS-onset from UXO clearance and Impact 4: Behavioural disturbance from UXO clearance) have not been assessed within this derogation licence application as there is uncertainty as to whether UXO clearance will be required for the proposed development. Data acquired to date and UXO assessment indicates a low likelihood of UXO to be present. A detailed UXO survey will be completed prior to construction. If UXO are found, a risk assessment will be undertaken at that time in advance of undertaking any UXO clearance activities (where such clearance is deemed necessary).

4.1.3 Impact 8: vessel collision risk (construction) has not been assessed within this derogation licence application as vessel collision risk has been assessed in terms of its potential to lead to mortality to cetaceans, which is not considered as disturbance for the purpose of this derogation licence application which is in regards to disturbance only.

Background to underwater noise impacts

4.1.4 Cetaceans have evolved to use sound as an important aid in navigation, communication and prey detection (Richardson, 1995). Given that marine mammals are dependent upon using sound for a number of essential functions, exposure to noise created from anthropogenic sources can induce a range of effects. Such effects will depend upon the sound frequency, level and whether the noise created is impulsive or non-impulsive (Southall *et al.*, 2019). The impacts of underwater sound on marine species can be broadly summarised as physical traumatic injury and fatality; auditory injury (either permanent or temporary); disturbance; and indirect effects on prey. Disturbance may arise from pathways such as masking of biologically important noises (perceptual impacts), induced stress, and behavioural changes such as displacement from feeding, resting or breeding grounds (DAHG, 2014).

4.1.5 Southall *et al.* (2019) serves as an update to Southall *et al.* (2007) and provides identical thresholds to those outlined in the National Marine Fisheries Service (NMFS) (2018) guidance, though it names the categories the Functional Hearing Groups (FHGs) of marine mammal slightly differently. Whilst the use of Southall *et al.* (2007) is referenced within the DAHG (2014) *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* document, it is recognised that the Southall *et al.* (2019*) Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects* provides the most up to date and relevant Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS) thresholds for marine mammals.

4.1.6 The Southall *et al.* (2019) guidance categorises marine mammals into FHGs of similar species and applies filters to the unweighted noise to approximate the hearing sensitivities of the receptor in question. The FHGs presented in Southall *et al.* (2019) are summarised in Table 6.

Table 6 Marine mammal functional hearing groups from Southall et al. (2019)

Functional Hearing Group	Species	Estimated hearing range	Estimated region of greatest sensitivity*	Estimated peak sensitivity*
Very High Frequency (VHF) Cetacean	Harbour porpoise	275 Hz – 160 kHz	12 – 140 kHz	105 kHz
High Frequency (HF) Cetacean	Bottlenose and common dolphin	150 Hz – 160 kHz	8.8 – 110 kHz	58 kHz
Low Frequency (LF) Cetacean	Minke whale	7 Hz – 35 kHz	200 Hz – 19 kHz	-

* Region of greatest sensitivity represents low-frequency (F1) and high-frequency (F2) inflection points, while peak sensitivity is the frequency at which the lowest threshold was measured (T0) (Southall *et al.,* 2019).

4.1.7 Southall *et al.* (2019) also gives individual criteria based on whether the noise source is considered impulsive or non-impulsive. Southall *et al.* (2019) categorises impulsive noises as having high peak sound pressure, short duration, fast rise-time and broad frequency content at source, and non-impulsive sources as steady-state noise. Explosives, impact piling and seismic airguns are considered impulsive noise sources and sonars, vibro-piling, drilling and other low-level continuous noises are considered non-impulsive.

4.1.8 Southall *et al.* (2019) presents single strike, unweighted peak criteria (peak sound pressure level or SPL_{peak}) and weighted sound exposure criteria (sound exposure level or SEL) for auditory effects. This includes a PTS in hearing, where unrecoverable (but incremental) hearing damage may occur, and a TTS in hearing, where a temporary but recoverable reduction in hearing sensitivity may occur in individual receptors. These dual criteria (SPL_{peak} and SEL) are only used for impulsive noise. Where a single impulsive noise such as the soundwave from a pile strike is considered in isolation, this can be represented by a single strike SEL (SEL_{ss}). Where multiple pulsed impulsive noises are produced, such as the total noise emissions during a pile driving sequence, this can represented by the cumulative sound exposure level (SEL_{cum}). As there are several activities proposed for the proposed development that produce a range of underwater noise types, both impulsive and non-impulsive criteria from Southall *et al.* (2019) have been considered in this assessment (Table 7 and Table 8).

Table 7 SPLpeak criteria for PTS and TTS in marine mammals from Southall et al. (2019)

Functional Hearing Group	Unweighted SPL_{peak} (dB re µ1Pa)	
	Impulsive	
	PTS	TTS
VHF Cetacean	202	196
HF Cetacean	230	224
LF Cetacean	219	213

Table 8 Impulsive and non-impulsive SEL criteria for PTS and TTS in marine mammals from Southall et al. (2019)

Functional Hearing Group	Weighted SEL (dB re µ1Pa²S)			
	Impulsive		Non-impulsive	
	PTS	TTS	PTS	TTS
VHF Cetacean	155	140	173	153
HF Cetacean	185	170	198	178
LF Cetacean	183	168	199	179

4.2 Auditory injury as a result of geophysical surveys (Impact 1)

4.2.1 Geophysical surveys are non-intrusive, meaning that there is no direct impact on the seabed. In the context of the proposed development, geophysical surveys are a series of pre-construction and post-construction surveys within the offshore development area that gather detailed information on the bathymetry, seabed sediments, geology, and anthropogenic features (e.g., existing seabed infrastructure, unexploded ordnance).

4.2.2 Given that SBP, USBL and UHRS operate within the hearing range of cetacean species, an assessment of the potential for injury effects from underwater noise arising from geophysical surveys is presented in Section 5.2.

4.2.3 As stated in Section 1.5, MBES and SSS utilise frequencies that are above the hearing range of cetaceans, therefore there is no potential for acoustic impacts and so disturbance to occur from these equipment.

SBPs

4.2.4 SBPs use low-frequency or high frequency sounds (pings) to identify acoustic impedance of the sub-surface geology and to identify transitions from one stratigraphic sequence to another. Sound sources that produce lower frequency pulses can penetrate through and be reflected by subsurface sediments (low-resolution data), whilst higher frequency pulses achieve higher resolution images but do not penetrate the subsurface sediments.

4.2.5 SBPs can be split into three categories (CSA, 2020):

- Shallow penetration SBP (pingers/CHIRP sonars) operating between 0.7 – 24 kHz and sound level (root mean square) (SL_{rms}) between 176 – 197 decibel (dB) re 1 micropascal (µPa) m source level;
- Parametric SPBs operating between 60 - 115 kHz and SL_{rms} between 220 – 225 dB re 1 µPa m source level; and
- Medium penetration SBPs (boomers and sparkers) operating between 0.1 – 5 kHz and SL_{rms} between 203 – 205 dB re 1 µPa m source level.

4.2.6 Given the variation in models that may be used during the geophysical survey campaign, on a precautionary basis it is assumed that the chosen model will operate at a frequency range which overlaps with the hearing range of cetacean species. Shallow penetration SBPs and parametric SBPs are considered non-impulsive sources whereas medium penetration SBPs are considered impulsive sources (CSA, 2020).

UHRS

4.2.7 A UHRS is a small seismic source containing a cluster of electrodes and is a form of medium penetration SBP (i.e., a sparker). These systems discharge high voltage impulses which heat the surrounding water within which the device is located through the use of electrode tips. The generation of heat and subsequently, steam, results in the emission of an acoustic impulse (Hartley Anderson Ltd, 2020). While sparkers, are less directional than other SBPs, the acoustic energy they emit is still focussed towards the sea floor.

4.2.8 Therefore, UHRSs are considered to be an impulsive sound source, with sound levels similar to medium penetration SBP outlined in Section 4.2.5.

USBL

4.2.9 A USBL system is used to obtain accurate equipment positioning during sampling activities. This system consists of a transceiver mounted under the vessel, and a transponder on deployed equipment. The transceiver transmits an acoustic pulse which is detected by the transponder, followed by a reply of an acoustic pulse from the transponder. This pulse is detected by the transceiver and the time from transmission of the initial pulse is measured by the USBL system and converted into a range.

4.2.10 The USBL will operate between 8 – 30 kHz and SL_{rms} 189 -194 dB re 1 µPa m (CSA, 2020) which overlaps with the hearing frequencies of LF, HF and VHF cetaceans. USBLs are classed as non-impulsive sound sources.

4.3 Behavioural disturbance from geophysical surveys (Impact 2)

4.3.1 Given that SBP, USBL and UHRS operate within the hearing frequencies of cetacean species an assessment of the potential for disturbance effects from underwater noise arising from the geophysical surveys is presented in Section 5.2.

4.3.2 As stated in Section 1.5, MBES and SSS utilise frequencies that are above the hearing range of cetaceans, therefore there is no potential for acoustic impacts and so disturbance to occur from these equipment.

SBP

4.3.3 Assessment guidance from Joint Nature Conservation Committee (JNCC) for noise disturbance concludes that the use of SBPs in geophysical surveys against *"could, in a few cases, cause localised short-term impacts on behaviour such as avoidance"* (JNCC *et al.*, 2010). Therefore the guidance recommends a 5 km Effective Deterrent Range (EDR) for high resolution geophysical surveys, based on SBP sources in order to meet conservation objectives of Special Areas of Conservation (SACs) designated for harbour porpoise (JNCC, 2020).

4.3.4 However, a recent study (BEIS, 2020) published noise modelling results based on the maximum source levels and bandwidths obtained from a range of SBPs. The study indicated potential for harbour porpoise to be disturbed up to a distance of 2.5 km, indicating that the JNCC (2020) guidance is overly precautionary. The report concluded that there was a low risk of harbour porpoise being physically disturbed by SBPs. In the absence of studies on other cetacean species, it is assumed that for all cetacean species the same is true; i.e., there is a low risk of any cetacean species to be physically disturbed by SBPs.

UHRS and USBL

4.3.5 The expected sound frequency for the UHRS and USBL falls within the functional hearing range for all relevant marine mammal species and, therefore, has the potential to result in disturbance effects.

4.3.6 Although the UHRS is a sparker system and is likely to cause greater disturbance, it is designed to have a highly focused beam that aims directly at the seabed, meaning there is limited horizontal transmission of noise.

4.3.7 For both UHRS and USBL, disturbance is likely to be very localised in their spatial extent, which is unlikely to result in anything more than temporary avoidance associated with the concurrent presence of the survey vessel(s).

4.4 Auditory injury as a result of foundation piling activity (Impact 5)

4.4.1 The modelling for piling is based on the spatial MDO, as this gives rise to the greatest spatial extent of impacts and so number of animals potentially affected. Modelling for foundation impact piling has been undertaken at two representative locations covering the extents of the proposed development site. The Northeast (NE) and Southeast (SE) were chosen as they present two different water depths across the site, as well as a wide spatial variation. The NE location has also been chosen as the deeper water compared to other locations on the northern boundary gives a worst-case location with respect to the potential for underwater noise to propagate in to the Rockabill to Dalkey Island SAC.

4.4.2 For foundations installation two scenarios have been considered, a monopile foundation scenario and a jacket pile foundation scenario, as summarised in paragraph 1.5.8.

4.4.3 Exposure to loud sounds can lead to a reduction in hearing sensitivity (a shift in hearing threshold), which is generally restricted to particular frequencies. This threshold shift can result in physical injury to the auditory system, e.g. a PTS in hearing.

4.4.4 A summary of unweighted piling source levels from the NE and SE modelled locations is given in Table 9.

Table 9 Summary of unweighted source levels predicted for piling

Source level	Location	Monopile foundation	Jacket pile foundation
Unweighted SPL_{peak}	NE location	243.1 dB re 1 µPa	242.6 dB re 1 µPa
	SE location	243.1 dB re 1 µPa	242.5 dB re 1 µPa
Unweighted SEL_{ss}	NE location	224.3 dB re 1 µPa²s	223.7 dB re 1 µPa²s
	SE location	224.3 dB re 1 µPa²s	223.6 dB re 1 µPa²s

4.4.5 The source levels of the piling exceed the thresholds for auditory impacts (PTS and TTS) to cetaceans (Southall *et al.*, 2019) and therefore poses a risk of injury to marine mammals.

4.4.6 An assessment of the potential for injury effects from underwater noise arising from the piling is presented in Section 5.2

4.5 Behavioural displacement and disturbance from foundation piling activity (Impact 6)

4.5.1 The assessment of disturbance from pile driven foundations was based on the current best practice methodology, making use of the best available scientific evidence. This incorporates the application of a species-specific dose-response approach rather than a fixed behavioural threshold approach, and is based on the latest guidance within Southall *et al.* (2019). The harbour porpoise dose response function presented in Graham *et al.* (2017) has been used for assessing disturbance for harbour porpoise as well as bottlenose dolphin, common dolphin and minke whale in absence of species-specific data.

4.5.2 Additionally, the NMFS Level-B harassment thresholds have been used as an alternative for assessing disturbance for dolphins and minke whales as it is acknowledged there are limitations to the application of the harbour porpoise dose-response function to those species. This threshold predicts that Level B harassment will occur when an animal is exposed to received levels above 160 dB re 1 µPa (rms) for non-explosive impulsive (e.g. seismic airguns, impact pile driving) sound sources (Guan and Brookens, 2021; NMFS, 2022).

4.5.3 An assessment of the potential for disturbance effects from underwater noise arising from foundation piling is presented in Section 5.2.

4.6 Other construction activities (Impact 7)

4.6.1 Although piling is expected to be the greatest overall noise source during offshore construction (Bailey *et al.*, 2014), several other anthropogenic activities that generate underwater noise may also take place during the construction phase:

- Cable laying: Noise from the cable laying vessel and any other associated noise during the offshore cable installation;

- Dredging: Dredging may be required on site for seabed preparation work for certain foundation options, as well as for the export cable, array cables and interconnector cable installation. Suction dredging has been assumed as a worst-case dredging technique;
- Drilling: There is the potential for WTG foundations to be installed using drilling depending on seabed type or if a pile refuses during impact piling operations;
- Rock placement: Potentially required on site for installation of offshore cables (cable crossings and cable protection) and scour protection around foundation structures;
- Trenching: Plough trenching may be required during offshore cable installation; and
- Vessel noise: Jack-up barges for piling substructure and WTG installation. Other large and medium sized vessels to carry out other construction tasks and anchor handling. Other small vessels for crew transport and maintenance on site.

4.6.2 Predicted source levels for these anthropogenic activities are summarised in Table 10.

Table 10 Summary of the estimated unweighted source levels (rms) for the other construction activities

Source	Estimated unweighted source level
Cable laying	171 dB re 1 µPa @ 1 m (rms)
Dredging (Backhoe)	165 dB re 1 µPa @ 1 m (rms)
Dredging (Suction)	186 dB re 1 µPa @ 1 m (rms)
Drilling	169 dB re 1 µPa @ 1 m (rms)
Rock placement	172 dB re 1 µPa @ 1 m (rms)
Trenching	172 dB re 1 µPa @ 1 m (rms)
Vessel noise (large)	168 dB re 1 µPa @ 1 m (rms)
Vessel noise medium	161 dB re 1 µPa @ 1 m (rms)

4.6.3 DAHG (2014) *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* states that drilling activities are considered of a relatively lower risk than those from "noisier" activities (i.e. pile driving, explosions) and that the SPLs generated are not considered likely to result in injury. However, a precautionary assessment of the potential for injury effects from underwater noise arising from the proposed other construction activities, including drilling, is presented in Section 5.2.

4.7 Increases in suspended sediment concentrations (construction) (Impact 9)

4.7.1 Increases in suspended sediment concentrations (SSCs) as a result of construction activities can have both direct and indirect impacts on marine mammals. Indirect impacts would include effects on prey species which is covered in the subsequent section 4.8 (Impact 10). Direct impacts may include the reduction of foraging ability due to impaired visibility and/or disruption to crucial habitats (e.g. feeding or breeding grounds).

4.7.2 During construction of the project, sediment will be disturbed and released into the water column. This will give rise to suspended sediment plumes and localised changes in bed levels as material settles out of suspension. The main activities resulting in disturbance of seabed sediments are:

- Seabed preparation for foundations;
- Drill arisings release;
- Release of drilling mud during trenchless installation;
- Drilling spoil disposal;
- Sandwave clearance; and
- Cable installation (including trenching).

4.7.3 An assessment of the impacts upon marine mammal species resulting from increases in suspended sediment concentrations is presented in Section 5.2.

4.8 Changes in prey availability and distribution (construction) (Impact 10)

4.8.1 Prey species such as fish make up a large part of marine mammal diet. Therefore, it is important to consider the potential for indirect effects on marine mammals as a result of impacts upon prey species and the habitats that support them.

4.8.2 The potential impacts from construction on prey fish species has been assessed using conclusions from the Marine Mammals EIAR (*Volume 3, Chapter 5: Marine Mammals*) and the assessment of corresponding fish and shellfish ecological receptors (*Volume 3, Chapter 4: Fish and Shellfish Ecology*). The following construction related impacts on prey species have been considered as part of this assessment:

- Direct damage (e.g. crushing) and disturbance;
- Temporary increase in SSC and sediment deposition;

- Seabed disturbances leading to the release of sediment contaminants and /or accidental contamination;
- Additional underwater noise and vibration leading to mortality, injury, TTS and/or behavioural changes, or auditory masking.

4.8.3 All other construction-related impacts to prey species have not been considered further, as they were concluded no significant adverse residual effects to the relevant fish and shellfish ecological receptors, as outlined in the Fish and Shellfish Ecology EIAR (*Volume 3, Chapter 4: Fish and Shellfish Ecology*).

4.8.4 An assessment of the impacts upon marine mammal species as a result of indirect effects on prey species is presented in Section 5.2.

5 Risk Assessment

5.1.1 The purpose of this section is to examine the possible impacts of the proposed activities on those Annex IV species identified as having the potential to be present in the area. The assessment of possible impacts takes into account the protective measures aimed at reducing any impact to these species' individuals and populations. Each impact is summarised in terms of its magnitude and overall significance, and whether mitigation measures were included in the statement of residual effect significance. The assessment is aligned to the assessment undertaken in the EIAR (*Volume 3, Chapter 5: Marine Mammals*).

5.1 Identification of Relevant Annex IV Species

5.1.1 All species listed under Annex IV that may be disturbed as a result of the proposed construction activities have been included in this risk assessment. Of the Annex IV cetacean species known to occur in Ireland, the following species were identified as relevant to the proposed construction activities:

- Harbour porpoise;
- Bottlenose dolphin;
- Common dolphin;
- Minke whale.

5.2 Impact Assessment

5.2.1 The impacts to marine mammals as a result of construction activities which could lead to disturbance, as identified in Section 0, are:

- Geophysical surveys: auditory injury (Impact 1) and behavioural disturbance (Impact 2);
- Foundation piling activity: auditory injury (Impact 5) and behavioural displacement and disturbance (Impact 6);
- Other construction activities (Impact 7). Specifically, auditory injury (e.g. a PTS in hearing) and disturbance from cable laying, dredging, drilling, trenching, rock placement; and PTS and disturbance from vessel noise;
- Increases in suspended sediment concentrations (construction) (Impact 9); and,
- Changes in prey availability and distribution (construction) (Impact 10).

5.2.2 Each impact pathway has been assessed for the relevant construction activity in the sections below. As stated in Section 1.5, MBES and SSS utilise frequencies that are above the hearing range of cetaceans, therefore there is no potential for acoustic impacts and so disturbance to occur from the use of these equipment.

Auditory injury as a result of geophysical surveys (Impact 1)

SBPs

5.2.3 Shallow penetration SBPs (CHIRP sonars) and parametric SBPs are classed as non-impulsive sound sources. This classification reduces the risk of potential injury due to the relatively high thresholds required at which injurious effects would occur (Southall *et al.*, 2019). Although the operable sound frequencies of SBP overlap with the hearing range of some cetacean species, when the equipment is emitting higher frequency sounds, the source level tends to be lower (Lurton and Deruiter, 2011), and thus is less likely to exceed the PTS-onset threshold.

5.2.4 For dolphins (HF cetaceans), the source levels of SBP equipment are below the PTS-onset thresholds. As such, there is no risk of auditory injury to any HF cetacean species from the use of this equipment.

5.2.5 For harbour porpoise (VHF cetaceans), the predicted SBP source levels exceed the PTS-onset threshold, meaning that the use of this equipment has the potential to cause PTS. However, a modelling study of SBPs conducted by BEIS (2020) reported that PTS onset is likely to arise between 17–23m from the source at levels of 267 dB re 1 µPa (SPL_{peak}) (BEIS, 2020). This source level is significantly louder than levels expected to be used within the proposed development area. Consequently, behavioural impacts affecting individual survival and reproduction rates are unlikely. Additionally, SBPs used in high-resolution geophysical surveys have a very low potential for injury (BEIS, 2019).

5.2.6 For minke whales (LF cetaceans), only the upper limits of predicted sources levels are predicted to exceed the PTS-onset thresholds. While it is possible that equipment will operate at source below these thresholds, it is difficult to confirm this at the current stage of the proposed development. If the equipment operates at upper source level limits, there is potential for behavioural responses that could affect individual survival or reproduction rates. Acoustic signals from SBPs generating low frequencies (<10 kHz) have shown greater propagation from the source, whereas higher frequency sources (>50 kHz) are only weakly detectable or undetectable a few hundred metres from the source (Halvorsen and Heaney, 2018). Previous noise modelling for pipeline surveys predicted PTS-onset in minke whales within 5 m of the source when SBP pingers operate at a sound source of 220 dB re 1 µPa (SPL_{peak}) (Shell, 2017).

5.2.7 Based on the above, cetaceans are at a negligible risk of injury from shallow penetration SBPs (CHIRP sonars) and parametric SBPs.

UHRS

5.2.8 The UHRS is expected to operate within a frequency range of 100 Hz to 5 kHz, which overlaps with the hearing ranges of LF, HF and VHF cetaceans. Medium penetration SBPs (boomers and sparkers) are classed as impulsive sound sources. Sound frequencies of UHRS fall outside the estimated peak sensitivity for all species.

5.2.9 For dolphins (VHF cetaceans), the source levels of UHRS equipment are below the PTS-onset thresholds. As a result, there is no risk of auditory injury (PTS-onset) from the use of this equipment.

5.2.10 For harbour porpoise (VHF cetaceans) and minke whales (LF cetaceans), the predicted UHRS source levels exceed the PTS-onset thresholds. Therefore, there is potential for auditory injury from the use of this equipment. At the PTS-onset threshold, a 6 dB elevation in the hearing threshold within the UHRS frequency range is likely to affect only a small portion of the animal's auditory spectrum. This localised hearing threshold shift is unlikely to result in significant changes to vital rates. Furthermore, the extent and duration of the impact is expected to be localised and short-term. While the effect may impact a small proportion of the respective populations, it is unlikely to occur at frequencies that would affect population trajectories.

5.2.11 Therefore, any injury is anticipated to be limited to the immediate vicinity of the vessel. Consequently, any impact would be contained fully within the impact area from the presence of the vessel itself. Based on this assessment, cetaceans will be at negligible risk of injury from medium penetration SBPs.

USBL

5.2.12 The USBL is expected to operate between 8 - 30 kHz which overlaps with the auditory bandwidth of LF, HF and VHF cetaceans (CSA, 2020). USBLs are classed as non-impulsive sound sources which reduces the risk of potential injury due to the relatively high thresholds required at which injurious effects would occur (Southall *et al.*, 2019). USBLs have a short propagation distance and therefore the sound is unlikely to impact marine mammals and any potential impact is anticipated to be limited to the immediate vicinity of the vessel.

5.2.13 The source levels of USBL equipment are below the PTS-onset thresholds for minke whales (LF) and dolphins (HF). While theoretical source levels for USBL exceed the PTS threshold for harbour porpoise (VHF), noise levels would drop to below the threshold within 10 m of the source and therefore pose a negligible risk of injury.

5.2.14 It has been demonstrated by CSA (2020) that the emitted sound levels from USBLs will attenuate to the Level A injury threshold that includes PTS (based on the worst case which is for VHF cetaceans using the SEL_{cum} threshold of 173 SEL_{cum} dB re 1 Pa^2s) (NMFS, 2018) within 1.7 m from the source.

5.2.15 Therefore, any risk of injury is limited to the immediate vicinity of the vessel, where the USBL source is located. Therefore, any potential impact relating to the use of USBLs is anticipated to be limited to the immediate vicinity of the vessel. On this basis, cetaceans will be at negligible risk of injury from the USBL.

Summary

5.2.16 The EIAR assessment of auditory injury as a result of geophysical surveys (Impact 1) determined that the potential magnitude of PTS-onset for cetaceans is rated as Negligible. The impact significance was assessed as Not significant, and there was determined to be no significant adverse residual effects. This conclusion included the mitigation measure of a pre-survey Marine Mammal Observer (MMO) watch.

5.2.17 Therefore there is no potential for injury to cetaceans from this equipment and subsequently a derogation licence for this activity in relation to injury is not required.

Behavioural disturbance from geophysical surveys (Impact 2)

SBP

5.2.18 SBPs are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. Any response will likely be temporary; for example, evidence from Thompson *et al.* (2013) suggests that short-term disturbance caused by a commercial two-dimensional seismic survey (a much louder noise source (peak-to-peak source levels estimated to be 242–253 dB re 1µPa at 1 m) than SBP) does not lead to long-term displacement of harbour porpoises.

5.2.19 It is unlikely that any disturbance from SBPs would result in any changes to the favourable conservation status of any species, as stated in the EIAR.

USBL and UHRS

5.2.20 A sound source verification exercise carried out by Pace *et al.* (2021) reported that the potential for behavioural disturbance when using UHRS and/or USBL was within a limited spatial extent (i.e. a few hundred metres).

5.2.21 UHRS and USBL are designed to have a highly focused beam that aims directly at the seabed, meaning there is limited horizontal transmission of noise, which reduces the impacts of noise emissions on nearby marine mammals as stated in Section 4.3.7.

Summary

5.2.22 The EIAR assessment of behavioural disturbance from geophysical surveys (Impact 2) determined that the potential magnitude of disturbance for cetaceans is rated as Low for SBP, UHRS and USBL. The magnitude for SBP, UHRS and USBL was determined as Low as the effect is expected in a very low proportion of the population, the disturbance impact range will be very small, highly localised and highly directional. The impact significance was assessed as Slight for SBP, UHRS and USBL, and there was determined to be no significant adverse residual effects. This conclusion included the mitigation measure of a pre-survey MMO watch.

5.2.23 Therefore, there is no potential for disturbance to cetaceans from this equipment and subsequently a derogation licence for this activity for disturbance is not required.

Auditory injury as a result of foundation piling activity (Impact 5)

5.2.24 Table 11 outlines the predicted areas and maximum impact ranges for auditory injury from pile driving for each marine mammal receptor. This includes the prediction of impact for both the NE and the SE modelling locations, for both monopiles and jacket foundations, incorporating the Applicant's commitment to implement mitigation methods to reduce the at-source underwater noise levels by 10 dB (EIAR, *Volume 7, Appendix 7.4, MMMP Annex A – NAS*).

5.2.25 For harbour porpoise, the maximum instantaneous PTS-onset impact range was 150 m for the installation of a monopile (MP) at the NE model location. For all other species, across both NE and SE locations, and MP and pin pile (PP) installation, the maximum instantaneous PTS-onset impact range was <100 m across all scenarios modelled. For all marine mammal receptors, the maximum cumulative PTS-onset impact range was <100 m for all scenarios modelled. This resulted in < 1 individual and <0.01% of the Management Unit (MU) impacted for each species across each of the piling scenarios (Table 12).

Table 11 Predicted impact ranges for auditory injury (PTS-onset) from pile driving

Species	Threshold	Metric	NE MP	SE MP	NE PP	SE PP
Harbour porpoise	Instantaneous PTS (SPL_{peak})	Area (km^2)	0.07	0.04	0.06	0.04
		Max Range (m)	150	120	140	110
	Cumulative PTS (SEL_{cum})	Area (km^2)	<0.1	<0.1	<0.1	<0.1
		Max Range (m)	<150	<100	<100	<100
Bottlenose & common dolphin	Instantaneous PTS (SPL_{peak})	Area (km^2)	<0.01	<0.01	<0.01	<0.01
		Max Range (m)	<50	<50	<50	<50
		Area (km^2)	<0.1	<0.1	<0.1	<0.1

Species	Threshold	Metric	NE MP	SE MP	NE PP	SE PP
	Cumulative PTS (SEL_{cum})	Max Range (m)	<100	<100	<100	<100
Minke whale	Instantaneous PTS (SPL_{peak})	Area (km^2)	<0.01	<0.01	<0.01	<0.01
		Max Range (m)	<50	<50	<50	<50
	Cumulative PTS (SEL_{cum})	Area (km^2)	<0.1	<0.1	<0.1	<0.1
		Max Range (m)	<100	<100	<100	<100

Table 12 The predicted auditory impact (instantaneous and cumulative PTS) from piling of monopiles and pin piles

Species	Density (#/km²)	Parameter	Instantaneous PTS		Cumulative PTS	
			NE MP	SE MP	NE PP	SE PP
Harbour porpoise	Site-specific density estimate, Chudzinska and Burt (2021)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01
	Lacey *et al.* (2022)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01
	Evans and Waggitt (2023)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01
	SCANS IV (Gilles *et al.*, 2023)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01
Bottlenose dolphin	Lacey *et al.* (2022)	# indiv	<1	<1	<1	<1
		% MU (1,069)	<0.01	<0.01	<0.01	<0.01
	Evans and Waggitt (2023)	# indiv	<1	<1	<1	<1
		% MU (496)	<0.01	<0.01	<0.01	<0.01
	SCANS IV (Gilles *et al.*, 2023)	# indiv	<1	<1	<1	<1
		% MU (8,326)	<0.01	<0.01	<0.01	<0.01
Common dolphin	Lacey *et al.* (2022)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01
	Evans and Waggitt (2023)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01
	SCANS IV (Gilles *et al.*, 2023)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01
Minke whale	Site-specific density estimate, Chudzinska and Burt (2021)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01
	Lacey *et al.* (2022)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01

Species	Density (#/km²)	Parameter	Instantaneous PTS		Cumulative PTS	
			NE MP	SE MP	NE PP	SE PP
	Evans and Waggitt (2023)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01
	SCANS IV (Gilles *et al.*, 2023)	# indiv	<1	<1	<1	<1
		% MU	<0.01	<0.01	<0.01	<0.01

Summary

5.2.26 As described in Section 1.12 of the EIAR *Volume 3, Chapter 5: Marine Mammals*, the likelihood of an animal being in the piling PTS-onset impact ranges (maximum 150 m from the piling source) is negligible. A piling Marine Megafauna Mitigation Plan (MMMP) has been committed to (see Section 5 and Section 6), which includes measures to ensure the risk of PTS to marine mammals is negligible and consistent with the latest relevant available guidance. In addition, marine mammals will not be stationary and will likely have already been displaced by presence of installation vessels to distances beyond the maximum PTS-onset range (Benhemma-Le Gall *et al.*, 2021). Therefore, the impact ranges presented in this assessment are likely to be highly precautionary.

5.2.27 The EIAR assessment of auditory injury as a result of foundation piling activity (Impact 5) determined that the potential magnitude of PTS-onset for cetaceans is rated as Negligible. The impact significance was assessed as Not Significant, and there was determined to be no significant adverse residual effects. This conclusion included the mitigation measures of a Piling MMMP and use of at-source noise mitigation methods.

5.2.28 On the basis of the information presented above, it can be concluded that the risk of an injury to Annex IV cetaceans resulting from foundations piling works at the proposed development, taking into account the proposed mitigation, is negligible.

5.2.29 Therefore, there is no potential for an injury to cetaceans from piling activities, and therefore a derogation licence is not required for this activity.

Behavioural displacement and disturbance from foundation piling activity (Impact 6)

5.2.30 The predicted areas and maximum impact ranges for behavioural disturbance from pile driving for each marine mammal receptor are outlined in Table 13. This includes the prediction of impact for both the NE and the SE modelling locations, for both monopiles and jacket foundations, assuming mitigation methods reduce the at-source underwater noise levels by 10 dB (EIAR, *Volume 7, Appendix 7.4, MMMP Annex A – NAS*).

5.2.31 The potential magnitude of this disturbance based on the dose-response function is presented in Table 13. The results using the Level B harassment thresholds for dolphins and minke whales only are presented in Table 14.

Table 13 Predicted impact for disturbance from foundation piling activity using the Graham et al. (2017) dose-response function for all cetacean species

Species	Density (#/km²)	Parameter	NE MP	SE MP	NE PP	SE PP
Harbour porpoise	Site-specific density estimate (Chudzinska and Burt, 2021)	# indiv	618	306	576	279
		% MU	0.99	0.49	0.92	0.45
	Lacey *et al.* (2022)	# indiv	736	353	685	322
		% MU	1.18	0.56	1.10	0.52
	Evans and Waggitt (2023)	# indiv	995	507	927	464
		% MU	1.59	0.81	1.48	0.74
	SCANS IV (Gilles *et al.*, 2023)	# indiv	836	413	778	377
		% MU	1.34	0.66	1.24	0.60
Bottlenose dolphin	Lacey *et al.* (2022)	# indiv	77	40	72	36
		% MU (1,069)	7.20	3.74	6.74	3.37
	Evans and Waggitt (2023)	# indiv	8	3	7	2
		% MU (496)	1.61	0.60	1.41	0.40
	SCANS IV (Gilles *et al.*, 2023)	# indiv	699	346	651	316
		% MU (8,326)	8.40	4.16	7.82	3.80
Common dolphin	Lacey *et al.* (2022)	# indiv	71	42	67	39
		% MU	0.07	0.04	0.07	0.04
	Evans and Waggitt (2023)	# indiv	73	24	68	21
		% MU	0.07	0.02	0.07	0.02
	SCANS IV (Gilles *et al.*, 2023)	# indiv	81	40	75	37
		% MU	0.08	0.04	0.07	0.04
Minke whale	Site-specific density estimate (Chudzinska and Burt, 2021)	# indiv	47	23	44	21
		% MU	0.23	0.11	0.22	0.10
	Lacey *et al.* (2022)	# indiv	57	26	53	24
		% MU	0.28	0.13	0.26	0.12
	Evans and Waggitt (2023)	# indiv	43	20	40	18
		% MU	0.21	0.10	0.20	0.09
	SCANS IV (Gilles *et al.*, 2023)	# indiv	41	20	38	18
		% MU	0.20	0.10	0.19	0.09

Table 14 Predicted impact for disturbance from foundation piling activity using the Level B harassment threshold

Species	Density (#/km²)	Parameter	NE MP	SE MP	NE PP	SE PP
Bottlenose dolphin	Lacey *et al.* (2022)	# indiv	11	5	10	4
		% MU (1,069)	1.03	0.47	0.94	0.37
	Evans and Waggitt (2023)	# indiv	0	0	0	0
		% MU (496)	0.00	0.00	0.00	0.00
	SCANS IV (Gilles *et al.*, 2023)	# indiv	85	39	75	33
		% MU (8326)	1.02	0.47	0.90	0.40
Common dolphin	Lacey *et al.* (2022)	# indiv	13	6	12	5
		% MU	0.01	0.01	0.01	<0.01
	Evans and Waggitt (2023)	# indiv	0	0	0	0
		% MU	0.00	0.00	0.00	0.00
	SCANS IV (Gilles *et al.*, 2023)	# indiv	10	4	9	4
		% MU	0.01	<0.01	0.01	<0.01
Minke whale	Site-specific density estimate (Chudzinska and Burt, 2021)	# indiv	6	3	5	2
		% MU	0.03	0.01	0.02	0.01
	Lacey *et al.* (2022)	# indiv	7	3	6	2
		% MU	0.03	0.01	0.03	0.01
	Evans and Waggitt (2023)	# indiv	4	1	3	1
		% MU	0.02	<0.01	0.01	<0.01
	SCANS IV (Gilles *et al.*, 2023)	# indiv	5	2	4	2
		% MU	0.02	0.01	0.02	0.01

Summary

5.2.32 The EIAR assessment of behavioural displacement and disturbance from foundation piling activity (Impact 6) determined that the potential magnitude of disturbance for cetaceans is rated as Medium for bottlenose dolphin, and Low for harbour porpoise, common dolphin and minke whale. The magnitude for all species accounted for the maximum proportion of the population (as a percentage of the MU) expected to experience disturbance on a piling day. The impact significance for all cetacean species was assessed as Slight, and there was determined to be no significant adverse residual effects. This conclusion included the mitigation measure of the use of at-source noise mitigation methods.

5.2.33 There is a possibility that 10s to 100s of individuals of a species may be exposed to a disturbance effect from foundation piling activity; these numbers take into account the use of at-source noise mitigation methods. Therefore the risk of disturbance occurring cannot be excluded and a derogation licence is required for this activity.

Other construction activities (Impact 7)

5.2.34 While impact piling will be the loudest noise source during the construction phase, there will also be several other construction activities that will produce underwater noise. These include dredging, drilling, cable laying, rock placement and cable trenching, as well as noise generated by the presence of construction vessels.

Cable laying, dredging, drilling, trenching, rock placement

Auditory injury

5.2.35 Underwater noise generated during cable installation is generally considered to have a low potential for impacts to marine mammals due to the non-impulsive and low frequency nature of the noise generated, and the fact that any generated noise is likely to be dominated by the vessel from which installation is taking place (Genesis, 2011).

5.2.36 It is expected that the underwater noise generated by dredging, which is non-impulsive, will be below the PTS-onset threshold (Todd *et al.*, 2015).

5.2.37 The continuous sound produced by drilling has been likened to that produced by potential dredging activity; low frequency noise caused by rotating machinery (Greene, 1987).

5.2.38 Underwater noise generation during cable trenching is highly variable and dependent on the physical properties of the seabed that is being cut. Nevertheless, it is considered to be predominantly low frequency, and non-impulsive.

5.2.39 Underwater noise generation during rock placement activities is largely unknown. One study of rock placement activities in the Yell Sound in Shetland found that rock placement noise produced low frequency tonal noise from the machinery, but that measured noise levels were within background levels (Nedwell and Howell, 2004).

5.2.40 Using the non-impulsive weighted SEL_{cum} PTS thresholds from Southall *et al.* (2019) resulted in estimated PTS impact ranges of <100 m for all marine mammal species for all non-piling construction noise (Table 15). These values mean that any marine mammal would have to be closer than 100 m from the continuous noise source at the start of the activity to acquire the necessary exposure to induce PTS as per Southall *et al.* (2019). This is an extremely unlikely scenario as displacement of marine mammals is expected prior to such construction activities starting due to the presence of vessels on-site (Benhemma-Le Gall *et al.*, 2021).

Table 15 Summary of the source level (SELcum dB re 1 Pa@1m (rms)) and the impact ranges for the non-piling construction noise sources using the non-impulsive criteria from Southall et al. (2019)

Charge weight	Estimated unweighted source level	VHF	HF	LF
Cable laying	171	<100 m	<100 m	<100 m
Suction dredging	186	<100 m	<100 m	<100 m
Backhoe dredging	165	<100 m	<100 m	<100 m
Drilling	169	<100 m	<100 m	<100 m
Trenching	172	<100 m	<100 m	<100 m
Rock placement	172	<100 m	<100 m	<100 m

5.2.41 Non-piling construction noise is assessed as having negligible effect on all marine mammal species considered in this assessment. These noise sources will have a highly localised spatial area of effect and are intermittent, meaning a marine mammal would have to be closer than 100 m from the continuous noise source at the start of the activity to acquire the necessary exposure for PTS-onset to occur. This is highly unlikely due to expected displacement effects around the vessel.

Disturbance

5.2.42 Information on the disturbance effects of other construction activities are primarily in relation to the effects of dredging and disturbance. The literature lacks detailed data on disturbance ranges for non-piling construction activities such as cable laying, trenching or rock placement. Cetacean species, including harbour porpoise, bottlenose dolphin, and minke whale have been shown to have behavioural responses to dredging, and it is assumed that common dolphin would react in the same way as bottlenose dolphins.

5.2.43 Disturbance distances of up to 5 km have been estimated for harbour porpoises from dredging activities (Verboom, 2014; McQueen *et al.*, 2020). Bottlenose dolphin are assumed to be excluded from dredging activities around a 1 km radius of the dredging site (Pirotta *et al.*, 2015). Minke whales have shown reduced presence due to construction-related activity in northwest Ireland (Culloch *et al.*, 2016), and reduced relative abundance and increased distance to a construction site during dredging and blasting activities in Newfoundland (Borggaard *et al.*, 1999).

5.2.44 Information on the disturbance effects of drilling (of piling foundations) is limited, with most studies conducted over than 20 years ago, primarily focussing on baleen whales (Sinclair *et al.*, 2023). Early literature indicates that drilling disturbance could affect marine mammals at distances of between 10-20 km (Greene Jr, 1986 LGL and Greeneridge, 1986 Richardson and Wursig, 1990). However, drilling is generally considered a form of industrial and construction noise, sharing similarities with dredging (Reine *et al.*, 2014), for which more recent data is available for species relevant to the Project. Therefore, based on dredging studies, it is appropriate to assume that drilling may cause disturbance within 5 km of the noise source, rather than up to 20 km suggested by older studies.

5.2.45 It is expected that any disturbance impact (including for other non-piling construction activities) will be primarily driven by the underwater noise generated by vessels. These impacts are anticipated to be highly localised, typically within 5 km range (Benhemma-Le Gall *et al.*, 2021; Verboom, 2014; McQueen *et al.*, 2020), with no significant long-term effects resulting from short-term displacement (Benhamma-Le Gall *et al.*, 2021; Marley *et al.*, 2017; Culloch *et al.*, 2016; Pirotta *et al.* 2013).

Summary

5.2.46 The EIAR assessment of auditory injury as a result of other construction activities (cable laying, dredging, drilling, trenching, rock placement) (under of Impact 7) determined that the potential magnitude of PTS-onset for cetaceans is rated as Negligible. The impact significance was assessed as Slight, and there was determined to be no significant adverse residual effects.

5.2.47 The EIAR assessment of disturbance as a result of other construction activities (cable laying, dredging, drilling, trenching, rock placement) (under of Impact 7) determined that the potential magnitude of disturbance for cetaceans is rated as Low. The magnitude is Low since the impact will be of short-term duration (<5 years), will occur intermittently at low intensity and is expected to be of limited spatial extent. The impact significance was assessed as Slight, and there was determined to be no significant adverse residual effects.

5.2.48 There is a possibility that individuals of cetaceans may be exposed to a disturbance effect from other construction activity (cable laying, dredging, drilling, trenching, rock placement). Therefore, the risk of disturbance occurring cannot be excluded and a derogation licence is required for this activity.

Vessel Noise

PTS

5.2.49 OSPAR (2009) summarise general characteristics of commercial vessel noise. Vessel noise is continuous, and is dominated by sounds from propellers, thrusters and various rotating machinery (e.g., power generation, pumps). In general, support and supply vessels (50 - 100 m) are expected to have broadband source levels in the range 165-180 dB re 1 µPa, with the majority of energy below 1 kHz (OSPAR, 2009). Large commercial vessels (>100 m) produce relatively loud and predominately low frequency sounds, with the strongest energy concentrated below several hundred Hz. Sound at this frequency overlaps with the hearing range of minke whales, whereas harbour porpoise and dolphins have poor sensitivity in this range.

5.2.50 Using the non-impulsive weighted SEL_{cum} PTS-onset thresholds from Southall *et al.* (2019), PTS impact ranges of <100 m were estimated for all marine mammal species for all vessel noise (Table 16). These values mean that any marine mammal would have to be closer than 100 m from the vessel at the start of the activity to acquire the necessary exposure to induce PTS as per Southall *et al.* (2019). This is an extremely unlikely scenario given the anticipated displacement effect around vessels.

Table 16 Summary of the source level (SELcum dB re 1 µPa@1m (RMS)) and impact ranges for the vessel noise sources using the non-impulsive criteria from Southall et al. (2019).

Charge weight	Estimated unweighted source level	VHF	HF	LF
Vessel noise (large)	168	<100 m	<100 m	<100 m
Vessel noise (medium)	161	<100 m	<100 m	<100 m

Disturbance

5.2.51 Disturbance to marine mammals from vessel arises from a combination of underwater noise and the physical presence of the vessel itself (Pirotta *et al.*, 2015). As it is difficult to separate these disturbance drivers, the assessment considers both vessel presence and underwater noise collectively.

5.2.52 While there is little information available on the exact level of vessel activity that causes disturbance to marine mammals, Heinänen and Skov (2015) found a significant decrease in harbour porpoise density in areas with vessel transit rates of greater than 20,000 ships/year (80/day) within a 5 km^2 area. The maximum number of construction vessels expected to be offshore at any one time is 74 vessels; assuming all offshore activities overlap, which is unlikely. For example, WTG installation and cable laying are not expected to occur simultaneously. As a result, the number of vessels present within the offshore project area (array area

and Offshore ECC) at any one time is expected to be lower than the 80/day threshold identified by Heinänen and Skov (2015), making significant disturbance from construction vessels unlikely.

5.2.53 Harbour porpoises have a high frequency hearing range, and so are more likely to be sensitive to vessels that produce medium and high-frequency noise (Hermannsen *et al.*, 2014). They are known to avoid vessels, with behavioural responses observed even when low-frequency noise components are present (Dyndo *et al.*, 2015). Thomsen *et al.* (2006) estimated porpoises respond to both small (~2 kHz) and large (~0.25 kHz) vessels at distances of around 400 m.

5.2.54 While specific studies on bottlenose dolphin-vessel interactions in Ireland are lacking, studies from other regions have shown that vessel disturbance negatively impacts foraging activity in this species. For example, Pirotta *et al.* (2015) found that vessel transit in the Moray Firth reduced (by almost half) the likelihood of bottlenose dolphin capturing prey. Vessel presence, rather than just noise, was identified as the primary disturbance factor, although the dolphins showed rapid recovery from the disturbance.

5.2.55 Of the few studies available, disturbance effects on common dolphins have mainly focused on those from cetacean-watching vessels. Meissner *et al.* (2015) reported that vessels interacting with dolphin groups affected the behavioural budget of common dolphins, with a significant decrease in foraging time. Once disrupted, dolphins took at least twice as long to return to foraging when compared to control conditions (vessels > 300 m away from dolphin group).

5.2.56 There is limited information available on the responses of minke whales to vessels. Whale-watching vessels that specifically target minke whales have been shown to cause behavioural responses in minke whales and repeated exposure can result in a decrease in foraging activity (Christiansen *et al.*, 2013).

Summary

5.2.57 The EIAR assessment of auditory injury as a result of other construction activities (vessel noise) (under of Impact 7) determined that the potential magnitude of PTS-onset for cetaceans is rated as Negligible.

5.2.58 The EIAR assessment of disturbance as a result of other construction activities (Impact 7) holistically assessed the magnitude of disturbance from all other construction activities (cable laying, dredging, drilling, trenching, rock placement, and vessel noise). The overall potential magnitude on marine mammals is rated as Low. The impact significance was assessed as Slight, and there was determined to be no significant adverse residual effects.

5.2.59 There is a possibility that individuals of cetacean species may be exposed to a disturbance effect from other construction activity (cable laying, dredging, drilling, trenching, rock placement, and vessel noise). Therefore, the risk of disturbance occurring cannot be excluded and a derogation licence is required for this activity.

Increases in suspended sediment concentrations (construction) (Impact 9)

5.2.60 Temporary increases in SSC are expected to vary dependent on sediment fraction size and activity. Coarse sediment distribution is anticipated to be high (ranging from tens to thousands of mg/l) but very localised for all construction activities. Fine sediment, on the other hand, is expected to have a more varied effect, ranging from very localised impacts during sandwave clearance to plumes extending up to 10 km as a result of drill arisings from foundation installation, though concentrations near ambient levels will be very low.

5.2.61 Marine mammals are well known to forage in tidal areas where water conditions are turbid and visibility is poor. Therefore, low light levels, turbid waters and suspended sediments are unlikely to negatively impact marine mammal foraging success. It is important to note that hearing, rather than vision, is the primary sensory modality for cetacean species. As such, short-term increases in turbidity due to suspended sediment during the construction phase are not anticipated to affect cetaceans, which rely primarily on hearing. Furthermore, marine mammal species are mobile and will be able to move away from any areas where SSCs are increased.

5.2.62 Any disturbance to the seabed will be both localised and temporary. Consequently, any impact that will occur is expected to be negligible to marine mammals as outlined in the EIAR (*Volume 3, Chapter 5: Marine Mammals*).

Summary

5.2.63 The EIAR assessment of increases in suspended sediment concentrations (construction) (Impact 9) determined that the potential magnitude for cetaceans is rated as Low. The impact significance was assessed as Not significant, and there was determined to be no significant adverse residual effects.

5.2.64 In the assessment of impact significance, the EIAR determined that the sensitivity of marine mammals to increased suspended sediment was Negligible. The EIAR states that marine mammals are not likely to be impacted by an increase in SSC. Any impacts of increased SSC would be short term and, therefore, receptors would recover quickly. On this basis, it is considered that there is negligible risk of cetaceans experiencing disturbance as a result of increase suspended sediment concentrations.

5.2.65 Therefore, there is no potential for disturbance to cetaceans from this impact and subsequently a derogation licence for this activity is not required.

Changes in prey availability and distribution (construction) (Impact 10)

5.2.66 Given that marine mammals are dependent on prey, there is the potential for indirect effects on marine mammals as a result of impacts upon prey species and/or the habitats that support them. The key prey species for each marine mammal receptor are described in Table 17.

Table 17 Key prey species of the marine mammal receptors (bold = species present in the Study Area)

Receptor	Site	Key Prey Species	Reference
Harbour porpoise	Ireland	**Small (poor) cod (*Trisopterus* spp),** various Clupeoids, **whiting**, herring, and cephalopods	Berrow and Rogan (1995), Hernandez-Milian *et al.* (2011)
Bottlenose dolphin	Ireland	**Catsharks**, conger eel, **Atlantic salmon,** blue whiting, **whiting**, **haddock**, pollock, Norway pout, pout, **poor cod, silvery cod**, **ling, hake, Atlantic horse mackerel, Atlantic mackerel,** gobies, **sand smelt,** lanternfish, flounder, **plaice**, dab, brill, **sole**, various squid, and octopus sp.	Hernandez-Milian *et al.* (2015)
Common dolphin	British Isles	Seabass, goby, **cod,** cephalopods, **mackerel**, lanternfish, blue whiting	Brophy *et al.* (2009)
Minke whale	Scotland	**Sandeel, herring, sprat, mackerel**, goby, **Norway pout/poor cod**	Pierce *et al.* (2004)

5.2.67 However, whilst there may be certain species that comprise the main part of their diet, marine mammals are considered to be generalist feeders and thus not reliant on a single prey species.

5.2.68 Since there are expected to be no significant impacts on fish species, therefore, any resulting potential impact on marine mammals is considered to be negligible.

Direct damage

5.2.69 Up to 17.7 km^2 of seabed is predicted to be temporarily impacted within the array area and Offshore ECC during the construction phase of the proposed development. Up to 17.7 km^2 of seabed is predicted to be temporarily impacted within the array area and Offshore ECC during the construction phase of the proposed development. Of this total area, within the array area a total maximum of approximately 14.3 km^2 is predicted to be temporarily damaged, disturbed and lost because of seabed preparation works, jack-up and anchoring operations, and the installation of inter-array cables including associated seabed sweeping and sandwave clearance activities. Within the intertidal and subtidal areas of the Offshore ECC, a maximum of approximately 3.4 km^2 will be temporarily disturbed during installation of export cables including seabed sweeping and sandwave clearance.

5.2.70 Mobile fish species are generally able to avoid direct physical disturbance and demersal spawning species with spawning grounds in the vicinity of the project (notably sandeel as described in *Volume 3, Chapter 4: Fish and Shellfish Ecology*) will likely temporarily flee from the disturbance with individuals able to return shortly after construction activities have ceased.

5.2.71 The extent of the impact will be highly localised within the proposed development area and short-term, primarily limited to the immediate infrastructure footprint associated installation activity.

5.2.72 Given the negligible effects on fish populations, as detailed in *Volume 3, Chapter 4: Fish and Shellfish Ecology*, and on prey species in *Volume 3, Chapter 5: Marine Mammals*, this impact is not considered to have an indirect effect on the availability of prey species for marine mammals.

Temporary increase in SSC and sediment deposition

5.2.73 Temporary increases in SSC and sediment deposition resulting from construction activities have the potential to lead to smothering of receptors and key habitats, and barrier effects which can impede fish migration. There is potential to impact prey species on a population level due to the smothering of eggs, particularly sandeel and herring which are substrate spawners and play a vital role in the food web. This could subsequently result in reduced prey availability for marine mammals.

5.2.74 A full assessment of the potential changes to the physical environment is provided in *Volume 3, Chapter 1: Physical Processes*. Full details of the scenarios modelled, including the fate of sediment plumes and subsequent deposition under different tidal states, and results are presented in *Volume 5, Appendix 5.3.1-4: Physical Process Modelling for Dublin Array Offshore Wind Farm.*

5.2.75 As determined within *Volume 3, Chapter 4: Fish and Shellfish Ecology*, potential changes in SSC and sediment deposition will be highly localised. Natural sedimentary processes will rapidly redistribute deposited material within the wider environment, with sediment composition expected to return to pre-construction levels in the short-term. Coarser sediment deposition will be confined to areas near the release points, such as along the trenching line, while plumes of finer sediments will disperse more widely. The impact will primarily affect the near-field and adjacent far-field areas and will be short-term.

5.2.76 In particular the sandeel, a source of prey for minke whales, are particularly sensitive to sediment deposition due to their substrate-specific spawning requirements. Any effects from increased SSC and sediment deposition on sandeel habitats, including spawning grounds, are assessed to be minimal, given the availability of suitable substrate in the vicinity of the Dublin Array and wider region. Due to the short-term and intermittent nature of the impact, any effects upon sandeel populations and their spawning grounds are considered to be barely discernible from baseline conditions.

Seabed disturbances leading to the release of sediment contaminants and/ or accidental contamination

5.2.77 The release of sediments into the water column has the potential to introduce sediment-bound contaminants, such as metals, hydrocarbons and organic pollutants, to be released into the water column, which could affect fish and shellfish receptors. An assessment of sediment-bound contaminants within the array area and Offshore ECC, as well as the potential impacts on water quality from releases of contaminated sediments, is presented in the Marine Water and Sediment Quality Chapter of the EIAR (*Volume 3, Chapter 2: Marine Water and Sediment Quality*). Site-specific contaminant sampling provided confirmation that the levels of sediment-bound contaminants are low in the array area and the majority of the Offshore ECC.

5.2.78 With respect to accidental pollution, good construction practice standards will be adhered to and control measures will be implemented to ensure necessary levels of environmental performance are being met and environmental risks are appropriately managed. Protocols will be put in place to ensure that there is a timely, measured, and effective response to all marine pollution incidents in the marine environment arising from any activities associated with construction and operation. Those protocols and standards will be compliant with relevant legislation (including MARPOL and the Sea Pollution Act).

5.2.79 The likelihood of an incident will be reduced through the implementation of the avoidance and prevention measures included within a marine pollution contingency plan (MPCP). Therefore, any release of sediment-bound contaminants during construction activities is expected to be restricted to the near-field and adjacent far-field. Given the predicted dispersion of sediment plumes and the low concentrations of sediment-bound contaminants within the array area and Offshore ECC, the potential impact will be highly localised within the proposed development area and short-term, primarily limited to the immediate infrastructure footprint associated installation activity..

5.2.80 Given the negligible effects on fish populations, as detailed in *Volume 3, Chapter 4: Fish and Shellfish Ecology,* and on prey species in *Volume 3, Chapter 5: Marine Mammals,* this impact is not considered to have an indirect effect on the availability of prey species for marine mammals.

Additional underwater noise and vibration leading to mortality, injury, TTS and/or behavioural changes, or auditory masking

5.2.1 Fish species vary in their sensitivity to noise from marine mammals, largely due to physiological differences, and are therefore assessed individually. Underwater noise and vibration can affect prey species through mortality, injury, behavioural changes or auditory masking. To assess these impacts, the guidance provided by Popper *et al.*, (2014), a widely recognised standard for evaluating underwater noise impacts on fish, was used in the EIAR (*Volume 3, Chapter 4: Fish and Shellfish Ecology*), incorporating results from the noise modelling report (*Volume 4, Appendix 4.3.5-7: Dublin Array: Underwater noise assessment*). The most significant potential impacts on prey species arising from underwater noise is mortality and potential mortal injury, which could affect population levels.

5.2.2 Fish are expected to be broadly capable of adapting to impacts from underwater noise. Mobile species can avoid the noise source by temporarily moving away, while more vulnerable species, such as sandeel and herring, can tolerate localised, short-term disturbances. All affected species, as detailed in *Volume 3, Chapter 4: Fish and Shellfish Ecology,* have some degree of mobility and are expected to rapidly recolonise affected areas from adjacent locations. Recovery is anticipated to be almost immediate for all receptors once the noise impact ceases.

5.2.3 Despite the presence of spawning grounds of key species like sandeel (as described in *Volume 3, Chapter 4: Fish and Shellfish Ecology*), the risk of mortality or injury from underwater noise is considered low, even at varying distances from the noise source (Popper *et al.*, 2014) As a result, it is considered that the piling activities will not result in any mortality or mortal injury to fish. Consequently, there will be no indirect effects on the availability of prey species for marine mammals.

Summary

5.2.4 The EIAR assessment of changes in prey availability and distribution (construction) (Impact 10) determined that the potential magnitude for cetaceans is rated as Negligible. The impact significance was assessed as Not Significant, and there was determined to be no significant adverse residual effects.

5.2.5 Therefore, there is no potential for disturbance to cetaceans from this impact and subsequently a derogation licence for this activity is not required.

5.3 Impact Assessment Summary

5.3.1 A summary of the effects from the impacts assessed in the EIAR, that have the potential to cause disturbance in Annex IV species, with respect to construction at the proposed development, is provided in Table 18.

Table 18 Summary of effects for Annex IV cetacean species

Description of impact	Impact	Mitigation	Residual effect
Construction			
Impact 1: Auditory injury as a result of geophysical surveys	Not significant	Pre-survey MMO watch	No significant adverse residual effects
Impact 2: Behavioural disturbance from geophysical surveys (SBP, UHRS and USBL)	Slight	Pre-survey MMO watch	No significant adverse residual effects
Impact 5: Auditory injury as a result of foundation piling	Not significant	Piling MMMP Use of at-source noise mitigation methods	No significant adverse residual effects
Impact 6: Behavioural displacement and disturbance from foundation piling activity	Slight	Use of at-source noise mitigation methods	No significant adverse residual effects
Impact 7: Other construction activities	Slight	NA	No significant adverse residual effects
Impact 9: Increases in suspended sediment concentrations	Not significant	NA	No significant adverse residual effects
Impact 10: Changes in prey availability and distribution	Not significant	NA	No significant adverse residual effects

6 Protection Measures

6.1.1 The Project has been designed in such a way to avoid and prevent disturbance as much as possible by the introduction of a range of Project Design Features and Other Avoidant and Preventative Measures. These measures serve both as a deterrent to the Annex IV species from swimming into the project area and as protection for Annex IV species. Following a comprehensive assessment of all measures, it has been concluded that there are no additional measures which could enhance the protection of Annex IV species beyond those already proposed. The measures proposed represent the necessary and appropriate measures for the Annex IV species in question. Further, the Applicant requests that the measures be incorporated into any licence granted by NPWS as conditions and into any planning permission granted by ABP as conditions.

6.1.2 Notwithstanding the deterrent and protective effect of the measures, and their appropriateness for a project of this kind, the Applicant acknowledges that there is a residual, albeit low, risk that certain Annex IV species may still potentially be at risk of disturbance. It is for this reason that this precautionary derogation licence application is being submitted (without prejudice to the Applicant's view that any disturbance occurring is not 'deliberate' within the meaning of Article 16b(2) of the Renewable Energy Directive as amended, as explained in the legal opinion prepared by Senior Counsel that accompanies this application.).

6.1.3 The following protection measures are relevant to the assessment contained herein:

- Project Design Features: These are features of the proposed development that were selected as part of the iterative design process, which are demonstrated to avoid and prevent significant adverse effects on the environment in relation to Annex IV species. In avoiding significant adverse effects in an EIA context, these features will also avoid impacts upon the FCS of the relevant species.

- Other Avoidance and Preventative Measures: These are measures that were identified throughout the early development phase of the proposed development, also to avoid and prevent likely significant effects, which go beyond design features. These measures were incorporated in as constituent elements of the project, they are referenced in the project description chapter of this EIAR (*Volume 2, Chapter 6: Project Description*) and they form part of the project for which development consent is being sought. These measures are distinct from design features and are found within our suite of management plans.

- Additional Mitigation: These are measures that were introduced to the proposed development project after a likely significant effect was identified during the EIA assessment process. These measures either mitigate against the identified significant adverse effect or reduce the significance of the residual effect on the environment. No additional mitigation has been identified for Annex IV species.

6.1.4 All measures are collated within *Volume 8, Chapter 2: Schedule of Measures*. The measures relevant to disturbance of Annex IV species are listed in Table 19.

Table 19 Project design features and other avoidance and preventative measures relating to marine mammals

Project design feature / other avoidance or preventative measure	Where secured
Impact piling of a single pile will occur at any one time, i.e. no simultaneous impact piling will occur.	Outlined within the Project Description chapter.
The Applicant commits to the implementation of at-source noise abatement methods (e.g. bubble curtains, casings, resonators) to reduce the source level of the underwater noise from pile driving by at least 10 decibels (dB).	Outlined within the Project Description chapter with further details relevant to marine mammals within the MMMP
Procedures for impact piling, will include: ▪ Implementation of a 1000 m mitigation zone ▪ Pre-piling Marine Mammal Observer (MMO) watches; ▪ Pre-piling Passive Acoustic Monitoring (PAM) (if required to supplement the MMO); ▪ Acoustic Deterrent Device (ADD), as an additional mitigation tool prior to the start of piling activities at night; ▪ Soft start procedure; and ▪ Breaks in piling procedure.	Outlined within the MMMP. The MMMP has been developed to comply with all relevant guidance, specifically NPWS, (2014); DAHG (2014[†]); IWDG (2020)
Procedures for geophysical surveys using 3D UHRS (sparker) equipment, will include: ▪ Implementation of a 1000 m mitigation zone; ▪ Pre-shooting (in relation to survey start) Marine Mammal Observer (MMO) watches; ▪ Delay of operations if marine mammals detected for at least 30 mins; ▪ Soft start procedure; ▪ Line changes longer than 40 minutes will be stopped with a pre watch of 30 mins, followed by soft start to resume; ▪ Breaks in operation of between 5-10 mins will prompt a MMO watch.	Outlined within the MMMP. The MMMP has been developed to have regard to all relevant guidance, specifically NPWS, (2014); DAHG (2014); IWDG (2020)
Applicant will implement the following, in line with the Sea Pollution Act 1991 and MARPOL convention and other similar binding rules and obligations	The Project Environmental Management Plan (PEMP) includes measures outlined within the Marine Pollution

[†] At the time of publication updates to this guidance are still pending.

Project design feature / other avoidance or preventative measure	Where secured
imposed on ship owners and operators by inter alia the International Maritim Organisation as relevant: Marine Pollution Contingency Plan to cover accidental spills, potential contaminant release and include key emergency contact details (e.g., the Irish Coast Guard (IRCG) and will comply with the National Maritime Oil/ HNS Spill Contingency Plan (IRCG, 2020). Measures include Storage of all chemicals in secure designated areas with impermeable bunding (up to 110% of the volume); and double skinning of pipes and tanks containing hazardous materials to avoid contamination.	Contingency Plan compliant with relevant legal obligations
Waste management and disposal arrangements - the developer will commit to the disposal of sewage and other waste in a manner which complies with all regulatory requirements, including but not limited to the IMO MARPOL requirements.	The PEMP includes measures outlined within the Marine Pollution Contingency Plan compliant with relevant legal obligations
A code of conduct will be implemented by all vessel operators when encountering marine species. In addition, vessel movements to and from construction sites and ports will, where feasible, follow existing routes.	The PEMP incorporates all measures within an environmental Vessel Management Plan
Navigational safety measures including: Compliance with COLREGs Marine coordination; Temporary lighting and marking; Operational lighting and marking; Use of guard vessels; Advisory safe passing distances; Charting; Emergency Response Cooperation Planning.	Measures contained within the Vessel Management Plan designed to prevent any risks of collision or disruption to other craft, all measures will ensure compliance with the Convention on the International Regulations for Preventing Collisions at Sea (COLREGS) (International Maritime Organization (IMO), 1972/77)

7 Scientific Conclusion

7.1.1 This section provides the scientific conclusion in relation to the impact assessment summary in Table 18, in regard to the determination of potential disturbance under the Regulations.

Impacts concluded to not cause disturbance

7.1.2 In respect of all impact pathways that have been determined as 'not significant' in the EIAR, it is concluded that they will not give rise to disturbance of Annex IV cetacean species.

7.1.3 The conclusion of 'not significant' in the EIAR takes into account the mitigation measures for certain impacts as outlined in Table 19.

7.1.4 In order to reach a conclusion of 'not significant' for an impact, at least one of the following statements must apply:

- The potential magnitude of the impact for cetaceans is rated as Negligible; and/or
- The sensitivity of cetaceans to the impact is rated as Negligible.

7.1.5 In order for the magnitude to be determined as Negligible, the following must be true:

- Extent: The effect is expected in a very low proportion of the population.
- Duration: The impact is anticipated to be momentary (seconds to minutes) to brief (lasting less than one day).
- Frequency: The impact will occur once or infrequently throughout a relevant project phase.
- Probability: The effect is highly unlikely to occur.
- Consequence (Adverse): Very short term, recoverable effect on the behaviour and/or distribution in a very small proportion of the population. No potential for any changes in the individual reproductive success or survival therefore no changes to the population size or trajectory.
- Consequence (Beneficial): Very minor benefit to the habitat influencing foraging efficiency of a limited number of individuals.

7.1.6 It is concluded that an impact with Negligible magnitude would not give rise to a disturbance effect. It is highlighted that the probability of an impact with Negligible magnitude is highly unlikely to occur. Whilst a small change may be observed at the individual level, the duration is expected to be very short term and highly localised, with no potential for any long-term effect on the individual or population.

7.1.7 The determination of a Negligible magnitude is applicable to Impact 1 (Auditory injury as a result of geophysical surveys), Impact 5 (Auditory injury as a result of foundation piling activity), Impact 7 (Other construction activities, insofar as they relate to auditory injury/PTS), and Impact 10 (Changes in prey availability and distribution (construction)).

7.1.8 In order for the sensitivity to be determined as Negligible, the following must be true:

- Receptor is able to adapt behaviour so that individual survival and reproduction rates are not affected.
- Receptor is able to tolerate the effect without any impact on individual reproduction and survival rates.
- Receptor is able to return to previous behavioural states/activities once the impact has ceased.

7.1.9 It is concluded that an impact with Negligible sensitivity would not give rise to a disturbance effect. Whilst a small change may be observed in an individual's behaviour, the change is expected to be fully recoverable. The individual's response would be to adapt behaviour or tolerate the change so that there is no impact on the individual's reproduction and survival rates.

7.1.10 The determination of a Negligible sensitivity is applicable to Impact 9 (Increases in suspended sediment concentration (construction)).

Impacts concluded to potentially cause disturbance

7.1.11 It is concluded that all impact pathways that have been determined as of Slight impact significance or higher in the EIAR, could potentially give rise to disturbance to Annex IV cetacean species. It is highlighted that the determination of impact significance in the EIAR has taken into account the protection measures, and as such reflects the residual impact significance.

7.1.12 In order for an impact to be determined as having Slight impact significance, both the magnitude of the impact and the sensitivity of the receptor to the assessment must be higher than Negligible i.e. Low or higher.

7.1.13 The consequence (Adverse) of a Low magnitude impact is defined as short-term and/or intermittent and temporary behavioural effects in a small proportion of the population. A receptor having Low sensitivity is defined as a) having the ability to adapt behaviour so that individual reproduction rates may be affected but survival rates not likely to be affected; b) some tolerance – effect unlikely to cause a change in both individual reproduction and survival rates and c) ability for the animal to recover from any impact on vital rates (reproduction and survival rates).

7.1.14 Therefore, a conclusion of Slight impact significance reflects that (at a minimum) a behavioural effect in a small proportion of the population is anticipated, and that the receptor is sensitive to that effect insofar as it may affect individual reproduction rates i.e. there is a potential consequence of the impact at the individual level, though this is recoverable. Hence it is considered that this could comprise disturbance.

7.1.15 The determination of Slight impact significance is applicable to Impact 2 (Behavioural disturbance from geophysical surveys (SBP, UHRS and USBL)), Impact 6 (Behavioural displacement and disturbance from foundation piling activity) and Impact 7 (Other construction activities, insofar as they relate to disturbance).

7.1.16 This conclusion reflects that, although an impact may be determined as having no significant adverse residual effects (in EIA terms), this does not necessarily preclude the likelihood of disturbance occurring to individuals of Annex IV species.

Conclusion

7.1.17 With regards to construction, it is concluded that there is a risk the proposed development could disturb individuals of Annex IV species, taking into consideration the protection measures incorporated into the project. Accordingly, on a precautionary basis, and without prejudice to the Applicant's view that any disturbance occurring is not 'deliberate' within the meaning of Article 16b(2) of the Renewable Energy Directive as amended, as explained in the legal opinion prepared by Senior Counsel that accompanies this application, the Applicant has decided to apply for a derogation licence in respect of certain construction activities. Namely, geophysical surveys (SBP, UHRS and USBL), foundation piling, and other construction activities such as cable laying, dredging, drilling, cable trenching, rock placement, and vessel noise.

8 Legal Test

8.1 Overview

8.1.1 In order to demonstrate that an activity is entitled to a Derogation Licence, applicants and their applications must demonstrate how they comply with each limb of the legal test.

8.1.2 The three limbs of the legal tests are as follows:

- There is no satisfactory alternative;
- The derogation is not detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range;
- The derogation licence is:
  - In the interests of protecting wild fauna and flora and conserving natural habitats; OR
  - To prevent serious damage, in particular crops, livestock, forests, fisheries and water and other types of property; OR
  - In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment; OR
  - For the purpose of research and education, of repopulating and re-introducing these species and for the breeding operations necessary for these purposes, including the artificial propagation of plants; OR
  - To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species to the extent specified therein, which are referred to in the First Schedule.

8.1.3 It is considered that the Applicant complies with each limb of the test, as demonstrated below, and interpreted in light of the legal opinion prepared by Senior Counsel that accompanies this application.

8.2 No Satisfactory Alternative

8.2.1 The following analysis in relation to the absence of satisfactory alternatives is without prejudice to the Applicant's view that any disturbance occurring is not 'deliberate', within the meaning of Article 16b(2) of the Renewable Energy Directive as amended, as explained in the legal opinion prepared by Senior Counsel that accompanies this application. In the event NPWS were to disagree with this, then the following analysis should be considered.

What is a Satisfactory Alternative?

8.2.2 The term "satisfactory alternative" in Article 16(1) was interpreted by Lindblom K. in the case of *R. (on the application of Prideaux) v Buckinghamshire County Council* [2013] EWHC 1054 in the following manner:

> *"To be satisfactory an alternative has to be a real option, not merely a theoretical one … Judging what is, or may be, a satisfactory alternative in a particular case requires a focus on what is sought to be achieved through the derogation, and on the likely effects of the works on the species in question."*

8.2.3 In relation to what is sought to be achieved through the derogation, the Advocate General set out the following test in the case of *Luonnonsuojeluyhdistys Tapiola Pohjois-Savo – Kainuury v Risto Mustonen* (C-674/17) (EU:C:2019:394),

> *A Member State must*
>
> *a) identify clearly and precisely in the derogation decision the objectives being pursued by means of the derogation,*
>
> *b) establish that the derogation is capable of achieving those objectives and*
>
> *c) demonstrate that there is no alternative means of achieving them.*

8.2.4 This test was echoed by the European Commission's observations submitted to the CJEU in the context of the preliminary reference made by the High Court of Ireland in the case of *Alice O'Donnell v An Bord Pleanála* [2023] IEHC 715 (Case C-58/24) which is pending. In particular, the Commission submitted as follows:

> *[…] it is necessary to ascertain that there is no satisfactory alternative. Such assessment can be understood as having three parts. First, it is necessary to consider the problem or specific situation that needs to be addressed. Secondly, it is necessary to determine whether there any other solutions and thirdly, if so, whether these solutions address the problem.*

8.2.5 Separately, Regulation EU 2022/2577 laying down a framework to accelerate the deployment of renewable energy (the "**Renewable Energy Regulation**"), as amended by Council Regulation (EU) 2024/223 of 22 December 2023, provides as follows:

- Article 3a(1) - *When assessing whether there are no satisfactory alternative solutions to a project for a plant or installation for the production of energy from renewable sources and its connection to the grid for the purposes of Articles 6(4) and 16(1) of Directive 92/43/EEC, Article 4(7) of Directive 2000/60/EC and Article 9(1) of Directive 2009/147/EC, this condition may be considered as being fulfilled if there are no satisfactory alternative solutions capable of achieving the same objective of the project in question, notably in terms of development of the same renewable energy capacity through the same energy technology within the same or similar timeframe and without resulting in significantly higher costs.*

What is sought to be achieved through the Derogation Licence Application?

8.2.6 Insofar as the proposed development is concerned, for the purpose of ascertaining whether there is a satisfactory alternative, we have set out below what is sought to be achieved through this derogation licence application, applying the above tests and considerations.

a) The objective being pursued by means of the derogation is the lawful construction of an offshore wind farm with a renewable energy capacity of approximately 824 megawatt (MW).

b) The derogation licence is capable of achieving this objective by providing to the Applicant an authority on which it is lawful to construct the proposed development (which will achieve the above objective) in circumstances where there is a risk of disturbance to an Annex IV species and accordingly the commission of a criminal offence. Any derogation licence granted would also ensure the implementation of appropriate and necessary mitigation measures.

c) There is no alternative means of achieving this objective. Without the derogation licence, the proposed development could not lawfully proceed, nor could the objectives of the project be achieved, in terms of the delivery of approximately 824MW of offshore wind renewable energy. Notably, through the same energy technology, within the same or similar timeframe and without resulting in significantly higher costs. In particular, having regard to maritime area planning in Ireland and the process surrounding how maritime area consents are granted, and the delays that would be caused if the derogation licence application were refused.

Assessment of Satisfactory Alternatives

8.2.7 Next, bearing in mind the above objective, we consider whether there are any satisfactory alternatives to the derogation licence. This information should be read in conjunction with the detailed consideration of alternatives that is available to view within *Volume 2, Chapter 5: Marine Mammals* of the EIAR.

Pre-planning Consideration of Alternatives and Project Design

8.2.8 As noted in the Environmental Protection Agency (EPA) '*Guidelines on the information to be contained in Environmental Impact Assessment Reports*' published May 2022 (EPA Guidelines, 2022), the avoidance of environmental effects is principally achieved by consideration of alternatives. "*The objective is to adopt the combination of options that presents the best balance between avoidance of significant adverse environmental effects and achievement of the objectives that drive the project*". The proposed development has adopted this approach, having spent a significant amount of time considering different design options and altering the chosen design prior to finally deciding to proceed with this project. Alternatives were identified at many stages during the evolution of the project, from project concept to identifying site locations, site layouts, suitable technologies and procedures, with a view to avoiding, preventing and reducing effects on Annex IV species.

8.2.9 Indeed, the proposed development incorporates a range of project design features, avoidance and prevention measures, and additional mitigation measures, as referred to in Section 6 of this licence application, which are for the purpose of avoiding, preventing or reducing likely significant effects on the environment, significant adverse effects on European Sites and potential impacts on Annex IV species. Insofar as potential disturbance of Annex IV species is concerned, the Applicant is satisfied that all necessary and appropriate measures have been incorporated into the proposed development. The measures are identified throughout the EIAR chapters and consolidated in the Applicant's *Volume 8, Chapter 2: Schedule of Commitments*.

8.2.10 In both respects, the Applicant is satisfied that the proposed development is suitably optimised and that there is no satisfactory alternative to the derogation licence, having regard to the objective of the project and objective of this derogation licence.

8.2.11 Notwithstanding this, the Applicant has engaged in a detailed consideration of alternatives as part of the EIAR (see *Volume 2, Chapter 5 Consideration of Alternatives*) that accompanies the planning application. The Applicant requests that NPWS consult this for full details of the alternatives considered and that NPWS incorporate this information into its assessment as to whether there is a satisfactory alternative to granting this derogation licence.

Site selection

8.2.12 The original site selection, site-specific surveys, and associated assessments confirmed the suitability of the Kish and Bray Banks for the construction of an offshore wind farm, initially targeting a generating capacity of up to 900 MW. Key site selection criteria included technology limitations, water depth, distance from shore, metocean conditions, wind speed, shipping and navigation considerations, proximity to grid, environmental designations and ecologically sensitive areas.

8.2.13 As further detailed within *Volume 2, Chapter 5: Consideration of Alternatives*, a desktop study by Saorgus identified five potential offshore development areas for further assessment in the Irish Sea: Codling Bank, India Bank, Arklow Bank, Blackwater Bank, and Kish and Bray Banks. Kish and Bray Banks were subsequently identified as the preferred location due to minimal overlap with designated environmental sites, the proximity to areas of high electricity demand, favourable site conditions and avoidance of significant shipping routes.

8.2.14 In addition to the information presented in Volume 2, Chapter 5: Consideration of Alternatives, alternatives have been considered in the context of this derogation application and Annex IV species. The species for which this derogation application is being sought (as detailed in Section 3) are present throughout the Irish Sea and around the coast of Ireland. Whilst the density of this species may vary spatially, it is likely that any proposed development comprising underwater construction activities likely to generate similar underwater noise energy to the proposed development would also risk disturbance to the same species (as a minimum) irrespective of its location in Irish waters.

8.2.15 The location of the proposed development would also not affect the potential for overlap with resting and breeding habitats; as these habitats effectively occur wherever the species is present in summer, which applies throughout Irish waters.

8.2.16 It is also the case that the proposed development has minimal overlap with SACs designated for cetaceans that occur on both Annex II and Annex IV; specifically a 0.16 km^2 overlap (which is limited to a short section of one of the two proposed offshore ECCs only) with the Rockabill to Dalkey Island SAC.

8.2.17 Furthermore, the Marine Protected Area (MPA) Report (2020) provides a framework for identifying zones where MPAs can be established to protect ecologically sensitive habitats, such as important fish breeding grounds and marine mammal habitats, to ensure biodiversity preservation. It also assessed spatial overlap and ecosystem functioning, including interactions between priority areas and the Natura 2000 network of European sites (including candidate sites), to ensure ecological coherence and mutual benefits. The proposed Dublin Array development site in its entirety avoids priority areas identified for future MPA designation or legal protection.

8.2.18 Therefore, it is the author's view that there is no alternative to the proposed site selection that would obviate the potential risk of disturbance and therefore the potential for a derogation licence to be needed.

8.2.19 Finally, the proposed development boundary defined in this derogation licence application represents the most viable form of this development, considering environmental, engineering, operational, regulatory, and commercial factors.

Having regard to all of these reasons, as set out within *Volume 2, Chapter 5: Consideration of Alternatives* and this derogation licence application, it is concluded that there is no satisfactory alternative to this derogation licence from the perspective of project location.

Design/technology selection

8.2.20 In determining the parameters of reasonable and feasible alternative designs and alternative technologies, there are certain regulatory, technological, environmental, physical, and financial constraints that apply. Alternatives in relation to the following were considered:

- Fixed Bottom Wind Turbine Technology;
- Floating wind technology;
- WTG models;
- Minimum blade tip clearance;
- Numbers of WTG, offshore substation and Array layout;
- OSP layouts;
- Foundation options;
- Electricity transmission grid connection locations;
- Landfall options and submarine export cable corridors;
- Onshore substation options;
- Onshore cable corridor options;
- Operations and Maintenance base.

8.2.21 With respect to Annex IV species, the selection process has taken into consideration the impact on relevant receptors. Having done so, it concluded that there are no satisfactory alternatives. The final project design and construction methodology chosen also represents the most viable form of this development.

8.2.22 It is considered that the risk of some level of disturbance, and thereby the potential need for a derogation licence if such disturbance is considered deliberate, would always arise for a development of this nature in this maritime area, even with appropriate project design features and other measures to reduce the extent of underwater noise. This applies to all the construction activities that a derogation licence is being sought for, namely geophysical surveys, foundation piling, and other construction activities (see Section 7). Specifically, even if the alternative methods outlined in the ADO were used for these construction activities, there would still be a risk of a level of disturbance that could potentially be deemed deliberate and that would necessitate an application for a derogation licence on a precautionary basis. Furthermore, there are no additional mitigation measures which would remove such need for a derogation licence.

Summary

8.2.23 It is concluded, on the basis of the information contained in this application and within the *Volume 2, Chapter 5: Consideration of Alternatives* of the EIAR, that there are no satisfactory alternative solutions to the derogation licence which are capable of achieving the objective in question. Notably, the lawful construction of an offshore wind farm with a renewable energy capacity of approximately 824 MW, using the energy technologies that are detailed within the *Volume 2, Chapter 6: Project Description* of the EIAR, without resulting in significantly higher costs than are budgeted, to contribute to the Government of Ireland's target of at least 5 GW of offshore wind by 2030.

8.3 Maintenance of populations at Favourable Conservation Status

What is Favourable Conservation Status?

8.3.1 Pursuant to Article 1(i) of the Habitats Directive, conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term natural distribution and abundance of its populations within the territory. The conservation status will be taken as 'favourable' when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable element of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Assessment in relation to Favourable Conservation Status

8.3.2 The following sections will address each of the above parameters and demonstrate how the construction activities which are the subject of this derogation licence application, for which the risk of disturbance could not be excluded, and any derogation licence itself if granted, will not alter or deteriorate the conservation status of the relevant Annex IV species, which is currently regarded as being favourable.

8.3.3 All cetacean species are assessed as having an overall Favourable Conservation Status in Irish waters (NPWS, 2019). Harbour porpoise, common dolphin, bottlenose dolphin and minke whale were all assessed as having a favourable range, population, habitat for the species, and future prospects (NPWS, 2019).

Geophysical surveys

8.3.4 Harbour porpoise may experience disturbance caused by geophysical surveys over a distance of up to 2.5 km (BEIS, 2020), which is based on modelling of a broad range of SBP equipment, as such this estimated impact radius is considered precautionary. The BEIS (2020) study concluded that there was a low risk of harbour porpoise being physically disturbed by SBPs. The same is assumed for all marine mammal species, and thus the magnitude of the impact was assessed as Low (adverse) in the EIAR.

8.3.5 It is extremely difficult to predict the number of animals that could be disturbed by the geophysical surveys, after the application of project design features and avoidance or preventative measures. As stated in the EIAR *Volume 3, Chapter 5: Marine Mammals*, there are uncertainties relating to the ability to predict the exposure of animals to underwater noise, as well as predicting the response to that exposure. Furthermore, given the high spatial and temporal variation in marine mammal abundance and distribution in any particular area of the sea, it is difficult to predict how many animals may be present within the range of noise impacts (and so could experience disturbance). Detail of such uncertainty is presented in Section 5.9 of the EIAR *Volume 3, Chapter 5: Marine Mammals*. Consequently, the EIAR *Volume 3, Chapter 5: Marine Mammals* does not present the residual number of animals that may be affected. Whilst the precise number of animals disturbed may not be quantifiable, the overall residual magnitude is assessed as Low.

8.3.6 A Low magnitude reflects that a behavioural effect is anticipated in a very low/small proportion of the population. This is because the range over which an effect may occur is very small, meaning that few animals are likely to be within the range of the effect (considering the predicted densities in the project area). The consequence of the effect is determined to be negligible i.e. very short term, recoverable effect on the behaviour and/or distribution in a very small proportion of the population. There is no potential for any changes in the individual

reproductive success or survival therefore no changes to the population size or trajectory.

8.3.7 It is highlighted that for the purpose of the EIAR, the population is defined as the relevant MU, which is a subset of the population in their natural range delineated for management purposes. In contrast, the FCS test, for the purpose of this derogation licence application, refers to the populations in their natural range. The natural range of the relevant cetacean species to this licence application (harbour porpoise, bottlenose dolphin, minke whale, and common dolphin) is significantly greater than their respective MUs. Therefore, applying the conclusion of the EIAR to this derogation licence application adopts a highly precautionary approach.

8.3.8 In the EIAR, behavioural displacement and disturbance from geophysical surveys are determined to have slight impact significance, which is not significant in EIA terms. This determination takes into account the project design features and avoidance or preventative measures. Geophysical surveys will be undertaken in accordance with the Geophysical Survey MMMP, which outlines procedures including a pre-survey MMO watch. Further, no significant adverse residual effects have been predicted in respect to Annex IV cetacean species.

8.3.9 It can therefore be concluded that:

- Disturbance from geophysical surveys will not affect the maintenance of the species on a long term basis as a viable component of its natural habitat, as no changes to the population size or trajectory have been predicted.
- Disturbance from geophysical surveys will not reduce nor is likely to reduce the natural range of the species for the foreseeable future, as any change in distribution is predicted to be very short term and recoverable, and would only affect a very small proportion of the population.
- Disturbance from geophysical surveys will not affect the maintenance of a sufficiently large habitat to maintain the populations on a long term basis, as any effects are very short term and recoverable.

8.3.10 As a result, the derogation licence with regards the potential risk of disturbance from the geophysical surveys will not be detrimental to the maintenance of FCS for the populations of the species in their natural range to which the Habitat Directive relates to (i.e. Annex IV cetacean species).

Foundation piling activity

8.3.11 A dose response approach has been used to calculate the likely number of animals within the disturbance area from piling activity (Table 13). This is available to view at *Volume 3, Chapter 5: Marine Mammals.* Based on the highest density estimates for harbour porpoise, less than 1.6% of the MU population may be disturbed from each piling event, equivalent to up to 995 individuals. Based on the density estimates for bottlenose dolphin, up to 8.4% of the MU population may be disturbed from each piling event, equivalent to up to 699 individuals. Based on the

density estimates for common dolphin and minke whale less than 1% of the MU populations may be disturbed from each piling event, equivalent to 81 individuals and 57 individuals, respectively.

8.3.12 Level B harassment thresholds were also used to assess disturbance, for bottlenose dolphin, common dolphin, and minke whale (Table 14). Based on the density estimates for bottlenose dolphin ~1% of the MU population may be disturbed from each piling event, equivalent to 85 individuals. For common dolphin and minke whale, less than 1% may be disturbed from each piling event, equivalent to 12 and 7 individuals, respectively.

8.3.13 It is acknowledged that, whilst these numbers have been presented for assessment purposes, it is extremely difficult to predict the number of animals that may be disturbed by the piling activity after the application of project design features and avoidance or preventative measures. As stated in the EIAR *Volume 3, Chapter 5: Marine Mammals*, there are uncertainties relating to the ability to predict the exposure of animals to underwater noise, as well as in predicting the response to that exposure. Furthermore, given the high spatial and temporal variation in marine mammal abundance and distribution in any particular area of the sea, it is difficult to predict how many animals may be present within the range of noise impacts (and so could experience disturbance). Detail of such uncertainty is presented in Section 5.9 of the EIAR *Volume 3, Chapter 5: Marine Mammals*. Consequently, the EIAR *Volume 3, Chapter 5: Marine Mammals* does not present the residual number of animals that may be affected. Whilst the precise number of animals disturbed may not be quantifiable, the overall residual magnitude is assessed as Low (for harbour porpoise, common dolphin and minke whale) to Medium (for bottlenose dolphin).

8.3.14 A Low magnitude reflects that a behavioural effect is anticipated in a low/small proportion of the population. Using the worst-case density estimate and maximum effect range, a maximum of 1.59% of the harbour porpoise MU population, 0.08% of the common dolphin MU population, and 0.28% of the minke whale MU population is expected to experience disturbance per piling day. The consequence of the effect is determined to be low and so unlikely to cause any long-term or population effect. For harbour porpoise, this was specifically demonstrated through iPCoD modelling. For minke whale, their lack of presence outside of the summer months was also considered in this determination.

8.3.15 A Medium magnitude reflects that a behavioural effect is anticipated in a medium proportion of the population. To note, in the bottlenose dolphin assessment, a medium proportion (maximum of 8.40% of the MU population) was predicted when using the dose-response approach and the worst-case density estimate, whereas a low proportion (maximum of 1.03% of the MU population) was predicted when using the Level B harassment approach and the worst-case density estimate. Therefore, the assumption of a medium proportion for this assessment should be considered as precautionary. The consequence of the effect is determined to be low and so unlikely to cause any long-term or population effect, which was demonstrated through iPCoD modelling for bottlenose dolphin.

8.3.16 It is highlighted that for the purpose of the EIAR the population is defined as the relevant MU, which is a subset of the population in their natural range delineated for management purposes. In contrast, the FCS test, for the purpose of this derogation licence application, refers to the populations in their natural range. The natural range of the relevant cetacean species to this licence application (harbour porpoise, bottlenose dolphin, minke whale, and common dolphin) is significantly greater than their respective MUs. Therefore, applying the conclusion of the EIAR to the derogation licence application adopts a highly precautionary approach.

8.3.17 Behavioural displacement and disturbance from foundation piling activity is determined to have slight impact significance, which is not significant in EIA terms. This determination takes into account the project design features and avoidance or preventative measures. In particular, foundation piling activity will be undertaken in accordance with the piling MMMP and the use of at-source noise mitigation methods. Further, no significant adverse residual effects have been predicted in respect to Annex IV cetacean species.

8.3.18 It can therefore be concluded that:

- Disturbance from foundation piling activity will not affect the maintenance of the species on a long-term basis as a viable component of its natural habitat, as no changes to the population size or trajectory over a generational scale have been predicted.
- Disturbance from foundation piling activity will not reduce nor is likely to reduce the natural range of the species for the foreseeable future, as any change in distribution is predicted to be temporary, and would affect up to a medium proportion of the population which is not enough to affect the population trajectory.
- Disturbance from foundation piling activity will not affect the maintenance of a sufficiently large habitat to maintain the populations on a long-term basis, as any effects are temporary and not enough to affect the population trajectory.

8.3.19 As a result, the derogation licence with regards to disturbance from the foundation piling activity will not be detrimental to the maintenance of FCS for the populations of the species in their natural range to which the Habitat Directive relates to (i.e. Annex IV cetacean species).

Other construction activities

8.3.20 Cetaceans may experience disturbance caused by other construction activities over a distance of up to 5 km (Verboom, 2014). This distance is precautionary and applies to drilling and dredging activities; other construction activities such as cable laying, trenching or rock placement may only lead to highly localised impacts (Todd *et al.,* 2020). Disturbance from vessel noise is also predicted to occur up to

5 km. Therefore, the magnitude of the impact was assessed as Low (adverse) in the EIAR *Volume 3, Chapter 5: Marine Mammals*.

8.3.21 It is extremely difficult to predict the number of animals that may be disturbed by the other construction activities after the application of project design features and avoidance or preventative measures. As stated in the EIAR *Volume 3, Chapter 5: Marine Mammals*, there are uncertainties relating to the ability to predict the exposure of animals to underwater noise, as well as in predicting the response to that exposure. Furthermore, given the high spatial and temporal variation in marine mammal abundance and distribution in any particular area of the sea, it is difficult to predict how many animals may be present within the range of noise impacts (and so could experience disturbance). Detail of such uncertainty is presented in Section 5.9 of the EIAR *Volume 3, Chapter 5: Marine Mammals*. Consequently, the EIAR *Volume 3, Chapter 5: Marine Mammals* does not present the residual number of animals that may be affected. Whilst the precise number of animals disturbed may not be quantifiable, the overall residual magnitude is assessed as Low.

8.3.22 A Low magnitude reflects that a behavioural effect is anticipated in a low/small proportion of the population. The consequence of the effect is determined to be low i.e. local scale, intermittent disturbance, which is unlikely to result in impacts on individual survival or reproductive rates. As there is no potential for any changes in the individual reproductive success or survival, no changes to the population size or trajectory are predicted.

8.3.23 It is highlighted that for the purpose of the EIAR the population is defined as the relevant MU, which is a subset of the population in their natural range delineated for management purposes. In contrast, the FCS test, for the purpose of this derogation licence application, refers to the populations in their natural range. The natural range of the relevant cetacean species to this licence application (harbour porpoise, bottlenose dolphin, minke whale, and common dolphin) is significantly greater than their respective MUs. Therefore, applying the conclusion of the EIAR to this derogation licence test adopts a highly precautionary approach.

8.3.24 Behavioural displacement and disturbance from other construction activities are determined to have slight impact significance, which is not significant in EIA terms. This determination takes into account the project design features and avoidance or preventative measures. Further, no significant adverse residual effects have been predicted in respect to Annex IV cetacean species.

8.3.25 It can therefore be concluded that:

- Disturbance from other construction activities will not affect the maintenance of the species on a long-term basis as a viable component of its natural habitat, as no changes to individual survival or reproductive rates, and so the population size or trajectory, have been predicted.

- Disturbance from other construction activities will not reduce nor is likely to reduce the natural range of the species for the foreseeable future, as any change in distribution is predicted to be local scale, and would only affect a low/small proportion of the population.
- Disturbance from other construction activities will not affect the maintenance of a sufficiently large habitat to maintain the populations on a long-term basis, as any effects are local scale and intermittent.

8.3.26 As a result, the derogation licence with regards to disturbance from the other construction activities will not be detrimental to the maintenance of FCS for the populations of the species in their natural range to which the Habitat Directive relates to (i.e. Annex IV cetacean species).

8.4 Imperative reasons of overriding public interest ("IROPI")

8.4.1 Where there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range, a derogation licence can only be granted if it meets a specific purpose. Namely, one of the following purposes:

a) In the interests of protecting wild fauna and flora and conserving natural habitats;

b) To prevent serious damage, in particular crops, livestock, forests, fisheries and water and other types of property;

c) In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment;

d) For the purpose of research and education, of repopulating and re-introducing these species and for the breeding operations necessary for these purposes, including the artificial propagation of plants; or

e) To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species to the extent specified therein, which are referred to in the First Schedule.

Relevant IROPI Ground

8.4.2 The purpose for which this derogation licence application is being sought is set out in subsection (c), namely the derogation licence is in the interests of public health and public safety, or for other imperative reasons of overriding public interest [IROPI], including those of a social or economic nature and beneficial consequences of primary importance for the environment.

8.4.3 As stated in the European Commission's Guidance on Article 6.4 of the Habitats Directive, Imperative Reasons of Overriding Public Interest ("**IROPI**") refer to situations where plans or projects prove to be *indispensable* (European Commission, 2007b). In particular, the plan or project is:

- within the framework of actions of policies aiming to protect fundamental values for the citizens' life (health, safety and environment);
- within the framework of fundamental policies for the State and Society;
- within the framework of carrying out activities of economic or social nature, fulfilling specific obligations of public service.

8.4.4 The proposed development, once constructed, will represent a critical proportion of the State's renewable energy capacity, and it will contribute to achieving the Government of Ireland's target of at least 5 GW of offshore wind target by 2030. Indeed, it will produce approximately 824 MW of renewable energy. For a detailed analysis of the policies in place nationally and at a European level that support the project, the Applicant refers NPWS to *Volume 2, Chapter 2, Consents, Policy, Legislation and Guidance*. In summary, the following are of note:

National Marine Planning Framework

8.4.5 The proposed development aligns closely with Ireland's National Marine Planning Framework (NMPF), which is the country's first comprehensive marine spatial plan. Published in 2021, the NMPF sets the policy framework for the sustainable use of Ireland's marine resources and supports the development of offshore renewable energy as a critical component of Ireland's decarbonisation pathway. The proposed development's alignment with the NMPF Is comprehensively demonstrated in the Planning Report included in Part 1B Planning Report of the planning application.

European Climate and Energy Targets

8.4.6 At the European level, policies such as the European Green Deal and RED III drive the expansion of renewable energy across member states. The European Union has set a binding target of achieving at least 42.5% renewable energy by 2030, with individual national targets contributing to this overarching goal. The European Climate Law further enshrines in legislation the goal of net-zero emissions by 2050, providing a clear timeline and set of objectives for the decarbonisation of the energy sector. Offshore wind energy, due to its scalability and technological maturity, is positioned as a key enabler of these targets.

8.4.7 Ireland, as part of its contribution to the EU's climate and energy ambitions, has committed to generating at least five gigawatt of offshore wind capacity by 2030, a goal that is central to the government's Climate Action Plan and other key policy documents such as the Programme for Government: Our Shared Future. The proposed development is one of four projects which succeeded in securing contracted capacity in Ireland's first offshore renewable energy support scheme (ORESS 1) and is accordingly an integral contributor to Ireland achieving this target, adding approximately 824 MW of renewable energy, or about 16% of the national goal for 2030.

Rebuttable Presumption of IROPI Status

8.4.8 Notwithstanding these logical reasons as to why the proposed development, and derogation licence, can be said to be IROPI, on the basis that it is in the interests of public health and public safety, EU law specifically presumes this to be the case in respect of the planning, construction and operation of renewable energy plants, the connection of such plants to the grid, the related grid itself, and storage assets, unless this presumption is successfully rebutted. In particular, Article 16f of the Renewable Energy Directive, as amended by RED III, which states as follows:

- *By 21 February 2024, until climate neutrality is achieved, Member States shall ensure that, in the permit-granting procedure, the planning, construction and operation of renewable energy plants, the connection of such plants to the grid, the related grid itself, and storage assets are presumed as being in the overriding public interest and serving public health and safety when balancing legal interests in individual cases for the purposes of Article 6(4) and Article 16(1), point (c), of Directive 92/43/EEC, Article 4(7) of Directive 2000/60/EC and Article 9(1), point (a), of Directive 2009/147/EC. […]*[‡]

8.4.9 This provision and its applicability to the derogation licence process is more fully addressed in the legal opinion prepared by Senior Counsel that accompanies this application.

[‡] The predecessor to this provision is Article 3(1) of Regulation EU 2022/2577 laying down a framework to accelerate the deployment of renewable energy. This provision has now expired. Article 3(1) provided as follows: *the planning, construction and operation of plants and installations for the production of energy from renewable sources, and their connection to the grid, the related grid itself and storage assets shall be presumed as being in the overriding public interest and serving public health and safety when balancing legal interests in the individual case, for the purposes of Article 6(4) and Article 16(1)(c) of the Habitats Directive, Article 4(7) of the Water Framework Directive and Article 9(1)(a) of the Birds Directive*.

Appropriate species conservation measures

8.4.10 In the event the rebuttable presumption becomes a determining factor in NPWS' consideration of this application, and the presumption is not rebutted, then the following confirmations will assist NPWS in satisfying itself as to whether the derogation licence should be granted:[§]

a) All cetacean species are assessed as having an overall favourable conservation status in Irish waters (NPWS, 2019). Harbour porpoise, common dolphin, bottlenose dolphin and minke whale were all assessed as having a favourable range, population, habitat for the species, and future prospects (NPWS, 2019).

b) The appropriate species conservation measures are incorporated into the proposed project, and into this derogation licence application. They are outlined in Section 6, and in detail in Table 19. These include project design features and mitigation measures.

c) These species conservation measures will contribute to the maintenance of the relevant Annex IV species (harbour porpoise, bottlenose dolphin, minke whale and common dolphin) at a Favourable Conservation Status.

d) The Applicant has satisfied itself that there are sufficient financial resources as well as areas available to implement those measures.

Reliance on Public Health and Public Safety IROPI Ground

8.4.11 In any event, regardless of the applicability of the rebuttable presumption, there is sufficient reasoning set out in this application, and the EIAR, as to why the proposed development, and accordingly the grant of this derogation licence, is IROPI and in the interests of public health and public safety. On this basis, the Applicant fulfils the third limb of the test for a derogation licence.

8.5 Fulfilment of the Legal Test

8.5.1 Having regard to the foregoing analysis, and the additional information within the planning application that has been referred to throughout this application, it is considered that the Applicant complies with each limb of the test in respect of the grant of this derogation licence. In particular,

- There is no satisfactory alternative;

[§] Article 3(2) of Regulation EU 2022/2577 laying down a framework to accelerate the deployment of renewable energy provides as follows: "*Concerning species protection, the first subparagraph (i.e. the deemed IROPI provision) shall only apply if and to the extent that appropriate species conservation measures contributing to the maintenance or restoration of the populations of the species at a favourable conservation status are undertaken and sufficient financial resources as well as areas are made available for that purpose.*" The first subparagraph referred to is Article 3(1) of Regulation EU 2022/2577, as referred to in the previous footnote, which is now expired. However, Article 3(2) remains in force today.

- The derogation is not detrimental to the maintenance of the populations of the relevant Annex IV cetacean species at a favourable conservation status in their natural range; and
- The derogation licence is in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.

8.5.2 In the event NPWS finds any disturbance that may occur is 'deliberate' within the meaning of Article 16b(2) of the Renewable Energy Directive as amended, it is considered that NPWS should grant this derogation licence. Again, this should be considered having regard to the legal opinion prepared by Senior Counsel that accompanies this application.

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Re: Dublin Array Project

Introduction and Scope

1. I have been asked to address the relevance of recent EU legislative developments in the context of a proposed application for a derogation licence for the Dublin Array project.

2. I am instructed that the proposed development includes the development of offshore wind turbine generators ("**WTGs**"), inter-array cabling, an offshore substation platform ("**OSP**") in the Array Area, export cables within an Offshore Export Cable Corridor ("**Offshore ECC**"), onshore electrical infrastructure, as well as the development of an operations and maintenance base ("**O&M Base**") in the harbour of Dún Laoghaire.

3. The purpose of this opinion is to inform the National Parks and Wildlife Service ("**NPWS**") which is the national competent authority for considering applications for derogation licences under the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No.477 / 2011), as amended (the "**2011 Regulations**").

4. Separately, I understand that the planning application for the Dublin Array project will be made to An Bord Pleanála (the "**Board**") under s.291 of the Planning and Development Act 2000, as amended (the "**2000 Act**") and that the Board will be informed of the outcome of the derogation licence process so that it can then take whatever steps it considers necessary in relation to the planning application. If NPWS grants the derogation licence, a copy will be provided to the Board for consideration so that it can refer to the derogation licence in its reasoned conclusion as part of the Environmental Impact Assessment ("**EIA**") process and Appropriate Assessment ("**AA**") determination and as part of its assessment of compliance with Biodiversity Policy 4 of the National Marine Planning Framework ("**NMPF**").

5. I am also instructed that the application to NPWS is being made on a precautionary basis and without prejudice to the position that it is not required, as any disturbance to marine mammals as a result of the proposed development is not "deliberate" within the meaning of Article 12(1)(b) of the Habitats Directive, and Article 51(2)(b) of the 2011 Regulations.

6. I will address this issue first before then turning to the implications of the recent EU legislative developments for the derogation process.

Interpretation of Article 12 of the Habitats Directive

7. Articles 12 and 16 of the Habitats Directive are transposed into Irish law by the 2011 Regulations. As the 2011 Regulations give effect to the Habitats Directive, they should be strictly construed.[1]

8. Regulation 54(2) of the 2011 Regulations, which gives effect to Article 16(1) of the Habitats Directive, states that a derogation licence may be granted:

   (a) in the interests of protecting wild fauna and flora and conserving natural habitats;
   (b) to prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property;
   (c) in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment;
   (d) for the purpose of research and education, of repopulating and re-introducing these species and for the breeding operations necessary for these purposes, including the artificial propagation of plants; or

[1] In ***Commission of the European Communities v Republic of Finland*** (C-342/05) (ECLI:EU:C:2007:341), i.e. the Finnish Wolves case, it was noted that, since Article 16 provides for exceptional arrangements which must be interpreted strictly and imposes the burden of proving that the necessary conditions are present for each derogation on the authority allowing the derogation, Member States are required to ensure that all action affecting the protected species is authorised only on the basis of decisions containing a clear and sufficient statement of reasons which refers to the reasons, conditions and requirements laid down in art.16(1): see also ***Luonnonsuojeluyhdistys Tapiola Pohjois-Savo – Kainuu ry v Risto Mustonen and Others*** (C-674/17) (EU:C:2019:851), at §30.

(e) to allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species to the extent specified therein, which are referred to in the First Schedule to the 2011 Regulations.

9. In addition, Regulation 54(2) requires that the competent authority must be satisfied that there is no satisfactory alternative, and the derogation is not detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a Favourable Conservation Status ("**FCS**") in their natural range.

10. As stated in the application itself, the purpose for which the derogation licence is being sought is that it is in the interests of public health and public safety, or for other imperative reasons of overriding public interest ("**IROPI**"), including those of a social or economic nature and beneficial consequences of primary importance for the environment. The stated basis for this is that the proposed development, once operational, will represent a critical proportion of the State's renewable energy capacity, and it will contribute to achieving the Government of Ireland's target of at least 5GW of offshore wind target by 2030[2].

11. Article 16b(2) of the 2018 Renewable Energy Directive[3], as inserted by the RED III Directive[4], states that where a renewable energy project has adopted necessary mitigation measures, any killing or disturbance of the species protected under Article 12(1) of the Habitats Directive shall not be considered to be deliberate. Article 16f of the 2018 Renewable Energy Directive, as inserted by the RED III Directive, includes a rebuttable presumption that renewable energy projects are of overriding public interest and serve public health and safety. The wording of Article 16f is almost identical to the wording of Article 3(1) of Regulation (EU) 2022/2577 (the "**TRE Regulation**")[5] which created a *de jure* presumption that the planning, construction and operation of plants and installations for the production of energy from renewable sources, and their connection to the grid, the related grid itself and storage assets, are in the overriding public interest and serving public

[2] Climate Action Plan 2024
[3] Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast).
[4] Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652.
[5] Council Regulation (EU) 2022/2577 of 22 December 2022 laying down a framework to accelerate the deployment of renewable energy, as amended by Council Regulation (EU) 2024/223 of 22 December 2023.

health and safety when balancing legal interests in the individual case, for the purposes *inter alia* of Article 16(1)(c) of the Habitats Directive. I will address these provisions further below.

12. In interpreting the term "deliberate disturbance" in Article 12(1)(b) of the Habitats Directive (and Regulation 51(2)(b) of the 2011 Regulations), the starting point is whether there is reasonable foreseeability that the proposed development will disturb any species falling within Annex IV of the Habitats Directive and consciously accepts this possibility. This should be considered on a case-by-case basis and having regard to the anticipated impacts of the proposed development as well as the known populations of Annex IV species and their migratory or movement patterns.

13. If there is sufficient evidence that the proposed development will deliberately disturb a particular Annex IV species, the proposed development cannot lawfully proceed unless a derogation licence is obtained. This is not limited to disturbance during the period of breeding, rearing, hibernation and migration as Article 12(1)(b) of the Habitats Directive and Regulation 51(2)(b) of the 2011 Regulations use the word "particularly". If the evidence demonstrates that there is a reasonable possibility of disturbance, then this would fall within the category of "deliberate" as it will have been established in advance.

14. In ***Commission v Greece***[6], it was held by the court that the use of mopeds and pedalos constituted deliberate disturbance of the turtle (*Caretta caretta*) during its breeding period for the purposes of Article 12(1)(b) and the presence of buildings on a breeding beach was liable to lead to the deterioration or destruction of the breeding site within the meaning of Article 12(1)(d), notwithstanding that there were certain protection measures in place.[7]

15. The European Commission Notice published in October 2021 ("*Guidance document on the strict protection of animal species of Community interest under the Habitats Directive*") (the "**Commission Notice**") referred to the judgment in ***Commission v Greece***

[6] ***Commission v Greece*** (C-103/00) (ECLI:EU:C:2002:60).
[7] ***Commission v Greece*** (C-103/00) (ECLI:EU:C:2002:60), §34 to 39. See also §16 of the judgment in ***Commission v Greece*** (C-518/04) (ECLI:EU:C:2006:183).

at p.24 and states that the Court seems to interpret the term "deliberate" in the sense of *conscious* acceptance of consequences.[8]

16. I am instructed that the Dublin Array project has been designed in such a way as to avoid and prevent disturbance to marine mammals as much as possible through project design features and by the introduction of a range of other avoidance and preventative measures. These features and measures collectively provide protection for Annex IV species. The project team has concluded that, with these measures in place, with regards to construction the Dublin Array project *could* disturb individuals of Annex IV marine mammal species, taking into consideration the protection measures incorporated into the project. Therefore, in the absence of mitigation, the project *would* disturb species, as the impacts would likely be greater.

17. Accordingly, on a precautionary basis, and without prejudice to the view that the disturbance is not deliberate within the meaning of Article 16b(2) of the Renewable Energy Directive, as amended, the application has been made for the derogation licence in respect of certain construction and pre-construction activities. Namely, geophysical surveys (SBP, UHRS and USBL), foundation piling, and other construction activities such as cable laying, dredging, drilling, trenching, rock placement, and vessel noise.

18. In my view, there is no legal impediment to the application for a derogation licence being made on this basis in light of the precautionary principle and the conclusion that the project *could* disturb Annex IV species.

19. Furthermore, there is no impediment to the application for a derogation licence being made to the NPWS in advance of the planning application to the Board.

[8] Citing §118 of the Advocate General Opinion in ***Commission v United Kingdom*** (C-6/04) (ECLI:EU:C:2005:372)). In ***Morge v Hampshire County Council*** [2011] UKSC 2, the UK Supreme Court noted (§14) that: "'deliberate' actions are to be understood as actions by a person who knows, in light of the relevant legislation that applies to the species involved, and the general information delivered to the public, that his action will most likely lead to an offence against the species but intends this offence or if not consciously accepts the foreseeable results of his action. Put more simply a deliberate disturbance is an intentional act knowing that it will or may have a particular consequence, namely disturbance of the relevant protected species."

20. The derogation regime in the 2011 Regulations has been upheld in ***Hellfire Massy Residents Association v An Bord Pleanála***[9], where the European Court stated that national legislation, such as the 2011 Regulations, which criminalises the commission of the acts which Member States must prohibit in accordance with Article 12 of the Habitats Directive, does not undermine the effectiveness of Article 12.[10]

21. The ***Hellfire Massy*** case also confirmed that it is permissible to have a dual regime where the application for a derogation licence and the planning application can be determined by separate competent authorities.[11] However, where the planning application for the development consent for a project requires EIA and the national Member State confers power to grant a derogation on an authority other than the one on which it confers power to give development consent for the project, as is the case in Ireland, that potential derogation must necessarily be adopted before development consent is given.[12]

22. As I noted in §4 of this opinion, I am instructed that the Board will be informed of the outcome of the derogation licence application and a copy of any such licence will be provided to the Board. It is open to the Board to seek further information under s.292 of the 2000 Act and invite submissions and observations from the public.

23. The decision of the European Court in ***Namur-Est Environnement***[13] is relevant here, insofar as the Court stated that the EIA Directive means that a decision adopted under Article 16(1) of the Habitats Directive and which authorises a developer to derogate from the applicable species protection measures in order to carry out a project within the meaning of Article 1(2)(a) of the EIA Directive forms part of the development consent procedure, where, first, the project cannot be carried out without the developer having first obtained that decision and, second, the authority competent for granting development consent for such a project retains the ability to assess the project's environmental impact more strictly than was done in that decision.[14]

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[9] ***Hellfire Massy Residents Association v An Bord Pleanála*** (C-166/22) (ECLI:EU:C:2023:545).
[10] ***Hellfire Massy Residents Association v An Bord Pleanála*** (C-166/22) (ECLI:EU:C:2023:545), §40.
[11] ***Hellfire Massy Residents Association v An Bord Pleanála*** (C-166/22) (ECLI:EU:C:2023:545), §36.
[12] Citing ***Namur-Est Environnement*** (C-463/20) (EU:C:2022:121), §52 and 59.
[13] ***Namur-Est Environnement*** (C-463/20) (EU:C:2022:121).
[14] ***Namur-Est Environnement*** (C-463/20) (EU:C:2022:121), §66.

24. In other words, the effect of this is that the public right to participation can be safeguarded through the planning process, even if there is no participation required for a derogation licence application under domestic law.

25. Given the sequencing of applications in this case and the facility for the Board to seek further information, which in my view is consistent with EU law, I do not think that the Board is precluded from considering the planning application as a result.

Renewable Energy Directive, as amended

26. While the application is made here on a precautionary basis, as the application itself states, Article 16b(2) of the Renewable Energy Directive, as amended, states that where a renewable energy project has adopted necessary mitigation measures, any killing or disturbance of the species protected under Article 12(1) of the Habitats Directive and Article 5 of the Birds Directive shall *not* be considered to be deliberate.

27. Recital 37 of the RED III Directive also states that the construction and operation of renewable energy plants can result in the occasional killing or disturbance of birds and other species protected under the Habitats or Birds Directives. However, such killing or disturbance of protected species should not be considered to be *deliberate* within the meaning of those Directives if the project for the construction and operation of those renewable energy plants provides for appropriate mitigation measures.

28. Recitals can be used to resolve ambiguity in related legislative provisions. For example, in ***Moskof***, the ECJ referred to recitals to resolve ambiguity in the operative provisions of a legal instrument and found that the recital placed the provision in question into a context from which it was clear that the provision was transitory.[15] That being said, the wording of Article 16b(2) of the Renewable Energy Directive, as amended, is not ambiguous and is a clear statement that any killing or disturbance of protected species shall not be considered to be deliberate, provided that appropriate mitigation is included.

29. Article 16f of the Renewable Energy Directive, as amended, provides that, by 21 February 2024 until climate neutrality is achieved, Member States shall ensure that, in the permit-

[15] **P.** ***Moskof AE v Ethnikos Organismos Kapnou*** (C-244/95) (ECLI:EU:C:1997:551).

granting procedure, the planning, construction and operation of renewable energy plants, the connection of such plants to the grid, the related grid itself, and storage assets are presumed as being in the overriding public interest and serving public health and safety when balancing legal interests in individual cases for the purposes of *inter alia* Article 16(1)(c) of the Habitats Directive.

30. Relevantly, Article 16(1)(c) of the Habitats Directive confers the possibility of a derogation from Article 12 in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.

31. The RED III Directive entered force in November 2023 with an earlier transposition deadline of 1 July 2024 for certain permitting provisions including Article 16b(2) and Article 16f, and a later transposition deadline of 21 May 2025 more generally[16]. The necessary transposition legislation has yet to be enacted however I think that both Article 16b(2) and Article 16f are likely to have 'direct effect' on the Board and NPWS (as emanations of the State).

32. Article 16b(2) is likely to have direct effect, insofar as it refers to meaning of "deliberate" disturbance for the purposes of *inter alia* Article 12(1) of the Habitats Directive. Article 16f is likely to have direct effect insofar as it establishes an understanding that renewable energy projects and their connection to the grid are presumed to be in the overriding public interest and serving public health and safety when balancing legal interests in individual cases for the purposes of Article 16(1)(c) of the Habitats Directive. I think that the NPWS, which has statutory responsibility for determining derogation licences, could apply these provisions to the relevant legal tests for a derogation licence under Regulation 54 of the 2011 Regulations even before formal legislative transposition.

33. In my view, the Dublin Array project would therefore qualify within the derogation provisions in Article 16(1)(c) of the Habitats Directive and Regulation 54 of the 2011

[16] The requirement in Article 5 of RED III Directive is that Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 21 May 2025 although there is an earlier transposition date of 1 July 2024 with regard to Article 15e and Article 1, point (7), with regard to Articles 16, 16b,16c, 16d, 16e and 16f of the 2018 Renewable Energy Directive,

Regulations, subject to any relevant factors rebutting these provisions.

Council Regulation (EU) 2024/223 (the "2023 Regulation") amending Council Regulation (EU) 2022/2577 (the "TRE Regulation")

34. The TRE Regulation[17] entered into force on the day following its publication in the Official Journal of the European Union (OJEU) and was originally intended to apply for a period of 18 months from its entry into force. The Regulation was adopted on 22 December 2022 and published on 29 December 2022.[18] Therefore, it was in effect from 30 December 2022 to 30 June 2024.

35. Article 1 of the TRE Regulation states that the Regulation applied to all permit-granting processes with a starting date within the period of its application (i.e. from 30 December 2022 to 30 June 2024) and is without prejudice to national provisions establishing shorter deadlines than those laid down in Articles 4, 5 and 7 of the Regulation.[19]

36. The permit-granting process is defined in Article 2(1) of the TRE Regulation as comprising all relevant administrative permits issued to build, repower and operate plants for the production of energy from renewable sources. This would include a grant of permission by the Board as well as a derogation licence by the NPWS. Article 2(1) of the TRE Regulation also defines the start of the permit-granting procedure as the date of acknowledged receipt of a complete application by the relevant authority and ends with the notification of the final decision on the outcome of the process by the relevant authority.

37. The wording of Article 16f of the Renewable Energy Directive, as inserted by the RED III Directive, is almost identical to the wording of Article 3(1) of the TRE Regulation. Article 3(1) of the TRE Regulation created a rebuttable presumption that renewable energy projects are of overriding public interest and serve public health and safety for the purposes of *inter alia* Article 16(1)(c) of the Habitats Directive, except where there is clear evidence

[17] COUNCIL REGULATION (EU) 2022/2577 of 22 December 2022 laying down a framework to accelerate the deployment of renewable energy.
[18] Regulation 2022/2577 - Framework to accelerate the deployment of renewable energy - EU monitor
[19] I am not aware of any relevant national provisions which establish shorter deadlines that would be relevant to this project.

that such projects have major adverse effects on the environment which cannot be mitigated or compensated for.[20] In other words, the TRE Regulation introduced a rebuttable presumption that renewable energy projects are projects of overriding public interest and serve public health and safety and do not require a case-by-case assessment of the project characteristics for the purposes of Article 16(1)(c) of the Habitats Directive.

38. The TRE Regulation was amended by Council Regulation (EU) 2024/223 of 22 December 2023 amending Regulation (EU) 2022/2577 laying down a framework to accelerate the deployment of renewable energy (the "**2023 Regulation**"). As is clear from Recital 13 of the 2023 Regulation, it was not necessary to prolong the application of Article 3(1) of the TRE Regulation beyond 30 June 2024 since such a rebuttable presumption is applicable from 1 July 2024 under Article 16f of the Renewable Energy Directive, as inserted by the RED III Directive.

39. It is clear from Recital 13 of the 2023 Regulation, therefore, that Article 16f of the Renewable Energy Directive, as amended, is intended to continue such rebuttable presumption with effect to new permitting procedures for renewable energy projects starting from 1 July 2024, picking up from Article 3(1) of the TRE Regulation which applied to new renewable energy permitting procedures which started in the period between 30 December 2022 to 30 June 2024.

40. The 2023 Regulation replaced Article 3(2) of the TRE Regulation. Article 3(2) now states that Member States shall ensure, for projects which are recognised as being of overriding public interest, that in the planning and permit-granting process, the construction and operation of plants and installations for the production of energy from renewable sources and the related grid infrastructure development are given priority when balancing legal interests in the individual case. This only applies if and to the extent that appropriate species conservation measures contributing to the maintenance or restoration of the populations of the species at a favourable conservation status are undertaken and sufficient financial resources and areas are made available for that purpose.

41. As stated in Recital 14 of the 2023 Regulation, Article 3(2) of the TRE Regulation requires

[20] See Recital 8 of the TRE Regulation.

priority to be given to projects that are recognised as being of overriding public interest whenever the balancing of legal interests is required in individual cases and where those projects introduce additional compensation requirements for species protection.

42. Furthermore, the 2023 Regulation inserts a new Article 3a(1) into the TRE Regulation which provides that, when assessing whether there are no satisfactory alternative solutions to a renewable energy project and its connection to the grid for the purposes *inter alia* of Article 16(1) of the Habitats Directive, this condition may be fulfilled if there are no satisfactory alternative solutions capable of achieving the same objective of the project in question, notably in terms of development of the same renewable energy capacity through the same energy technology within the same or similar timeframe and without resulting in significantly higher costs.

43. As stated in Recital 15 of the 2023 Regulation, the new Article 3a(1) is intended to facilitate the practical application of the specific derogations foreseen in the Habitats Directive, etc., because "*it is a considerable hurdle to prove that a project could not take place elsewhere, if the territory of a whole country has to be considered, and even more if other renewable energy technologies have to be considered*."

44. The 2023 Regulation replaced Article 1 of the TRE Regulation. Article 1, as amended, states that the "*Regulation applies to all permit-granting processes that have a starting date within the period of its application and is without prejudice to national provisions establishing shorter deadlines than those laid down in Article 5(1).*"

45. Article 10 of the TRE Regulation was amended by Article 8 of the 2023 Regulation, to provide that Article 1, Article 2(1), Article 3(2), Article 3a, Article 5(1), Article 6 and Article 8 shall continue to apply until 30 June 2025. Consequently, Articles 3(2) and 3a(1) of the TRE Regulation, as amended by the 2023 Regulation, apply to any permit-granting process for a renewable energy project that starts (within the meaning of Article 2(1) of the TRE Regulation) before 30 June 2025. This would apply to the Dublin Array project in the event that the application for consent is made to the Board (and acknowledged) before that date. It would also apply to any derogation licence made to the NPWS (and

acknowledged) before that date.

Conclusion

46. In conclusion, there is no legal impediment to the application for a derogation licence being made on a precautionary basis, notwithstanding the application of the Renewable Energy Directive.

47. The effect of the Renewable Energy Directive, as amended, is that where a renewable energy project has adopted necessary mitigation measures, any disturbance of the species protected under Article 12(1) of the Habitats Directive shall not be considered to be deliberate. Consequently, subject to the competent authority being satisfied that the necessary mitigation measures have been adopted, any disturbance caused by the Dublin Array project will not be "deliberate" within the meaning of Article 12 of the Habitats Directive and a derogation licence is not required as a matter of law. The fact that an application is made for a derogation licence on a precautionary basis does not affect this.

48. While the formal legislative transposition of Article 16b(2) and Article 16f of the Renewable Energy Directive, as amended, was required by 1 July 2024, the wording of these provisions is, in my view, clear and likely to have direct effect on emanations of the State, including the NPWS and the Board.

49. Should the NPWS determine that Article 16b(2) and/or Article 16f of the Renewable Energy Directive, as amended, are not in force at the time the derogation licence application is being considered, and/or does not rely on the direct effect of those provisions, Article 3(2) and Article 3a(1) of the TRE Regulation, as amended, would be applicable.

50. Article 3(2) and Article 3a(1) of the TRE Regulation, as amended, apply to any permit application made and acknowledged as completed by or before 30 June 2025. As noted, the effect of Article 3(2) of the TRE Regulation, as amended, is that the construction and operation of plants and installations for the production of energy from renewable sources and the related grid infrastructure development are given priority when balancing legal interests in the individual case. The effect of Article 3a(1) is to facilitate the interpretation

and application of the ‘no satisfactory alternatives’ test for the purposes of renewable energy projects and their connection to the grid.

Nothing further occurs….

David Browne SC

5 February 2025