

Hartley Anderson Limited

Marine Environmental Science and Consultancy

Annex IV Risk Assessment

RWE Renewables Ireland, Site Investigations
for the proposed Dublin Array Offshore Wind
Farm, Consent Application Ref. No. FS007188

Report to
Department of Housing, Local Government
and Heritage



June 2022

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SECTION 1 - INTRODUCTION

1.1 Background

Arup with Hartley Anderson Limited have been commissioned by the Department of Housing, Local Government and Heritage (DHLGH) to conduct an Article 12¹ Risk Assessment of an application by RWE Renewables Ireland Limited (RWE) for a Foreshore Licence to undertake site investigation works in relation to the proposed Dublin Array offshore wind farm development. The purpose of the proposed site investigations are to collect geophysical, geotechnical, ecological and metocean data from the proposed array area, export cable corridors and related landfalls.

Annex F of the applicant's application documents contained an Article 12 assessment for relevant Annex IV species.

1.2 Relevant consultation responses

The licence application was open for public consultation between 18th November 2021 to 17th December 2021. Responses relevant to this Annex IV Risk Assessment are provided in Tables 1.1 and 1.2.

¹ Article 12 of the Habitats Directive addresses the protection of species listed in Annex IV(a). The article applies throughout the natural range of the species within the EU and aims to address their direct threats, rather than those of their habitats.

Table 1.1: Responses from prescribed bodies to the consultation

Statutory Body	Applicant's Response
<p>Department of Housing, Local Government and Heritage Outlined below are heritage-related observations/recommendations co-ordinated by the Development Applications Unit of the Department under the stated headings.</p> <p><i>Nature Conservation</i> The proposed site survey to support the development of the Dublin Array Wind Farm was evaluated by a Natura Impact Statement and other documents. The conclusion of the Natura Impact Statement document is that the proposed works are unlikely to pose a significant likely risk to nature conservation interests in the vicinity.</p> <p>Potential interaction with marine mammals can be ameliorated by the application of "Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters" as outlined in Section 4.4 of the NIS supporting this application. National Parks & Wildlife Service requested that utilisation of this guidance should be added as a condition of consent.</p> <p><i>Archaeology</i> Having reviewed the Marine Archaeological Assessment (MAA) report and other documentation associated with the scheme, the Underwater Archaeology Unit had the following comments in relation to the predicted impacts of the proposed scheme on the known and potential archaeological heritage of the development area.</p> <p><i>Approach to Documented Losses</i> It is not clear to that due consideration has been given to the overall archaeological potential of the development area and in particular the high number of historically- documented losses of ships which are recorded as having been wrecked in the development areas but have yet to be located. In this regard, the Wreck Inventory of Ireland Database lists over 3,000 entries for the coastal waters off Dublin, many of which may lie in the proposed Array Area and the proposed Export Cable Corridors. Only a small percentage of these wrecks have</p>	<p>Nature Conservation The Applicant reconfirmed their commitment to implementing the DAHG, 2014 "Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters" in relation to the proposed geophysical acoustic surveys and geotechnical investigations, or updated guidance as agreed with the National Parks and Wildlife Service (NPWS) if such should be published prior to the commissioning of the works.</p> <p>Archaeology The Applicant noted the following: The term marine archaeology receptors used within the Archaeological Report, Annex D of the application documents, includes:- (a) Known receptors - for example, physical resources such as shipwrecks, aviation remains, archaeological sites, archaeological finds and material including pre-historic deposits and, (b) Unknown receptors - such as documented losses or other archival documents and/or oral accounts of wrecking events recognised as of historical/ archaeological or cultural significance.</p> <p>The Marine Archaeological Report, Annex D of the application documents takes into account all wrecks within the study area recorded in the Wreck Inventory of Ireland Database (WIID). Section 3.5, Wrecks, obstructions and documented losses, of the Marine Archaeological Report describes the high potential to find new wrecks within the Foreshore Licence area. The potential for wreck material from earlier periods, based on current archaeological understanding, is included in Section 3.4 Maritime activity. As agreed during a meeting with the UAU on 13th January 2022, further information is provided in Appendix A to this response to demonstrate how the discussion of archaeological potential presented in Sections 3.4 and 3.5 of Annex D has influenced the archaeological impact statement and mitigation strategy.</p>

Statutory Body	Applicant's Response
<p>been located and many lie scattered and buried beneath the sands off Dublin and its environs.</p> <p>While known and located wrecks are documented in detail in the MAA report, the assessment does not appear to deal with documented losses of vessels which have yet to be located. The Archaeological Impact Assessment should address both known archaeological sites/receptors and also assess the impact that the works may have on potential archaeology such as documented losses. To illustrate this point: there are over 85 wrecks recorded as lost on the Kish Bank but only 21 have been located; over 100 wrecks are recorded as lost on the South Bull and 85 for Dublin Bay, but only a handful of these have thus far have been discovered. There is also the potential for earlier wrecks to have occurred along the cable route or windfarm site, for which no documentation survives, and which await discovery.</p> <p>It noted that known wreck sites will be avoided and exclusion zones will be established around them, which is welcomed. However, as indicated above, any number of wrecks or associated artefacts may lie waiting to be discovered in the Array area or along the proposed export cable routes. Should this development proceed it is possible that intrusive seabed site investigation (SI) works will negatively impact on previously unrecorded/unlocated wrecks. It is recommended that this is addressed and a revised Marine Archaeology Assessment report is updated to deal with the impact of the works on potential archaeological sites in the development area. The mitigation measures should also be updated to reflect the impact of the works in areas of high archaeological potential, including on submerged landscape horizons. A list of all wrecks should be included in an appendix in the Marine Archaeology Assessment and this shall be resubmitted to the National Monuments Service for (NMS) review.</p> <p>In light of the above it is recommended that the Foreshore Unit request submission of an updated Underwater Archaeological Impact Assessment (UAIA) as further information. Once the Underwater Archaeology Unit, National Monuments Service, Department of Housing, Local Government and, Heritage reviews the updated archaeological assessment report, further recommendations will be issued with regard to potential further foreshore licence conditions.</p> <p>In addition to further information (as outlined above) it is recommended that the following is included as conditions on any grant of a foreshore licence:</p>	<p>The Marine Archaeology Report refers to both known and unknown receptors, the latter includes potential archaeology and documented losses not yet located. As noted above, additional information is provided in Appendix A to this response, to demonstrate how the discussion of archaeological potential presented in Sections 3.4 and 3.5 of Annex D has influenced the archaeological impact statement and mitigation strategy. Additional information regarding documented losses is also provided in Appendix A.</p> <p>Clarifying text has been added to the wording of the mitigation measures and these are also presented in Appendix A. RWE stated that it was committed to implementing all the mitigation measures as presented in Appendix A, and outlined in Section 4 of Annex D. The Applicant committed to complying with the proposed conditions outlined in the column to the left.</p>

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<p>A copy of the Dublin Array Offshore Wind Farm EIAR Protocol for Archaeological Discoveries (PAD) shall be supplied to the NMS for review and agreement prior to the works proceeding.</p> <p>The results of all SI works, including core samples, etc., shall be made available for assessment to the consultant archaeologist for review. Such assessment shall seek to identify any cultural material contained within the samples, evidence for palaeo-environments, etc. A follow up Archaeological Report detailing the results of the SI samples shall be forwarded to the National Monuments Service for review and consideration and to inform any future Foreshore/Planning application for the proposed offshore windfarm</p> <p>It is noted that the geophysical data from the Dublin Array 2021 campaign will be assessed ahead of any seabed impact at geotechnical, ecological sample and buoy deployment locations. The results of this assessment shall be compiled into a report and forwarded to the National Monuments Service for review in advance of the works taking place.</p> <p>Where archaeological assessment of geophysical data is not possible, or data is not available or of sufficient resolution/standard and an impact on the seafloor/inter tidal zone is expected, it is recommended that a dive/ intertidal survey is carried out accompanied by a metal detection survey. Both the dive survey and the metal detection survey should be licenced under the National Monuments acts 1930-2014.</p> <p>The Marine Archaeology Assessment report refers to an archaeological report compiled by Marine Archaeology which assessed the results of previous SI investigations (Maritime Archaeology, 2020a). A copy of this report shall be forwarded to the NMS for review prior to works proceeding.</p> <p>It is noted that archaeological walkover and metal detector surveys were carried out at both of the cable route landfalls (Dive Licence no. 21D0045 & 21D0046 & Detection Device Licence no. 21R0070 & 21R0071). A copy of both assessment reports shall be forwarded to the National Monuments Service for review in advance of the works taking place.</p>	

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<p>It is also noted that archaeological monitoring of a number of benthic grab samples was undertaken in 2021 (Excavation Licence no. 21E0082). A copy of the monitoring report shall be forwarded to the National Monuments Service for review in advance of the works taking place.</p> <p>You are requested to send further communications to this Department's Development Applications Unit (DAU) at fem.dau@housing.gov.ie where used, or to the following address: The Manager Development Applications Unit (DAU) Government Offices Newtown Road Wexford Y35 AP90</p>	
<p>Dublin City Council Dublin City Council had the following comments to make in regard of the foreshore licence application:</p> <p>The applicant is requested to take cognisance of the following policies and objectives from the Dublin City Development Plan 2016-2022.</p> <p>Chapter 3 – Addressing Climate Change It is an Objective of Dublin City Council: CCO3: To support the implementation of the national level 'Strategy for Renewable Energy 2012– 2020' and the related National Renewable Energy Action Plan (NREAP) and National Energy Efficiency Action Plan (NEEAP) CCO4: To support the implementation of the 'Dublin City Sustainable Energy Action Plan 2010–2020' and any replacement plan made during the term of this development plan. CCO9: To encourage the production of energy from renewable sources, such as from bio- energy, solar energy, hydro energy, wave/tidal energy, geothermal, wind energy, combined heat and power (CHP), heat energy distribution such as district heating/ cooling systems, and any other renewable energy sources, subject to normal planning considerations, including in particular, the potential impact on areas of environmental sensitivity including Natura 2000 sites. CCO10: To support renewable energy pilot projects which aim to incorporate renewable energy into schemes where feasible</p>	<p>The Applicant noted and welcomed the policies and objectives of the Dublin City Development Plan 2016-2022 in addressing climate change and the proposed policies and objectives within the draft Dublin City Development Plan 2022-2028 which recognise the potential benefits of the marine sector to the city's economic growth. The Applicant confirmed that a Seascape, Landscape and Visual Impact Assessment will be completed for the proposed wind farm development and included in the Environmental Impact Assessment Report which will be submitted in due course as part of the future Development Consent application in accordance with the Maritime Area Planning Act, 2021 and associated regulations.</p> <p>The Applicant noted the existence of the environmental information as highlighted by Dublin City Council (DCC) and has requested this data from the relevant organisations. It is understood that the data relates to conservation features of the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC and the Rockabill to Dalkey SAC. The Report to Inform Appropriate Assessment Screening, Annex E of the application documents, recommends that all of these sites should be screened into an Appropriate Assessment and the availability of more recent data would not change that conclusion.</p> <p>The mitigation measures which the Applicant has committed to implementing recognise the dynamic nature of the environment and</p>

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<p>CCO14: To support the government's target of having 40% of electricity consumption generated from renewable energy sources by the year 2020. It is the Policy of Dublin City Council</p> <p>CC2: To mitigate the impacts of climate change through the implementation of policies that reduce energy consumption, reduce energy loss/wastage, and support the supply of energy from renewable sources.</p> <p>CC3: To promote energy efficiency, energy conservation, and the increased use of renewable energy in existing and new developments.</p> <p>The applicant is recommended to also give consideration to Dublin City Council's Draft Dublin City Development Plan 2022-2028, the relevance of which shall be determined by when the applicant submits their application. The draft Plan, which is currently on public display with the stage two consultation period ending on 14h February 2022, can be accessed via the following link: Development Plan 2022 - 2028 Dublin City Council.</p> <p>The Council recognises in the Draft Plan that a significant source of potential growth for the city's economy is the marine sector, which amongst other sectors and industries, includes offshore renewable energy installations in the Irish Sea. The following policies in the Draft Plan are particularly relevant:</p> <p>Policy SIO30 'Facilitating Offshore Renewable Energy' in Chapter 9 states that it is an objective of Dublin City Council to support the sustainable development of Ireland's offshore renewable energy resources in accordance with the National Marine Planning Framework (2021) and Offshore Renewable Energy Development Plan (2019) and its successor, including any associated domestic and international grid connection enhancements.</p> <p>Policy CA12 'Offshore Wind-Energy Production' in Chapter 3 states that it is the policy of Dublin City Council to support the implementation of the 2014 'Offshore Renewable Energy Development Plan' (OREDPA) and to facilitate infrastructure such as grid facilities on the land side of any renewable energy proposals of the offshore wind resource, where appropriate and having regard to the principles set out in the National Marine Planning Framework.</p> <p>The Draft Plan further outlines that the Council shall actively support the development of coastal enabling infrastructure for offshore renewable energy installations in locations that are appropriate and accord with the National Marine</p>	<p>the potential for changes to have occurred to the baseline environment between assessment and commencement of the works. Ecological walkover surveys of the inter-tidal areas are proposed to confirm the location and extent of sensitive habitats and features, including those that provide foraging or roosting habitat for bird species, so that impact upon these features can be avoided. Marine mammal mitigation includes the use of Marine Mammal Observers who will undertake pre-start monitoring for at least 30 minutes prior to the commencement of sound producing activity, between 1st May and 30th September the monitoring period will be extended to a minimum of 45 minutes, thus ensuring that there are no marine mammals within 500m radial distance of the noise source.</p> <p>In relation to the conservation features to which the data relates, the Applicant has committed to the following mitigation measures which are presented in the Applicant's NIS, Annex F of the application documents:</p> <p>The inter-tidal survey at Poolbeg, within the South Dublin Bay and River Tolka Estuary SPA will be carried out outside of the period September to March to avoid disturbance to over-wintering bird species which are qualifying interests of the SPA;</p> <p>An ecologist will be present during the inter-tidal survey at Poolbeg to ensure disturbance to bird species is minimised and site integrity is maintained. If roosting birds are present on the shore during intertidal works, the nearby sample stations will be postponed until the birds have departed;</p> <p>A pre-commencement walk-over survey would be completed to identify sensitive habitats and sampling locations micro-sited to avoid impacts;</p> <p>Drift lines which could contain the highest proportion of potential food source for bird species will be avoided by machinery and personnel;</p>

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<p>Planning Framework (2021). The Council also supports the implementation of the 'Offshore Renewable Energy Development Plan' (2014).</p> <p>Cognisance should be given to feedback from the Council's Park's Biodiversity and Landscape Services as outlined in Appendix A with consideration to be given also in relation to the need to protect the marine environment and its valuable natural habitats, some of which have international importance for biodiversity and provide crucial ecosystem services.</p> <p>It is recommended that a visual impact assessment be submitted as part of any future planning application in order to assess the level and character of impact of the proposal on the landscape and the built environment for Dublin City and the surrounding area.</p> <p>Appendix A: Feedback from Dublin City Council's Parks, Biodiversity and Landscape Services The proposed works in the Sandymount area, including land and intertidal access, are noted. More localised and recent data is available than the NPWS Site Synopsis referenced, e.g. Birdwatch Ireland's Dublin Bay Birds Project data, NUIG data on Zostera beds in the area, and IWDG data on marine mammals. This data should be consulted before concluding NIR/EIA.</p>	<p>Access to the near-shore and intertidal area will be agreed with the monitoring ecologist to ensure sensitive habitats are avoided by machinery and personnel;</p> <p>Reinstatement of the intertidal habitat will be carried out to pre-survey conditions;</p> <p>DAHG, 2014, Guidance to Manage the Risk to Marine Mammals from Man-made Sound in Irish Waters will be implemented for during geophysical and geotechnical surveys.</p>
<p>Department of the Housing, Local Government and Heritage Part of the proposed works will take place within and adjacent to a number of Natura 2000 sites. A number of the Special Protection Areas (SPA) are nationally and internationally important sites for wintering species and for breeding sea birds. Wetlands and the designated Annex I intertidal habitats are important feeding grounds for such species. This area too has Special Areas of Conservation (SAC) in which the Annex I habitat Reefs [1170] is designated. There are few examples of this habitat along the eastern sea board.</p> <p>Assessment Process The Minister for Housing, Local Government and Heritage, is responsible for carrying out environmental screening and any environmental assessments determined as being required following screening, in accordance with the requirements set out in Directive 92/43/EEC (Habitats Directive), Directive</p>	<p>The Applicant noted the next steps regarding the Appropriate Assessment Screening Determination and Environmental Report.</p>

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<p>2009/147/EC (Birds Directive) and Directive 2011/92/EU, as amended by Directive 2014/52/EU (EIA Directive), in respect of applications under the The Foreshore Act 1933, as amended. Outside of the Directives, the Minister is also required to consider environmental issues in respect of applications under the Foreshore Act 1933, as amended.</p> <p>Habitats Directive</p> <p>The Appropriate Assessment process (AA) is an assessment of the potential for adverse or negative effects of a plan or project, in combination with other plans or projects, on the conservation objectives of a European Site (Natura 2000 site). The focus of AA is targeted specifically on Natura 2000 sites and their conservation objectives.</p> <p>Article 6(3) and 6(4) of the Habitats Directive place strict legal obligations on Member States to regulate the conditions under which development that has the potential to impact on European Sites can be proceed. It requires that an Appropriate Assessment be carried out of plans or projects, not directly connected with or necessary to the management of a site as a European Site, but which are likely to have a significant effect thereon, either individually or in combination with other plans or projects. An AA Screening assessment is carried out to determine whether a plan or project is likely to have a significant effect on a European Site.</p> <p>Article 6.3 states that: <i>“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”</i></p> <p>Article 6.4 states: <i>“if, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all</i></p>	

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<p><i>compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.</i></p> <p><i>Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.”</i></p> <p>In giving effect to the above as a matter of Irish law, the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011, as amended) (Birds and Natural Habitats Regulations) provide as follows:-</p> <p>Regulation 42(1) of the Birds and Natural Habitats Regulations states that: “A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site”.</p> <p>Regulation 42(2) provides that: “A public authority shall carry out screening for Appropriate Assessment under paragraph (1) before consenting for a plan or project is given, or a decision to undertake or adopt a plan or project is taken”.</p> <p>The Birds and Natural Habitats Regulations further provide as follows at Regulation 42 (6) and 42 (7):-</p> <p><i>The public authority shall determine that an Appropriate Assessment of a plan or project is required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site.</i></p> <p><i>The public authority shall determine that an Appropriate Assessment of a plan or project is not required where the plan or project is not directly connected with or</i></p>	

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<p><i>necessary to the management of the site as a European Site and if it can be excluded on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site.</i></p> <p>Furthermore, under section 42A (13) of S.I. No. 293 of 2021 an Appropriate Assessment, including the specified public consultation, must be carried out before the public authority makes a decision to undertake or adopt the proposed plan or project.</p> <p>Risk Assessment for Annex IV Species Outside of designated Natura 2000 sites, the waters around Ireland's coast are a suitable habitat for a number of species listed under Annex IV of the Habitats Directive (92/43/EEC). Article 12 of the Habitats Directive affords strict protection to those species listed in Annex IV of the Directive wherever they occur. Where necessary a Risk Assessment for adverse effects of the proposed works on Annex IV species must be undertaken and a report produced. This assessment is separate to that undertaken under Article 6.3.</p> <p>The purpose of the Risk Assessment is to examine the possibility that the proposed project either individually or in combination with other plans and projects, may result in the deliberate disturbance or destruction of any of the species listed in Annex IV which may be present in the works area. The Risk Assessment should take into account the status (e.g. as indicated in the latest Article 17 reporting for Ireland, NPWS 2019) and sensitivities of relevant Annex IV species to potential impacts associated with the proposed project.</p> <p>The Risk Assessment for Annex IV Species should be precise, with definite findings, mitigation and conclusions removing all reasonable scientific doubt as to the effects of the proposed project on any Annex IV species.</p> <p>EIA Directive In Ireland, in accordance with Directive 2011/92/EU, as amended by Directive 2014/52/EU (hereafter, the EIA Directive), projects that are likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location must be subject to an EIA.</p>	

Statutory Body	Applicant's Response
<p>Article 4 of the EIA Directive requires that projects listed under Annex I must always have an EIA while projects listed under Annex II shall be subject to an EIA if (i) determined on a case-by-case basis or (ii) they exceed certain thresholds set by each Member State. Thresholds have been set for Annex II projects in Irish legislation. Projects which do not meet the threshold may still require an EIA if the project is likely to have significant effects on the environment. Annex I and Annex II projects have been transposed into Section 5 (Parts 1 and 2) of the Planning and Development Regulations 2001, as amended.</p> <p>Section 13A(1)(b)(i) of The Foreshore Act 1933, as amended, requires that an EIA be carried out for all developments of a class specified in Part 1 or Part 2 of Schedule 5 of the Planning and Development Regulations where the development exceeds the relevant quantity, area or other limit specified in that Part, or where no quantity, area or other limit is specified. Section 13A(1)(b)(ii) of the Foreshore Act states that an EIA shall be carried out when a development is of a class specified in Part 2 of Schedule 5, but does not exceed the relevant threshold (i.e. sub-threshold) and the Minister determines that the proposed development would be likely to have significant effects on the environment. Therefore, it is necessary to examine such projects on a case-by case basis.</p> <p>In the case of Annex II projects that are determined on a case-by-case basis, or sub-threshold, an EIA screening is required to determine if the project will have significant effects on the environment. Under Article 4(4) the developer (applicant) is required to submit information on the characteristics of the project and its likely significant effects on the environment. The developer may also provide a description of any features of the project and/or measures envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment. Subsequently, in accordance with Article 4(5), the Minister is required to make a determination, which shall be made public, that: Where it is decided that an EIA is required, states the main reasons for requiring such assessment with reference to the relevant criteria listed in Annex III (Schedule 7 of the Planning & Development Regulations 2001) of the EIA Directive; or Where it is decided that an EIA is not required, states the main reasons for not requiring such assessment with reference to the relevant criteria listed in Annex III</p>	

Statutory Body	Applicant's Response
<p>of the EIA Directive, and, where proposed by the developer, states any features of the project and/or measures envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment.</p> <p>Non-statutory Environmental Report Where projects do not fall under a class that require an EIA or an EIA Screening, and in- keeping with good governance, a Non-statutory Environmental Report assessing the environmental effects of the proposed works on the receiving environment is required. This report will document the current state of the environment in the vicinity of the proposed activity in order to quantify the effects, if any on the environment, and if applicable to highlight how mitigation will be implemented to minimise impacts on the environment. The EPA Guidelines on the Information to Be Contained in Environmental Impact Assessment Reports (2017) indicates the relevant topics to be covered in this report.</p> <p>Independent Environmental Consultants (IEC) Owing to the scale and complexity of the environmental assessment required, and taking account of the available resources within the Department, I recommend that Foreshore Section of DHLGH engage a suitable qualified IEC. The IEC must conduct an independent assessment of the information provided by the Applicant, having regard to the Habitats Directive, the Birds Directive, the Birds and Natural Habitats Regulations, the EIA Directive, Non-statutory Environmental Reports and relevant jurisprudence of the EU and Irish courts. The IEC shall ensure that The Minister has all the environmental assessments required to allow them to make decisions on applications under The Foreshore Act 1933, as amended in accordance with the requirements set out in Directive 92/43/EEC (Habitats Directive), Directive 2009/147/EC (Birds Directive) and Directive 2011/92/EU, as amended by Directive 2014/52/EU (EIA Directive).</p> <p>Conclusion/Recommendation In principle I have no objections to this application. As outlined above, I recommend that Foreshore Section of DHLGH engage a suitable qualified IEC. On completion of the Public and Prescribed Bodies Consultation and the work of the IEC, I will furnish my Appropriate Assessment Screening Determination and Environmental Report. If the Minister adopts and approves these reports and a determination is made that a Stage 2 Appropriate Assessment is required a public</p>	

Statutory Body	Applicant's Response
consultation will be held on the Appropriate Assessment. My Final Environmental Report with Determinations which may include any case specific conditions will follow having regard to the information obtained during public participation.	

Table 1.2: Responses from the public to the consultation

Public Submission	Applicant's Response
<p>Submission 1</p> <p>The observer is concerned that in the drive to cut back on carbon, one cannot forget how important it is to protect the natural environmental.</p> <p>The observer had the following concerns:</p> <p>This project has the potential to decimate the maritime environment off the coast of Dublin and Wicklow.</p> <p>A eyesore on the marine landscape, visible for miles.</p> <p>Interfere with marine mammals including dolphins and seals.</p> <p>Kill thousands of seabirds, remember the success at Rockabill etc...</p> <p>Cause foreshore damage.</p> <p>A menace to shipping.</p> <p>The observer would encourage the Department to do all they can to make sure the application is not successful.</p>	<p>This application is solely for ecological monitoring and site investigation works, the latter required to inform the engineering and design of the offshore wind farm, the cable route(s) to shore and associated infrastructure. The proposed windfarm will be the subject of a development consent process under the Maritime Area Planning Act, 2021 and the associated consent framework which will be subject to assessment under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process. An Environmental Impact Assessment Report will be submitted with the application which will include an assessment of the potential impact the wind farm may have on a range of receptors including seascape, marine mammals, birds, navigation and the physical environment.</p>
<p>Submission 3</p> <p>Irish Whale and Dolphin Group</p> <p>The Irish Whale and Dolphin Group (IWDG) was established in December 1990 and is an All-Ireland group "<i>dedicated to the conservation and better understanding of cetaceans (whales, dolphins and porpoises) in Irish waters through study, education and interpretation</i>". While the IWDG is primarily concerned with cetaceans it has broadened its comments in this case to also include all marine mammals.</p> <p>The IWDG welcomed the opportunity to comment on the foreshore licence. It made the following points regarding the above foreshore application:</p> <p>IWDG agreed that the main marine mammal community has been described and is dominated by harbour porpoise and grey and common seals. However bottlenose dolphins, which are known to be part of the Irish coastal population do regularly pass through the site and given the relatively small and wide-ranging nature of individuals in this population should be given greater consideration in the EIA and AA. The statement "<i>While sightings rates and resulting density estimates were high in November 2019 and September 2020, overall there wasn't any evidence of a seasonal pattern in the sightings</i>" could have been addressed using</p>	<p>Response to Item 1: The Applicant noted IWDG's comments on the presence of bottlenose dolphins within the area. The sightings rates from the ObSERVE Surveys indicate that the presence of bottlenose dolphins was primarily to the West and South of Ireland, rather than on the East coast where the proposed site investigations and monitoring surveys which are the subject matter of this foreshore licence application will be carried out. Given that the results of 13 site specific surveys undertaken to inform the environmental assessment and design of the Dublin Array project identified a total of four groups of bottlenose dolphins, the potential risk to the species from the proposed survey activities is considered insignificant, and the screening conclusion presented in the Report to Inform Appropriate Assessment Screening, Annex E of the application documents, is proportional to that risk in relation to the extremely small impact ranges expected from this survey. SACs with bottlenose dolphins listed as qualifying features are located at Cardigan Bay SAC and Llyn Peninsula and the Sarnau SAC on the Welsh coast, over 100 km from the geophysical survey boundary.</p>

Public Submission	Applicant's Response
<p>static acoustic monitoring which provides high quality temporal data. In order to ensure site surveys carried out to inform these assessments were appropriate it would have been useful if the applicant had provided the marine mammal survey report as an Appendix.</p> <p>Page 30 Table 2: This table refers to a UHR (Ultra High Resolution) seismic sparker with a peak frequency of 4 kHz. A selection of specific Sub-bottom profiling equipment is listed in Table 1 (appendix i) here below and all boomers, sparkers and pingers have target frequencies that start at 0.5 To 2 kHz. The frequencies described in Table 2 of the document are the highest target frequencies and represent the smallest potential extension of the sound impact zones therefore. Additionally the multi-beam system chosen has a frequency of 190 to 240 kHz. Many multi-beam systems operate below this level and down to 12 kHz.</p> <p>Given the association of a mass stranding with a 12 kHz system multi-beam use in Mozambique in 2008 (Southall et al. 2013) it should be clear that equipment with frequencies lower than that considered in this assessment or with source levels higher than those considered cannot be used in survey work. Additionally equipment not listed, such as chirpers, should not be used. Additionally if a USBL and HiPap system are to be used the sound characteristics should be included in the assessment. The DAHG (2014) guidelines on sound source usage requires a report of all sources to be submitted by the operator within 30 days of survey completion, this is not normally checked and required by the regulator and should now be enforced in order that the regulator can ascertain whether source use falls within the licence requirements and has been properly assessed.</p> <p>Table 1: A selection of Sub Bottom Profilers and characteristics of output.</p>	<p>Further, separate consideration of bottlenose dolphins and other relevant marine mammals has been given within Annex F, Section 5, Relevant Assessment for Annex IV species. This assessment is conducted in accordance with Article 12 of the Habitats Directive. The Applicant has committed to the implementation of the mitigation measures set out in the 'Guidance to Manage the Risk to Marine Mammals from Man-Made Sound Sources in Irish Waters' (DAHG, 2014) which is considered sufficient to mitigate any impacts on all marine mammal species which are within the area. The consideration of mitigation measures is not precluded as part of an assessment under Article 12 of the Habitats Directive.</p> <p>The use of Static Acoustic Monitoring (SAM) was considered during the design of site specific surveys to inform understanding of the baseline environment. However, whilst this method can provide continuous fine temporal and spatial scale resolution data, it is most suitable for harbour porpoise and dolphin species, and not suitable for species such as baleen whales or seal species which do not vocalise reliably. In addition, it can be difficult to differentiate between dolphin species with SAM, and since it was known from previous studies that multiple dolphin species are present in Irish waters, it would not be sufficient to detect "dolphins" without being able to classify to species level, especially considering that the level of protection afforded to different dolphin species differs (e.g. SACs for bottlenose dolphins). The IWDG has conducted several static SAM deployments in the Dublin area (e.g. Berrow et al. 2008, Berrow et al. 2011, Berrow and O'Brien 2013, O'Brien and Berrow 2016, Meade et al. 2017) and has recorded high levels of porpoise detections (detected on almost every day), therefore there is considered to be sufficient SAM data that exists to confirm the presence of porpoise in the area year round.</p> <p>The Applicant is seeking permission under this foreshore licence application to deploy SAM as part of a pre and post wind farm construction monitoring programme.</p>

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Model	Primary Frequency	Parametric Frequency	Source level primary	Source level parametric		
Atlas Parasound (pinger)	18-33 kHz	0.5 to 6 kHz	242/245dB	206/200 dB	Whale warning mode	<p>Response to Item 2: The Applicant stated that it is aware of the evidence presented in Southall et al. 2013 of a 12 kHz multibeam system being associated with a mass stranding of melon headed whales. The report concludes that the use of the 12kHz MBES appears to be the most likely initial behavioural trigger of the stranding event, but that a variety of secondary factors contributed to, or ultimately caused, mortalities. The report also notes that the MBES had a relatively low frequency 12kHz, very high power output and complex configuration of many (100+) overlapping beams comprising a wide swathe. The type of MBES which will be used at Dublin Array operate at a higher frequency range (190 -420 kHz). The lower frequency equipment proposed to be used at Dublin Array, i.e. sub bottom profilers, are of a lower frequency 2 -5 kHz which is outside the generalised hearing range of low frequency cetaceans, 7kHz to 35kHz (Southall et al, 2019). Conclusions drawn based on frequencies of 12 kHz are not therefore relevant to the surveys that are the subject of the foreshore licence application. The assessments presented are specific to the types of equipment which may be used as set out in Table 2 of Annex E of the application documents and conclude that there is negligible to no risk of injury to marine mammals from the use of the specified geophysical survey equipment.</p> <p>Marine Mammal Observer Reports including details of the survey equipment used will be submitted to NPWS as required by DAHG 2014.</p> <p>Following a Request for Further Information, details of the USBL system are presented in the table below –</p>
Kongsberg SBP 120	2.5 to 7 kHz		220 dB			
Innomar SES-2000 Deep Parametric (pinger)	35 kHz	2, 3, 4, 5, 6, 7 kHz	244 dB			
Huntec boomer	0.5 to 8 kHz		205 dB			
Edgetech 512i - chirper	1 to 12 kHz		198 dB			
SIG '2 mille' mini-sparker	1 to 6 kHz		204 dB			
Arena Sub K-Chirp 3310	2 to 8 KHz		204 dB			
Applied Acoustics AA201 and AA301 boomer	1 to 6 kHz		212/215 dB			
Applied Acoustics Squid 500/2000 sparker	1 to 3.5 kHz		216/222 dB			
Applied Acoustics S-Boom (Boomer)	1 to 5 kHz		222dB approx.			

Page 44. Table 5. Source levels do not agree with data obtained from CEDA (Central Dredging Association) position paper (<https://www.iadc-dredging.com/wp-content/uploads/2017/02/article-ceda-position-paper-underwater-sound-in-relation-to-dredging-125-4.pdf>) and recreated below in Table 2 (appendix i) with references. This would seem more conservative in its assessment of noise, with drilling noise assessed as much lower than assessed for Dublin array but engine noise significantly higher. Indeed the engine noise given in the assessment indicates a slow speed of vessels at all times or electric engine usage. Unless sonic drilling is to be used drilling is not considered of significant impact in itself but would depend on other equipment that may be required for the activity.

Page 47 – 6.2.17 does not consider CPT (Cone Penetration Tests) on the drilling activity.

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<p>Page 48 – 6.2.18. Sub-bottom profilers can include airguns and are often omnidirectional at worst and bottom orientated at best. Use of unpublished material should be avoided but Guan (2020) does state “Most, if not all, sparkers and boomers are omnidirectional sources, thus should use 180° as the beamwidth” in the paper quoted. However sound on a rocky substrate will be reflected in all directions. The “wealth of data” referred to should reference properly published material preferably from more than one source.</p> <p>6.2.19 Parametric refers to separation of signal into different signal frequencies and non- parametric primary frequencies refer to a single frequency output. However such signals are relevant to pingers only and then only some, not all, certainly the observations here are not applicable to all SBPs (Sub-Bottom Profilers). The CSA (2020) assessment quoted is very good but refers to a specific range of equipment and no such specific equipment has been considered here.</p> <p>6.2.20 refers to the SBPs and sound source being “primarily being at 100 kHz”. This is incorrect see Tables 1 and 2 (appendix i) here. The difference between SPL (peak) and SPL rms can be seen described for a variety of equipment Crocker and Frantantonio (2016), and in fact Guan (2020) which is quoted recommends using source levels from this technical report.</p> <p>6.2.21 There is no indication of type of equipment to be used so discussing source levels, attenuation and frequency should assume the worst case scenario or state for equipment which might be used.</p> <p>Page 49. 6.2.22 This contradicts vessel noise levels in Table 5 of the document.</p> <p>6.2.23 IWDG was not sure exactly which references are referred to but it seems the suggestion is that seals that are hauled out cannot be disturbed in the licence area as there is nowhere to haul out. As the licence area continues to the shoreline this is not strictly true. Though the impact is probably insignificant the applicant should identify any known or potential haul out sites to ensure this is not an issue.</p> <p>6.2.26 Given the reference CSA (2020) is used which assess a range of equipment that might be used and it identifies limited PTS and slightly larger possible TTS zones, it does not seem exactly correct to conclude “sound levels</p>	<table border="1"> <thead> <tr> <th data-bbox="1189 268 1361 389">Survey technique</th> <th data-bbox="1361 268 1503 389">Operating frequency (kHz)</th> <th data-bbox="1503 268 1668 389">Estimated sound level at 1m over frequency band 10 Hz to 10kHz</th> <th data-bbox="1668 268 1787 389">Typical length of towed equipment</th> <th data-bbox="1787 268 1897 389">Indicative Equipment Specification</th> </tr> </thead> <tbody> <tr> <td data-bbox="1189 389 1361 464">Side-scan sonar (SSS)</td> <td data-bbox="1361 389 1503 464">300-500 (low) 500-900 (high)</td> <td data-bbox="1503 389 1668 464">228 Sound Pressure Level (dB re 1µPaPeak)</td> <td data-bbox="1668 389 1787 464"><300 m from vessel</td> <td data-bbox="1787 389 1897 464">EdgeTech 4205</td> </tr> <tr> <td data-bbox="1189 464 1361 526">Multi-beam Echosounder (MBES)</td> <td data-bbox="1361 464 1503 526">190 -420</td> <td data-bbox="1503 464 1668 526">200-235 Sound Pressure Level (dB re 1µPaPeak)</td> <td data-bbox="1668 464 1787 526">Hull- or Pole-mounted</td> <td data-bbox="1787 464 1897 526">RESON Seabat T50R</td> </tr> <tr> <td data-bbox="1189 526 1361 608">Magnetometer (MAG)</td> <td data-bbox="1361 526 1503 608">Passive¹</td> <td data-bbox="1503 526 1668 608">Passive</td> <td data-bbox="1668 526 1787 608">300 m from vessel</td> <td data-bbox="1787 526 1897 608">Single G882 marine magnetometer</td> </tr> <tr> <td data-bbox="1189 608 1361 735">Sub Bottom Profiler (pinger)</td> <td data-bbox="1361 608 1503 735">85 - 115</td> <td data-bbox="1503 608 1668 735">244 Sound Pressure Level (dB re 1µPa peak) 220 - 225 Source Level rms (dB re 1 µPa m)*</td> <td data-bbox="1668 608 1787 735">Hull- or Pole-mounted, or towed 150 m from vessel</td> <td data-bbox="1787 608 1897 735">Innomar Medium SES-2000</td> </tr> <tr> <td data-bbox="1189 735 1361 836">UHR Seismic Sparker</td> <td data-bbox="1361 735 1503 836">0.4 - 6</td> <td data-bbox="1503 735 1668 836">200-225 Sound Pressure Level (dB re 1µPaPeak)</td> <td data-bbox="1668 735 1787 836">150 m from vessel</td> <td data-bbox="1787 735 1897 836">GeoSource stacked dual 400</td> </tr> <tr> <td data-bbox="1189 836 1361 959">USBL</td> <td data-bbox="1361 836 1503 959">21 - 31 kHz</td> <td data-bbox="1503 836 1668 959">294 Sound Pressure Level (dB re 1µPaPeak) 207 Source Level rms (dB re 1 µPa m)*</td> <td data-bbox="1668 836 1787 959">Vessel mounted transponder – receiver on towed equipment</td> <td data-bbox="1787 836 1897 959">Kongsberg HiPAP</td> </tr> <tr> <td data-bbox="1189 959 1361 1161">Refraction</td> <td data-bbox="1361 959 1503 1161">5-150Hz</td> <td data-bbox="1503 959 1668 1161">230 Sound Pressure Level (dB re 1µPaPeak)</td> <td data-bbox="1668 959 1787 1161">50 - 100 m from vessel A sensor string of length 100m to 235m will be laid on the seabed to record the response.</td> <td data-bbox="1787 959 1897 1161">Seismic source, such as weight drop or vibrating pot.</td> </tr> </tbody> </table>	Survey technique	Operating frequency (kHz)	Estimated sound level at 1m over frequency band 10 Hz to 10kHz	Typical length of towed equipment	Indicative Equipment Specification	Side-scan sonar (SSS)	300-500 (low) 500-900 (high)	228 Sound Pressure Level (dB re 1µPaPeak)	<300 m from vessel	EdgeTech 4205	Multi-beam Echosounder (MBES)	190 -420	200-235 Sound Pressure Level (dB re 1µPaPeak)	Hull- or Pole-mounted	RESON Seabat T50R	Magnetometer (MAG)	Passive ¹	Passive	300 m from vessel	Single G882 marine magnetometer	Sub Bottom Profiler (pinger)	85 - 115	244 Sound Pressure Level (dB re 1µPa peak) 220 - 225 Source Level rms (dB re 1 µPa m)*	Hull- or Pole-mounted, or towed 150 m from vessel	Innomar Medium SES-2000	UHR Seismic Sparker	0.4 - 6	200-225 Sound Pressure Level (dB re 1µPaPeak)	150 m from vessel	GeoSource stacked dual 400	USBL	21 - 31 kHz	294 Sound Pressure Level (dB re 1µPaPeak) 207 Source Level rms (dB re 1 µPa m)*	Vessel mounted transponder – receiver on towed equipment	Kongsberg HiPAP	Refraction	5-150Hz	230 Sound Pressure Level (dB re 1µPaPeak)	50 - 100 m from vessel A sensor string of length 100m to 235m will be laid on the seabed to record the response.	Seismic source, such as weight drop or vibrating pot.	<p>* CSA Ocean Sciences Inc. 2020 (CSA, 2020).</p> <p>The type of USBL expected to be used is represented by the Kongsberg HiPAP model which operates at 21 – 31 kHz. This frequency range overlaps with the low-medium end of high frequency marine mammal species auditory bandwidth. USBLs are classed as non-impulsive sound sources which have a reduced risk of potential injury to marine mammals due to the relatively high thresholds</p>
Survey technique	Operating frequency (kHz)	Estimated sound level at 1m over frequency band 10 Hz to 10kHz	Typical length of towed equipment	Indicative Equipment Specification																																						
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<p><i>are expected to not exceed those which may result in injury to any marine mammal</i>'.</p> <p>Page 50. 6.2.27 While the assumption that baleen whales will not be present this is really dependent on the time of year and without acoustic or boat survey data from the area and surrounding waters it is impossible to determine likelihood of presence and/or disturbance. Some initial survey data has been mentioned with the presence of minke whales in the area acknowledged, but no data is presented that can be found here. So it would appear likely that minkes could be encountered during surveys.</p> <p>Furthermore the statement "<i>With regard to pinnipeds (all of which are sensitive to low frequency range), although a level of localised disturbance may result this is expected to be minimal, with all disturbance effects from the proposed equipment being within that expected from vessels and consequently highly localized</i>". This appears to state that seals will only be disturbed by the survey vessel noise and not the survey activity itself. This does not seem credible given the low frequency nature of many sound sources and known source levels above that of vessel noise.</p> <p>6.2.28 "<i>However, the proposed activities do not include..... high frequency energy release as part of seismic survey</i>" but apparently high frequency energy is the main focus of the survey. So this statement is incorrect.</p> <p>Page 51. Table 8. SSS and bathymetric survey activity (presumably Multi-beam systems) are operating outside the frequency range of marine mammals. Many such systems work within the frequency range of marine mammals (up to 200kHz). This is a general statement without evidence of any investigation. Shallow water systems generally use higher frequencies but have side lobes of energy outside target frequencies and this is well documented. It would be better to include consideration for systems where operating frequencies are audible to marine mammals rather than later finding the system chosen and used was not properly assessed, unless it is sure that no lower frequency systems will be used, but no examples are given, therefore it appears this may be unknown.</p> <p>Given that there have been a total of nine foreshore applications including this one submitted since 2019 that involve work within the Rockabill to Dalkey Island SAC (Site Code 003000) for the protection of harbour porpoise and the only cetacean</p>	<p>required at which injurious effects would occur compared to impulsive noise (see Southall et al., 2019 for the different thresholds between impulsive and non-impulsive noise). Additionally, the utilisation and frequencies of USBLs result in short propagation distances.</p> <p>Modelling of USBL equipment (all models including Kongsberg HiPAP) (CSA 2020) demonstrated that sound levels are predicted to attenuate to 120 SPLrms within 50 metres of the source, which demonstrates the rapid attenuation of this equipment. It can therefore be concluded that any disturbance to marine mammals would be limited to the immediate vicinity of the vessel and any displacement would be contained within the area of disturbance resulting from the vessels presence. This conclusion is consistent with the findings of the Applicant's NIS that there is negligible risk of injury to marine mammals.</p> <p>The Innomar Medium SES-2000 is indicative of the type of SBP, the primary operating frequency of which is 100kHz as stated in paragraph 6.2.19 of the Report to Inform Appropriate Assessment Screening (Annex E of the application documents). Specific examples of the geophysical survey equipment, representative of the types that will be used for the site investigation which is the subject of this Licence application have also been provided in the Table above. These are consistent with the information provided and assessed within the suite of documents provided in the application.</p> <p>[1] CSA Ocean Sciences Inc. (2020). Application for Incidental Harassment Authorization for the Non-lethal Taking of Marine Mammals: Site Characterization Surveys Lease OCS-A 0486, 0517, 0487, 0500 and Associated Export Cable Routes. [2] Southall, B., Finneran, J., Reichmuth, C., Nachtigall, P., Ketten, D., Bowles, A., Ellison, W., Nowacek, D., and Tyack, P., (2019) Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. Aquatic Mammals, Volume 45, Number 2, 2019.</p>

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<p>SAC in the Irish Republic section of the Irish Sea, some consideration should have been given to works which affect the SAC and along with survey works present a danger of cumulative impacts. Indeed the works applied for are part of increased human development, dumping and survey work activity within the SAC. Given the supposed protected nature of the site and the fact that noise is not confined to survey areas the cumulative impact in the next 5 years may be considerable and a greater effort will be required to reduce impacts directly on the SAC. This should result in moving activity outside the SAC where practical as well as temporal mitigation, adoption of more stringent mitigation protocols and strict monitoring.</p> <p>Annex F: Applicant's Natura Impact Statement Page 75. Requires standard NPWS mitigation practice, with additional prewatch period of 45 minutes and delay, required May to September for all marine mammals due to the presence of harbour porpoises calves. Records of equipment use and soft starts applied should be recorded and submitted with the MMO report or as a separate Operators report, as required under the NPWS guidelines. Full reporting as required by the NPWS guidelines must be required by the regulator in order for operations to be compliant and for compliance to be properly assessed. The delay of operations or prewatch of 45 minutes is of little significance in mitigating noise impacts given that where harbour porpoises are found, survey activity needs to simply move farther than 1 km away, start sound sources and precede to operate through areas of harbour porpoise activity. Given that survey activity will operate in and through one of the few SAC's (Special Areas of Conservation) in the country for harbour porpoise a higher level of protection which incorporates the strictest protection for Annex II and IV species in the Habitats Directive and under the Convention of Migratory Species (CMS) should be established under the guidance extracts included in appendix I here.</p> <p>The running of survey activity through areas of recognised harbour porpoise presence with or without an extra 15 minute delay period does nothing to protect these animals from "deliberate disturbance" prohibited under article 12.</p> <p>The assessment at this stage may be unclear as to what exact equipment will be used but reporting should include this, as is required under CMS COP12.14 (CMS, 2017). Areas that need addressing are highlighted in the extract in appendix I.</p>	<p>Response to Item 3 and 9: The Applicant acknowledged the inconsistency identified by IWDG for the stated sound pressure levels (SPL) for typical vessel noise between Table 5 and paragraph 6.2.22 of Annex E and confirmed that the assessments have been carried out based on the more conservative value in 6.2.22 (160-175 dB re 1µPaPeak @1m) rather than the values presented in Table 5. (142-145dB re 1µPaPeak @1m).</p> <p>The SPL for both drilling and vessel noise provided in the Central Dredging Association (CEDA) position papers do differ from those presented in Annex E to the application documents, with drilling noise provided by CEDA being lower and vessel noise higher (150dB-180dB 1µPa rms) than those quoted in Annex E of the application documents. However, applying the different source levels at 1m quoted in CEDA would not result in a different outcome for the assessments presented within Annex E.</p> <p>The noise associated with large shipping vessels is widely considered unlikely to cause physical trauma but could make preferred habitats less attractive as a result of disturbance (habitat displacement, area avoidance) (Erbe et al., 2019). A study by Beck et al (2013) notes that marine mammals frequenting the Dublin Port shipping channel will be well accustomed to shipping noise. Ambient underwater noise in Dublin Bay has been estimated at around 113db by Beck et al. (2013) and by McKeown (2014). Given the existing vessel levels within the area, the proposed site investigation will not result in a significant increase in vessel traffic and therefore no significant increase in vessel noise. The vessel noise associated with the proposed site investigation and monitoring activities will be short term, temporary and intermittent and no significant disturbance or displacement effects are expected for any of the marine mammal species identified within the baseline. No amendments are required to the conclusions of this Licence application.</p> <p>Response to Item 4: As stated in paragraph 6.2.5, of Annex E to the application documents, CPTs are considered to be less impacting</p>

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<p>Appendix I Table 2: Sounds in the Aquatic Environment</p>	<p>than drilling (due to the lower sound levels produced), the effects of these are therefore captured within the impacts of the associated drilling and not assessed separately.</p> <p>Response to Item 5: The Applicant noted that while the statement raised by IWDG is valid for high powered, airgun surveys the proposed site investigations will not include the use of air guns. The assessments presented are specific to the types of equipment which are intended to be used during the site investigation, as set out in Table 2 of Annex E.</p> <p>Response to Item 6: The Applicant noted that the equipment assessed for use during the proposed surveys at Dublin Array is of the same type and characteristics as that listed and assessed within the CSA (2020). The latter includes “medium sub bottom profilers”, such as sparkers and boomers in addition to parametric pinger systems. The maximum estimated distance of 141m from a geophysical source to the Level B threshold (SPLrms of 160 dB re 1 µPa) in CSA (2020) applies to a sparker system, with the threshold distances for boomer and parametric sources being considerably less. Annex E, The Report to Inform Appropriate Assessment Screening has considered the most precautionary value presented in CSA (2020) for the type of equipment which is proposed to be used at Dublin Array and concludes that marine mammals will be at negligible to no risk of disturbance or injury.</p> <p>Response to Item 7: The Applicant noted that the screening assessment has been undertaken using the most precautionary values presented in CSA (2020) for the type of equipment which is proposed to be used at Dublin Array. The proposed surveys for which consent is sought do not include the use of airguns, which is the only type of SBP equipment for which the source levels presented in Crocker and Frantantonio (2016) exceed the source level used to inform Annex E.</p>

Sound Source	Source level at 1m	Bandwidth	Main Energy	Duration	Directionality
Explosives 1-100 lbs TNT	272dB-287dB re 1µPa zero-to-peak	2Hz-~1kHz>	6Hz-21Hz	~1ms	Omni-directional
Seismic air gun arrays	220dB-262dB re 1µPa peak- to-peak	5Hz-100kHz	10Hz-120Hz	10ms-100ms	Downwards
Pile driving	220dB-257dB re 1µPa peak-to-peak	10Hz >-20kHz	100Hz-200Hz	5ms-100ms	Omni-directional
Multi-beam sonar	200dB-242dB re 1µPa rms	12kHz-455kHz		4-8ms	Downwards (ex. Tilted systems)
Low-frequency military sonar	240dB re 1µPa peak	0.1kHz-0.5kHz	-	6s-100s	Horizontally focussed
Mid-frequency military sonar	223dB-235dB re 1µPa peak	2.8kHz-8.2kHz		0.5s-2s	Horizontally focussed
Sparkers, boomers, chirp sonars	204-230 dB re 1µPa rms	0.5-12kHz	Various	0.2ms	Downwards
Fish Finders and Depth Sounders	230 dB re 1µPa approx	24kHz -200 kHz		1-4ms	Downwards normally but exceptions e.g. Furuno FSV-24 Horizontal
Side Scan Sonar	194 to 249 dB re 1µPa	40kHz - 1250 kHz		4-8ms	Downwards
Acoustic Harassment Devices	194 dB re 1µPa	10 kHz		?	Omni-directional
Shipping (large vessels)	180dB-190dB re 1µPa rms	6Hz >-30kHz	<200Hz	Continuous	Omni-directional
Trailing Suction Hopper Dredges	186dB-188dB re 1µPa rms	30Hz>-20kHz	100Hz-500Hz	Continuous	Omni-directional
Cutter Suction Dredges	172dB-185dB re 1µPa rms	30Hz>-20kHz	100Hz-500Hz	Continuous	Omni-directional
Construction and maintenance ships	150dB-180dB 1µPa rms	20Hz-20kHz	<1kHz	Continuous	Omni-directional
2MW Wind turbines	110 to 140 dB re 1µPa	?		Continuous	Omni-directional
Drilling	115dB-117dB re 1µPa (at 405m and 125m)	10Hz- ~1kHz	<30Hz-60Hz	Continuous	Omni-directional

Sound Sources listed approximately in order of source levels . Sources: 1). OSPAR (2009); 2). Thomsen et al. (Zimmer (2004); 4). Thomsen et al. (2009); 5). Robinson et al.(2011); 6). Hammerstad (2005); 7) ICES (2005); 8) International (no date a); 9)Hydro International (no date b); 10) McCauley (1998; 11) Hydro International (2002); 12) Morton and Symonds (2002); 13) Madsen et al (2006).

Response to Item 8: The Applicant noted that the assessments presented are specific to the types of equipment which are intended to be used during the site investigation as set out in Table 2 of Annex E.

Response to Item 10: The Applicant noted that a number of seal haul outs are located in the Dublin Bay area, including the sandbanks at North Bull Island, Dalkey Island, Irelands Eye and Lambay Island. Of these sites, the proposed Foreshore Licence area extends around the shoreline of Dalkey Island only and the activities which are proposed in that location are limited to ecological grab sampling only. The draft of the survey vessels is such that they will remain away from land and the haul out site at Dalkey Island. The proposed survey area will not overlap with any sites themselves.

Response to Item 11: CSA (2000) concludes that "Level A exposures are not expected to occur for any of the hearing groups during operation of geophysical impulsive sources", therefore indicating that there will be no significant impact from the works on any of the appropriate hearing groups. Additionally, the sentence in question refers to the "received" sound levels for which the animals will be exposed to following the known avoidance behaviours based on the types of vessels associated with the survey works. Therefore, the conclusion drawn is considered to be valid.

Response to Item 12: Annex E of the application documents concludes that the sound levels from the proposed works may result in some degree of localised disturbance to pinnipeds in water (masking or behavioural impacts, for example). Noise associated with the proposed works is not expected to result in injury. Any disturbance would be expected to be small-scale and short-term, with no effects lasting beyond the period of the works. The equipment that results in source levels higher than that from vessel noise are primarily high frequency sound sources from geophysical survey equipment. Sound from the acoustic geophysical equipment which is proposed to be used is highly directional and will therefore have a much more rapid attenuation of noise (e.g. as presented in CSA, 2020) compared to the omnidirectional sound sources such as vessel noise. The statement

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<p>Article 12(1) of that directive states: <i>'Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) in their natural range, prohibiting:</i> <i>all forms of deliberate capture or killing of specimens of these species in the wild; deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;</i> <i>deliberate destruction or taking of eggs from the wild;</i> <i>deterioration or destruction of breeding sites or resting places.'</i></p> <p>CMS COP12.14 excerpt from VI. EIA Guideline for Seismic Surveys (Air Gun and Alternative Technologies) Description of the survey technology including: name and description of the vessel/s to be used total duration of the proposed survey, date, timeframe proposed timing of operations – season/time of day/during all weather conditions sound intensity level (dB peak to peak) in water @ 1 metre and all frequency ranges and discharge rate Specification of the survey including anticipated nautical miles to be covered, track-lines, speed of vessels, start-up and shut-down procedures, distance and procedures for vessel turns Identification of other activities having an impact in the region during the planned survey, accompanied by the analysis and review of potential cumulative or synergistic impacts scientific modelling of noise propagation Mitigation and Monitoring Plans Detail of: Scientific monitoring before the survey to assess baselines, species distribution and behaviour to facilitate the incorporation of monitoring results into the impact assessment Scientific monitoring programmes, conducted during and after the survey, to assess impact, including noise monitoring stations placed at specified distances Transparent processes for regular real-time public reporting of survey progress and all impacts encountered Most appropriate methods of species detection (e.g. visual/acoustic) and the range of available methods, and their advantages and limitations, as well their practical application during the activity. Impact mitigation proposals:</p>	<p>quoted by IWDG, as reproduced in the comment in the column to the left, is stating that the extent of the area in which disturbance to pinnipeds in water may occur as a result of the survey activities is within the area of disturbance expected from vessels and consequently highly localized.</p> <p>The Applicant has committed to implement the mitigation measures set out in the 'Guidance to Manage the Risk to Marine Mammals from Man-Made Sound Sources in Irish Waters' (DAHG, 2014) which is considered appropriate to mitigate any impacts on all marine mammal species which are within the area.</p> <p>Response to Item 13: The phrase "high frequency energy release" refers to the use of seismic air gun surveys which are not proposed as part of the survey activities which are the subject matter of the application.</p> <p>Response to Item 14: The assessment undertaken has been completed particular to the range of equipment which is proposed to be used and is set out in Table 2 of Annex E of the application documents.</p> <p>Response to Item 15: The in-combination effects screening is presented within section 7.6 of Annex E and the full assessments are presented within the Applicant's NIS (Annex F).</p> <p>Response to Item 16: The purpose of the pre-watch is to monitor for the presence of marine mammals within an area of 1,000m radial distance from the location of the sound source prior to commencement of sound producing activity. DAHG, 2014 requires a pre-watch period of at least 30 minutes. Sound-producing activity will not commence until at least 30 minutes have elapsed with no marine mammals detected within the monitored zone. The extended prewatch, during the months of May to September inclusive, was requested by NPWS in relation to survey works proposed under Foreshore Licence FS007029. If calves have been</p>

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<p>24-hour visual or other means of detection, especially under conditions of poor visibility (including high winds, night conditions, sea spray or fog) establishing exclusion zones to protect specific species, including scientific and precautionary justification for these zones soft start and shut-down protocols protocols in place for consistent and detailed data recording (observer/PAM sightings and effort logs, survey tracks and operations) detailed, clear, chain of command for implementing shut-down mitigation protocols spatio-temporal restrictions The observer submitted a reference along with their response.</p>	<p>spotted in the monitored zone the sound-producing activity shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the monitored zone by the Marine Mammal Observer. The delay recognises the slower swim speed of mothers with calves compared to adults alone and allows additional monitoring time to ensure they have left the monitored area of 1,000m. Marine Mammal Observer Reports including details of the monitoring activities will be submitted to NPWS as required by DAHG 2014.</p>
<p>Submission 9 The observer objects to the granting of this foreshore licence application to RWE on the following basis: The proposed geophysical and geotechnical exploratory works are extensive (see below*) and involve drilling up to 80 m into the seabed at numerous unspecified sites, the creation of boreholes, use of dredging and otter trawl, use of sonar etc. all of which the observer believes will materially affect the proposed site's structure and habitat, its range of biodiversity, its benthic composition and will compromise its integrity as a potential future Marine Protected Area (MPA). From the observer's calculations in accordance with the developer's own estimate of drilling hours, there will be a cumulative time scale of seabed drilling in and around the bay of one form or another for up to 150 days round the clock or 3600 hours over 'X' years.</p> <p>The proposed investigations in many aspects seem to have more of a pre-construction scope and objective rather than that of obtaining data to ascertain the potential negative impacts on the sandbanks of the Dublin Array turbines. The nature of the proposed exploratory works, in particular the geophysical and geotechnical works and intensive use of sonar, already indicates to me a lack of care for sandbank marine habitats by proposing an excess of intrusive measures (e.g., multiple drilling points of up to 80 m over the sandbank area and surrounds).</p> <p>The Kish and Bray sand banks are of established ecological importance for protected species including migratory birds, benthic and cetacean species. The banks act as natural coastal protection, and they are important fish spawning grounds and feeding and post-fledgling grounds for protected species of birds.</p>	<p>The proposed geophysical surveys will be undertaken in the vicinity of the Kish and Bray Banks and landward along narrow corridors within the area as shown in Figure 2, Annex B of the application documents. The geophysical surveys will not have any contact with the seabed and will not therefore affect the site's structure or benthic habitats.</p> <p>A number of the intended survey techniques, namely the boreholes, vibrocores, cone penetration tests (CPTs), ecological grab samples and trawls and buoy deployments, are intrusive, in that they remove or disturb a small area of seabed. The footprint of these activities combined results in temporary disturbance of a maximum area of 50.88 m² across the subtidal extent of the Foreshore Licence area (1,129,863,400 m²). Durations for geotechnical operations are provided in section 2.1 of the Supporting Information Report and include time for positioning and set-up etc and do not indicate continuous drilling.</p> <p>Disturbance to the subtidal and intertidal habitats from all activities including boreholes was assessed within the Report to Inform Appropriate Assessment Section 6.4 (Annex E of the application documents), which concludes that physical disturbance to habitats and communities and any indirect localised displacement of prey (benthic and fish) would be short term, temporary and over a negligible footprint, therefore no potential exists for significant effects to habitats or species.</p>

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<p>Given this, it is incomprehensible as to why the Department and Minister are allowing the lead developer RWE (only recently involved in this project) to persist in exploratory works for a huge ORE project that intends to construct up to 61 240m – 310 m high wind turbines at a distance of 10 km from the shore. The evident visual intrusion, while focussing the immediate public concern, is ironically the lesser of the long-term real impacts that will be brought about by wind farm construction at this nearshore site.</p> <p>While the applicant developers are at pains to emphasise the 'exploratory' nature of this foreshore licence application, this current application is a cohesive, indivisible part of the process to construct turbines of great height with an extensive and intrusive foundational footprint on a very sensitive site in a high amenity area. The observer believes it is not credible to consider in isolation the concepts of the investigative stage and construction and operation stages - these are all interlinked as part of the pressure to finalise this nearshore windfarm project under its banner of 'relevant status'. Therefore, the many negative impacts of mega-turbines on these sandbanks can likely be seen as a probable consequence of the granting of this current foreshore licence application. Over a space of 20 years the strategy of Dublin Array seems to be to repeatedly survey an unsuitable site from a visual, ecological and even infrastructural point of view, until by dint of insistence, a de facto right will be established to build this largescale windfarm on the wrong site – the Kish and Bray sand banks that stretch in front of the coastline of Bray, Killiney Bay and Dalkey.</p> <p>The nearshore marine environment and coastal habitats should not be irrevocably compromised on a corporate or governmental ipse dixit basis by repeatedly surveying and resubmitting foreshore licence applications over and over again for the same sensitive site. Again, Dublin Array represent these survey works to be of a solely exploratory nature but reading into the description of the proposed exploratory investigations it appears to me that the works proposed under this licence application are of such a nature as to be seen in effect as site preparation for the construction of turbine foundations and cable laying. It appears to me that the greatly increased extent (1130km²) of the area proposed for exploration is also indicative of mission creep as to the scale and impact of the project. Why is Dublin Array's proposed site for exploratory surveys still based on and around the Kish and Bray sand banks and why does it enclose an even greater</p>	<p>A number of offshore surveys have been undertaken in recent years which have collated data relating to the physical and ecological environment in the vicinity of the proposed Dublin Array Offshore Wind Farm.</p> <p>The purpose of the proposed site investigations and monitoring activities which are the subject of this Foreshore Licence application are presented in Section 1.3 of the Supporting Information Report, which was submitted with the Foreshore Licence application. The geophysical survey and geotechnical sampling will provide more detailed information on ground conditions, seabed features and variability to inform the design of the proposed wind farm. The investigations will be focussed on proposed turbine foundation locations, interarray, and export cable routes to the selected landfall location(s). In addition ecological monitoring is proposed to collate data on the pre-construction baseline against which to monitor change in the environment. These surveys can be repeated post construction should Development Consent for the wind farm be granted. A broad suite of activities is included within this Foreshore Licence application and the final scope of ecological monitoring will be agreed in consultation with the appropriate statutory agencies within the parameters of the application made.</p> <p>The proposed surveys which are the subject matter of this application are for site investigation and monitoring activities only. The ecological impacts of these proposed surveys are described in a series of Annexes submitted as part of the application, including Annex C EIA Screening and Environmental Report, Annex E Report to Inform Appropriate Assessment Screening and Annex F Applicant's Natura Impact Statement (NIS).</p> <p>The wind farm will require a development consent application to be submitted in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. The effects of the wind farm proposal upon benthic habitats, fish ecology, marine mammals,</p>

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<p>area of the bay which will impact even further on marine and coastal habitats and established SACs and SPAs? The observer notes that in this foreshore licence application, once again, no alternative site is proposed. The observer believes the lack of proposed alternative sites (which the observer thought was a requirement of the foreshore licence process) leads to a confirmation bias in relation to the outcome of exploratory surveys for the same site. What is more, the developer's given justifications for the site selection are based mainly on project cost advantages to the developer and nearness to landfall for cables. If the landfall site is to be Poolbeg the cable will also have to pass through the Rockabill to Dalkey SAC, rendering this project even more ecologically impactful – a problem that should clearly be addressed at this stage by not granting this foreshore licence application.</p> <p>The observer believes that the information provided on the effect of geophysical and geotechnical exploratory investigations and ecological, wind, wave and current monitoring, in particular the prolonged use of borehole and core penetration drilling and the intensive use of underwater scanning of various types does not provide complete, precise and definitive information capable of removing all reasonable scientific doubt as to the effects of the works with reference to sandbank habitats, marine habitats, pelagic and benthic fauna, cetaceans and migratory birds. The observer believes that the granting of this foreshore licence could play a part in the degeneration of the sandbanks and the coast that they protect as has been outlined in studies on the South Dublin sandbanks: Once formed, the banks' interaction with metocean conditions is sufficient to maintain their spatial and altitudinal configuration within certain limits... unless metocean conditions exceed a certain threshold... If this threshold is crossed then a rapid turnover of the system may ensue until a new littoral equilibrium is reached. Were the banks to be removed, not only would a reconfiguration of the tidal current occur and wave energy become more focused on the present protected coastline, but it is unlikely that the present metocean conditions would facilitate a regeneration of the banks ... at present it is not possible to say with certainty the degree of change or the threshold tolerances of these banks. Anthropogenic interference in littoral processes could also affect this.²</p> <p>¹ Blueprint for Offshore Wind in Ireland 2020 – 2050 "In addition, the tidal regime and the abundance of sediment south of Dublin Bay has led to the formation of a number of sand and gravel banks with potentially high sediment mobility which</p>	<p>marine birds, seascape, landscape and visual receptors will be fully assessed and the results presented within the suite of documents which will be submitted with that application.</p> <p>The Environmental Impact Assessment Directive itself distinguishes between a project for the construction and operation of a wind farm, and site investigations for the purposes of establishing the stability of soils and sediments.</p> <p>The grant of a foreshore licence which gives permission to undertake surveys and site investigations to inform the design of the wind farm or to collect data for monitoring purposes is made on terms which are expressly without prejudice to the subsequent mandatory development consent application to be made to An Bord Pleanála under the Maritime Area Planning Act, 2021 and its associated consent framework. The site investigation works carried out at a preliminary stage of a project design are not inextricably linked to the construction and operation of the project itself, as the former can occur without the latter, therefore the development and operation of a wind farm is not a probable or likely consequence of granting a foreshore licence application for site investigations.</p> <p>A number of surveys have been undertaken historically in the vicinity of the Kish and Bray Banks in accordance with foreshore licences granted in 2000 and 2021. Over this extended period of time natural features such as seabed bathymetry can change and it is important from an engineering design and environmental assessment perspective that up to date information is obtained concerning not only the current condition but also the rate and nature of any change The data collected to date is being used to inform preliminary design and environmental assessment. The site investigations (geophysical and geotechnical) which are proposed under the current foreshore licence application will be focussed on proposed foundation locations, inter-array, and export cable routes to the selected landfall location(s) which are being refined in the course of the iterative design and assessment process. The proposed development boundary of the</p>

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<p>can provide design and operational challenges for offshore wind farms.” https://www.marei.ie/wp-content/uploads/2020/07/EirWind-Blueprint-July-2020.pdf ² Wheeler, Andrew & Walshe, Jim & Sutton, Gerry. (2001). Seabed mapping and seafloor processes in the Kish, Burford, Bray and Fraser Banks area, South-Western Irish Sea. Irish Geography. 34. 194-211. 10.1080/00750770109555787</p>	<p>wind farm has not changed. It should be clearly noted that suggestions that proposed site investigations do not amount to “site preparation” works as suggested. That is not an accurate representation of the nature of the survey methods which are the subject matter of the foreshore application.</p> <p>In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices, is proposed within the proposed wind farm development boundary but also within the surrounding area, to enable monitoring for potential far field effects. For this reason, only the proposed survey area has been increased when compared with previous survey boundaries.</p> <p>This application is for ecological monitoring and site investigation works required to inform the engineering and design of offshore wind farm, the cable route to shore and associated infrastructure only. There is no legal obligation to propose alternatives for such investigations. The proposed windfarm will be the subject of an application for development consent in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. An assessment of the alternatives and reasons for site selection will be provided as part of the application documentation. The application will also be accompanied by a specialist ecological report (Natura Impact Statement) which will assess the impact of the proposed development on any sensitive sites, such as European sites, including Rockabill Dalkey SAC which have the potential to be affected by the proposed development.</p> <p>The potential environmental effects of the proposed site investigation works are set out in the Annexes submitted as part of the application, including Annex C EIA Screening and Environmental Report, Annex E Report to Inform Appropriate Assessment Screening and Annex F Applicant's Natura Impact Statement (NIS). The approach and</p>

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	<p>methodology to Appropriate Assessment screening and preparation of the NIS are consistent with relevant Irish and EU guidance for compliance with the Habitats and Birds Directives. The method draws upon guidance produced by the Department of the Environment, Heritage and Local Government (2009, updated 2010), the Office of the Planning Regulator (2021) and the EC Methodological Guidance on Article 6(3) and 6(4) of the Habitats Directive (EC, 2021).</p> <p>The geotechnical and geophysical surveys will not affect the stability of the sand banks or the coastline. The information collected during the proposed investigations will add to the body of data from previous surveys regarding the form and nature of the sandbanks to ensure the design of the wind farm is the most appropriate for the site. Subject to obtaining a MAC, the proposed windfarm will be the subject of an application for development consent in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. An assessment of the alternatives and reasons for site selection will be provided as part of that application. The Environmental Impact Assessment Report, which will be submitted with the development consent application, will include a full and detailed assessment of potential impacts on marine physical processes including potential impacts on the sandbanks and the coastline.</p>
<p>Submission 11 The observer raised the following issues: Remaining Risks/Lack of Robust Scientific Data: Granting of this license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive') by failing to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works.</p> <p>Fish (particularly non-commercial variety), bird species and cetaceans in and around the site location and impact on the same has not been adequately assessed. This may result in a contravention of the Birds Directive (Directive 2009/147/EC) as well as the habitats directive (92/43/EEC). Annex E, Paragraph 6.2.6 states:</p>	<p>The Applicant's Response to Public Submission 11.</p> <p>1. Remaining Risks/Lack of Robust Scientific Data: The Applicant noted it is of the opinion that all of the relevant data has been provided in the application documents to identify the likely significant effects of the proposed activities, removing all reasonable scientific doubt. Annex E of the application documents, Report to inform Appropriate Assessment Screening, Section 3 outlines the approach and methodology used to assess the effects of the proposed site investigation and monitoring activities on all European sites designated under the Habitats and Birds Directives within the zone of influence. The approach taken is consistent with relevant Irish and EU guidance published to ensure compliance and transparency of both the process and findings.</p>

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<p>“For the equipment used within the proposed works, SSS and MBES surveys, the frequency ranges vary between 190 and 420 kHz (MBES) and 300/900 kHz (SSS). All these systems fall outside the hearing threshold of all species (harbour porpoise has the highest frequency range of 200 Hz to 180 kHz (Southall et al., 2007)). Magnetometer surveys are passive systems and do not emit a signal or generate underwater noise. Therefore, it is considered that there would be no potential for injury or disturbance to any cetacean or fish species from these equipment.”</p> <p>However, though the specific SSS and MBES used in this license may not effect marine mammals, Sub Bottom profiler (boomer, SBP) and UHR operate at a frequencies within the range of harbour porpoises, which may be performed over a 24 hour period. Additionally DP Vessels noise range is within the audible range of the Harbour Porpoise and no assessment of the risk, nor any mitigation measures are provided. Therefore there is insufficient evidence that the proposed works, individually, or in combination with other plans or projects, is unlikely to have a significant effect on any European Site/s subject to specific mitigation measures.</p> <p>Paragraph 6.2.15, Annex E presents an unacceptable argument for the use of SPL assessment of noise levels over the use of the current gold standards, SEL. The recent license application on Arklow Bank successfully calculated noise levels using SEL technique and there is no technical reason why this could not also be adopted by this developer. The availability of ‘easy calculate figures’ in the literature does not represent a reasonable excuse for not developing figures where they are lacking. This does not represent an appropriate assessment.</p> <p>Paragraph 6.2.15 Annex E states that: <i>“While the sound levels from drilling may result in some degree of localised disturbance to marine mammals any disturbance would be expected to be small-scale and short-term with surveys lasting approximately 2 -3 months, with no effects lasting beyond the period of the works.”</i></p> <p>Even if not permanently deafening these creatures, the prolonged noise created by the proposed license, over the license period, will inevitably force them to avoid the wider area (250 km considered as a buffer for cetaceans, as stated 3.3.6 Annex E) and reduce their feeding grounds. Given that much of this work is occurring both in and around Rockabill to Dalkey Island SAC, this will have a knock-on effect on their populations and, as a result, the status of their SAC.</p>	<p>The Applicant noted that the conclusions of the screening assessment are presented in Tables 14 and 15 of the Report to inform Appropriate Assessment Screening. The closest SACs for fish species are located at Boyne River SAC (50 km to the north), and Slaney River SAC (95 km to the south), given the distance involved, the potential for effects on fish is limited to the pathways for migratory species from these SACs and potential for effects on prey species. The screening assessment of these effects is presented in paragraphs 6.2.29 to 6.2.35. Disturbance effects on fish species will only occur in close proximity to acoustic surveys and geotechnical works and the effects will be short term. Consequently the works are not predicted to result in any significant effects on the prey species for features of relevant SACs and nor is it expected that any significant effects would result on migratory species on passage. Fish species which are qualifying interests of the Boyne River and Slaney River SAC are therefore screened out of further assessment as are indirect effects on fish as prey species of higher trophic levels.</p> <p>The Applicant noted that the NIS, Annex F, includes an assessment of the likely significant effects on the conservation objectives of the Natura 2000 sites which were screened in. Based on the assessment of the proposed surveys alone and in-combination with other projects and plans, with mitigation measures in place, it can be concluded that no adverse effects on the integrity of the European sites will arise. Annex F also includes an Article 12 Assessment for cetaceans which are Annex IV species, i.e. European Protected Species (EPS) listed under Annex IV of the Habitats Directive, which are protected wherever they occur and which it is an offence to deliberately capture, kill, injure or disturb. With the proposed mitigations in place, as specified in Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014) the Article 12 Assessment concludes that no marine mammals whose range may overlap the survey area will be impacted by the proposed marine survey.</p>

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<p>Combining this with other adjacent projects along the coast, this could have a really large effect on local populations. Paragraph 6.2.16 of Annex E states that: <i>“Modelling for sound levels from drilling works for offshore wind farms (e.g. East Anglia Two Offshore Wind Farm) identified that the threshold for PTS and TTS onset for all marine mammal hearing groups would be less than 100 m from a drilling vessel.”</i> Yet no reference to the proposed modelling is provided and it appears that much of the assessment is based on this figure, the basis on which it was calculated remains unknown. The recent license application on Arklow Bank (FS007339) indicated a TTS for high frequency cetaceans (incl. <i>phocoena phocoena</i> aka Harbour porpoise) of 757m for vessels using DP (as is proposed in this license application) and 607m for vibro-coring. Therefore, given the lack of evidence presented in this application fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works and granting of this license would contravene article 6(3) of Directive 92/43/EEC.</p> <p>Insufficient Evidence or Mitigation Measures: There is insufficient evidence that the proposed works, individually, or in combination with other plans or projects, is unlikely to have a significant effect on any European Site/s subject to specific mitigation measures. AA screening information in relation to matters including the bird species studied, the impact of underwater noise on bird species, a lack of clarity in relation to the proximity criteria and zone of influence used in screening sites and a failure to present evidence to support conclusions in relation to in combination effects. Likely significant effects in combination with other plans or projects were not assessed, including combined effects of past investigations in the area. The license application indicate that ‘The exact locations will be determined prior to undertaking the site investigation works’ however, no detailed grounds on which these determinations will be made has been outlined, therefore no appropriate determination can be made on whether this will adversely affect the integrity of local sites</p>	<p>The Applicant noted that Annex E, Paragraph 6.2.7 confirms that SBP and UHRS produce sound at frequencies which may be audible to marine mammals. The effects of noise from these acoustic sources are further discussed in paragraphs 6.2.18 – 6.2.21 which concludes that the sound level associated with the proposed equipment (as presented in Table 2 of Annex E) may result in disturbance effects within a few hundred metres of the vessel. Therefore without mitigation measures in place there is the potential for localised disturbance of marine mammals. The likely effects of vessel noise are presented in paragraphs 6.2.22 – 6.2.25, which conclude that the noise associated with the proposed activities will be short term, temporary and intermittent and will not result in a significant increase in vessel traffic normally active in the area. No significant disturbance or displacement effects are expected for any marine mammal species due to the presence of vessels for site investigation, ecological monitoring or buoy deployment. However adopting the precautionary principle the effects of noise on harbour porpoise as a qualifying interest of the Rockabill to Dalkey SAC and indirect effects of noise on the prey species of harbour porpoise, have been screened in for further consideration, the results of which are presented in Annex F, the Applicant’s NIS. The assessment in Annex F concludes that any noise impacts on cetaceans and their prey would be short term, temporary and intermittent. With mitigation measures in relation to geophysical acoustic surveys as specified in the DAHG Guidance (2014) the potential for disturbance to the species will be minimised and no impacts on the Conservation Objectives of the SAC are predicted.</p> <p>That Applicant noted that it is theoretically possible to convert between SPLrms and SELcum, however the conversion is based on a series of assumptions, which results in impact ranges which are so extremely conservative as to not provide anything meaningfully relevant to biological organisms. The primary assumptions are that the animal is stationary and facing towards the source of the noise for the entire duration of the impact (up to 24-hours of constant exposure). These assumptions are not realistic for the real-world</p>

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<p>Granting of benthic grabs/trauls, without preceding drop down camera, ROV or SCUBA dives of the site is poor international practice and may result in the damage to sensitive habitats</p> <p>The additional mitigation measures “proposed to allow for the presence of harbour porpoise calves during the months of May to September” of “sound producing activities shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO” is totally inadequate and as <u>such a likely significant risk remains in place</u> and approval of this license would constitute a contravention to the habitats directive.</p> <p>“SAM deployment will take approximately two weeks during mid 2022” (The observer assumes during the geophysical survey), “independent of other surveys, the equipment will remain on site for the duration of the Foreshore Licence to provide a long term data set of pre construction monitoring of marine mammals;” Why not deploy the SAM in advance of the other surveys to ensure that Harbour Porpoise and other marine mammals are not in the Zone of Influence (250 km considered as a buffer for cetaceans, as stated 3.3.6 Annex E) prior to starting the geophysical and geotechnical works. This could not only act as a further mitigation measure but also provide scientific data (which should be published open access) on the effects of acoustic disturbance in and on sensitive SACs whose qualifying interests are Harbour Porpoises.</p> <p>With regard to mitigation measures in place to inhibit PTS in marine mammals, no mention of the use of passive acoustic monitoring (PAM) has been mentioned, which would be required for the ‘qualified observer’ to ensure that no marine mammals were present within the zone of inhibition prior to initiating noise creating works. An observer, no matter how qualified will likely miss sensitive marine mammals in the vicinity without the use of this apparatus and as <u>such a likely significant risk remains in place</u>.</p> <p>According to the Natura 2000 statement, “the Conservation Objectives to maintain the favourable conservation condition of Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] within the Rockabill to Dalkey Island SAC, are defined by the following list of attributes and targets: Species range within the <u>site should not be restricted by artificial barriers</u> to site use; and</p>	<p>application of the assessments, as individuals would not feasibly behave in this way and would in fact move away from the sound source (even if not explicitly showing a fleeing reaction). Additionally, studies (Au, 1993) have demonstrated that animals not directly facing the sound of source can be exposed to significantly quieter received sounds (3 – 10dB lower for an animal moving away compared to moving towards a noise source). Therefore, for the marine mammal assessments being discussed any numbers presented following a conversion between SPLrms and SELcum would be considered to have no real world implications and are not valid for these assessments.</p> <p>Additionally, the Applicant noted that when looking at examples of noise propagation modelling for drilling from other projects (for example East Anglia Two which modelled drilling for monopiles, which is louder and more impactful than that considered within this assessment), the ranges for Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS) were concluded to be <100 m for a fleeing animal. One hundred metres is the lowest resolution possible for the model and it is therefore likely that the realistic impact ranges are smaller than this. This modelling for East Anglia Two was based on a much more intensive noise source, for drilling of large monopile foundations rather than small scale coring, and it can be assumed that the maximum potential impact range for the Dublin Array survey works will be further reduced from this number. Therefore, there is no risk of any auditory injury to marine mammals from the proposed works at Dublin Array.</p> <p>The Applicant noted that Annex E (paragraphs 6.2.15 et seq), states there is no risk of hearing damage to marine mammals from the proposed Dublin Array site investigation works and any disturbance will occur over a small area, in proximity to the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few hours as the survey vessel undertakes work in that area, with impacts from the works not occurring within the full licensed area for the full duration of the works, The 250 km buffer</p>

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<p>Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site.”</p> <p>Both as a result of noise disturbance and physical destruction of reefs, there is admittedly by phase 1 assessment in the Natura 2000 Statement presented, a “potential for adverse effects” on the qualifying interests (QIs) of the SAC.</p> <p>As outlined in the Natura 2000 statement presented: <i>“With regards the harbour porpoise feature and the temporary overlap with the calving period of harbour porpoise (May to August) within Rockabill to Dalkey SAC, the noise associated with the proposed works described in Section 6.2 and 6.3of Annex E: Report to Inform AA Screening have the potential for localised disturbance and have potential to disturb and/or displace fish prey items of all cetacean and pinniped species resulting in localised indirect effects”</i></p> <p>Section 4.2.6 (p. 60) of the Natura 2000 statement states that “given that any noise impacts on cetaceans and their prey would be short term, temporary and intermittent.... potential for disturbance to the species will be minimised and no impacts on the Conservation Objectives of the SAC are predicted.” I do not accept this statement and would present that the noise disturbance and inhibition of QI species and their food source represents a “<u>restriction by artificial barrier</u>” and is contraindicated by the conservation objectives of the SAC.</p> <p>Unregulated Development Environment: Granting of this license would contravene article 6(3) of the Habitats Directive by granting a consent to a project which leaves the developer free to determine subsequently certain parameters without first having made certain that the development consent granted establishes conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site. The development consent, if granted, should establish conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site. This is not evident from this application The number and type of benthic grabs and trawls is unclear, in some instances only grabs are mentioned, in some instances biological trawls are mentioned. In some areas of the application 30 grabs are mentioned, in other areas 90 grab samples are mentioned,</p>	<p>represents the area of search for SACs for which cetaceans are qualifying interests and is defined considering the scale of movement of individuals, i.e. an individual of an SAC population within the buffer zone could potentially move to within the area of the survey works. Mitigation measures specified in DAHG, 2014 will be followed at all times, with monitoring by a qualified and experienced Marine Mammal Observer prior to start-up of noise sources, followed by the use of the ‘softstart’ procedure which will ensure that no marine mammal is in close proximity to the vessel when the noise commences.</p> <p>The Applicant noted that the East Anglia Two modelling which is referenced in Annex E of the application documents can be found here: https://infrastructure.planninginspectorate.gov.uk/wpcontent/ipc/uploads/projects/EN010078/EN010078-001487-6.3.11.4%20EA2%20ES%20Appendix%2011.4%20Underwater%20Noise%20Assessment.pdf</p> <p>The Applicant noted the above conversion between SPLrms and SELcum results in impact ranges which are so extremely conservative as to not provide anything meaningfully relevant for assessment purposes. The Applicant has therefore, based its assessment on similar project modelling such as East Anglia Two and remains confident in the conclusions drawn and stated within the report, see response to similar point above.</p> <p>That Applicant stated that the Article 12 Assessment presented in Appendix 4 of Arklow Bank’s NIS concludes that the risk of injury or disturbance to all marine mammal species would be negligible from the geotechnical survey activities and that, in this respect, mitigation is not considered necessary. Despite this conclusion Arklow Bank, like Dublin Array, have committed to follow DAHG, 2014 to follow adopt best practice.</p> <p>Insufficient Evidence or Mitigation Measures:</p>

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<p>yet other areas (Annex E, p.19) states annual sampling for 3 years, including 90 grabs and 90 epibenthic trawls are mentioned yet other areas (license application) 1-2 weeks/year for up to 3 years is mentioned, which if only a single grab per period was carried out would result in 78 grabs. The license in this regard is unclear and as such the department cannot effectively ascertain if there is a likely significant impact on Natura 2000 sites and as such, represents a contravention of the habitats directive. The license application area is large relative to the size of the area wherein specifically described activities and monitoring are to take place, particularly to the south. It is unclear from the application why the proposed area is so large and if unspecified activities such as benthic grabs/trawls are to be carried out in the greater license area. If this is the case then further cumulative impacts should be assessed, as the area has recently undergone multiple benthic grab surveys. As this cannot be ascertained for the enclosed documents the department cannot effectively ascertain if there is a likely significant impact on Natura. The license application states <i>"The inter-tidal and sub-tidal geotechnical sampling locations will be selected after review of the geophysical and environmental data collected during the 2020 Site Investigation campaign. The data will be reviewed for the presence of potential ecological features such as subtidal geogenic reef. Sampling locations will then be micro-sited where necessary to avoid ecological (as well as archaeological) impacts."</i></p> <p>This represents a <u>likely significant risk</u> that is not clearly defined at the licensing stage and it is left to the developer to decide what constitutes an ecological feature, such as subtidal geogenic or subtidal biogenic reef. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). The license application states <i>"To prevent damage to saltmarsh and sand dune habitat all access to the Poolbeg intertidal by track machine will be supervised by an ecologist to ensure these sensitive areas are avoided."</i></p>	<p>The Applicant stated that it has provided robust information in the application documentation to enable appropriate assessment screening of adverse effects on the integrity of any Natura 2000 sites of the project alone and in combination with other plans and projects to be undertaken.</p> <p>The approach to screening, including defining of the zone of influence for each receptor group, is outlined in Section 3 of the Report to Inform Appropriate Assessment Screening. The approach is consistent with relevant Irish and EU guidance which has been published to ensure compliance with both the Habitats Directive (92/43/EEC) and the Birds Directive (79/409/EEC) and transparency of both the process followed and the findings which are reached. The effects of underwater noise on bird species are assessed within Section 6.2 and Section 6.3 of the Report to Inform Appropriate Assessment Screening. In-combination effects are assessed in Section 7.4 of the same.</p> <p>The Applicant stated that in Section 7.4 of the Report to Inform Appropriate Assessment a search of publicly available information was undertaken to identify other plans and projects which may result in adverse effects on the integrity of any Natura 2000 sites in combination with the site investigation and monitoring activities proposed under this Licence application. Sources included the Department of Housing, Local Government and Heritage Foreshore Licence application database and the Environmental Protection Agency Dumping at Sea Register. The search was undertaken for all projects within a 30 km radius of the proposed survey area. Given the localised and temporary nature of the proposed survey works this was considered precautionary. The projects considered include those applications but not yet determined and existing licences which have been granted but the associated activities not yet completed. A comprehensive analysis of the potential impacts of the survey which could affect the integrity of sites has been undertaken as documented in Section 6 of Annex E, Report to Inform Appropriate Assessment Screening and Section 4 of Annex F, The Applicant's NIS. Whilst the</p>

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<p>This represents a <u>likely significant risk</u> that is not clearly defined at the licensing stage and it is left to the developer (or developer employed ecologist) to decide what constitutes a 'sensitive area'. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). The license application states that in carrying out intertidal works at South Dublin Bay and River Tolka Estuary SPA that "an ecologist will be employed to ensure that disturbance is minimised". Not alone is this an admission of disturbance but it represents a <u>likely significant risk</u> that is not clearly defined at the licensing stage and it is left to the developer (or developer employed ecologist) to decide what constitutes damage to site integrity.</p> <p>The license states that: <i>"If roosting birds are present on the shore during intertidal works, the nearby sample stations will be postponed until the birds depart, without provocation."</i></p> <p>It is not clearly defined, at what stage resumption of work will proceed, e.g. after the roosting birds have departed, after the chicks have departed. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive').</p> <p>The license states that: <i>"If for any reason access by sea to the near-shore or intertidal sample locations is not possible, any temporary access arrangements or structures that are put in place to allow machinery access to the beach area will be prepared in consultation with an ecologist and the site should be fully reinstated post works."</i></p> <p>It is not clearly defined. Though this may seem like a minor point, access risks should be examined and outlined in the license application and should be appropriately assessed. No such examination appears to be included in the application. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive').</p> <p>The license states that: <i>"Reinstatement of the intertidal habitat will be carried out to pre- survey conditions. Spoil from boreholes would be contained and removed off site."</i></p>	<p>exact sampling locations have not been determined at this time, their final locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling sites will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro-sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives.</p> <p>The Applicant referred to the Supporting Information document, 2.4.13, that stated the subtidal benthic monitoring will include video and camera stills imagery prior to undertaking grab sampling. In addition to the use of video and camera at each site, the location of sites will be informed by analysis of the geophysical data, in line with guidance and best practice this will provide a robust and informed sampling array which will avoid damage to sensitive habitats.</p> <p>The Applicant noted it has committed to mitigation proposed for marine mammals in accordance with the relevant Irish guidance (DAHG, 2014), as agreed with NPWS. A qualified and experienced Marine Mammal Observer will monitor for the presence of marine mammals before the commencement of sound producing activities (pre-watch), during ramp up procedures and following breaks in sound output, as defined in DAHG, 2014. Sound producing activities will not commence until the monitored zone, as defined has been clear for the period required under the guidelines. The purpose of the pre-watch is to monitor for the presence of marine mammals within an area of 1,000m radial distance from the location of the sound source prior to commencement of sound producing activity. DAHG, 2014 guidance requires a prewatch period of at least 30 minutes. The extended pre-watch, during the months of May to September inclusive, was requested by NPWS in relation to survey works proposed under Foreshore Licence FS007029. If calves have been spotted in the monitored zone the sound producing activity shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the monitored zone by the Marine Mammal Observer. The</p>

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<p>It is not clearly defined, exactly how boreholes will be reinstated to their pre-survey condition, while spoils are being removed off site. I assume that material removed from bore holes will be mixed, containing both surface material and deeper sediments. Deeper sediments can contain heavy metals hydrocarbons, nutrients and other potential contaminants. The developer does not appear to have defined how exactly they plan to deal with this issue to avoid contamination of local areas and species. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive').</p> <p>Annex E: Report to inform Appropriate Assessment Screening (4.1.3) states that: <i>"The indicative locations of the survey areas which form the scope of the proposed works are shown in Figure 3 to Figure 7. The final geotechnical and ecological sampling locations and buoy deployment positions will be selected after a review of the most up to date geophysical data available in advance of selection of the sampling stations. The data will be reviewed for the presence of anomalies of potential anthropological origin and potential for ecological features such as subtidal reef. Locations will be micro-sited where necessary to avoid archaeological or ecological impacts. As such, no figure is provided for the benthic sampling locations, but taking a precautionary approach it has been assumed that samples could be taken anywhere across the Foreshore Licence application area."</i></p> <p>The license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive').</p> <p>Choice of benthic grab methods is not clear and is of utmost importance in attaining correct data for the next stage of the appropriate assessment of the proposed wind park. Biological trawls are considerably more beneficial in some instances and a clear indication of what will and will not be discovered by these methods should be outlined.</p> <p>Cumulative Impact: The current license application appropriate assessment fails to take into account properly or at all the cumulation of the impact of the project with the impact of</p>	<p>delay recognises the slower swim speed of mothers with calves compared to adults alone and allows additional monitoring time to ensure they have left the area of possible disturbance.</p> <p>The Applicant noted that the 250 km buffer referred to represents the area of search for SACs for which cetaceans are qualifying interests for the purposes of the Report to Inform Appropriate Assessment Screening. It is not representative of the area in which marine mammal species will experience effects from the proposed works. Without mitigation in place the Report to Inform Appropriate Assessment screening concludes that there is a possibility of marine mammals in close proximity to survey locations experiencing disturbance effects. The Applicant has committed to implementing mitigation as advised in DAHG, 2014. The NIS, Annex F, concludes with mitigation in place that there will be no significant effects on any cetacean species nor adverse effects on the integrity of any European site. The Applicant concluded no further mitigation or monitoring is therefore required.</p> <p>The Applicant stated it has committed to mitigation proposed for marine mammals in accordance with the appropriate Irish guidance (DAHG, 2014). DAHG, 2014 states that while the use of PAM in Ireland is encouraged as a helpful and beneficial tool for detecting and monitoring certain cetacean species, the Department does not believe it is sufficiently developed to be regarded as the primary or sole monitoring approach for risk management purposes. Therefore, whilst PAM is likely to be used by the survey company appointed to undertake the works in addition to marine mammal observers - conservatively the assessments as documented in the NIS submitted with the application have not relied on the use of PAM as mitigation. The Applicant noted that in accordance with established best practice and case law Appropriate Assessment Screening is undertaken without the inclusion of mitigation measures. An Appropriate Assessment is required where the Appropriate Assessment screening stage determines that the proposed works are likely to have a significant effect on a Natura 2000 site with respect to its Conservation Objectives. The Appropriate Assessment considers</p>

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<p>other existing and/or approved projects contrary to article 4(3) and Annex III. Granting of this license would be a breach of article 4(4) by failing to ensure that the project was properly described in terms of cumulation of impacts.</p> <p>The cumulative impact of the granting of multiple licenses in the area for surveys such as these will have a cumulative impact which has not been appropriately assessed. As such, granting of this license would constitute a breach of the habitats directive.</p> <p>No cumulative assessment has been made of the very real possibility that two developers could be conducting similar site survey work including boreholes and cone penetration tests in the same area at the same time.</p> <p>In combination effects the applicant only considers synchronous events and synchronous licenses/leases and do not give any consideration to prolonged repetitive surveying, dredging and noise in the area, impacted by past licenses/surveys, such as their own previous surveys as recently as 2019. In fact, it is not made clear in the application why repeated benthic grabs/trawls is required and may cause significant impact to benthic communities.”</p>	<p>whether the proposed works (either alone or in-combination with other projects or plans), will result in an adverse effect on the integrity of a European site. Where adverse effects on the integrity of a site are identified or where an adverse effect is uncertain, mitigation will be required so as to avoid such adverse effect or eliminate such uncertainty.</p> <p>The statement from the NIS included in the application documentation reproduced in the correspondent's observations are from Section 4.2 of that document where the potential for adverse effects on the integrity of the Rockabill to Dalkey Island SAC without mitigation are set out. Section 4.4 of the same document describes the mitigation measures which are proposed and the conclusions of the assessment with mitigation in place.</p> <p>The Applicant noted that in the supporting marine information for the Rockabill to Dalkey Island SAC² artificial barriers refer to “proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range”. As noted in Annex E (paragraphs 6.2.15 et seq), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. Neither will the harbour porpoise community at the site be adversely affected as with mitigation in place no individuals will be impacted by the surveys.</p> <p>Unregulated Development Environment: The Applicant noted the application is for a Foreshore Licence for site investigations. The Licence would not leave the Applicant free to</p>

² https://www.npws.ie/sites/default/files/publications/pdf/003000_Rockabill%20to%20Dalkey%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf

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	<p>determine the parameters of the investigations. Firstly, the Report to Inform Appropriate Assessment Screening and the NIS submitted with the application describe all of the aspects of the proposed site investigations likely to have a significant effect on a European site and subject those aspects to screening and, where necessary, assessment. Secondly, any Foreshore Licence will be granted subject to "Specific Conditions" which will be assessed by or on behalf of the Minister prior to the determination to grant the Licence. Those Specific Conditions will not leave RWE free to determine the parameters of the investigations beyond the parameters already assessed. The application describes with a high degree of specificity the range of samples (minimum/maximum) and activities to be undertaken. The sampling locations will be within the areas assessed and the effects arising will be no greater than those assessed. Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling sites will be chosen with reference to geophysical and environmental data.</p> <p>The Applicant noted it has included method statements within Section 2 of the Supporting Information Report and Section 4.2 of the Report to Inform Appropriate Assessment Screening, Annex E which provide a description of the proposed survey works. In all cases the maximum number of samples required have been stated to ensure a robust assessment is undertaken; subtidal benthic monitoring will involve video and camera stills imagery and grab sampling using a Van Veen or Day grab at 90 locations, together with up to 90 epibenthic trawls. Monitoring is proposed to be undertaken annually for two to three years prior to commencement of the construction of the wind farm and would comprise up to 90 grab samples and 90 epibenthic trawls in each annual campaign. The reference to grab sampling at 30 locations within the Supporting Information Section 1.5 relates to the previous Foreshore Licence Application (FS007029) and is included for information only.</p>

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	<p>The requirements for site investigation and ecological monitoring are outlined in Section 1.3 of the Supporting Information Report and the areas in which each activity is proposed to take place is illustrated in the suite of drawings, submitted as Annex B of the application documents. The geotechnical and geophysical surveys are required to provide further information on ground conditions and seabed features across the site to inform detailed foundation and cable burial design and installation methodologies. As such these surveys are focussed on the array area and along the proposed cables routes and landfall locations. The ecological monitoring is proposed to collate further data on the pre-construction baseline against which to monitor change in the environment. This activity is being proposed in accordance with Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects (DCCAE, 2018) and best practice. Sampling will be located within the proposed array area, along the export cable route/s and across the extent of one tidal excursion to provide data to monitor potential of far-field effects. The in-combination screening and assessment considered all projects undertaking similar activities across the full extent of the Foreshore Licence area, together with a 30km buffer. The extent of this buffer is considered precautionary given the spatial extent of any potential impacts which could arise from the proposed activities.</p> <p>The approach to selection of sampling locations using best available information provides a robust and informed sampling strategy in line with relevant guidance and best practice for surveys where features sensitive to the activity may be present. The sampling locations will be within the areas assessed and the effects arising will be no greater than those assessed. Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling sites will be chosen with reference to geophysical and environmental data.</p> <p>The Applicant noted that in accordance with the application as submitted, a grant of Licence will commit the Applicant to appointing an ecologist to supervise the works within the intertidal areas. The</p>

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	<p>ecologist will undertake a pre-commencement walk-over survey to identify sensitive habitats. Access points and sampling locations will be micro-sited to avoid impacts on sensitive habitats. Reinstatement of the intertidal habitat will be carried out to pre-survey condition using standard practice. Pre application consultation with NPWS confirmed the appropriateness of mitigation measures proposed.</p> <p>The Applicant stated there is a potential for localised disturbance of roosting birds within the intertidal areas should the works overlap temporally with their presence. Whilst the level of disturbance is not likely to lead to a significant effect on the conservation objectives of the South Dublin Bay and River Tolka SPA, such disturbance is to be avoided under the Birds Directive and the Wildlife Act 1976, as amended. Accordingly, and in accordance with the application as submitted, a Licence will be granted subject to conditions requiring the following avoidance measures:</p> <p>The site investigation at Poolbeg will take place outside the period 1st Sept – 31st Mar) to avoid disturbance to over-wintering bird Qualifying Interests of SPA;</p> <p>Activities will not be undertaken in close proximity to drift lines which represent an important food source for bird species;</p> <p>An ecologist will be employed to identify whether roosting birds are present on the shore, and if roosting birds are present during intertidal works, the nearby sample stations shall be postponed until all the birds have departed, without provocation;</p> <p>The ecologist will undertake a pre-commencement walk-over survey to identify any sensitive habitats, such as <i>Zostera noltii</i>, marram grass and annual vegetation drift lines, and to advise RWE on any potential access points to the intertidal area for plant and machinery which would avoid any such sensitive habitats;</p>

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	<p>If no such access route can be identified alternative options include lowering of equipment by crane from the Shelly Banks Road, construction of temporary bridges which span the sensitive habitat without making contact with it or the use of a barge to bring the equipment to the location by sea.</p> <p>Pre application consultation with NPWS confirmed the appropriateness of these avoidance measures in achieving the necessary scientific certainty as to the absence of significant effects on the European site, and in excluding significant disturbance of any of the bird species concerned.</p> <p>The Applicant committed to appointing an ecologist to supervise the works, including access arrangements to the intertidal area at Poolbeg. The ecologist will undertake a precommencement walk-over survey to identify sensitive habitats and access points will be selected to avoid impacts on sensitive habitats. If no access route can be identified which avoids these areas, alternative arrangements include lowering equipment by crane from the Shelly Banks Road, construction of temporary bridges which span the sensitive habitat without making contact with it or the use of a barge to bring the equipment to the location by sea.</p> <p>The Applicant noted that a borehole is a method of drilling into the ground or seabed to recover samples and enable downhole geotechnical testing to be complete. The intertidal boreholes will have a maximum diameter of 10 cms and will be drilled to depth not exceeding 45m. Samples will be removed from within the drill string for detailed offsite analysis. Once the samples have been removed the nearshore boreholes would either grouted to within 2m of surface of the base of mobile sediment (typically using a 2:1 bentonite cement mix) and/or be backfilled with the naturally occurring surrounding sediment. Bentonite is a non-toxic, inert, natural clay mineral (<63 µm particle diameter) that can be diluted with water and is used extensively in the marine environment. A small amount of spoil may</p>

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	<p>be generated from the process and if so this will be recovered and removed from site for disposal.</p> <p>The Applicant noted that the approach to selection of sampling locations using best available information at the time of survey provides a robust and informed sampling strategy in line with relevant guidance and best practice for surveys intended to avoid targeting habitats or features which would be sensitive to the effects of the survey.</p> <p>The Applicant noted it undertook benthic ecology surveys of the site in 2021 to provide further information to inform the assessments which will be submitted as part of the Development Consent application for the wind farm. The ecological monitoring surveys which are proposed under this Foreshore Licence application are for the purposes of pre-construction monitoring against which to measure any change during the construction of the wind farm. The maximum scope of the ecological monitoring survey has been defined within the Supporting Information Report Section 2 and within the Report to Inform AA screening, Section 4.1. The scope of monitoring surveys has been defined in accordance with Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects (DCCAE, 2018). A broad suite of activities is included within the application and the final scope of ecological monitoring will be agreed in consultation with the appropriate statutory agency.</p> <p>Cumulative Impact:</p> <p>The Applicant noted that section 7.4 of the Report to Inform Appropriate Assessment Screening provides a screening of projects and plans within a 30 km buffer of the Foreshore Licence area. Section 4.3 of the NIS provides the assessment for those projects screened in for combination assessment. Using the precautionary approach projects were screened in for further assessment where there was, in the absence of definitive timings, potential for overlap both temporally and spatially with the surveys subject to this application. Consideration was given to the likelihood for all projects to be undertaken sequentially or simultaneously. Further to these</p>

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	<p>assessments, it was concluded that there will be no potential for adverse impacts on the integrity of the European sites concerned as a result of the project alone or in combination with other plans or projects.</p> <p>The Applicant highlighted the Natura Impact Assessment of the surveys which were the subject of an earlier Foreshore Licence, FS007029 concluded that there was no potential for adverse effects on the integrity of the concerned European Sites to arise as a result if the proposed survey activities. The surveys which have been undertaken in 2021 under Foreshore Licence FS007029 include geophysical surveys, ecological grab sampling and the deployment of buoys for the collection of wind, wave and current data. No further works under FS007029 will be undertaken and therefore there is no potential for temporal overlap with the surveys proposed under this current licence application.</p> <p>The Applicant concluded that the observations raised regarding "Article 4(3) and Annex III" and an alleged breach of "Article 4(4)" are not fully understood as those references do not appear to be to the Habitats Directive. Insofar as the reference is to the EIA Directive, the site investigations are not a project type to which that Directive applies.</p>
<p>Submission 13 Kilkenny Bay Community Council The Community Council submitted that the following is lacking in this application for this Foreshore Licence: Reference to historic applications for a single proposed project, and concomitant historic failures in winning a Foreshore Licence, with reference to making provision to rectify these before a new Foreshore Licence process can proceed. Consideration of alternative sites: In an application for a Foreshore Licence, it is necessary for the applicant to consider alternatives. (This applies to both Lease and Licence applications.)</p> <p>A visual representation of the proposed turbines in Killiney Bay. We cite the Offshore Energy Strategic Environmental Assessment Review and Update of Seascape and Visual Buffer study for Offshore Wind farms Final Report for</p>	<p>The Applicant's Response to submission 13 from Killiney Community Council.</p> <p>The Applicant noted that the Foreshore Licence application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route to shore and associated infrastructure only. In the absence of any risk of adverse effects on the integrity of a European site, there is no obligation to consider alternatives to the proposed Foreshore Licence application.</p> <p>Subject to obtaining a MAC, the proposed windfarm will be the subject of an application for Development Consent under the Maritime Area Planning Act, 2021 and its associated consent framework. An</p>

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<p>Hartley Anderson March 2020. Visual impact studies consider impingement on shorelines to be critically important, especially adjacent to high amenity tourism beaches.</p> <p>In connection with these omissions, Killiney Bay Community Council (KBCC) noted the following protections proposed for Killiney Bay:</p> <p>Killiney Bay is adjacent to the southern end of the UNESCO Dublin Bay Biosphere Partnership. This includes management by Fingal County Council, Dublin City Council, DLR County Council, Dublin Port Company and the National Parks and Wildlife Service of the Department of the Arts of Housing, Local Government and Heritage and the Gaeltacht. We have initiated a proposal to obtain an extension of the Biosphere to include Killiney Bay.</p> <p>Killiney Bay includes the Special Area of Conservation area, as per the Dun Laoghaire Rathdown County Council Supplementary Map of the Ecological Network adjacent to Dalkey Island: https://www.dlrcoco.ie/sites/default/files/atoms/files/supplementary_map_b1_ecological_network_map_1.pdf</p> <p>Killiney Beach is the recipient of the Bord Failte Grant of approximately €1M for the construction of an amenity centre for watersports. See https://www.failteireland.ie/tourism-news/19m-investment-announced-water-based-activity-facilities.aspx</p> <p>In the context of these protections, KBCC examine the proposed objective to install 40-61 turbines, 240 to 310 metres high, on the Bray and Kish Banks. Analysis of the extensive detail presented in this RWE Renewables Ireland Geophysical site investigation, reveals an intention to construct the platform for the proposed turbines on one inshore site, the Kish and Bray Sandbanks, 9 km from Killiney Bay. This is not a site evaluation. This is preparation for site construction. The term "Ipse Dixit" is appropriate in this case: the assertion is, "this is just how it is". This de facto sense of ownership by RWE Renewables of these sandbanks is controlled by opting out of alternative arguments: declaring that this issue is intrinsic, and not open to change. This logical fallacy uses an assertion that the Kish Bank and Bray Bank square, as shown on Dublin Array site maps, is the only site available in Killiney Bay.</p> <p>KBCC looked at the alternative choices: Should the Array of this dimension be installed 9 km distant from Killiney Beach?</p>	<p>assessment of the alternatives and reasons for site selection will form part of the EIA and Appropriate Assessment for that application, which will also include an assessment of the potential impact the wind farm may have on a range of receptors including seascape and visual amenity.</p> <p>The Applicant stated the proposed wind farm boundary has not been amended by this licence application, and is co-incident with the geotechnical survey boundary as shown in Drawing 3 of Annex B to the Foreshore Licence application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east.</p> <p>The Applicant noted the application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route to shore and associated infrastructure. The Applicant referred to its response response with respect to any future application for development consent, subject to securing a MAC.</p> <p>Navigation Issues The Applicant noted this application is for a Foreshore Licence for ecological monitoring and site investigation works only. In the absence of any risk of adverse effects on the integrity of a European site, there is no obligation to consider alternatives to the proposed Foreshore Licence application.</p> <p>Geotechnical Survey Issues The Applicant noted the site investigations (geophysical and geotechnical) which are proposed in the current Foreshore Licence application are for the purpose of further investigating the stability of soils and sediments in the area of the proposed turbine foundation locations, inter-array, and export cable routes to the selected landfill</p>

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<p>Should 40-61 turbines, 240 to 310 metres high be allowed to gate, or fence off, the horizon? Should the Array be installed further out, at 22 km? Should the Array consider more innovative technologies such as 'Floating turbines'?</p> <p>In this regard, KBCC considered navigation issues and geotechnical survey issues.</p> <p>Navigation Issues KBCC believe that the information it receives from RWE Renewables does not 'provide complete, precise and definitive information capable of removing all reasonable scientific doubt as to the effects of the works' with reference to the selection of a 22 km distance for the installation of floating turbines. KBCC noted the proximity of the Array to a confluence of shipping lanes, as described in 4.6 Navigation, Document Number 003747593-01: The busiest of these shipping lanes originate and depart from Dublin Port, located to the North West of the survey area. Dublin Port caters for freight, passenger and cruise liners. In 2019 Dublin Port processed 38,100,000 tonnes of freight together with 1.949 million passengers and 158 cruise ships. The total number of ship arrivals was 7,898. Although the distance between Dublin Port and Holyhead is 113 km, there is capacity for the construction of floating turbines at, or within, the 22 km distance from shore recommended by the EU. KBCC noted that in this context, the selection of an alternative site for floating turbines at, or within, the distance from shore of 22 km, must be carried out. This is a condition for an application for a Foreshore Licence: that it is necessary for the applicant to consider an alternative site. (This applies to both Lease and Licence applications.)</p> <p>Geotechnical Survey Issues KBCC believes that the information provided does not 'provide complete, precise and definitive information capable of removing all reasonable scientific doubt as to the effects of the works' with reference to:</p> <p>The integrity of the Kish and Bray Banks. The term 'pre-construction survey' or 'Array area' determines and reinforces and confirms the premise that this will be the area identified for construction, regardless of distance from shore, height of the turbines or ecological effect.</p>	<p>location(s) to inform the iterative design and assessment process. The Applicant stated the proposed boundary of the wind farm area has not changed.</p> <p>The "pre-construction surveys" the correspondent refers to are ecological monitoring surveys, including mobile surveys and deployment of static acoustic monitoring devices. Where ecological monitoring is required it is best practice to acquire a number of years of baseline data and for this reason The Applicant is seeking permission to commence ecological monitoring, if required, in 2023. Monitoring is proposed within the proposed wind farm development boundary but also within the surrounding area, as shown in the drawings provided in Annex B of the application documents to enable monitoring for potential far field effects. For this reason only the Foreshore Licence area has been increased.</p> <p>The proposed surveys and site investigations will have no impact upon the integrity of the Kish and Bray Banks.</p> <p>The proposed surveys and site investigations are independent of any potential construction or operation of a wind farm, which is subject to obtaining a MAC and securing development permission in accordance with the Maritime Area Planning Act, 2021 and its associated consent framework.</p> <p>The Applicant stated the proposed wind farm boundary has not been amended and is co-incident with the geotechnical survey boundary as shown in Drawing 3 of Annex B to the application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices, they are not limited to within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east.</p>

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<p>The effects of the works proposed, in connection with the site investigations to be employed in the installation methodology of this Geotechnical Survey, far exceed the limits of previous surveys. Therefore we request an alternative model of the Site Investigations for the proposed Dublin Array Offshore Wind Farm.</p> <p>KBCC questioned the purpose of the Geotechnical Survey of site Investigations for the proposed Dublin Array Offshore Wind Farm. Although RWE Renewables state there is a necessity to examine foundation design, the size and installation methodology and to finalise cable route and landfall design and installation methodology, KBCC considers this work as effective preparation for construction. RWE Renewables Site Investigations for the proposed Dublin Array Offshore Wind Farm far exceed the scope of previous surveys of the Kish and Bray Banks, which adhered to a limited definition of such investigations. RWE Renewables' description of the machinery required for foundation design and installation methodology far exceed the limits of previous surveys, and do not appear to have respected the extensive and relevant information already collected about the formation and ecology of these sandbanks, and their role in the mitigation of coastal erosion.</p> <p>The following site preparation tests, outlined in RWE's Site Investigation document, have a survey purpose, and, as KBCC understand this, the inclusion of an installation purpose, which will irrevocably damage the Kish and Bray sandbanks, even if restoration work is carried out.</p> <p>See 4.2 Impact Assessment Predicted Effects included in RWE Renewables Site Investigations for the Proposed Dublin Array Offshore Wind Farm, FS007188Annex C - EIA Screening and Environmental Report.</p> <p>The machinery required for foundation design and installation methodology: Cone Penetration Tests (CPTs) in the Array area and the export cable corridor: Up to 61 seafloor CPTs up to an approximate geologically shallow depth of 80m below seafloor are proposed within the Array area and 31 CPTs to an approximate depth of 6m below the seafloor in the export cable corridors which extend into the Arra, 3 In the subtidal locations a CPT rig will be lowered to the seafloor from a suitable vessel by a deck mounted crane or A-frame. An instrumented cone, with a diameter of approximately 40mm, will then be pushed into the seabed at a constant speed. Continuous measurement of the cone end resistance, the friction along the sleeve of the cone and the pore water pressure</p>	<p>The wind farm design is an iterative process informed both by engineering and environmental studies and surveys. A geophysical survey of the proposed development, including ecological sampling, was undertaken in 2021. Data from that campaign has been incorporated into our understanding of the site and the wind farm design development process. The site investigations, including geophysical and geotechnical surveys, which are the subject of this Foreshore Licence application are the next stage in this process and will provide more detailed information based on the preferred layout and design parameters which are emerging. The proposed surveys will have no impact upon the integrity of the Kish and Bray Banks nor upon coastal erosion. The proposed windfarm will be the subject of further consultation in the future as part of the Development Consent process under the Maritime Area Planning Act, 2021 and its associated consent framework.</p> <p>The Applicant stated that the Foreshore Licence application is for site investigation and ecological monitoring only. It does not include permission for any site preparation nor permanent installations.</p> <p>The Natura Impact Statement included in the application documents, Annex F, includes an assessment of the likely significant effects on the conservation objectives of the Rockabill to Dalkey SAC arising from the proposed site investigation and ecological monitoring activities. Based on the assessment of the proposed surveys alone and in-combination with other projects and plans, with mitigation measures in place, it can be concluded that no adverse effects on the integrity of the European sites will arise.</p> <p>The Applicant concluded that Annex F includes an Article 12 Assessment for all cetaceans which are Annex IV species, i.e. European Protected Species (EPS) listed under Annex IV of the Habitats Directive, which are protected wherever they occur, it is an offence to deliberately capture, kill, injure or disturb such species. With the proposed mitigations in place, as specified in DAHG, 2014 the Article 12 Assessment concludes that no marine mammals whose</p>

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<p>will be recorded. The cone will then be recovered to the rig and the rig returned to the vessel. The duration of operation at each CPT location within the array area is expected to be up to 6 hours. In the intertidal area a similar process will be undertaken from a tracked vehicle.</p> <p>Vibrocores will be taken across the export cable routes which extend into the Array. Up to 48 vibrocores, approximately 150 mm diameter and penetration depth of up to approximately 6 m will be taken. Five of the 48 vibrocores may be located within the intertidal areas.</p> <p>A vibrocore rig will be lowered to the seafloor from a suitable vessel by a deck mounted crane or A-frame. A vibrocore head will be attached to the core barrel and will induce high frequency vibrations in the core liner. The sediment in immediate contact with the core barrel forms a 'liquefied' boundary layer enabling the core barrel to penetrate the sediment strata. A core catcher is attached to the end of the barrel which holds the sediment inside the barrel when withdrawn from the sediments. Each core would have a sediment sample volume of approximately 0.05 m³. The expected duration of the vibrocoreing operation at each location is less than 5 minutes. In the intertidal a similar process will be undertaken from a tracked vehicle. The cumulative time dedicated to vibrocores will be 150 days, continuing the full 24 hours.</p> <p>Boreholes</p> <p>Up to 61 subtidal boreholes to a geologically shallow depth of 80 m below seafloor are proposed within the array area to target proposed foundation locations. A borehole is a method of drilling into the seabed to recover samples and enable downhole geotechnical testing to be completed. A drilling head is lowered to the seabed via a drill string with an outside diameter of up to 254 mm and stabilised using a seabed frame. The drill string is then rotated to commence boring. Tools are lowered into the drill string to recover samples or conduct in-situ soil testing. The drilling flush and drill cuttings are largely returned to the vessel and re-used or returned to shore for disposal, however some loss of flush and cutting should be expected. All drilling fluids will be fit for purpose and where possible selected from the 'OSPAR List of Substances/Preparations Used and Discharged Offshore which are considered to Pose Little or No Risk to the Environment'. The offshore boreholes will be left to back-fill naturally. The duration of the operations at each</p>	<p>range may overlap the survey area will be impacted or disturbed by the proposed activities.</p>

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<p>borehole location within the array area is expected to be approximately 48 hours. Four boreholes are also planned at each of three possible landfall locations (i.e. 12 in total). The nearshore boreholes will be in water depth of 0 to 7 m and will be to a target depth of 45m below seafloor. The external diameter of the drill pipe will be approximately 100 mm. The nearshore boreholes would either be backfilled or grouted to within 2m of surface of the base of mobile sediment typically using a 2:1 bentonite cement mix. The surface will be reinstated to previous condition as the investigations at each location are completed. Pre and post investigation site photographs will be taken. The duration of the operations at each borehole location within the intertidal area is expected to be approximately 36 hours. KBCC noted that the effect of constant noise over long periods of time on porpoises, seals and other cetaceans will be devastating. Most of these gather in the crook of the north end of Killiney Beach, continuing onward through the curve to White Rock, and on to Dalkey Island, and are adjacent to the SAC area as noted in the supplementary map listed below.</p> <p>KBCC trusts that the Department of Housing, Local Government and Heritage will take these observations into consideration regarding the above application.</p>	
<p>Submission 15 Private Submission The observer has concerns as the survey area has expanded to include a larger area of foreshore at Killiney/Shanganagh and Hackettsland townlands in South Killiney Bay. The observer has noted the following:</p> <p>River Estuaries Shanganagh River: A healthy salmonid river 50 years ago and still supports Sea Trout, possibly eel and mammals such as Otter along the wetland and wildlife corridor to Loughlinstown Woods pNHA upstream where lamprey were observed in spring 2021.</p> <p>The river mouth is within a few hundred metres of the apparent cable corridor route and undersea trenching and borehole drills. It is part of the Dublin Urban Area Rivers Life Project. Water quality took a dip in midsummer 2021</p> <p>Deansgrange River Estuary: though culverted, this discharges via a narrow channel on to the shore.</p>	<p>Applicant's Response to Submission 15 The Applicant noted that the site investigations (geophysical and geotechnical) which are proposed under the current Foreshore Licence application will be focussed on the locations of the proposed turbine foundations, inter-array, and export cable routes to the selected landfall location(s) which are being refined in the course of the iterative design and assessment process. The proposed boundary of the wind farm area and export cable corridors has not changed since the previous Foreshore Licence application FS007029. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects. For this reason only the proposed survey area which is the subject matter of the foreshore licence has been increased when compared with a previous application.</p> <p>River Estuaries</p>

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<p>Though the rivers typically discharge to the sea in meandering channels and form lagoons the natural process has been disrupted by necessary regular dredging on the shoreline as a flood prevention measure (DLR)</p> <p>Both rivers showed a dip in water quality in summer 2021 probably due to upstream pressures. Scum in the Shanganagh lagoon in May was queried and may have been due to tidal algal bloom being trapped in when the seawater retreated. There may also have been impacts on shoreline biota in 2021 with impacts on Baseline Data in Fugro ship survey.</p> <p>Flood Risks This section of shore is now at High Risk for Coastal Flooding (see flood maps attached to DLR Draft County Development Plan in November 2021) and still in an extended public consultation period. The combined risks of coastal flooding, pluvial and alluvial flooding and occasional flash floods in the past 12 years have to be factored in to shoreline survey activity with reference to the latest information, CFRAM and DLR Coastal Flooding Reports. The latest Flood maps have only recently been made available on-line for public viewing. River channels must be kept open to prevent serious upstream flooding that can put lives and homes at risk.</p> <p>The enclosed space between old and new railway lines and bounded by the rivers is a natural Flood Plain which saturates quickly in times of heavy rains. There is a large area of reed bed and a wildflower meadow.</p> <p>In summer 2021 there was a bore site in this field to investigate ground water and boulder clay in this green area and also at the beach access point at the railway underpass. It was hoped to drill down 25 metres. Results are not yet available to the public. Rock hard boulder clay would quickly prevent deep drilling. The clifftop green also saturates quickly and required extra drainage measures along the paths in the past two years. It was always a soggy zone after rains and difficult terrain for walkers.</p> <p>Erosion</p>	<p>The Applicant noted the information and data sources provided in the response. Physical disturbance of seabed habitat arising from the proposed geotechnical sampling locations, on the south side of the Shanganagh Waste Water Treatment Plant, will affect a very small area and any effects will be highly localised. No impact to water quality within the Shanganagh River, which enters the sea approximately 0.25km to the north of the proposed works, nor the Deansgrange River are anticipated to occur due to nature, scale and location of the proposed surveys.</p> <p>There is no possible pathway between the non-intrusive geophysical surveys conducted in the area in 2021 and shoreline biota. The Applicant noted these surveys did not disturb the seabed nor mobilise seabed sediments. Shallow benthic grab samples (0.1m²) were undertaken as part of the 2021 survey, however the closest subtidal sampling locations was located approximately 3km offshore. Given the distance from shore and the very limited area of seabed disturbance no effect on shoreline habitat could have occurred. AQUAFAC International Services Ltd. conducted an intertidal survey at Shanganagh in March 2021 on behalf of the Applicant. This comprised a walkover survey and shallow cores of 15cm diameter at the upper, mid and lower shores along two transects, one in the proximity of the WWTP the other further south near Shanganagh Park. The nature and extent of these activities, conducted by experienced ecologists, would not have had any impact on the biota present on the shoreline.</p> <p>Flood Risks and Erosion The Applicant noted the potential landfall locations along this stretch of coast have been selected with consideration of flood risk and rates of coastal erosion. The proposed surveys which are the subject of this Foreshore Licence application will not hinder the river channels and have no implication for flood risk nor increased rates of erosion due to the nature, scale and location of the proposed surveys. Areas of potential stony reef were identified in the nearshore areas along the cable route at Shanganagh, during the geophysical surveys</p>

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<p>The soft glacial cliff north of the Shanganagh River has rapidly accelerating erosion and is now shedding aged rusted metal and other material which indicates there was some ad hoc dumping in past decades. This may also impact on the Council vehicle services area and dirt ramp from cliff top to the shore which was used for vehicles in the recent Corbawn rock armour works. Strong storms also impact on upper shore area with a reduction in stable grassy turf along the upper shoreline perimeter.</p> <p>Geogenic Reef to the north of the Deansgrange River. This requires a full ecological survey more than once a year due the seasonal variations in eco systems. A diving survey would be useful in case anything of importance is missed. The reef is often frequented by up to a hundred birds at mid tide and was once a stopping off point for hundreds of passing geese around St Patrick's Day every year we were told by an elderly observer some years ago.</p> <p>Infrastructure We were glad to see that the Bray Shanganagh Wastewater Treatment Plant on the clifftop has been referenced along with the long Shanganagh Outfall Pipe on the cliff below and the short stormwater overflow pipe in the seabed as these will require due caution in the siting of an cable link. Local residents, DLR and a local councillor all made reports about the missing marker pole on the shore to Irish Water in autumn 2020 which has not been replaced and may indicate present or older seabed pipes. There were concerns on the grounds of health and safety. There was to be 'investigation' but no sooner than the third quarter of 2021. No recent feedback on this. There seems to have been little consultation with Irish Water referenced so far in the application about possible landfall cable links on the shore area immediately below the plant and close to the outfall pipe. There are also mainline sewers to the plant embedded within the clifftop zone.</p> <p>Potential Explosions due to accidental mixing of electricity and sewage gas There is concern about potential hazards when high voltage cables are run in proximity to undersea outfalls with sewage gas or clifftop cables as it can be an explosive mixture.</p>	<p>conducted under Foreshore Licence FS007029. The ecological survey which was conducted under the same licence recorded video and photographic stills of the area of stony reef. The maximum scope of the ecological monitoring survey proposed under this Foreshore Licence application has been defined within the Supporting Information Section 2 and within the Project Information Section 4.1 and method statements provided in Section 4.2 of the Report to Inform AA screening. Intertidal and subtidal sampling sites will be selected following review of the most up to date geophysical and environmental data, to identify the presence and extent of sensitive features including subtidal geogenic reef. Sampling will be preceded by drop down video and images reviewed to ensure no impact on reef features, sampling locations will be micro-sited as required.</p> <p>Infrastructure The Applicant noted the proposed site investigations which are the subject of this application will only occur in the foreshore and will have no impact upon the infrastructure in the vicinity referenced due to the nature, location and scale of surveys proposed.</p> <p>Archaeological Heritage The Applicant noted the site investigations which are the subject of this application will have no impact upon the terrestrial or coastal heritage assets in the vicinity due to their scale, nature and location. The Applicant referenced the Marine Archaeology Assessment, Annex D of the application documents includes an extensive description of both the maritime and coastal archaeological features all of which have been taken into consideration in survey planning undertaken to date and in preparing the application documentation. The site investigations which are the subject of this Foreshore Licence application will have no impact upon the cliffs between Killiney and Bray due to their nature, scale and location.</p> <p>Amenity Area and public access to paths and shoreline</p>

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<p>Please note: Space for an extra tank at the WWTP was factored into the design to accommodate the major increase in population at Cherrywood town. This was expected to be constructed after 2020.</p> <p>Other Infrastructure The immediate upper shore has a popular walkway and plans for a cycleway along the narrow path on top of the old railway line embankment which functioned till about 1912</p> <p>Bridges There is a fine granite stone bridge over the Shanganagh River estuary ..one of the earliest railway bridges in Europe. This may have a weight bearing limit. A narrow wooden and metal bridge was constructed over the Deansgrange River in 1990.</p> <p>Existing Paths The narrow pedestrian paths on the old embankment which are also used now by cyclists would not be suitable for persistent heavyweight construction vehicles. While providing a raised walk-way with appealing views it also functions as a protective berm bank and storm buffer. The clifftop path is a narrowed version of the temporary haul road for the building of the Waste Water Treatment Plant. Future Infrastructure may include a substation and other works to the north of the Deansgrange River on the upper shore according to recent Codling Windfarm maps as another company is competing for use of the same potential landfall space for cables.</p> <p>Archaeological Heritage Though mid 19th century structures predominate, there are two earlier structures...a ruined stone battery on the eroding clifftop and a Martello Tower north of the Deansgrange River which may also have been the site of a earlier dolmen or tomb which suggests a long pattern of settlement. Geological Heritage of the Glaciated Cliffs between Killiney and Bray. These are frequently studied by secondary students, university students and other specialist geological groups.</p> <p>Amenity Area and public access to paths and shoreline</p>	<p>The Applicant noted the site investigations which are the subject of this application will have no impact upon the amenity areas on the clifftop. Suitable access to the beach at Shanganagh will be agreed with Dun Laoghaire Rathdown County Council prior to commencement of the works, similarly access to the Poolbeg intertidal area will be agreed with Dublin City Council. Small areas of the beach around the geotechnical sampling locations will be closed to the public for safety reasons during the works for short periods of time. The Applicant stated they have committed to reducing the extent and duration of these closed areas as far as practicable.</p> <p>Biodiversity Concerns The Applicant noted that the application documents include an EIA Screening and Environmental Report (Annex C), Report to Inform Appropriate Assessment Screening (Annex E) and Applicant's NIS (Annex F). The assessment approach follows the source-pathway-receptor model to identify the possible effects arising from the works, the route by which these effects may be experienced by receptors. An Environmental Appraisal is presented in Section 4 of Annex C, which considers amongst other topics, potential effects upon benthic subtidal and intertidal habitats, fish and shellfish, birds and marine mammals which may experience effects from the proposed works, i.e. where all the elements of the source-pathway-receptor model are in place. Annex C concludes that the nature, scale and location of the proposed site investigation and monitoring is such that there are no foreseeable significant effects on the environment arising from the activities.</p> <p>Annexes E and F are primarily focussed on receptors which are qualifying interests of a Natura 2000 Sites and cetaceans which are listed under Annex IV of the Habitats Directive.</p> <p>In the application documentation the applicant has committed to the appointment of an ecologist to supervise the works within the intertidal areas. The ecologist will undertake a pre-commencement walk-over survey to identify sensitive habitats, including <i>Zostera noltii</i>, marram</p>

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<p>This is a very popular and busy amenity area used by hundreds of people from near and far during Covid lockdown. Walkers, runners, dog walkers, cyclists, some wheelchairs, e-scooters, picnickers, pram and buggy users were all competing for space along with bathers and people undertaking water activities with canoes, paddle boards and inflatable boards. Anglers fish near the Shanganagh River</p> <p>Estuary. People of all ages and abilities use the area for their regular daily exercise and there are well established rights of way from access points and along paths between Shankill and Killiney. The green clifftop area provides two playing fields used by various clubs along with a community muga pitch and allotment gardens. At times there are incidents of anti-social behaviour with environmental impacts by a tiny minority. The immediate hinterland has an enclosed meadow space.</p> <p>Biodiversity Concerns While the licence application describes the character of the shoreline and sediments and includes the geogenic reef, it does not give a full picture of the marine biota and integrated shoreline eco systems. Fauna: Marine mammals, fish, marine birds on the geogenic reef, lagoon and clifftop birds, sandmartin colonies in the nearby Shanganagh Cliffs (referenced by Niall Hatch of Birdwatch Ireland reporting on Mooney Goes Wild on RTE One in the spring) are not referenced along with shoreline bumble bees, up to 16 possible varieties of shoreline and clifftop butterfly, bats, otter and further species. In the past decade bird observations have included visiting geese, little egret, lapwing and kingfisher. Observations by Dublin Array include some of the algae to be found but not all, and some smaller fish species which were not observed may be present. Snorkellers have made further observations. While eutrophication brings extra growth of some green ulva digitalis this also masks other varieties at times. We were glad to see that Fucus Serratus and Laver seaweed were recorded along with worms on the reef, sandmason and sandhoppers.</p> <p>The D19 Butterfly Transect which included the upper shore and clifftop has been monitored for over ten years for the National Biodiversity Data Centre. Otter Survey 2021 (DLR)</p>	<p>grass and annual vegetation drift lines, the sampling locations will be micro-sited to avoid impacts on sensitive habitats. Reinstatement of the intertidal habitat will be carried out to pre-survey conditions. Pre application consultation with NPWS confirmed the appropriateness of the mitigation measures proposed.</p> <p>Public information Signage The Applicant noted the comment in relation to public information. The Applicant stated when the specific location of the infrastructure which will be the subject of development consent application under the Maritime Area Planning Act, 2021 has been identified, relevant maps and drawings will be made available as part of a public consultation procedure for the development consent process, and will ensure that the locations are clearly understandable.</p> <p>Other Comments The Applicant noted this Foreshore Licence application is for permission to undertake site investigation and ecological monitoring only.</p> <p>The proposed windfarm will be the subject of a development consent application in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. The location of any infrastructure will be clearly identified in the development consent application when the planning stage design has been completed. The application for development consent will be accompanied by an Environmental Impact Assessment Report which will include an assessment of the potential impact that the proposal may have on a range of receptors including seascape, marine mammals, birds, navigation and the physical environment. Any such application will be subject to public participation.</p> <p>The Applicant further noted the proposed wind farm boundary has not been changed and encompasses the two rectangular areas which were the subject of Foreshore Licences in 2000 and Foreshore Lease applications in 2006. The proposed wind farm boundary is co-incident</p>

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<p>Flora: Drift Line vegetation features Sea Holly and a number of other marine shore species including a rarer one. Together with Fringe Vegetation and some clifftop plants there is a wide range of wildflower and plants throughout the seasons of the year. This is where 'the meadow met the sea'</p> <p>AIS: Giant Hogweed is now encroaching on the shoreline shingle and needs to be taken into consideration to prevent further spread if there is soil disturbance. Shore biota are already under pressure from constant trampling especially during most restrictive pandemic times and this can be observed on the latest Google Earth maps.</p> <p>Birdwatch Ireland and the Dublin Field Naturalist Club have included the beach and clifftop areas in specialist field trips and it is easily accessed by public transport.</p> <p>There is a legal imperative to Protect, Preserve and Restore existing Biodiversity and if in doubt apply the Precautionary Principle to avoid long term environmental damage.</p> <p>Public information Signage!</p> <p>It would be very helpful to promote greater public engagement by providing site maps of cable link proposals with a link to the plans at public beach access points in Killiney, Bayview railway underpass Killiney, Shankill beach access point and Shanganagh Cliff/Rathsallagh Estates Shankill as happens in the Terrestrial Planning process.</p> <p>Other Comments</p> <p>Please note: the original licences for exploration of the Kish and Bray banks were granted in 2000 before the increasing evidence of Climate Change, stronger storms and increased flood risks along with coastal Erosion in this area. The construction of the Waste Water Treatment Plant (DBO) was at the early planning stage in 2007 and took nearly 7 years to complete so may not have been taken into account in earlier licences seeking landfall cable sites or taken into proper account. Urban expansion has brought increased pressures to the shoreline area along with increased appreciation of its merits. Cable Link site at 'Shanganagh Park' with borehole investigations</p> <p>There is very scant information on this in the application.</p>	<p>with the geotechnical survey boundary as shown in Drawing 3 of Annex B to the application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east.</p> <p>The Applicant also noted that information to aid the Minister's assessment of the potential for effects of the proposed works to arise, in-combination with other plans and projects is provided in Section 4.3 of the Natura Impact Statement included in the application documentation (Annex F) which concluded that that there are no adverse effects upon the European Site's integrity as a result of the in combination proposed works.</p>

Public Submission	Applicant's Response
<p>Cable Link Site Shanganagh area Shankill? The proposal for a site north of Bray seems to have been dropped though this was the preferred and only proposed landfall site indicated for many years of this process.</p> <p>Increased overall Area of the Dublin Array Windfarm Survey applications. It has been noted that the overall area has expanded with successive licence and lease applications in the past 20 years and is now very large and hugs the shoreline at Poolbeg, Shellybanks and Hackettsland, 'Shanganagh' Killiney and also 'Shanganagh' Shankill. This comes at the same time as other windfarm applications impacting on the same areas and will add to the cumulative environmental pressures.</p>	
<p>Submission 16 On behalf of Coastwatch NGO Coastwatch NGO submitted the following comment in relation to the foreshore licence application: Re Proposed Landfall Cable Link Sites. (1) Poolbeg Shellybanks. Coastwatch NGO have a particular concern about the Arctic Ciprina site that was near Poolbeg along with the 'Donnax' species. Coastwatchers with an in-depth knowledge of seagrass beds in Dublin Bay have not identified the presence of Zostera Noltii at Shellybanks to date but conducted extra verification checks after reading the application, to identify the exact location intended with no success.</p> <p>Coastwatch NGO stated that the Shellybanks shoreline has a rich variety of benthic species (as indicated by the name) so a simple initial 'field' assessment of the actual shells on the shoreline would help provide further information on which species are now present. Coastwatch NGO state that further data on shore life is necessary.</p> <p>Drift line vegetation and incipient marram dunes are identified in the application but detail on further biota is lacking. Coastwatch NGO noted that species need to be identified. In addition they suggest that the exact location of the Drift Lines and Marram referenced would be helpful.</p>	<p>Applicant's Response to Coastwatch NGO's Submission (Submission 16) Re Proposed Landfall Cable Link Sites. (1) Poolbeg Shellybanks. The Applicant notes that due to the variability in the exact location and extent of habitat features, the Applicant has committed to appointing an experienced, qualified ecologist to supervise the works within the intertidal areas. The ecologist will undertake a pre-commencement walk-over survey to identify any sensitive habitats, such as Zostera noltii, marram grass and annual vegetation drift lines, and to advise the Applicant on any potential access points to the intertidal area for plant and machinery which would avoid any such sensitive habitats. Reinstatement of the intertidal habitat will be carried out to pre-survey conditions. Pre application consultation with NPWS confirmed the appropriateness of mitigation measures proposed.</p> <p>The Applicant noted the nearshore boreholes will have a maximum sample diameter of 10 cms and will be drilled to a maximum depth of 45m. The subtidal boreholes will be drilled to a maximum depth of 80m. Borehole samples will be removed from within the drill string for detailed offsite analysis. A small amount of spoil, comprising bentonite and drill cuttings, may be generated from the process. Bentonite is a non-toxic, inert, natural clay mineral that can be diluted with water and is used extensively in the marine environment. The drill string is operated within a riser casing which will contain the drilling</p>

Public Submission	Applicant's Response
<p>While intertidal shoreline investigations may take place for one or two weeks per annum for up to five years a question of seasonality is raised by Coastwatch NGO. They note that spring may reveal different results from a survey in the autumn; and that there could be a similar variation in regard to sub tidal benthic surveys especially if there is a water pollution incident.</p> <p>Coastwatch NGO stated that any ecologist appointed to direct machinery away from sensitive areas needs to have had previous 'on site' experience and training, with further checks by the appropriate authority.</p> <p>Re Boreholes Coastwatch NGO mentioned that if boreholes for a potential cable corridor at this location run up to 80 metres deep there might there be a danger of activating toxic matter long settled on the seafloor? Coastwatch NGO state that aged material from the former dump and reclaimed land is shedding through the rock armour in some places and this needs to be assessed. Suspended sediment may deter the foraging of wading birds. Any risk of toxins should be discussed. Coastwatch NGO suggested that a repeat process of 'benthic grabs' may bring repeated damage to a site.</p> <p>Amenity aspects at this site. Coastwatch NGO say that this is alongside an increasingly popular walking route and not far from the busy Half Moon Bathing Place. Coastwatch NGO suggest that public access issues need to be taken into careful consideration.</p> <p>(2) Cable Link at south Killiney Bay: Killiney, Hackettsland, Shanganagh and Shankill. Coastwatch NGO noted that the survey area had been extended along the shoreline with this application. Coastwatch NGO noted that estuaries of the Shanganagh River and Deangrange which flow into the sea via lagoons and meandering intertidal channels have not been mentioned at all. They note that both rivers require regular dredging to keep the river mouths free of sand and silt to avoid potential back flow in times of flooding especially at high tide and when there is a driving east wind.</p>	<p>spoil/cuttings which will be retained and returned to deck. In accordance with standard practice this material will be returned to the seabed and allowed to disperse naturally. Spoil from borehole locations towards the top of the beach will be recovered and removed offsite for disposal.</p> <p>The Applicant noted that access to the beach at Poolbeg will be agreed with Dublin City Council, similarly access arrangements at Shanganagh will be agreed with Dun Laoghaire Rathdown County Council prior to commencement of the works. Small areas of the beach around the geotechnical sampling locations will be closed to the public for safety reasons during the works, the Applicant has committed to reducing the extent and duration of these closed areas as far as practicable. There will be no restrictions on access to specific amenity locations, such as the Half Moon Bathing Place. (2) Cable Link at south Killiney Bay: Killiney, Hackettsland, Shanganagh and Shankill.</p> <p>The Applicant noted the proposed wind farm boundary has not been changed and encompasses the two rectangular areas which were the subject of Foreshore Licences in 2000. The proposed wind farm boundary is co-incident with the geotechnical survey boundary as shown in Drawing 3 of Annex B to the application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east. Physical disturbance of seabed habitat arising from the proposed geotechnical sampling locations, on the south side of the Shanganagh Waste Water Treatment Plant, will affect a very small area and any effects will be highly localised. No impact to water quality within the Shanganagh River, which enters the sea approximately 0.25km to the north if the proposed works are anticipated, nor the Deansgrange River.</p>

Public Submission	Applicant's Response
<p>Coastwatch NGO suggested that the latest Flood Risk maps for this area were added to an appendix of the DLR Draft Development Plan and need to be viewed. This zone is now a high Coastal Flooding risk in addition to the pluvial and alluvial flooding which have been a feature of the rivers for over a decade (see CFRAM reports) In summer 2021 a contractor was conducting test bore holes to check the ground water and soakage levels in the adjacent field which is a flood plain. Generally they hit boulder clay as hard as bedrock in the hinterland 'field area' only a few metres down. There was a suggestion that an extra drainage pipe might be required in the area.</p> <p>Coastwatch NGO noted that the Shanganagh River was a high quality salmonid river fifty years ago and still provides a channel for sea trout and sometimes eel using the river wetland corridor which continues to Loughlinstown Commons pNHA and streams further beyond again. The lagoon on the seashore has fish and the shoreline is popular with anglers.</p> <p>Coastwatch NGO noted that the Deansgrange River, now in a narrow culvert, is prone to flash flooding and flows onto the shore via a deep channel that attracts wildlife.</p> <p>Coastwatch NGO noted that water quality in both rivers dipped in summer 2021 and there was a phase of probable algal bloom and high siltation in the lower tidal area so baseline assessments in Summer 2021 may have had reduced data results.</p> <p>Erosion Threats. Coastwatch NGO noted that the soft glacial cliff at the cable link site (and towards Shankill) has shown accelerated rates of erosion in the past five years.</p> <p>Infrastructure Coastwatch NGO stated that the Bray Shanganagh Waste Water Plant on the clifftop is due for expansion in this decade with the addition of an extra tank with the increased populations in the new Cherrywood Town to the west.</p> <p>Coastwatch NGO suggested that serious discussion with Irish Water is urgent now. When the original Kish licence was granted over twenty years ago the modern WWTP for the area had not been designed, built or in operation.</p> <p>The long seafall outpipe is referenced along with the short storm overflow pipe.</p> <p>Coastwatch NGO state that concerns have been raised in regard to the proximity</p>	<p>The Applicant noted there is no possible pathway between the non-intrusive geophysical surveys conducted in the area in 2021 and shoreline biota. There was no disturbance to the seabed nor mobilisation of seabed sediments. Shallow benthic grab samples (0.1m²) were undertaken as part of the 2021 survey the closest subtidal sampling locations was located approximately 3km offshore, given the distance from shore and the very limited area of seabed disturbance no effect on shoreline habitat is likely to have occurred.</p> <p>The Applicant highlighted that the potential landfall locations along this stretch of coast have been selected with consideration of flood risk and rates of coastal erosion. The proposed surveys which are the subject of this licence application will not hinder the river channels and have no implication for flood risk nor increased rates of erosion.</p> <p>The Applicant noted that the application documents include an EIA Screening and Environmental Report (Annex C). The assessment approach follows the source-pathway-receptor model to identify the possible effects arising from the works, the route by which these effects may be experienced by receptors. Environmental Appraisal is presented in Section 4, which considers amongst other topics, potential effects upon fish and shellfish species which may experience effects from the proposed works, i.e. where all the elements of the source-pathway-receptor principle are in place. Annex C concludes that the nature, scale and location of the proposed site investigation and monitoring is such that there are no foreseeable significant effects on the environment arising from the activities.</p> <p>Erosion Threats. The Applicant noted that the potential landfall locations along this stretch of coast have been selected with consideration of rates of coastal erosion. The proposed surveys which are the subject of this Foreshore Licence application will not affect rates of erosion.</p> <p>Infrastructure The Applicant noted that the proposed site investigations which are the subject of this licence application will have no impact upon the</p>

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<p>of an electric cables in an area of possible sewage gas leakage due to risk of explosion. Coastwatch NGO noted the proposed cable link site through the eroding glacial cliffs will be in a tight space adjacent to the Shanganagh River mouth and WWTP major outfall pipe.</p> <p>Historic Infrastructure. Coastwatch NGO identified the following historic infrastructure in the surrounding onland area of the foreshore licence application: The busy 'raised walkway' is the early railway embankment. Bridges: The old stone railway bridge at the Shanganagh Estuary is one of the earliest in Europe. The wooden/steel bridge over the Deansgrange River (circa 1990) opened up a continuous right of way from Shankill to Killiney. Early 19th century built structure features the crumbling clifftop 'Battery' and a still intact Martello Tower. The site of the Tower is probably a site of early human settlement. Future Infrastructure may include an electricity substation for Codling Windfarm on the upper shore close to the Martello Tower as they are also surveying this section of the coast.</p> <p>Amenity Area Coastwatch NGO noted that there is high use of the narrow coastal paths by people of all ages and abilities (from near and far) along an increase in bathing and water activities. DLR have plans for a coastal cycling route from Killiney to Shankill which will increase path use and bring more visitors to the shore area. For some local residents it is the main accessible daily exercise area near their home. The clifftop area has busy playing fields as well as a community muga pitch and allotment gardens.</p> <p>Biodiversity. While some of the lower shore and geogenic reef biota have been listed the Coastwatch NGO believes this is not a full assessment. They note that there are probably gaps in the fish life data on the reef and also the variety of algae present though sometimes this can be masked by eutrophic green algae which is present in many parts of the bay due to lags in water quality.</p>	<p>infrastructure in the vicinity, all sampling locations will be positioned so as to avoid any impact on these features. The Applicant has been in consultation with Irish Water and will continue to consult with them as the design of the offshore wind farm and associated cable routes develop.</p> <p>The Applicant stated that a thorough search of all planning applications which have been submitted but not yet determined or which have been granted but not yet constructed will be undertaken prior to completing an assessment of potential impacts of the proposed project cumulatively with other plans and projects. The cumulative effects assessment will be presented in the Environmental Impact Assessment Report for the proposed wind farm which will be submitted in due course under the Maritime Area Planning Act, 2021 and its associated consent framework.</p> <p>Historic Infrastructure. The Applicant noted the proposed site investigations which are the subject of this licence application will have no impact upon the infrastructure in the vicinity, all sampling locations will be positioned so as to avoid any impact on these features. A Marine Archaeology Assessment, Annex D of the application documents includes an extensive description of both the maritime and coastal archaeological features.</p> <p>The Applicant stated that a thorough search of all planning applications which have been submitted but not yet determined or which have been granted but not yet constructed will be undertaken prior to completing an assessment of potential impacts of the proposed project cumulatively with other plans and projects. The cumulative effects assessment will be presented in the EIAR for the proposed wind farm which will be submitted in due course as part of the development consent application under the Maritime Area Planning Act, 2021 and its associated consent framework.</p> <p>Amenity Area</p>

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<p>The integrated eco systems of the area demonstrate a good variety of fauna and flora including Drift Line Vegetation and Fringe Vegetation. Coastwatch NGO stated that there was not mention of the birdlife in the lagoons or on the geogenic reef or the sandmartin colonies in the soft cliff close to the site and further along the shore towards Shankill.</p> <p>Coastwatch NGO noted that the precautionary principle has to be applied. Any plans for cable links at this location need to be carefully 'ground truthed' as there are many overlapping factors to take into account in a tight space, with with both a railway line and intensive residential housing in the hinterland.</p> <p>(3) Other cable link landfall sites indicated in previous licence applications by Dublin Array. While this application references a possible second cable landfall route somewhere near 'Shanganagh Park' the exact location is not clear to Coastwatch NGO and it suggested that there is no further detail apart from the borehole indicators on a map. Coastwatch NGO noted that the original proposal for the cable link at Shanganagh North of Bray, Shankill seems to have been dropped in this application as the focus is now on Shanganagh Killiney further south. The name 'Shanganagh' has caused a lot of confusion for the public on these applications as it can cover a large area. It needs to be clearly defined with a user friendly map reference. (This matter was raised directly with Dublin Array in 2020 in the hope of improving the public information) The rocky area off the coast at Shanganagh Park shoreline access point is favoured by seals and lower shore biota and should be carefully assessed in advance of incursions by windfarm surveyors at any stage. Although the beach area north of Bray does not appear to be covered in this application Coastwatch NGO asked to note the presence of the submerged 6000 year old forest (Praeger)</p> <p>Increase in the Survey Area in this application. Coastwatch NGO noted the survey area is now vast and seems to have increased with licences and leases for the Kish Bank windfarm proposal since the first applications over 20 years ago. They note that prolonged surveys with seabed</p>	<p>The Applicant stated that the site investigations which are the subject of this application will have no impact upon the amenity areas on the clifftop. Access to the beach at Shanganagh will be agreed with Dun Laoghaire Rathdown County Council prior to commencement of the works, similarly access to the Poolbeg intertidal will be agreed with Dublin City Council.</p> <p>Biodiversity. The Applicant noted that the application documents include an EIA Screening and Environmental Report (Annex C), Report to Inform Appropriate Assessment Screening (Annex E) and Applicant's NIS (Annex F). The assessment approach follows the source-pathway-receptor model to identify the possible effects arising from the works, the route by which these effects may be experienced by receptors. Environmental Appraisal is presented in Section 4, of Annex C, which considers amongst other topics, potential effects upon benthic subtidal and intertidal habitats, fish and shellfish, birds and marine mammals which may experience effects from the proposed works, i.e. where all the elements of the source-pathway-receptor model are in place. Annex C concludes that the nature, scale and location of the proposed site investigation and monitoring is such that there are no foreseeable significant effects on the environment arising from the activities.</p> <p>The Applicant stated that Annexes E and F are primarily focussed on receptors which are qualifying interests of a Natura 2000 Sites and cetaceans which are listed under Annex IV of the Habitats Directive. The Applicant noted that the cumulative effects assessment of the proposed wind farm infrastructure with other plans and projects will be presented in the EIAR for the proposed wind farm which will be submitted as part of a development consent application in due course under the Maritime Area Planning Act, 2021 and its associated consent framework.</p> <p>(3) Other cable link landfall sites indicated in previous licence applications by Dublin Array.</p>

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<p>testing, gives is an added pressure to the marine environment and allows little time for 'recovery'.</p> <p>The Coastwatch NGO stated that seabed works are reported to cause increased in suspended sediment. If the total area requested in this application is approved extra resources will be required for the state to efficiently monitor it and ensure that the process continues to maintain the standard of agreed investigation methodologies.</p> <p>Coastwatch NGO is concerned about assessing the patterns and pathways of migratory birds (especially geese and terns) fish and mammals as these can vary so much especially with impacts of Climate Change and storms.</p> <p>Coastwatch NGO suggested that on-going consultation with the appropriate state authorities and agencies, Birdwatch Ireland and the Whale and Dolphin Group for the most recent data is essential and will remain a challenge throughout the five years of this licence. Porpoise and cetaceans are at high risk even with the precautions described; and methodology needs to be fully assessed and reviewed during the process with regular policing by the authorities.</p>	<p>The Applicant noted that the application is for permission to undertake site investigation and monitoring only. The planning stage design of the project has not been completed and will in due course be the subject of a development consent application under the Maritime Area Planning Act, 2021 and its associated consent framework. The observations included within this submission will be considered as part of the planning stage design preparation process. Clear mapping has been provided as part of the foreshore licence application documentation to enable members of the public identify the specific location of the proposed investigation and survey locations.</p> <p>The Applicant referred to the Marine Archaeology Assessment, Annex D of the application to document the presence of the submerged forest has been recorded within the proposed survey area, near Bray Harbour, Co. Wicklow (paragraph 3.3.7 and Figure 3) and appropriate mitigation has been included in the development of the survey plans.</p> <p>The Applicant noted that the development consent application for the proposed offshore wind farm to be made in due course under the Maritime Area Planning Act 2021 will be accompanied by an Environmental Impact Assessment Report which will include an assessment of the potential impact that the proposal may have on a range of receptors including seascape, marine mammals, birds, navigation and the physical environment.</p> <p>Increase in the Survey Area in this application.</p> <p>The Applicant noted that a number of surveys have been undertaken historically in the vicinity of the Kish and Bray Banks in accordance with foreshore licences granted in 2000 and 2021. Over this extended period of time natural features such as seabed bathymetry can change and it is important from an engineering design and environmental assessment perspective that up to date information is obtained concerning not only the current condition but also the rate and nature of any change The data collected to date is being used to inform preliminary design and environmental assessment. The site investigations (geophysical and geotechnical) which are proposed under the current foreshore licence application will be focussed on proposed foundation locations, inter-array, and export cable routes to</p>

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	<p>the selected landfall location(s) which are being refined in the course of the iterative design and assessment process. The proposed development boundary of the wind farm has not changed. It should be clearly noted that suggestions that site preparation works are planned to be undertaken are completely inaccurate and a misrepresentation of the survey methods which are the subject matter of the application. The Applicant stated that in accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects. For this reason only the Foreshore Licence area has been increased.</p> <p>The Applicant stated that the information presented in the suite of application documents, specifically, Annex C, EIA Screening and Environmental Report, Annex E Report to Inform Appropriate Assessment Screening and Annex F Natura Impact Statement, identifies the relevant impact pathways and receptors which require assessment for potential effects of the proposed site investigations and monitoring activities which are the subject of this application.</p>
<p>Submission 17 Coastal Concern Alliance Coastal Concern Alliance (CCA) objected to the granting of a further investigative licence (Licence Application FS007188) for proposed development of a wind farm on the Kish and Bray Banks and made the following comments: The Foreshore Act 1933</p> <p>Since 2006, CCA have campaigned for reform of The Foreshore Act 1933, the legislation under which this Foreshore Licence application is being submitted. Universally accepted as outdated and not fit- for-purpose, this legislation is currently under reform and due to go to report stage in the Seanad this week. Given that the update of the legislation is imminent, the continued processing of applications for foreshore licences under the old legislation is not in the public interest.</p> <p>History of the current proposed development.</p>	<p>Applicant's Response to Submission 17 from Coastal Concern Alliance The Foreshore Act 1933 The Applicant stated that the foreshore licence application process is not a matter for it and the application has been prepared and submitted in accordance with the requirements of the Department of Housing, Local Government and Heritage. However, the Applicant noted that section 175 of the Marine Area Planning Act 2021, recently adopted by the Oireachtas, expressly makes provision for applications for foreshore licences under the 1933 Act to continue to be made to DHLGH until such time as the new Maritime Area Regulatory Authority is established under the 2021 Act. The Applicant noted the subject matter of this licence application is for ecological surveys and site investigation works only. The proposed wind farm development will be the subject of a future development</p>

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<p>Foreshore Licences 2000 The history of the proposed development as described in the current application states that two Foreshore Licences were awarded to Kish Consortium in August 2000. These Licences, one relating to the Kish Bank (copy attached) and a second relating to the Bray Bank, were to remain in force for a period of four years from 2nd April 2001.</p> <p>At that time, the regulations governing the awarding of Foreshore Licences and Foreshore Leases were detailed in a document entitled 'Offshore Electricity Generating Stations. Notes for Intending Developers' (Copy attached) The document stated 'Foreshore Licences should, ordinarily, be valid for four (4) years and not normally be subject to extension.' (underline added) In cases of force majeure, 'the Minister may at his sole discretion and subject to any additional or differing conditions as he may think appropriate, extend the period of validity of the Licence for one or more periods, each of which shall not exceed twelve months, subject to an application being made not less than two months and not more than three months prior to the expiry of the Licence or any extension to the licence period.'</p> <p>It is also of note that, under the terms of the Foreshore Act 1933 and allowing for whatever leeway this inadequate legislative framework provided, the Minister was, nonetheless, charged with making decisions 'in the public interest'. Notes for Intending Developers gave details of the payment scheme that pertained in relation to the granting of these 2000 Foreshore Licences. A nominal rent of €5 per annum was levied, subject to a deposit of €100,000. This deposit was refundable on condition that a valid Foreshore Lease application was made within a year of the date of expiry of the Foreshore Licence. Clauses reflecting these conditions were included in each of the two Foreshore Licences awarded to Kish Consortium in 2000.</p> <p>The licences stated 'On completion of a satisfactory exploration programme carried out in accordance with the terms and conditions of this Licence the Minister shall refund the sum deposited, together with any interest accrued, less any direct costs incurred in setting up and closing the account, subject to a valid application (as defined in the document "Note for Intending Developers") being made to the Minister, within twelve months of the expiry of this Licence, for a</p>	<p>consent application under the Maritime Area Planning Act, 2021 and its associated consent framework. With regards to the additional site information included, the Applicant noted that the current Foreshore Licence area is larger than the two adjoining Licences awarded in 2000 as it includes corridors in which export cables may potentially be routed and an area surrounding the proposed wind farm boundary for the purpose of ecological monitoring is proposed. In accordance with good practice, mobile ecological surveys and deployment of static acoustic monitoring devices is proposed not only within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects.</p> <p>Remedial Obligation The Applicant noted that this application is for ecological monitoring and site investigation works required to inform the engineering and design of a proposed offshore wind farm, the potential cable route(s) to shore and associated infrastructure. Alternatives considered as part of the development will be included in the environmental impact assessment report which will accompany the development consent application intended to be submitted in due course under the Maritime Area Planning Act, 2021 and its associated consent framework.</p> <p>Site selection The Applicant noted that this application is for ecological monitoring and site investigation works required to inform the engineering and design of a proposed offshore wind farm, the potential cable route(s) to shore and associated infrastructure. Alternatives considered as part of the development consent will be included in the environmental impact assessment report which will accompany the development consent application intended to be submitted in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. With regards to careful selection of sites, the Applicant noted that this application is for ecological monitoring and site investigation works required to inform the engineering and design of a proposed offshore</p>

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<p>Foreshore Lease to allow the construction and operation of an electricity generating station within the Licence area,...' The alternative was that the Licensee proved to the Minister that the area that was the subject of the Foreshore Licence would be unsuitable for the construction and operation of an offshore electricity generating station.</p> <p>Given that these two Foreshore Licences were granted in 2000 and that they expired in 2005, that no valid Foreshore Lease application was made or accepted by the Department in 2006, they do not appear to be in any way relevant to the current Foreshore Licence application.</p> <p>Foreshore Lease applications 2006</p> <p>The current Foreshore Licence application states 'In January 2006, Kish Offshore Wind Limited and Bray Offshore Wind Limited submitted two Foreshore Lease applications (FS006462 and FS00643) to the Department of Communications, Marine and Natural Resources, pursuant to Section 2 of the Foreshore Act 1933, as amended, for proposed wind farm development in the vicinity of the Kish and Bray Banks.</p> <p>CCA understands that some information was submitted to the Department of Communications, Marine and Natural Resources in 2006 although this information is not in the public domain. However, in response to the documentation that was submitted, the Marine Licence Vetting Committee (MLVC), were unable to make a determination on the lease applications.</p> <p>The MLVC Report (Copy attached) stated 'On the basis of its considerations the MLVC is of the opinion that the EIS does not meet statutory requirements and is deficient in its content, presentation and consideration of some key aspects. The MLVC is, therefore, at this time, unable, to make a recommendation to the Minister on this project proposal.'</p> <p>The MLVC Report gives additional details to support this decision. Of note is their comment under the heading Alternatives, which states 'No information on alternative sites was provided and the justification for the selected site was poorly described. In addition, no justification for the selected turbine layout was provided.' In their conclusion, the MLVC Report stated that they were not satisfied that the EIS complied with relevant EU and National EIA legislative requirements. Clearly information relating to these 2006 Foreshore Lease applications is included in the current application documentation to suggest that it somehow</p>	<p>wind farm, the potential cable route(s) to shore and associated infrastructure.</p> <p>The Applicant referenced the Maritime Area Planning Act 2021 recently adopted by the Oireachtas making provision for the continued processing of licence applications under the 1933 Act pending the establishment of MARA in 2023. The application for a Foreshore Licence will be evaluated by the Minister in accordance with EU law, including (where considered necessary) an independent scientific evaluation of the likely significant effects of the proposed site investigations and surveys on European sites. The Minister is precluded by Article 6(3) of the Habitats Directive from granting any licence which could have adverse impacts on the integrity of a European site, whether individually or in combination with other plans or projects.</p> <p>National Marine Planning Framework 2021 & site selection</p> <p>The Applicant noted this application is for ecological monitoring and site investigation works required to inform the engineering and design of a proposed offshore wind farm, the potential cable route(s) to shore and associated infrastructure. All necessary assessments required to determine this application shall be carried out by or on behalf of the Minister in accordance with applicable EU and Irish law.</p> <p>Appropriate Assessment of potential impacts on protected habitats and species.</p> <p>The approach and methodology to screening and preparation of the Natura Impact Statement (NIS) included within the application documentation is consistent with relevant Irish and EU guidance (Section 2.2 of the Report to Inform Appropriate Assessment Screening, Annex E) and ensures compliance with the Habitats and Birds Directives and transparency of both the process and findings. The method draws upon guidance produced by Department of Environment, Heritage and Local Government (2009) and Office of the Planning Regulator (2021) and the European Commission Guidance on the Methodological Approach to the assessment of plans</p>

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<p>validates the current Foreshore Licence application. Far from doing that, it confirms that in 2006, the then MLVC considered that the environmental information provided did not meet the requirements of the Environmental Impact Assessment Directive, because, inter alia, it failed to consider alternative sites. In summary, these 2006 Foreshore Lease applications and supporting documentation were deemed to not meet statutory requirements, were not published on the Department's web site and were never subject to statutory public consultation. They have no validity as information on which it is sought to ground the current Foreshore Licence application.</p> <p>Other investigation related to Dublin Array proposed development. 2009. Although not mentioned in the current Licence application, lease application documents are available on the Department's web site stamped Received 2nd June 2009, but dated (not signed) 21 Dec 2005. Among other points of note in these application documents, is the fact that required Planning Permission for shore-based works has not been obtained, a clear indication of project splitting. In 2013, Dublin Array carried out a major public consultation. Again, this is not referenced in the current licence application.</p> <p>The letter, dated 18th April 2013, sent to CCA announcing the consultation stated 'Written submissions in relation to the effects on the environment of the proposed development may be made to The Department of the Environment, Community and Local Government, Marine Planning and Foreshore, Newtown Road, Wexford, Co Wexford quoting reference number MS53/55/L1. Numerous citizens took the time and trouble to respond to this including Coastal Concern Alliance, who commissioned a professional assessment of visual impacts to help to inform members. All submissions were uploaded and made available on the Department's web site. (Copy available) However, when CCA wrote to the Department in 2018 seeking clarification on the status of these submissions and were told that they had no status, because they were made in response to the developer's public consultation. The Department, funded by taxpayers, were clearly involved in this consultation, accepted and collated submissions on behalf of the developer and uploaded these to their web site. The collusion evident here</p>	<p>and projects under Article 6(3) and 6(4) of the Habitats Directive (EC, 2021).</p> <p>Mitigation measures were not taken into account at the screening assessment stage consistent with Article 6(3) as interpreted by the Court of Justice of the EU.</p> <p>Mitigation (avoidance and protective measures) are properly presented and applied in the NIS (Annex F). Section 4.2 of the NIS presents the results of the assessment of potential significant effects which have been screened in for appropriate assessment, without consideration of mitigation. Section 4 presents the mitigation measures which RWE are committed to implementing which will be a condition of the grant of any Foreshore Licence. Section 4 further describes the predicted effects of the proposed surveys and site investigations on European sites with the proposed mitigation in place. Based on the assessment of the proposed surveys and site investigations, both alone and in-combination with other projects and plans, with mitigation measures in place, it is concluded that no adverse effects on the integrity of the European sites concerned will arise, in view of the site's Conservation Objectives.</p> <p>The Applicant referred to recently published European Commission Guidance³, C(2021) 6913 final Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC confirms the importance of applying mitigation measures, where necessary, to ensure the conservation of protected animal and plant species and habitat types. The Applicant noted the assessment of impacts arising from biological sampling incorporates the precautionary principle and has been undertaken on the assumption that samples could be taken from any location within the Foreshore Licence boundary with the greatest potential to impact on Natura 2000 sites. The Applicant stated that sampling locations will be confirmed following review of the</p>

³ https://ec.europa.eu/environment/nature/natura2000/management/pdf/methodological-guidance_2021-10/EN.pdf

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<p>makes it almost for citizens to avail of the Fair, Equitable and Timely access to information and access to justice that is required under the Aarhus Convention. This is illustrative of the impossible burden of responsibility placed on citizens, who should be able to rely on the expertise of government to advocate on behalf of citizens and in support of a democratic foreshore planning process. However, it seems to be the case that government allies itself with the interests of private multi-national energy companies and facilitates their efforts to take advantage of lax regulation and outdated legislation to exploit our near-shore coastal waters for massive industrial development, for which they would not be granted consent in their own countries.</p> <p>CCA contend that this is in breach of the Foreshore Act 1933, which requires the Minister to make decisions 'in the public interest' and disrespectful of the rights of citizens.</p> <p>Foreshore Licence granted, January 2021</p> <p>In detailing the history, the current Foreshore Licence application then references the Foreshore Licence granted to Innogy Renewables Ireland Ltd in 2021. This Foreshore Licence is currently the subject of a challenge by way of Judicial Review.</p> <p>Additional site information.</p> <p>Together with the information provided above which demonstrates clearly that historic applications relating to the Kish and Bray Banks have no valid connection with the current Foreshore Licence application, it should be noted that the Foreshore areas referenced in documentation at various times were as follows:</p> <p>2000: 4000 hectares 2009: 4000 hectares 2013: 5400 hectares 2019: 25,440 hectares 2021: 112,986.34 hectares</p> <p>Clearly, the area of the foreshore included in the licences awarded in 2000 bears no relationship to the area of the foreshore included in the current Foreshore Licence application.</p> <p>Remedial Obligation</p> <p>It is evident that previous consents granted for any application associated with the proposed development had not been carried out in compliance with the requirements of European Environmental law and, in particular, the requirements of the Bird's Directive, the Habitats Directive and the EIA Directive. In</p>	<p>geophysical data of the area which will be analysed to identify ground types and seabed features and to refine the selection of grab locations and to ground truth the data and provide material for biological sampling. This approach provides a robust and informed sampling array in line with relevant guidance and best practice for surveys intended to avoid targeting sensitive habitats, the location and extent of which are dynamic. This does not mean that RWE will be at large in determining where, or how many, or what type of samples may be taken within the scope of the Foreshore Licence. That will be defined by the terms of the Licence and within the parameters of the assessment already undertaken in accordance with Article 6(3) prior to the grant of the licence.</p> <p>With respect to the potential impact on species the subject of the Article 12 Assessment, the Applicant stated there is no preclusion on incorporating consideration of mitigation measures, such as compliance with NPWS Guidance, in the Article 12 assessment procedure.</p> <p>The Applicant referenced Annex E of the application documents to present a Screening Assessment of all SACs and SPAs within the potential zone of influence of the site investigation and monitoring activities which are the subject of this Foreshore Licence application. A number of SACs and SPAs are screened in for assessment and this is presented in the Natura Impact Statement, Annex F, included in the application documents. The SACs and SPAs within which benthic sampling is proposed are screened in for appropriate assessment. The Natura Impact Statement concludes that there is no potential for adverse effects on the qualifying interests of any European site. The EIA Screening and Environmental Report, Annex C considers whether, firstly, the activities proposed under this Foreshore Licence constitute a project type listed in either Annex I or II of the EIA Directive, and secondly whether the activities would be likely to have significant environmental effects. This report includes consideration of effects on benthic ecology both within and outside European site, including the Annex I sandbank habitat. The latter is not considered</p>

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<p>circumstances where those consents were granted in non-compliance with these directives there is an express remedial obligation on the Minister in his consideration of the within application to ensure that the appropriate environmental assessments are carried out in connection with the previous consent in addition to the proposed application for development.</p> <p>Given the chaotic processes that characterise the history of this proposed development, the consents sought, the applications rejected due to failures to comply with EIA Directive, Aarhus Convention etc. it is imperative that all of these historical issues are addressed and the required remedial obligation applied. Consideration of alternatives, 2021.</p> <p>The current Foreshore Licence application fails to consider alternatives. While twenty years ago it was not possible to site wind turbines in deeper waters, to install the giant turbines that are in production now or to deploy floating wind, these options are all now available and being used around the world. In Ireland, applications for major floating wind developments are in the pipeline with significant advances in the most environmentally friendly platforms publicised recently.</p> <p>Alongside this there has been an explosion in our knowledge and understanding of the importance of the marine environment and its value to life on planet Earth. Biodiversity and species loss, together with climate concerns are at the forefront of public awareness. While the Irish government appears to be wedded to the idea of massive near-shore wind development, commitment to protection of the marine environment has been utterly neglected, with just 2% of our seas being afforded even the most minimal protection. At the World Conservation Congress (September 2021), the International Union for the Conservation of Nature approved a motion to protect 30% of the planet by 2030. The resolution calls on IUCN members, including Ireland, to support: recognition of “the evolving science, the majority of which supports protecting, conserving and restoring at least half or more of the planet is likely necessary to reverse biodiversity loss, address climate change and as a foundation for sustainably managing the whole planet.”</p> <p>“at a minimum, a target of effectively and equitably protecting and conserving at least 30% of terrestrial areas and of inland waters ... and of coastal and marine areas, respectively, with a focus on sites of particular importance for biodiversity, in well-connected systems of protected areas and other effective area-based conservation measures (OECMs) by 2030 in the post-2020 global biodiversity framework.” ...</p>	<p>directly within Annex E or Annex F as the feature is not designated as a qualifying interest of an SAC within the zone of influence. The habitat type ‘sandbanks slightly covered by seawater all the time’ is not considered sensitive to benthic survey grabs which result in small and temporary disturbance to sediment which will return to normal equilibrium very quickly.</p> <p>The Applicant noted this application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route to shore and associated infrastructure. The Applicant noted that NPWS, 2020, The Monitoring of six EU Habitats Directive Annex 1 Marine Habitats identifies the potential for impacts to Annex I sandbanks from wind energy infrastructure. Whether or not an individual project will have significant effects on these features is dependent upon a number of factors, including among others the extent and condition of the habitat and design of the wind farm. A development consent application for the proposed windfarm, which will be submitted under the consent framework established under the Maritime Area Planning Act, 2021, will include assessments of the potential effects of the offshore wind farm, including the potential impacts on Annex I sandbanks. The application will also include reports to inform the competent authorities Appropriate Assessment Screening and Appropriate Assessment. The potential for impacts on mobile species, such as terns, which may be connected with a European Site for which that species is a qualifying interest will be assessed and the results presented. It will then be for the competent authority to determine the application in accordance with EU and Irish law.</p> <p>The Applicant referenced Annex E of the application documents to present a Screening Assessment of all SACs and SPAs within the potential zone of influence of the site investigation and monitoring activities which are the subject of this Foreshore Licence application. A number of SACs and SPAs are screened in for assessment and this is presented in the Natura Impact Statement, Annex F, included in the application documents. The SACs and SPAs within which benthic</p>

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<p>To honour this commitment, the Irish government must acknowledge the direct conflict between extensive uncontrolled near shore energy development on vulnerable habitat, as is proposed in the current application, and their responsibility to Irish citizens and the international community to urgently put in place measures to ensure the conservation and restoration of the planet's biodiversity 'to address climate change and as a foundation for sustainably managing the whole planet'. Consideration of alternatives is key to getting the balance right.</p> <p>Site selection The siting of offshore renewable energy installations has been a key concern of CCA since our formation in 2006. We have repeatedly expressed serious reservations about the manner in which Government has continued to process licence and lease applications in Ireland's near-shore area on sites selected by developers on 'a first come first served' basis. The current Foreshore Licence application is a case in point. The government's acceptance of this application for extensive investigations on a sensitive site selected by the developer without any State resource and constraints analysis is totally out of line with current good international practice.</p> <p>The vast majority of other EU countries exercise strict control over the locations of offshore wind farms. Governments select potential zones for offshore wind adopting an ecosystem approach and consulting widely with stakeholders. They then open these zones to developers who must submit detailed EIAs for their proposed developments. The UK Government, for example, has controlled offshore wind development via various Leasing Rounds with government carefully selecting sites before offering them for potential development.</p> <p>National Marine Planning Framework 2021 & site selection Ireland's National Marine Planning Framework (NMPF) was adopted in 2021. The Strategic Environmental Assessment Environmental Report, (SEA ER) carried out to assess the environmental impacts of the draft Plan highlighted the need for a 'robust site selection process to inform the best technical and environmental locations for any given prioritised activity'. This applied to all potential uses of the marine environment. However, more specific points were made in the discussion of Offshore Renewable Energy. The SEA ER stated 'There is potential for</p>	<p>sampling is proposed are screened in for assessment. The Natura Impact Statement concludes that there is no potential for adverse effects on the qualifying interests of any European site.</p> <p>The Applicant referred to Section 7.4 of the Report to Inform Appropriate Assessment, to highlight that a search of publicly available information was undertaken to identify other plans and projects which may result in adverse effects on the integrity of any Natura 2000 sites in combination with the site investigation and monitoring activities proposed under this Licence application. Sources included DHLGH Foreshore Licence database and the EPA Dumping at Sea Register. The Applicant noted the search was undertaken for all projects within a 30 km radius of the Foreshore Licence application area. Given the localised and temporary nature of the survey works this was considered precautionary. The projects considered include those submitted but not yet determined and existing licences which have been granted but the associated activities not yet completed. The Applicant noted that they completed a successful geophysical and benthic survey campaign between February and May 2021 under Foreshore Licence FS007029. Having completed the geophysical survey fieldwork it has been determined that, due to the limited scope and geographical extent of the geotechnical investigations authorised by the licence, and the need for a more comprehensive geotechnical investigation to inform the detailed design and assessment of the project, a more comprehensive geotechnical investigation is warranted. The revised scope is included within this foreshore licence application. The Applicant noted that further geophysical surveys focussed on narrow corridors of proposed turbine foundation locations, inter-array, and export cable routes to the selected landfall location(s) will provide detail on the rate and nature of any change in bathymetry. A series of surveys of these types are typical of the development of marine projects and are part of an iterative design and assessment process.</p> <p>The Applicant noted that two metocean buoys and a FLiDaR have also been deployed in accordance with Foreshore Licence FS007029,</p>

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<p>negative impacts for all environmental receptors where ORE infrastructure has not had the benefit of a robust site selection process which explicitly includes consideration of benthic habitats, marine mammals, birds and visual receptors as a minimum'.</p> <p>A report from the International Union for the Conservation of Nature (2021), Mitigating Biodiversity Impacts associated with Wind and Solar energy developments, confirms that site selection at the early planning stage is the most important consideration in optimising avoidance of biodiversity impacts. It is essential to understand that this requirement does NOT arise as a result of the drafting of Ireland's NMPF. It is a requirement laid down in the Environmental Impact Assessment Directive (Directive 85/337/EEC, as amended), which was transposed into Irish law by the European Communities (Environmental Impact Assessment Regulations), 1989 (S.I. No. 349 of 1989), well in advance of the consideration of any applications for OWF development in Ireland's coastal waters. It is designed to ensure that projects likely to have significant effects on the environment are subject to a comprehensive assessment of environmental effect, prior to development consent being given.</p> <p>In the current Foreshore Licence application, RWE are applying for authorisation to undertake a geotechnical and geophysical site investigation for the proposed Dublin Array offshore wind farm development in spite of the fact that it is clear that no robust site selection process which explicitly includes consideration of benthic habitats, marine mammals, birds and visual receptors has been undertaken. While it was a requirement even when initial applications were made for Foreshore Licences for site investigation on the Kish and Bray Banks in 1999, lax application of the law appears to have facilitated the granting of early consents with no environmental constraints. However, with regard to this current Foreshore Licence application, it must be concluded from even a cursory assessment of the suitability of this site, the site is completely unsuitable for the type of development envisaged.</p> <p>Appropriate Assessment of potential impacts on protected habitats and species. In the introduction to the Applicant's Natura Impact Statement the Appropriate Assessment process is described at 1.3.3 stating: 'AA is required where the AA screening stage determines that the proposed works are likely to have a significant effect on a Natura 2000 site with respect to its</p>	<p>a Statutory Sanction as received from the Commissioners of Irish Lights and an Automatic Identification System Licence issued by the Commission for Communications Regulation. The Applicant noted this metocean and wind survey campaign is authorised for a period up to August 2023 (two years post successful calibration). A further metocean and wind campaign is included within this foreshore licence application to provide a longer term data set to inform the design of the proposed wind farm.</p> <p>The Applicant noted that the Appropriate Assessment Report prepared on behalf of the Competent Authority (Minister and Department of Housing, Local Government and Heritage) in relation to the previous Foreshore Licence FS007029, concluded that the proposed Site Investigation works were not likely to pose a significant likely risk to nature conservation interests of any of the adjacent Natura 2000 sites. With the exception of the metocean and wind survey campaign which is ongoing and authorised to continue for a period up to August 2023, RWE have completed all of the survey and site investigation activities that they intend to undertake under that Licence.</p> <p>The Applicant noted that there is, accordingly, no temporal overlap between the proposed site investigations and ecological surveys the subject of the current Foreshore Licence application, and the site investigations and surveys conducted under the previous Foreshore Licence (with the exception of the metocean and wind survey campaign). There is, in fact, a significant interval between the previous activities completed between February and May 2021, and the proposed activities to be licensed under the current application. It is therefore considered that there is no potential for significant effects to arise from the proposed activities in combination with the activities undertaken previously between February – May 2021.</p> <p>The Applicant noted that it is typical of marine projects to undertake a series of surveys and site investigations as part of an iterative design and assessment process. Due to the variable nature of the marine environment there is also a need for site investigations and surveys to</p>

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<p>Conservation Objectives. This second stage considers whether the proposed works (either alone or in-combination with other projects or plans), will result in an Adverse Effect on the Integrity (AEoI) of a European site. Where AEoI are identified or where an adverse effect is uncertain, mitigation will be required. Mitigation measures will avoid impacts and effects at source insofar as possible and will be clearly stated together with an explanation as to how the measures will avoid or reduce the adverse effects. The report produced for the AA of projects is known as a Natura Impact Statement (NIS) and documents the findings of this stage of the process.'</p> <p>CCA contends that with regard to Natura 2000 habitats and species that the Precautionary Principle must apply and that this precludes the application of mitigation measures. The acknowledgement that mitigation measures will be required across a range of species and habitats contravenes the Habitats Directive in failing to provide complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works.</p> <p>Example There are numerous examples in the Applicant's Natura Impact Statement and EIA Screening and Environmental Report where it is acknowledged that mitigation will be required with regard to impacts on Natura 2000 habitats and species (e.g. birds, cetaceans), CCA cite the proposed works described in the EIA Screening and Environmental Report 2.3.3. with regard to epibenthic trawls and grab sampling, the failure to specify the locations for these proposed works and the failure to acknowledge that these proposed works could impact Natura 2000 sites. EIA Screening and Environmental Report</p> <p>2.3.3 Interpreted geophysical data will be used to provide ground types and seabed features across the array area and Offshore ECC together with any third party data available across the wider Foreshore Licence application area. This will be used to refine the selection of benthic ecology survey locations to ground truth the data and to provide material for biological sampling. Up to three annual subtidal benthic ecology surveys, comprising drop down video, grab sampling and epibenthic trawls (locations yet to be defined) (underline added). Samples will be taken using a Hamon or Van Veen grab (0.1 – 0.2 m2)</p>	<p>be kept up to date if they are to inform the process. Investigations proposed have been undertaken in accordance with relevant industry practice and guidance.</p> <p>The Applicant stated there is no indication that any surveys associated with the Dublin Array project, undertaken to date, have had any significant effect on the receiving environment. The proposed activities, the subject of the licence application, will be subject to screening for Appropriate Assessment and Appropriate Assessment pursuant to Article 6(3) of the Habitats Directive which incorporates the protection of the species listed in the Birds Directive, and will be subject to a preliminary assessment under the EIA Directive and if considered necessary, screening for EIA. The application documentation will be assessed by the Minister and Department of Housing, Local Government and Heritage and its associated advisors prior to a determination being made.</p> <p>The Applicant referred to Section 7.4 of the Report to Inform Appropriate Assessment that an in combination screening assessment has been completed. As there is potential for some surveys which are the subject of the CWP Foreshore Licence to overlap spatially and temporally with the activities which are the subject of this Foreshore Licence application the CWP Foreshore Licence was taken forward and assessed within the Natura Impact Statement, Section 4.3. The in-combination assessment concluded that there will be no adverse effects on the integrity of any European Site arising from the proposed activities in-combination with other plans and projects.</p> <p>The Applicant further referenced Section 7.4 of the Report to Inform Appropriate assessment to explain why the North Irish Sea Array (NISA) investigative surveys are screened out of further assessment. The application document for NISA concludes that the effects of geotechnical, metocean and benthic ecology surveys are considered to be localised (immediate footprint of the equipment or in the case of drilling within 100m of the drilling equipment). Therefore, in</p>

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<p>with a stainless steel bucket at up to 90 locations. Sample depth may be up to 20 cm depending on seabed type. The grab will be deployed and retrieved by winch. Drop down video (DDV) will be deployed at each sampling location prior to grabs being taken. Epibenthic sampling (90 no.) using a standard 2 m Cefas beam trawl fitted with a 5 mm cod designed to collect information on epibenthic invertebrate species, as well as small demersal and juvenile fish. Trawls will be standardised by length (500 m) or duration (10 minutes);</p> <p>The array area on which these grab samples and epibenthic trawls are proposed is on the Kish and Bray Banks. These banks are Annex 1 Habitat type 1110 'sandbanks slightly covered by seawater all the time'.</p> <p>There are two proposed Export Cable Corridors (ECC) covering large areas within the Foreshore Licence Application Area, that encompasses SACs and SPAs on which grab sampling and epibenthic benthic trawls are also proposed.</p> <p>This Kish Bank is known to be an ecologically rich habitat, with calculated diversity, richness and evenness that is broadly similar to those sandbanks designated as habitats of community importance within the UK jurisdiction. Unsurprisingly, the Kish and Bray Banks were selected for designation as a Special Areas of Conservation (SAC) by National Parks and Wildlife Service in 2012. In addition, a 2012 document seeking Ministerial approval for the designation of marine sites as SACs stated 'It is anticipated that the Kish Bank will be designated as a Special Protection Area for birds in the future.' Indeed, an earlier environmental assessment carried out on behalf of Dublin Array stated 'The Bank itself has sufficient conservation value to qualify for SPA status, solely on the grounds of the roseate tern numbers that use it.'</p> <p>Since 2007, evidence from EU Conservation Assessment reports confirm that the construction of wind farms on sandbanks will degrade the habitat. This is reiterated in a 2020 publication from National Parks and Wildlife Service 'The Monitoring of six EU Habitats Directive Annex 1 Marine Habitats. Commenting on sandbanks slightly covered by seawater all the time this report states '... potential threats to the habitat are considered to include the potential impacts of wind energy infrastructure in the vicinity of the habitat.'</p> <p>It is obvious from this information, all taken from official sources, that</p>	<p>combination effects between the surveys at Dublin Array and NISA due to geotechnical, ecological or metocean activities are not considered likely.</p> <p>Cumulative impact - Cetaceans The Applicant noted that in the supporting marine information for the Rockabill to Dalkey Island SAC⁴, artificial barriers refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range". As noted in Annex E, Section 6.2 any disturbance associated with the proposed works which are the subject of this application will occur over a small area, in proximity to the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. The Applicant stated that therefore, there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC.</p> <p>The Applicant noted that the assessment of effects without mitigation in place, presented in Section 4.2 of the Natura Impact Statement, Annex F, acknowledges the potential for localised disturbance effects on harbour porpoise from the activities proposed. The subsequent assessment with mitigation in place concludes that no individual harbour porpoise will be impacted by the surveys. The Applicant concluded that there is no potential for the harbour porpoise community at the site be adversely affected.</p> <p>The Applicant noted that it is theoretically possible to convert between SPLrms and SELcum, however the conversion is based on a series of assumptions, which results in impact ranges which are so extremely conservative as to not provide anything meaningfully relevant to biological organisms. The primary assumptions are that the animal is</p>

⁴ https://www.npws.ie/sites/default/files/publications/pdf/003000_Rockabil%20to%20Dalkey%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf

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<p>(a) Kish and Bray banks are Annexe 1 type sandbank habitat and should be protected and not knowingly degraded due to extensive Offshore Renewable Energy (ORE) development.</p> <p>(b) knowing degradation of such habitats is in contravention of Ireland's Biodiversity Action Plan 2017-2021 that aims to 'protect and restore' biodiversity and habitats</p> <p>(c) a site that was selected by National Parks and Wildlife for designation as a SAC and that, furthermore, is earmarked as a site that will be designated as a Special Protection Area for Birds, is a totally inappropriate site on which to construct a windfarm.</p> <p>(d) the carrying out of grab samples and epibenthic trawls in unspecified locations across a Foreshore Licence Application area of almost 113,000 hectares that encompasses numerous Natura 2000 sites, all listed in the Foreshore Licence Application documents, is not consistent with providing complete, precise and definitive findings and conclusions capable of removing all reasonable doubt as to the effects of the proposed works and is, therefore in breach of art 6(3) of the Habitats Directive.</p> <p>Current RWE Foreshore Licence Application FS007188 Cumulative Impacts - adjoining, neighbouring and related developments The current RWE Foreshore Licence Application gives information about the background to the project and details of the site investigation and monitoring activities for which the Licence is required. However, all adjoining, neighbouring and related developments have not been considered.</p> <p>CCA object to the granting of another Foreshore Licence to this consortium given that, as is stated in the current application, a Foreshore Licence was granted to Innogy Renewables Ireland Ltd. (now RWE) in January 2021 with respect to this proposed development on the Kish and Bray Banks and RWE, pursuant to the awarding of that licence, completed a successful geophysical, geotechnical and benthic survey campaign between February and May 2021. These are the same types of investigations for which a second Foreshore Licence is now sought. While the current Environmental Impact Assessment Screening (p31.10) considers the potential for cumulative impacts with some other existing or planned</p>	<p>stationary and facing towards the source of the noise for the entire duration of the impact (up to 24-hours of constant exposure). These assumptions are not realistic for the real-world application of the assessments, as individuals would not feasibly behave in this way and would in fact move away from the sound source (even if not explicitly showing a fleeing reaction). Additionally, studies (Au, 1993) have demonstrated that animals not directly facing the sound of source can be exposed to significantly quieter received sounds (3 – 10dB lower for an animal moving away compared to moving towards a noise source). Therefore, for the marine mammal assessments being discussed any numbers presented following a conversion between SPLrms and SELcum would be considered to have no real word implications and are not valid for these assessments.</p> <p>Additionally, the Applicant noted that when looking at examples of noise propagation modelling for drilling from other projects (for example East Anglia Two which modelled drilling for monopiles, which is louder and more impactful than that considered within this assessment), the ranges for Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS) were concluded to be <100 m for a fleeing animal. One hundred meters is the lowest resolution possible for the model and it is therefore likely that the realistic impact ranges are smaller than this. This modelling for East Anglia Two was based on a much more intensive noise source, for drilling of large monopile foundations rather than small scale coring, and it can be assumed that the maximum potential impact range for the Dublin Array survey works will be further reduced from this number. Therefore, there is no risk of any auditory injury to marine mammals from the proposed works at Dublin Array.</p> <p>The Applicant referred to the supporting marine information for the Rockabill to Dalkey Island SAC5, to indicate that artificial barriers refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat</p>

⁵ https://www.npws.ie/sites/default/files/publications/pdf/003000_Rockabill%20to%20Dalkey%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf

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<p>activities in the locality, it fails to consider the cumulative impacts of repeated surveys relating to a single proposed development. In particular in this instance, the most recent survey was carried out this year, yet no consideration has been given to its impacts when combined with the further investigative works for which another Foreshore Licence is now sought.</p> <p>The current Licence Application also states that as far back as 2000, Licences were awarded that gave consent for drilling and sampling of seabed sediments, geophysical measurements and deployment of wave, tide current and silt load measurement equipment, highlighting the fact that impacts of extensive investigative procedures relating to this proposed development have been accumulating for over two decades without any or any proper regard to the cumulative impacts of the proposed development with other developments and the remedial obligation on the developer and the decision maker to redress any deficiencies, omissions and lacuna in respect of the environmental assessment undertaken for previous consent.</p> <p>In addition, on 28 January 2021 a Foreshore Licence was awarded to Codling Wind Park (CWP). The area covered by the CWP Foreshore Licence overlaps significantly with the area included in the Licence granted to Innogy Renewables in 2021, and with the site in question in the current licence application, further exacerbating the potential for cumulative adverse environmental impacts.</p> <p>At 2.6. in the Foreshore Licence Application, distance from nearest other developments, including any offshore renewable energy developments on the foreshore, are recorded. This section includes reference to proposed offshore wind developments at Codling Wind Park and at Braymore Point.</p> <p>However, other offshore renewable energy licence application areas are located close to the proposed foreshore licence boundary, for example the North Irish Sea Array application area, that is closer to the current Foreshore Licence application area than Braymore Point, but it is not referenced or considered in the assessment of cumulative impacts in the current environmental assessment.</p> <p>Cumulative impact – Cetaceans With regard to the manner in which the impact on cetaceans is considered CCA do not deem the information to be the 'best available scientific evidence'</p>	<p>therein. It does not refer to short-term or temporary restriction of access or range". As noted in Annex E (6.2.17), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. Neither will the harbour porpoise community at the site be adversely affected as with mitigation in place no individuals will be impacted by the surveys.</p> <p>The Applicant noted that the Report to Inform Appropriate Assessment undertook a screening exercise for all Natura 2000 sites using the source-pathway-receptor approach to determine all effect pathways to European sites for the survey activities. In line with recent guidance (Office Planning Regulator, 2021) and EC Methodological Guidance on Article 6(3) and 6(4) of the Habitats Directive (EC, 2021)the screening considered all sites that fell within the defined Zone of Influence of activities. In the case of mobile species the Zone of Influence captures remote sites where species distribution/ ranges provide connectivity.</p> <p>The Applicant referred to Section 4.2 of the Applicant's NIS, Annex F, to acknowledge that without mitigation in place there is potential for localised disturbance effects on harbour porpoise from the activities proposed; no risk of injury, including PTS is likely.</p> <p>The Applicant noted that they have committed to mitigation proposed for marine mammals in accordance with the appropriate Irish guidance (DAHG, 2014). DAHG, 2014 states that while the use of PAM in Ireland is encouraged as a helpful and beneficial tool for detecting and monitoring certain cetacean species, the Department does not believe it is sufficiently developed to be regarded as the primary or sole monitoring approach for risk management purposes. Therefore whilst PAM is likely to be used by the survey company appointed to undertake the works in addition to marine mammal observers -conservatively the assessments as documented in the NIS</p>

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<p>According to the Natura 2000 statement, “the Conservation Objectives to maintain the favourable conservation condition of Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] within the Rockabill to Dalkey Island SAC, are defined by the following list of attributes and targets: Species range within the site should not be restricted by artificial barriers to site use; and Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site.”</p> <p>Both as a result of noise disturbance and physical destruction of reefs, there is admittedly by phase 1 assessment in the Natura 2000 Statement presented, a “potential for adverse effects” on the qualifying interests (QIs) of the SAC.</p> <p>As outlined in the Natura 2000 statement presented, “With regards the harbour porpoise feature and the temporary overlap with the calving period of harbour porpoise (May to August) within Rockabill to Dalkey SAC, the noise associated with the proposed works described in Section 6.2 and 6.3 of Annex E: Report to Inform AA Screening have the potential for localised disturbance and have potential to disturb and/or displace fish prey items of all cetacean and pinniped species resulting in localised indirect effects”</p> <p>Section 4.2.6 (p. 60) of the Natura 2000 statement states that “The geotechnical works fall outside the range of hearing thresholds for harbour porpoise”. Based on other surveys of a similar nature (e.g. FS007339 on Arklow Bank), this statement appears to be assuming a SPL (non-weighted, peak frequency) approach rather than a SEL (weighted frequency approach), which is the current gold standard for appropriate assessment on noise on marine mammals and is, therefore, the best available scientific evidence.</p> <p>Provided in the same paragraph (Section 4.2.6 (p. 60)) of the Natura 2000 statement states that “given that any noise impacts on cetaceans and their prey would be short term, temporary and intermittent.... potential for disturbance to the species will be minimised and no impacts on the Conservation Objectives of the SAC are predicted.” We do not accept this statement and would present that the noise disturbance and inhibition of QI species and their food source represents a “restriction by artificial barrier” and is contraindicated by the conservation objectives of the SAC.</p> <p>No quantification of the Zone of Inhibition (Zoi) is presented in the Natura 2000 statement, which is contrary to good practice for Appropriate Assessment and</p>	<p>submitted with the application have not relied on the use of PAM as mitigation.</p> <p>The Offshore Renewable Energy Development Plan - Strategic Environmental Assessment. The Applicant noted that the intended reference was in relation to the National Marine Planning Framework and should read Strategic Environmental Assessment for the Offshore Renewables Energy Development Plan (2010) and any confusion created by this error is regretted.</p> <p>Relevant Projects. The Applicant referenced Section 100 of the Maritime Area Planning Act 2021 that defines a ‘relevant MAC usage’ as including any proposed maritime usage which is for the purposes of producing, from wind, offshore renewable energy where the usage – (a) is the subject of an application for a foreshore authorisation made before 31 December 2019 and which has not been finally determined, or abandoned or withdrawn, before the coming into operation of s.101, (b) is the subject of a foreshore authorisation, or (c) was, on 31 December 2019, the subject of (i) a valid connection agreement from a transmission system operator, or (ii) confirmation by a transmission system operator as being eligible to be processed to receive a valid connection offer. The Dublin Array project therefore is one of a number of projects that is eligible to be invited by the Minister pursuant to section 101 to apply for a MAC, within such period as the Minister’s invitation may prescribe. Subject to award of a MAC the proposed Dublin Array wind farm will still be required to apply for development consent to An Bord Pleanála similar to other strategic infrastructure projects developed (and under development). This development consent application will be subject to public consultation and independent environmental impact assessment by An Bord Pleanála</p>

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<p>without which no appropriate assessment on the impact of the Qis of the SAC can be provided.</p> <p>With regard to mitigation measures in place to inhibit PTS in marine mammals, no mention of the use of passive acoustic monitoring (PAM) has been mentioned, which would be required for the 'qualified observer' to ensure that no marine mammals were present within the zone of inhibition prior to initiating noise creating works. An observer, no matter how qualified will likely miss sensitive marine mammals in the vicinity without the use of this apparatus and as such a likely significant risk remains in place.</p> <p>Based on these facts it is obvious that, in relation to the current Foreshore Licence application, potential cumulative environmental impacts have not been adequately described or assessed</p> <p>The Offshore Renewable Energy Development Plan - Strategic Environmental Assessment.</p> <p>In the EIA Screening and Environmental Report presented in support of this application at 4.1.2 it states 'Consideration has also been given to the findings and objectives within the National Marine Planning Framework (DHLGH, 2021) and the Strategic Environmental Assessment for the Offshore Renewables Energy Development Plan (DHLGH, 2021).'</p> <p>The Offshore Renewable Energy Development Plan, drafted in 2010 was adopted in 2014 having been seriously criticised as a result of the numerous data gaps and the lax methodology employed in drafting the plan. All official documents stated that the OREDP would be subject to an interim review of the Plan and associated SEA in 2017 with a full review of both to be carried out in 2020.</p> <p>The Offshore Renewable Energy Development Plan (OREDPP) – Interim Review (published May 2018) states (Page 3) This Review Report focuses exclusively on the OREDPP and does not incorporate a review of the associated SEA. It is important to note that this review does not make any changes to the OREDPP; rather the review aims to chart progress on the Plan, identify challenges that have emerged and identify areas that need to be prioritised or require further attention. A full review of the Plan and associated SEA will take place in 2020.</p> <p>Given the major developments in technology and environmental assessment since the OREDPP and its associated SEA were published and indeed the serious</p>	

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<p>questions surrounding underlying data and methodology, CCA have been keenly awaiting the required review of the Plan and associated SEA due in 2020. Over the past two years, CCA have written to the Minister seeking details of progress on this. Our most recent communication was sent in the past few weeks. In spite of this, no information has been provided to CCA on the required full review of the Plan and associated SEA.</p> <p>We note with deep concern the reference in the Dublin Array application quoted above (4.1.2) to the SEA of the OREDP (DHLG 2021). This reference to a vital Strategic Environmental Assessment which has not been published or subject to public consultation highlights the unacceptable lack of transparency and absence of democracy surrounding the development of ORE in Irish waters. Clearly long awaited and crucial environmental information which is not in the public domain has been made available to RWE (or its agents) to promote this vast industrial development on vulnerable near shore habitat.</p> <p>It is clearly impossible for the public or a citizens' group like CCA to make comment on a crucial Foreshore Licence application, when information presented in support of the application is not in the public domain and indeed appears to have been withheld from concerned stakeholders/the public as evidenced by the failure to provide it to CCA</p> <p>Relevant Projects.</p> <p>In May 2021, the Minister announced the designation of Relevant Project status that was conferred on certain offshore renewable energy project applications. This designation, with enormous consequences for damage to the environment, was cooked up behind closed doors. There was NO public consultation, no strategic environmental assessment, no advance public notification etc.</p> <p>The Library and Research document written to explain the Maritime Area Planning Bill specifically states</p> <p>'In January 2020, the Departments of Housing, Planning and Local Government and Communications, Climate Action and the Environment developed and published a transition protocol and invited applications (from these 'Legacy or Relevant Projects').'</p> <p>CCA contend that the manner in which this protocol was drafted and the awarding of priority status to proposed massive offshore wind developments is in breach of the Aarhus Convention and the EIA Directive, by failing to provide the public with any opportunity to consider the implication of the designation of these 'Relevant</p>	

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<p>Projects', especially at a time when, due to Covid restrictions, the focus of the public was elsewhere. This is yet another example of the State not acting 'in the public interest' as they are required to do. Conclusion CCA believe that, for the reasons presented in this submission, no further foreshore licence should be awarded to RWE renewables on the site proposed in this current Foreshore Licence application and ask the Minister to reject this application, in the public interest."</p>	

1.3 Legislative context

The *Foreshore Act 1933* (as amended), requires that a lease or licence must be obtained from the Minister for Housing, Local Government and Heritage for the carrying out of works or placing structures or material on, or for the occupation of or removal of material from, State-owned foreshore.

The 1992 EU Habitats Directive (Council Directive 92/43/EC) and Birds Directive (2009/147/EC) are transposed into Irish law by Part XAB of the *Planning and Development Act 2000* (as amended) and the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended).

In addition to the requirement to consider potential effects of a plan or project on European Sites under Article 6(3) of the Habitats Directive, the Directive requires consideration of the potential effects on species listed under Annex IV of the Directive (termed Annex IV species). Under Article 12, Annex IV species are afforded strict protection throughout their range, both inside and outside of designated protected areas. All cetaceans are included in Annex IV of the Directive.

SECTION 2 - DESCRIPTION OF PROPOSED WORKS

2.1 Site Location

The Foreshore Licence application area lies off the East Coast of Ireland, extending from just north of Howth head to south of Greystones, within Ireland's 12 nautical mile limit. The application area includes the proposed wind farm array area in the vicinity of the Kish and Bray Banks, which lie east of the coast between Dun Laoghaire and Greystones, and potential export cable route corridors to shore. The application area also includes a buffer area around the proposed wind farm array area, extending 16 km to the north and to the south, to the limit of territorial waters to the east and adjoining the coast to the west in the counties of Fingal, Dublin City, Dun Laoghaire-Rathdown and Wicklow.

The total Foreshore Licence application area encompasses an area of 1,130 km².

The application is for a licence duration of five years.

Figure 2.1 shows the Foreshore Application area, delineated by a red line with the array area outlined in purple.

It is proposed that geophysical and geotechnical surveys will be undertaken in the area of the proposed array in which, subject to development consent being granted, the proposed wind turbine generators (WTG) and offshore export cable corridor (Offshore ECC) may be located, and two associated cable landfall locations at Poolbeg and Shanganagh.

It is proposed that ecological monitoring will be undertaken, and static acoustic monitoring devices will be deployed in the buffer area around the array.

The location of the proposed geotechnical and geophysical surveys is shown in Figures 2.2. Figure 2.3 indicates the proposed locations of the static acoustic monitoring devices and Figure 2.4 indicates the locations of the buoy-mounted Floating Lidar (FLiDaR) Units and the buoys incorporating wave and current measurement devices. These locations are indicative.

2.2 Proposed Site Investigations

The site investigations will include:

- Geotechnical survey;
- Geophysical survey;
- Metocean monitoring (wind, wave and current measurements);
- Environmental/Ecological
 - Static Acoustic Monitoring;
 - Benthic subtidal monitoring;
 - Benthic intertidal monitoring; and
 - Fish and shellfish monitoring.

Figure 2.1: Foreshore Licence Application Area (Source: Annex C - EIA Screening and Environmental Report, Ch 1, pg. 8)

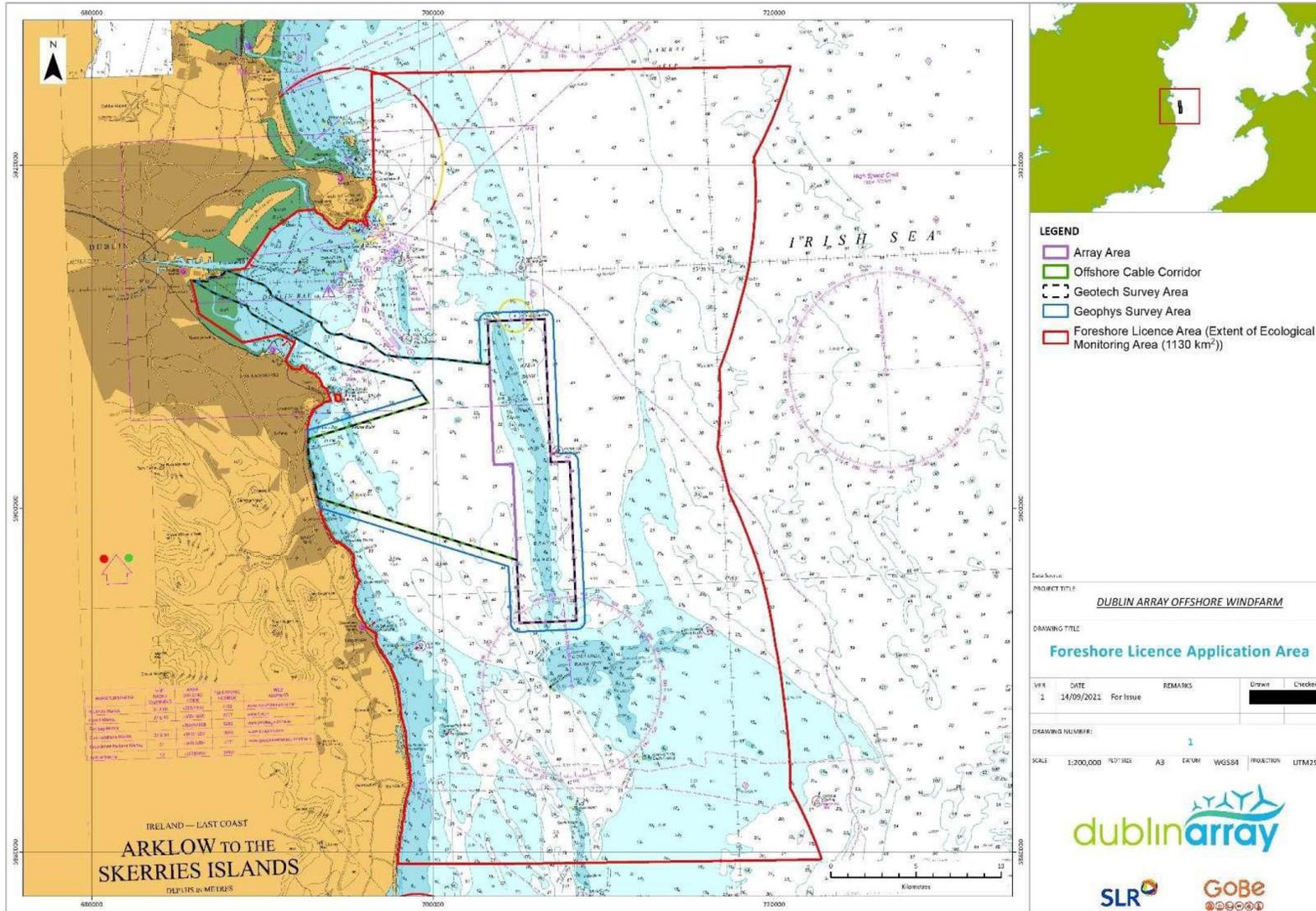


Figure 2.2: Indicative Geotechnical and Geophysical Survey Locations (Source: Annex C - EIA Screening and Environmental Report, Ch 2.5, pg. 15)

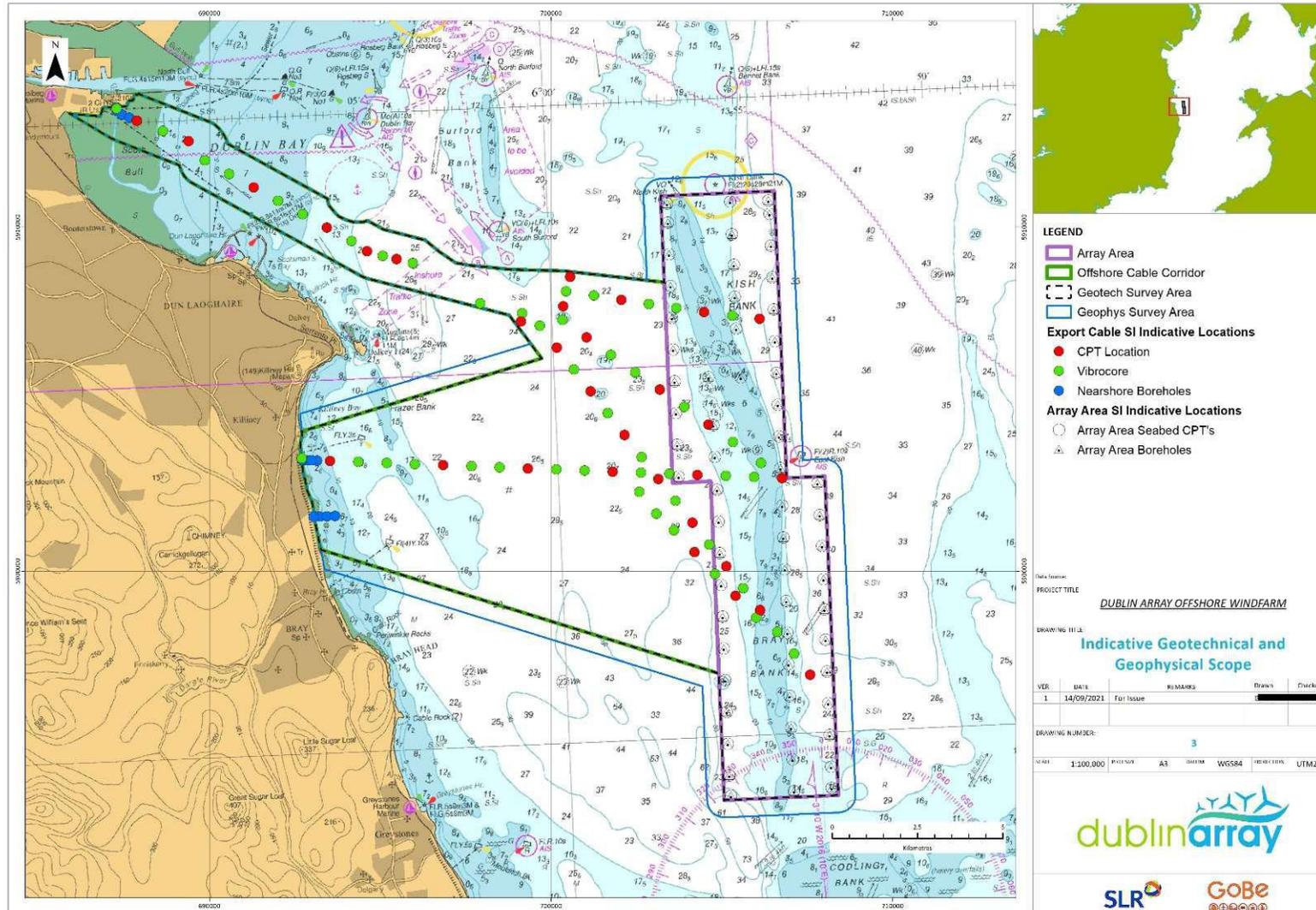


Figure 2.3: Indicative location of Static Acoustic Monitoring Devices (Source: Annex C - EIA Screening and Environmental Report, Ch 2.5, pg. 18)

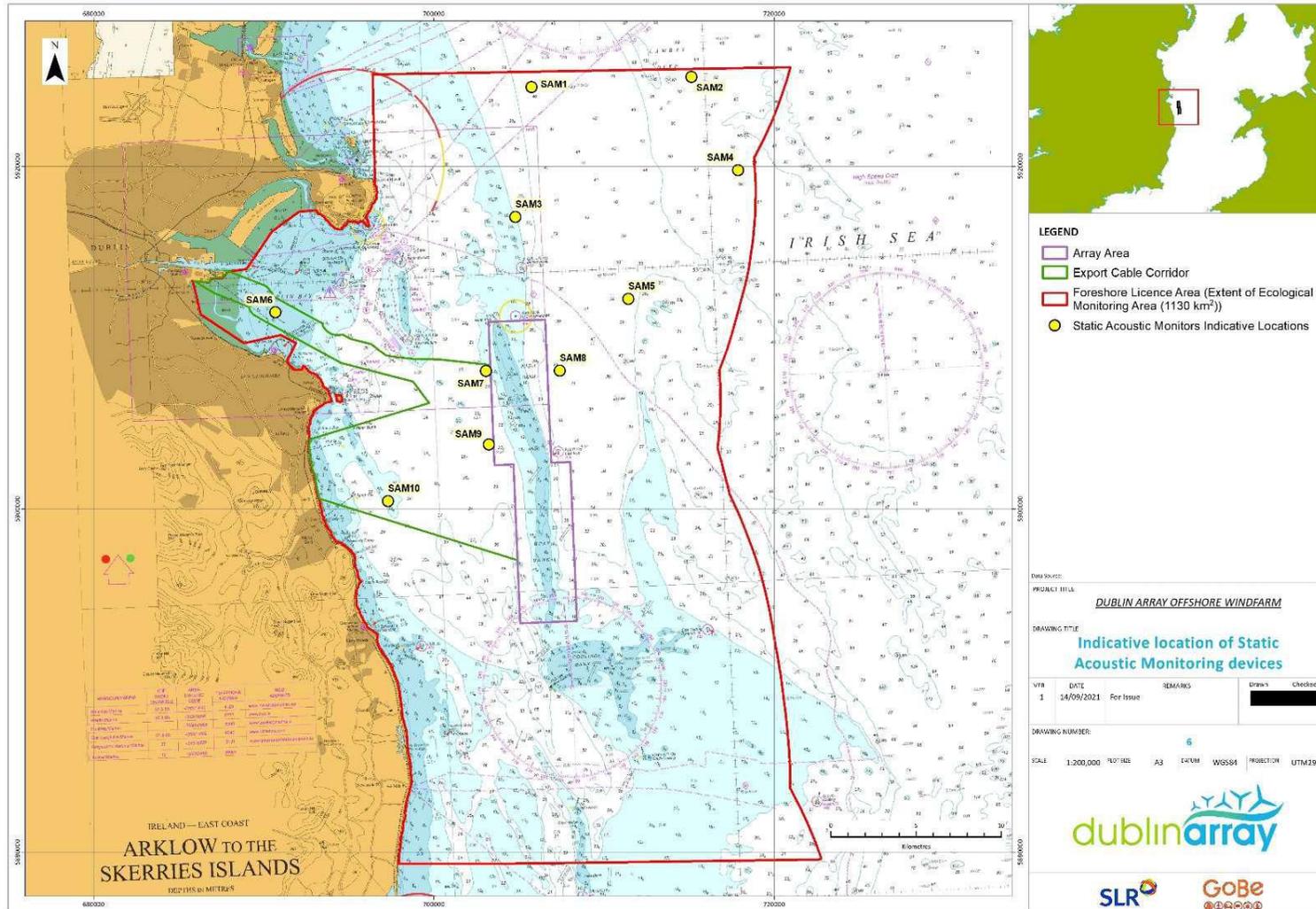
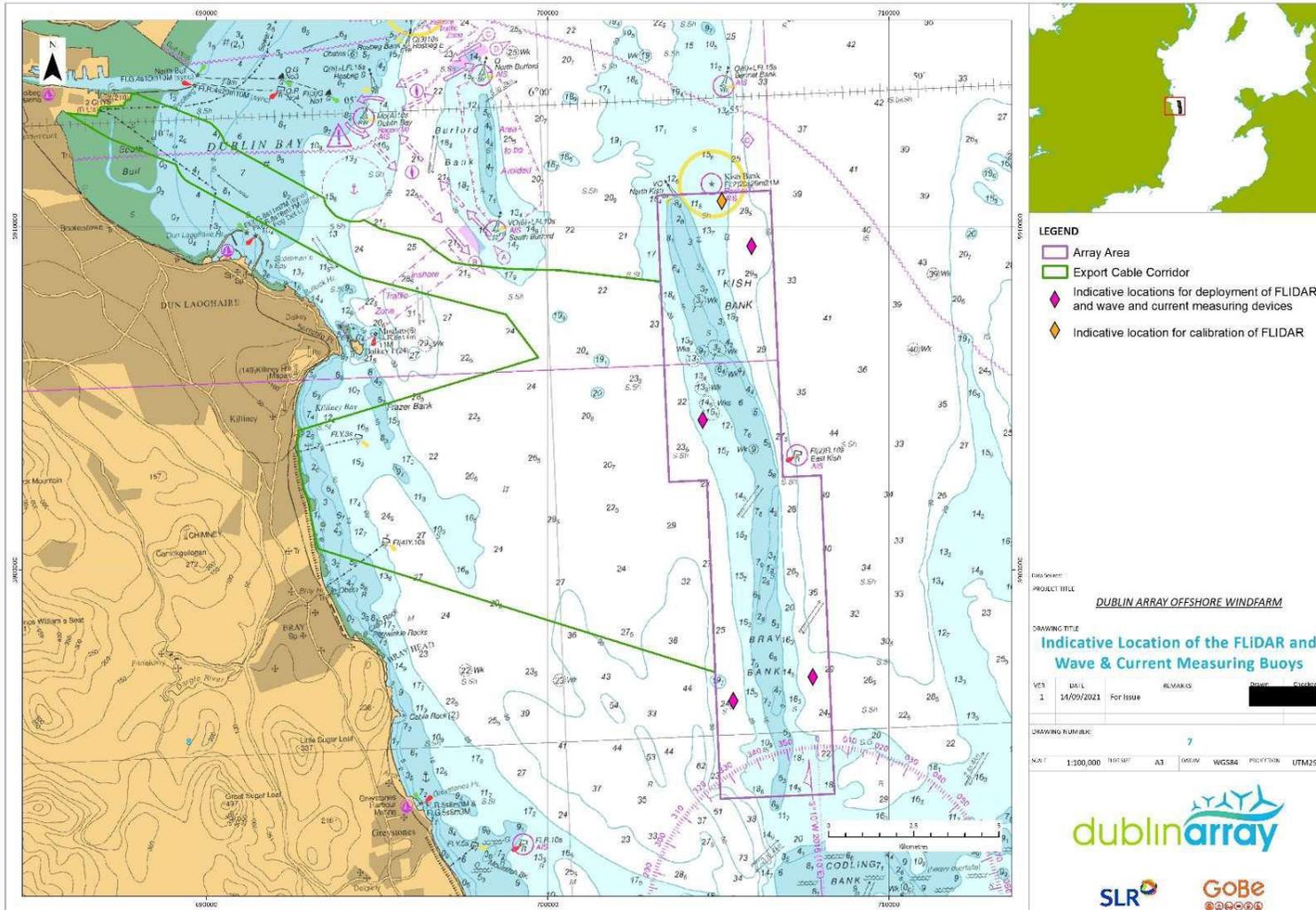


Figure 2.4: Indicative location of planned metocean buoys (Source: Annex C - EIA Screening and Environmental Report, Ch 2.5, pg. 19)



2.3 Survey Summary

Table 2.1 provides information on each of the elements of the works and an indication of the survey duration. The survey locations are shown in Figures 2.2-2.4 above.

Table 2.1: Summary of Surveys and Indicative Programme

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
Geotechnical Surveys	Array area, proposed foundation locations	Up to 61 geotechnical boreholes with wireline logging to approximately 80 m below seafloor, with an outside diameter of up to 254 mm.	Typical vessel will be approx. 70m-100m in length with 4m draft. Jack-up barges may be required. The barge legs will have a seabed footprint of approximately 15-20m ² .	Approximately 2-3 months has been allocated for offshore geotechnical surveys with an aim to commence in Summer 2022. The timing of these works is weather dependant and will vary depending on vessel availability and ground conditions encountered.
	Array area, proposed foundation locations	Up to 61 deep push seafloor cone penetration tests (CPT) to approximately 80 m below seafloor with a diameter of approximately 40mm.		
	Cable export route extending into the array	Up to 31 seafloor CPTs to target depth of approximately 6 m below seafloor with a diameter of approximately 40mm. 5 of which may be located within the intertidal area.		
	Inter-array and export cable routes extending into the array	48 vibrocores, approximately 150 mm diameter and penetration depth of up to 6 m. 5 of which may be located within the intertidal area		
	Landfall	Up to 12 nearshore geotechnical boreholes with wireline logging and rotary cored drilling, of approximately 100 mm diameter, to a target depth of approximately 45 m below the seabed, (up to 4 at each landfall option).	No information provided on vessel.	Approximately 2 months has been allocated for nearshore geotechnical surveys with an aim to commence in Summer 2022. The timing of these works is weather dependant and will vary depending on

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
				vessel availability and ground conditions encountered
Geophysical Surveys	Landfall	Refraction survey in the nearshore and intertidal areas.	Rigid inflatable boat (RIB) or on foot.	Approximately 2-3 weeks has been allocated for the intertidal refraction survey with an aim to commence Summer 2022. The timings of these works is weather dependant and will vary depending on vessel availability.
	Array area, proposed foundation locations	2D ultra high resolution seismic survey (UHR) and full suite of geophysical survey including: Bathymetric survey; Side scan sonar; Shallow reflection Seismic (sub-bottom profiling); and Marine magnetometer.	Typical geophysical survey vessels are approximately 70m to 100m with a 4 - 6m draft and operational speed of 5 knots. Smaller vessels (16m – 20m) may be required for sampling nearshore and in shallow water (<7m depth). Operations are likely to be on a 24-hour basis.	Approximately 2-3 months have been allocated for offshore geophysical surveys with an aim to commence in Summer 2022. The timing of these works is weather dependant and will vary depending on vessel availability and ground conditions encountered

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
	Along proposed export cable corridor	Geophysical survey including: Bathymetric survey; Side scan sonar; Shallow reflection seismic (sub-bottom profiling); and Marine magnetometer.	Typical geophysical survey vessels are approximately 70m to 100m with a 4m draft and operational speed of 5 knots. Smaller vessels (16m-20m) may be required for sampling nearshore and in shallow water (<7m depth).	
Metocean Monitoring	Array area	Wind resource and metocean survey comprising up to two buoy-mounted Floating Lidar (FLiDAR) Units and up to two buoys incorporating wave and current measurement devices.	No information provided on vessel.	The works aim to commence mid 2022. Two buoys with wave and current measurement device swill remain on site for a minimum of two years. Temporary validation deployment for wind measurement equipment is sought for 6-8 weeks.

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
Static Acoustic Monitoring (Environmental/ Ecological)	Foreshore licence area	Up to 10 static acoustic monitoring devices (SAM) deployed on a seabed mooring with surface marker buoy to detect porpoises, dolphins and other toothed whales.	Vessel with a minimum usable deck space of 18m with low freeboard and deck-mounted towing winch.	The deployment of SAM devices is scheduled for two weeks in mid 2022. The equipment will remain on site for the duration of the Foreshore Licence (5 years) to generate a long-term data set.
Benthic Subtidal Monitoring (Environmental/ Ecological)	Foreshore licence area (locations yet to be defined and will be based on geophysical data).	Up to three annual subtidal benthic ecology surveys comprising drop down video (DDV), grab sampling and epibenthic trawls. Methodology will be dependent on seabed type and will vary between a Hamon or Van Veen Grab (0.1 – 0.2m ²) at up to 90 locations. DDV will be deployed prior to each sample being taken. Epibenthic sampling using 2m Cefas beam trawl with a 5mm cod to collect information on epibenthic invertebrate species and small demersal and juvenile fish. Trawls will be standardised by length (500m) or duration (10 minutes).	Approximately 18m in length with a deck-mounted winch. Fishing vessels may be utilised for seasonal trawl surveys.	Approximately 1-2 months per year for up to three years is allocated for subtidal benthic ecology surveys. This will commence in 2023.
Benthic Intertidal Monitoring (Environmental/ Ecological)	Landfall	Up to three intertidal survey comprising walkover surveys and a series of shallow hand cores (up to 48) to be analysed for infauna, sediment granulometry and organic carbon content (typically 90mm in diameter and up to 500mm in depth).	No information provided on vessel.	Approximately 1-2 weeks per year for up to three years is allocated for intertidal benthic ecology surveys. This will commence in 2023-2026.

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
Fish and Shellfish Monitoring (Environmental/ Ecological)	Foreshore licence area	Up to three annual potting surveys, each comprising up to ten fleets of 20 pots (crab/lobster/whelk pots). Seasonal trawl survey to include up to 15 pelagic and otter trawls, undertaken four times a year for up to three years.	Approximately 18m in length with a deck-mounted winch. Fishing vessels may be utilised for seasonal trawl surveys.	Approximately 1-2 weeks per year for up to three years is allocated for fish and shellfish surveys. This will commence in 2023-2026. Seasonal trawls undertaken during winter, spring, summer and autumn in each of these years.

SECTION 3 - RELEVANT ANNEX IV SPECIES

Under Article 12 of the Habitats Directive, Annex IV species are afforded strict protection throughout their range, both inside and outside of designated protected areas. Those Annex IV species (cetaceans and marine turtles) that could potentially occur in the survey area are described below.

3.1 Cetacean species

The applicant's Supporting Information Report indicates that there have been several studies of marine mammals in the Irish Sea and in the vicinity of the Licence application area. These include site specific visual boat transect surveys conducted by the project between June 2019-January 2020 and May 2020 to April 2021 and visual boat transect surveys, boat fixed point surveys and aerial surveys conducted in 2001 – 2002. A number of broad scale surveys also provide coverage of the area including SCANS-II and SCANSIII (aerial and vessel visual surveys conducted in summer 2015 and 2016 respectively) and the ObSERVE-aerial programme conducted in summer 2015 and 2016 and winter 2015 and 2016. The applicant could have also referenced the ongoing Static Acoustic Monitoring (SAM) by Dublin Port Company (DPC) which has been monitoring cetaceans (primarily harbour porpoise) in the vicinity of an offshore dredge disposal site at Burford Bank since 2016 (see⁶).

The applicant indicated that the key cetacean species likely to be present within the survey area and surrounds were harbour porpoise (*Phocoena phocoena*). Other species recorded in the area, include minke whale (*Balaenoptera acutorostrata*), bottlenose dolphin (*Tursiops truncatus*), Risso's dolphin (*Grampus griseus*) and common dolphin (*Delphinus delphis*), however these were not commonly encountered.

3.1.1 Harbour porpoise

The applicant indicated that harbour porpoise was the most commonly sighted marine mammal during the site-specific surveys between June 2019 and April 2021. Porpoise were sighted throughout the survey area and spatial modelling showed that density estimates were generally higher on the western most coastal side of the Survey Area, especially in the north-west corner which is the point nearest to the Rockabill to Dalkey Island SAC. While sightings rates and resulting density estimates were high in November 2019 and September 2020, overall there wasn't any evidence of a seasonal pattern in the sightings. It would have been useful if relevant data from these site surveys was provided as part of the application.

Porpoise density and abundance estimates for the site were last obtained in 2013 and 2016 (O'Brien & Berrow 2016). A slight increase in density of porpoises in 2016 compared with 2013 was found (the coefficient variation of the pooled density estimates were 0.06 and 0.10 individuals per km² for 2013 and 2016 respectively). In 2016, harbour porpoise were found to be distributed throughout the SAC survey area, but significant changes occurred in their spatial distribution between individual surveys with abundance higher in the northern section of the SAC during August and September when compared to June and July data. Harbour porpoise sightings in the outer Dublin Bay area also varied between surveys but were generally low compared to adjacent waters surveyed within the SAC; most sightings were distributed to the north and south of Dublin Bay (O'Brien & Berrow 2016).

SAM data from the ongoing DPC project referenced above, indicates that across all days monitored at each of the sites, harbour porpoises were present on an average 99% of days

⁶ <https://assets.gov.ie/136536/246cbca0-7855-4d5a-9011-288d1ceb1c30.pdf>

monitored. The highest presence was detected at all locations during the winter months, during hours of darkness (incl. dusk) and across a range of tidal cycles and phases.

3.1.2 Minke whale

A total of 28 to 50 minke whales were sighted during the Dublin Array site specific surveys, all of which were sighted in the spring and summer months. Berrow *et al.* (2010) indicates a seasonal aspect to the occurrence of minke whales in the Irish Sea with animals appearing in the eastern Irish Sea from April to June. Minke whales were the most frequently sighted mysticete species during the ObSERVE surveys from 2015 to 2016 (Rogan *et al.* 2018).

3.1.3 Bottlenose dolphin

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 surveys were mainly located in the west and the south of Ireland. Bottlenose dolphins observed off Dublin are part of the highly mobile coastal population which has been recorded all around the Irish coast and some individuals reported off Scotland (O'Brien *et al.* 2009). Site specific surveys undertaken to support the construction of Dublin Array windfarm identified a total of four groups across the 13 surveys undertaken.

3.1.4 Risso's dolphin

Risso's dolphin occurrence is described as wide and frequent throughout Irish waters, sighted in both the continental shelf and slope as well as the margins of deeper ocean basins (NPWS 2019). They were the dolphin species most regularly recorded in the Irish Sea, with counties Wicklow and Wexford accounting for 41% of all inshore Risso's dolphin sightings (Berrow *et al.* 2010). No Risso's dolphins were sightings during the site specific surveys

3.1.5 Common dolphin

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. Berrow *et al.* (2010) noted that records from ferries showed a noticeable increase in their numbers in the southern Irish Sea in the autumn. A total of five groups (21 individuals) of common dolphins were sighted during the site-specific surveys.

3.2 Other Annex IV species

3.2.1 Marine turtles

Five species of marine turtles have been recorded in Irish waters including leatherback turtle (*Dermochelys coriacea*), loggerhead turtle (*Caretta caretta*) and Kemp's Ridley turtle (*Lepidochelys kempii*) (King & Berrow 2009). Of these, leatherback turtle is the most regularly reported around the coast of Ireland, accounting for just over 80% of all records. The majority of turtle sightings or stranding records are along the south and west coasts of Ireland, however, there are records of leatherback turtles along the east coast of Ireland suggesting that this species may occur within the Irish Sea (King & Berrow 2009).

Most sightings occur in the summer, peaking in August (Penrose & Gander 2016, Botterell *et al.* 2020). The decadal trend of records in the UK and Ireland for leatherback turtles generally

increased, peaking in the 1990s from which it has since decreased. Data from the National Biodiversity Data Centre⁷ reflects these patterns with the predominance of sightings in the south and west of Ireland, and relatively few sightings in the Irish Sea, the latest of which was recorded in 2004. Aerial surveys for the ObSERVE project from 2015-2016 recorded a handful of leatherback turtle sightings at the southern limits of Irish offshore waters in summer; none were observed in the Irish Sea (Rogan *et al.* 2018).

3.2.2 Otter

Otters are widespread in Ireland, found in a variety of aquatic habitats, both freshwater and marine. However, they always require access to fresh water.

As indicated in Section 2.1, the project has two potential cable landfall locations at Poolbeg and Shanganagh.

The Dublin City otter survey conducted over 2018 and 2019 (Macklin *et al.* 2019) indicated that most of Dublin Port featured very high levels of human activity (industrial zone) and was largely unsuitable for otter. The causeway to Poolbeg lighthouse, whilst featuring very high overall levels of human disturbance, supported two regular otter spraint sites at the top of concrete steps. Public submission 15 indicated that the Shanganagh River may support otter.

⁷ <https://maps.biodiversityireland.ie/Species/128443>

SECTION 4 - RISK ASSESSMENT

4.1 Potential impacts associated with the proposed site investigation and monitoring surveys

4.1.1 Disturbance from underwater noise

The applicant indicates that 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). Consequent effects may include masking of biologically important noises (perceptual impacts), induced stress, and behavioural changes such as displacement from feeding, resting or breeding grounds (DAHG 2014). 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.

The applicant refers to the DAHG (2014) guidance on managing the risk to marine mammals from manmade sound sources in Irish waters, noting that the proposed surveys will generate underwater noise and vibration, though these would be lower than surveys using seismic airguns. A tabulation of noise sources for all aspects of the survey is provided, including frequency ranges and sound pressure levels for the range of geophysical survey equipment, drilling and vessel noise. The applicant notes that the frequency ranges of the MBES and SSS equipment fall outside of the hearing threshold of all species and that the proposed magnetometer is passive, and produces no noise. The applicant notes the lower frequency nature of SBP, indicating this to be 2kHz-200kHz, which is within the estimated hearing range of harbour porpoise (275Hz-160kHz) also covering the frequency of peak sensitivity (105kHz) (Southall *et al.* 2019), and that of low frequency cetaceans (0.2 kHz to 19 kHz) such as minke whale. Further information is provided on the nature of sound sources generated by SBPs, including rapid attenuation of the source such that the potential for injury, based on Southall *et al.* 2007 and 2019) is limited as the levels at which this could occur would be within the distance at which marine mammals would avoid the vessel, given as 1km (after Graham *et al.* 2019). For clarity, note that Graham *et al.* (2019) found that vessel presence within 1km was a significant covariate in their models, possibly indicating a behavioural response in harbour porpoise to vessels. The applicant notes that the sound source for SBP would primarily be at 100kHz, however, in view of the information provided in Table 2 of the applicant's Report to inform AA Screening, this would be substantially greater than the operating frequencies presented for the boomer and sparker systems (5kHz and 4kHz respectively), and would only be within the range of the pinger, with the applicant providing a range of 2-200kHz for that system.

The applicant notes that the DAHG (2014) guidance refers to potential impacts from noise generated from oil and gas drilling but not from geotechnical borehole drilling. The applicant presents a range in the source size and frequencies for a geotechnical drill comparable to that to be used in the survey as a basis for assessing its potential impact, and includes further information of an estimated SPL_{peak} value which is below the marine mammal temporary threshold shift (TTS) value for continuous sounds (Southall *et al.* 2019). Reference was also made to a modelling study for East Anglia Two which included drilling in relation to wind turbine piles⁸. CPTs were noted to not generate noise levels which would result in injury or disturbance to relevant qualifying interests.

⁸ This was later referenced in response to the public consultation as: <https://infrastructure.planninginspectorate.gov.uk/wp->

Significant effects from the use of SAM devices, benthic grabs, epibenthic trawls and drop down video were noted to be restricted to that from equipment interacting with the seabed or the vessels used to deploy and operate the equipment. The applicant notes that noise associated with large shipping vessels is widely considered unlikely to cause physical trauma, but could make preferred habitats less attractive as a result of disturbance (habitat displacement, area avoidance) (Erbe *et al.* 2019). A study by Beck *et al.* (2013) noted that marine mammals frequenting the Dublin Port shipping channel will be well accustomed to shipping noise. Ambient underwater noise in Dublin Bay has been estimated at around 113 db by Beck *et al.* (2013) and by McKeown (2014). The applicant notes that noise generated by vessels will be within the audible range of marine mammals but that the survey activities will represent a short-term, temporary and intermittent increment to existing shipping noise levels.

The applicant's summary indicates that low frequency cetaceans would be most susceptible to disturbance effects. However, it was indicated that low frequency cetaceans are not commonly encountered in the area and with mitigation (Section 4.2), significant effects are not expected.

The applicant indicated that since no turtles were recorded during the site specific surveys, potential impacts on marine turtles were not considered (nothing that any mitigation proposed for cetaceans would also be applied to any turtles encountered). However, given their potential presence (albeit unlikely), further consideration is provided. Available information on potential effects of underwater sound on marine turtles is very limited (Nelms *et al.* 2016). The hearing range of cheloniid species has been estimated as between 50-2,000Hz, with highest sensitivity below 400Hz (Popper *et al.* 2014). For leatherback turtles, measurements made on hatchlings suggested a similar low frequency sensitivity, with sound detection ranging between 50 and 1,200Hz when in water and between 50 and 1,600Hz in air (Dow Piniak *et al.* 2012). Underwater noise generated by survey vessels and the SBP may be detectable by leatherback turtles, although their low density and limited seasonal presence in the area dictates that very few individuals are likely to be exposed to noise levels beyond that of the background for the region.

Any otters in the area will have very limited exposure to underwater noise given they are predominantly terrestrial/freshwater animals which may utilise shallow coastal waters to forage. The potential for significant effects is considered extremely unlikely.

4.1.2 Vessel collision

There is the risk of disturbance, and also death and injury to Annex IV species from ship collision. The survey vessels will operate at slow speeds or be stationary and not add significantly to existing traffic levels, such that there would be no significant change to the existing collision risk to Annex IV species.

4.1.3 In-combination effects

The applicant considered a range of other projects in terms of their potential to have in-combination effects with the Project. Those of relevance were considered to be within the licence application area or within a 30km buffer. Relevant plans and projects were described in Section 7.4 of the applicant's screening report and those screened in for further assessment

were considered in Section 4.3 of the NIS. Those of relevance to this Annex IV risk assessment included:

- Dublin Port maintenance was screened into the in combination assessment for consideration of impacts on harbour porpoise from underwater noise. McKeown (2016) carried out underwater noise measurements during the 2016 Dublin Port maintenance dredging campaign. Sound levels for the dredging operations were recorded at ranges of 213 and 268 m were below the disturbance threshold for harbour porpoise of 140 dB re 1 μ Pa SPLRMS and 140 dB re 1 μ Pa² s SEL. Increased noise was recorded as restricted to <100 m from the dredger during dredging (McKeown 2016). Given that noise from dredging vessels will not be any greater than background shipping noise, disturbance and displacement upon the harbour porpoise community was not predicted. Given these findings and the lack of significant effect for the works proposed under this Foreshore Licence application alone, no in-combination effect on harbour porpoise and other Annex IV species is predicted with the Dublin port maintenance dredging campaigns.
- The Irish Water Greater Dublin Bay Drainage project was screened into the in-combination assessment to assess impacts of underwater noise of the harbour porpoise QI for Rockabill to Dalkey Island SAC. The Irish Water construction of a pipeline to the north of Dublin Bay will involve excavation of a trench 5m deep, installation of the pipeline and backfilling with previously excavated material, together with the installation of two piled structures. Whilst there is no spatial overlap, there is potential to overlap temporally with the proposed works at Dublin Array. The applicant's NIS for the Greater Dublin Bay Drainage project concluded that the overall level of dredging noise was expected to be low but may induce some behavioural responses by harbour porpoises when in close proximity (<1 km). Additional mitigation methods were deemed to be required to ensure that effects on harbour porpoise do not compromise the Conservation Objectives for the SAC. The noise impacts from piling were noted as significantly greater than noise from the dredging and whilst both potential piling locations are located outside the boundary of the SAC, a high level of mitigation was proposed to ensure that harbour porpoise are not found within close proximity to piling when operational. Given the localised nature of any effects from survey activities at Dublin Array and that both projects are committed to mitigation in line with the DAHG guidance, no significant disturbance of harbour porpoise and other Annex IV species as a result of the proposed works in-combination with the Greater Dublin Bay Drainage project will occur.
- Codling Bank site investigation works: The works were concluded to have potential for disturbance of a very small number of harbour porpoise, but any effects were likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. Given these findings and the lack of LSE predicted for the works which are the subject of this Foreshore Licence application alone, no in-combination underwater noise effect is predicted with the Codling Bank windfarm surveys. Given the localised nature of any effects from survey activities and that both projects are committed to mitigation in line with the DAHG guidance it can be concluded that no significant disturbance of harbour porpoise and other Annex IV species as a result of the proposed works in-combination with Codling will occur.
- North Irish Sea Array (NISA) site investigation works: there is no spatial overlap between the proposed NISA surveys and that of the applicant, however, there is the potential for temporal overlap. The site investigation works at NISA will be undertaken over 20km from the survey activities at Dublin Array, any noise generated will attenuate rapidly to within background levels. Given the localised and temporary nature of any

effects from survey activities and that both projects are committed to mitigation in line with the DAHG guidance, it can be concluded that no significant disturbance of harbour porpoise and other Annex IV species as a result of the proposed works in-combination with NISA will occur.

4.2 Mitigation measures

Best practice measures in relation to geophysical acoustic surveys as specified in Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG 2014) will be followed at all times, with pre-monitoring by a qualified and experienced MMO followed by the use of the 'soft-start' procedure.

4.3 Conclusion of the Risk Assessment for Annex IV Species

The risk assessment of the potential impacts on Annex IV species from activities associated with the proposed site investigation and monitoring surveys concludes that with the implementation of the DAHG (2014) mitigation measures:

- It is very unlikely that there will be negative residual impacts from the proposed site investigation and monitoring surveys on Annex IV species in the area.
- It is very unlikely that any Annex IV species will be injured or killed as a result of the proposed site investigation and monitoring surveys.
- Annex IV species using the area are likely to be tolerant of vessel noise and any animals which might be displaced from the vicinity of the survey vessels can be expected to quickly re-establish use of the area following cessation of the surveys.

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