Hartley Anderson Limited

Marine Environmental Science and Consultancy

Appropriate Assessment Screening

Celtic Interconnector Foreshore Licence Application

Report to
Department of Housing, Local Government and Heritage

March 2022

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SECTION 1 - INTRODUCTION

1.1 Background

Arup with Hartley Anderson Limited[1] have been commissioned by the Department of Housing, Local Government and Heritage (DHLGH) to conduct an Appropriate Assessment (AA) Screening (stage 1 screening for the likelihood of significant effects on Natura 2000 sites) of an application for a Foreshore Licence by EirGrid plc to cover the pre-lay installation works, cable installation works, operation, and periodic maintenance of a submarine electricity interconnector between France and Ireland. This infrastructure passes through Irish Territorial Waters, the Irish Exclusive Economic Zone (EEZ), the UK EEZ, French EEZ and French Territorial Waters.

The Celtic Interconnector will enable the exchange of electricity between Ireland and France. It will be the first direct energy link between the two countries, running from the south coast of Ireland to the north-west coast of France. Since 2011, EirGrid, the state-owned independent Transmission System Operator has been working with its French counterpart Réseau de Transport d'Electricité (RTE) to find the best way to develop the interconnector to benefit electricity customers and markets in Ireland, France and the EU. EirGrid and RTE are working together to deliver the Celtic Interconnector, which, if it receives consent, is due to be completed in 2026.

A planning application, as a strategic infrastructure project, required for the onshore elements of the proposed development, from the inner limit of the Foreshore to the connection point with the transmission grid, has been submitted to An Bord Pleanála (Reference number: PL04.302725).

1.2 Application documents submitted

A number of documents relevant to this application have informed this AA Screening, including:

- Application form and supporting documents
    - FS006916 Volume 7A Foreshore Application Form Statutory Particulars and Appendices [EirGrid Group, June 2021]
    - FS006916 Volume 3B_NTS for Ireland Offshore EIAR Celtic Interconnector June 2021[Wood Group UK Ltd, June 2021]
    - FS006916 Volume 3D1 Introductory Chapters for Ireland Offshore EIAR Celtic Interconnector June 2021 [Wood Group UK Ltd, June 2021]
    - FS006916 Volume 3D2_Technical Chapters for Ireland Offshore
    - EIAR Celtic Interconnector [Wood Group UK Ltd, June 2021]
    - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.1 [Wood Group UK Ltd, June 2021]
    - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.2 [Cotswold Archaeology Marine, 2019]

[1] Hartley Anderson Ltd has prepared over thirty Habitats Regulations Assessments and Appropriate Assessments in UK and Irish waters on behalf of Regulators prior to their licensing or activity consenting. Hartley Anderson Ltd has an in depth understanding of the Irish and adjacent waters Natura 2000 conservation sites, their features, conservation objectives and relevant management measures together with pressures, scales of impact and efficacy of mitigation measures.

  - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.3 [Headland Archaeology, 2015; Cotswold Archaeology Marine, 2019]
  - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.4 [Cotswold Archaeology Marine, 2019]
  - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.5 [Cotswold Archaeology Marine, 2019]
  - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.6 [Headland Archaeology, 2015; Cotswold Archaeology Marine, 2019]
  - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.7 [Cotswold Archaeology Marine, 2015; 2018]
  - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.8 [Cotswold Archaeology Marine, 2018; 2019]
  - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.9 [Cotswold Archaeology Marine, 2019; IAC Archaeology, 2019]
  - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.10 [Cotswold Archaeology Marine, 2019; Wood Group UK Ltd, June 2021]
  - FS006916 Volume 3D2 Appendices for Ireland Offshore EIAR Celtic Interconnector pt.11 [Anatec, 2016]
  - FS006916 Volume 5 Joint Environmental Report (JER) pt.1 [EirGrid & Le Réseau de Transport d'Électricité, 2021]
  - FS006916 Volume 5 Joint Environmental Report (JER) pt.2 [EirGrid & Le Réseau de Transport d'Électricité, 2021]
  - FS006916 Volume 6B Offshore AA Screening Report and Natura Impact Statement [Wood Group UK Ltd, June 2021
  - FS006916 Volume 7A EIAR Celtic Interconnector TEN-E Regulation Concept for Public Participation [EirGrid Group, April 2020]
  - FS006916 Volume 7A EIAR Celtic Interconnector Connecting Electricity Grids of Ireland and France [EirGrid Group, July 2021]
  - FS006916 Volume 7A EIAR Celtic Interconnector Appendix A Geographic co-ordinates
  - FS006916 Volume 7A EIAR Celtic Interconnector Appendix B Size Area
  - FS006916 Volume 7B Ireland Offshore EIAR Celtic Interconnector Foreshore Licence Map 1 400584-PL-DWG-009 Rev D [Wood Group UK Ltd, February 2021]
  - FS006916 Volume 7B Ireland Offshore EIAR Celtic Interconnector Foreshore Licence Map 2 400584-PL-DWG-009 Rev D [Wood Group UK Ltd, February 2021]
  - FS006916 Volume 7B Ireland Offshore EIAR Celtic Interconnector Irish Shore Approach and Landfall at Claycastle Typical Section 400584-SK-DWG-005 Rev D [Wood Group UK Ltd, January 2021]
  - FS006916 Ireland Offshore EIAR Celtic Interconnector Planning and Consultation Report Vol 8A D [Wood Group UK Ltd, June 2021]
  - FS006916 Ireland Offshore EIAR Celtic Interconnector Marine Strategy Framework Directive Assessment - Ireland Vol 8B [Wood Group UK Ltd, June 2021]
  - FS006916 Volume 8C Ireland Offshore EIAR Celtic Interconnector Water Framework Directive Assessment [Wood Group UK Ltd, June 2021]

- Public Consultation
  - Public Consultation Submissions

    - Applicant Responses to Public Consultation Submissions
- External Bodies Consultation
    - Prescribed Bodies Observations
    - Applicant Responses to Observations

1.3 Relevant consultation responses

The licence application was open for public consultation between 11th October 2021 to 6th December 2021. Observations from the prescribed bodies are provided in Table 1.1 along with Applicant responses. Table 1.2 summarises observations made by the public and associated responses from both the Applicant and Arup. Note that most of the responses are not directed at the Habitats Directive aspects of the proposal.

Table 1.1: Summary of observations made by Prescribed Bodies and Applicant's Response

Statutory Body	Applicant's Response
Marine Institute A foreshore application has been submitted for the Celtic Interconnector Project development by EirGrid Plc. The project will create an electrical interconnection between Ireland and France to allow the exchange of electricity between the two countries. The link will have the capacity to carry up to 700 MW of electrical energy between the two systems. The main elements of the overall Celtic Interconnector project are (foreshore relevant components italicised): *- A High Voltage Direct Current (HVDC) submarine cable of approximately 500 km in length laid between the coast in Brittany France, and the Cork coast in Ireland. The submarine cable will be either buried beneath the seabed or laid on the seabed and covered for protection;* *-A landfall location in Ireland and France, where the HVDC submarine circuit will come onshore and terminate at a Transition Joint Bay (TJB);* *-A HVDC underground cable (UGC) in both countries between the landfall location and a converter station compound;* -A converter station in both countries to convert the electricity from HVDC to High Voltage Alternating Current (HVAC) and vice versa; -A HVAC UGC in both countries between the converter station compound and the connection point to the National Grid; -A connection to the National grid; and, *-A fibre optic link, with associated power supply, will also be laid along the route for operational control, communication and telemetry purposes.* As it relates to the foreshore, the development comprises the installation of two high-voltage direct current (HVDC) subsea cables and a fibre optic link with associated power supply to be buried within pre-installed Steel/High Density Polyethylene (HDPE) conduits beneath Claycastle Beach, south of Youghal, Co. Cork and car park at Claycastle Beach. The HVDC cables extend across the HWM and enter the two underground concrete chambers of a Transition Joint Bay (TJB); this chamber is where the subsea cables will connect with the onshore cables.	EirGrid thanks the Marine Institute for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. We acknowledge the request that mitigation measures as outlined within Section 3.6 of Volume 6B of the application documentation (Appropriate Assessment Screening Report and Natura Impact Statement) form conditions in any Foreshore Licence issued, and are happy to support this request.

Statutory Body	Applicant's Response
An Environmental Impact Assessment Report and Natura Impact Statement (NIS), among other documentation, were prepared and submitted with the application. These documents consider all aspect of the overall project including the foreshore considerations. The closest licenced aquaculture site (T05/491A) is in Ballymacoda Bay and is approximately 4.2km to the (foreshore aspects) of the proposed development. The closest Shellfish Grow water area is Ballymacoda Bay (4.1km). On the basis of the information provided in the EIAR, and the relatively short duration of the proposed works (10 weeks), the development is unlikely to impact on any licenced aquaculture activities. A detailed fishery interaction report was also prepared for the Irish Territorial waters (EIAR Chapter 19). Three main categories of fishing gear fished within the waters adjacent to the proposed cable route: • Static gear (pots, lines and gill nets); • Demersal (bottom) trawl gear; and • Pelagic (mid-Water) trawl gear. Potential interactions between fishing activities and the cable infrastructure are likely to occur and mitigation measures are identified to minimise the likely negative effect of these interactions. These measures include, among others, active communication at all stages of the development and the appointment of a fisheries liaison officer. In addition, it is anticipated that smooth over-trawlable rock berms and concrete mattressing will be installed where adequate cable burial has not been possible. These measures are considered sufficient to mitigate any negative interactions with demersal fishing activities. The Marine Institute is satisfied that the mitigation measures to be adopted in order to protect commercial fisheries interests are sufficient. The NIS identifies the likely interactions between the proposed project and the conservation features of all Natura 2000 sites in the vicinity and ex-situ features (bird and mammal species). The document provides detailed description of the proposed development and the likely interactions with conservation features. During screening assessment, likely significant effects were identified for a number of conservation interests (for the project alone and in-combination with other plans or projects) and were carried forward for full assessment.	

Statutory Body	Applicant's Response
Those features carried forward for full assessment were considered in more detail and likely significant effects were either dismissed or, with certain mitigation measures, conclude that the development is unlikely to impact on the integrity of the conservation sites and ex-situ features identified. It would be important that these mitigation measures (Section 3.61 (Celtic Interconnector - Volume 6B. Appropriate Assessment Screening Report and Natura Impact Statement June 2021)) are enacted in full and that they form conditions in any foreshore licence to issue.	
Inland Fisheries Ireland – Marine Licence Vetting Committee Overview: The Celtic interconnector comprises: • 2 high voltage direct current electricity power cables • Fibre optic link for control and communication purposes • Associated works and work sites required to construct, install, test and commission the cables • Associated works and work sites required to operate, maintain, repair and decommission the cables (including 2 repair events of the 40yr lifetime of the project) <u>IFI Comment</u> There are 2 options for burying the cables/trench – when is it expected to know which option EirGrid will proceed with? We ask that once this is known the local IFI office is informed. The first phase of installation will be competed in winter over approximately 10 weeks from October 2024 to April 2025. Work will be carried out from 7am to 7pm mon – fri and 7-2 on sat. No work will be carried out at night to reduce the impact on migratory species around the Blackwater Estuary. The second phase will take place in summer to avail of favourable weather conditions for the cable installation. Anticipated to take 4 weeks from April 2025 to September 2025. The beach is used for recreational angling and we ask that signs are installed to inform local anglers when work will be carried out on the beach in advance so as local anglers can make alternative plans for the days access is restricted. The cable will be buried to a depth of >1.8m across the intertidal zone to a distance approximately 50m shoreside of the lowest astronomical tide. Offshore the cables shall	EirGrid thanks the Inland Fisheries Ireland (IFI) for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. The IFI response is within the scope of works covered by the Foreshore Licence, and we agree with the requests to confirm burial option, provide signage for recreational anglers, adhere to the IFI Guidelines during construction works (where applicable), include the IFI in the emergency response plan, notify IFI in the event of water pollution, and give advanced notice for starting works (five days notification time, prior to works commencing). The IFI have indicated no work should be carried out at night to reduce the impact on migratory species around the Blackwater Estuary. We would clarify that the works take place in 2 phases. Phase I refers to the preparatory works prior to cable pull-in, taking place in the period October to April outside bathing season and take place primarily on land and on the beach. These works will generally take place only during the day and are not considered to have any impact on the migratory fish. Phase II covers the final cable pull-in works which are a continuous operation and are based on taking place during optimum tidal conditions. This operation will require vessels to be stationed at or near the end of the duct (LAT), setting up ready to commence the pull in through the duct. The pull in operation for each cable will take a matter of a few hours but may need to stop and re-start as the tide flows and ebbs. The operations will be timed to ensure that the majority of the work is during daylight

Statutory Body	Applicant's Response
be buried beneath the seabed varying in depth between 0.8m and 2.5m dependent on risk of third-party interactions and seabed conditions. These mitigation measures are to ensure the cables are sufficiently buried to reduce heat emissions and electro-magnetic fields. Migratory diadromous fish species will be passing across the cable channels when migrating from Irish sea/ Munster blackwater catchment out to Atlantic Ocean and vice versa. There is a paucity of information on the effects of EMF on fish species in the field. Mitigation measures are outlined in the NIS document on page 201. IFI asks that all works are conducted in accordance with IFI's *"Guidelines on protection of fisheries during construction works in and adjacent to waters"*. IFI must be included in an Emergency Response Plan as a notifiable body in the event of water pollution occurring during works. IFI request that the local office is informed 5 days in advance of work commencing on the site. Email: macroom@fisheriesireland.ie	hours, but it is possible that it will need to start very early morning or continue late into the night. These operations form only a very small part of the works and will be undertaken over a few days only. We consider that the level of night-time work which may be required will have no significant impacts.
Geological Survey Ireland The Geological Survey Ireland (a division of the Department of the Environment, Climate and Communications) made the following comments: Use of our data or maps should be attributed correctly to 'Geological Survey Ireland'. With reference to your email received on the 16 September 2021, concerning the foreshore application for the installation of the EirGrid Celtic Interconnector electricity cable, Geological Survey Ireland would encourage use of and reference to our datasets. Please find attached a list of our publicly available datasets that may be useful to the environmental assessment and planning process. We recommend that you review this list and refer to any datasets you consider relevant to your assessment. The remainder of this letter provides more detail on some of these datasets, with particular reference to the proposed development site. We are pleased to see use of our Bedrock, Quaternary, Groundwater Wells and Springs, Groundwater Aquifer, Groundwater Vulnerability and Landslide Susceptibility datasets within the EIAR. <u>Geoheritage</u>	EirGrid thanks Geological Survey Ireland for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. We welcome the list of publicly-available datasets applicable to the Celtic Interconnector project, and the acknowledgement that relevant datasets were included within the EIAR. EirGrid can confirm that we will be glad to provide GSI with copies of reports detailing the results of future site investigations carried out in connection with the Celtic Interconnector, and will provide these via the email address provided.

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Geological Survey Ireland is in partnership with the National Parks and Wildlife Service (NPWS, Department of Housing, Local Government and Heritage), to identify and select important geological and geomorphological sites throughout the country for designation as geological NHAs (Natural Heritage Areas). This is addressed by the Geoheritage Programme of Geological Survey Ireland, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme are rigorously selected by a panel of theme experts. County Geological Sites (CGSs), as adopted under the National Heritage Plan, include additional sites that may also be of national importance, but which were not selected as the very best examples for NHA designation. All geological heritage sites identified by Geological Survey Ireland are categorised as CGS pending any further NHA designation by NPWS. CGSs are now routinely included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. The audit for Co. Cork commenced this year, and will be a three-year process. However, the sites are listed in a master list of unaudited sites, and can be viewed under the Geological Heritage tab on the online Map Viewer as sites with buffer zones but no specific site boundary. **Our records show that there is an unaudited CGS 1km from the landfall location of the interconnector at Claycastle Beach in Youghal.** **Youghal (under light-house),** Co. Cork. (GR 210900, 76700), under IGH theme: IGH 10 Devonian. With the current plan, there are no envisaged impacts on the integrity of current CGSs by the proposed development. However, if the proposed development plan is altered, please contact Clare Glanville (Clare.Glanville@gsi.ie) for further information and possible mitigation measures if applicable <u>Geological Mapping</u> Geological Survey Ireland maintains online datasets of bedrock and subsoils geological mapping that are reliable and accessible. We would encourage you to use these data, which can be found here, in your future assessments. Our 3D models can help stakeholders visualize, understand and characterise geology,	

Statutory Body	Applicant's Response
for deposit and resource mapping, for flooding and for urban geology applications including basement impact assessment, Sustainable Drainage Systems (SuDS), and subsurface management. Our 3D models offer a key element of geotechnical risk management by identifying areas requiring further site investigation. Further information and download instructions for the Quaternary 3D model of Cork are available on the Geological Mapping programme dedicated here. <u>Geotechnical Database Resources</u> Geological Survey Ireland continues to populate and develop our national geotechnical database and viewer with site investigation data submitted voluntarily by industry. The current database holding is over 7500 reports with 134,000 boreholes; 31,000 of which are digitised and can be accessed through downloads from our Geotechnical Map Viewer. We would strongly encourage the use of this database as part of any baseline geological assessment of the proposed development as it can provide invaluable baseline data for the region or vicinity of proposed development areas. This information may be beneficial and cost saving for any site-specific investigations that may be designed as part of the project. <u>Marine and Coastal Unit</u> We welcome the use of INFOMAR datasets in the offshore EIAR. The Marine and Coastal Unit also participate in coastal change projects such as CHERISH (Climate, Heritage and Environments of Reefs, Islands, and Headlands) and are undertaking mapping in areas such as coastal vulnerability and coastal erosion. Further information on these projects can be found here. <u>Other Comments</u> Should development go ahead, all other factors considered, Geological Survey Ireland would much appreciate a copy of reports detailing any future site investigations carried out. The data would be added to Geological Survey Ireland's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector. Data can be sent to Geological Mapping Unit, at GeologicalMappingInfo@gsi.ie, 01-678 2795.	

Statutory Body	Applicant's Response
Health and Safety Authority The Health and Safety Authority (the Authority), acting as the Central Competent Authority under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015) gives technical advice to the Planning Authority when requested, under regulation 24(2) in relation to: (a) the siting and development of new establishments; (b) modifications to establishments of the type described in Regulation 12(1); (c) new developments including transport routes, locations of public use and residential areas in the vicinity of establishments, where the siting, modifications or developments may be the source of, or increase the risk or consequences of, a major accident. Since the above-referenced application appears to be outside the scope of the Regulations, the Authority has no observations to forward.	EirGrid thanks the Health and Safety Authority for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector, and note that no specific observations have been made.
Department of the Environment, Climate and Communications The Department of the Environment, Climate and Communications (DECC) does not propose to submit technical observations specifically concerning the foreshore licence application submitted to the Department of Housing, Local Government and Heritage by EirGrid in respect of the Celtic Interconnector. However, the DECC would like to take this opportunity to reiterate existing Government policy with regard to development of electricity interconnectors in general and to highlight Government support for development of this particular project. From the perspective of Government policy, support for enhanced electricity interconnection is emphasised in the National Policy Statement on Electricity Interconnection, published by DECC in July 2018. The National Policy Statement has assisted Ireland's independent energy regulator, the Commission for Regulation of Utilities (CRU), in determining an appropriate regulatory approach to electricity interconnection, by drawing attention to key policy parameters for consideration in its evaluation of interconnection applications from project promoters. In this regard, the CRU determined in 2019 that the development of the Celtic Interconnector is in the interest of Irish electricity consumers. Government support for enhanced interconnection, explicitly including development of the Celtic Interconnector, as a means of driving the transition to a low carbon energy future is further reflected in the 2019 Climate Action Plan and in the 2020 Programme for Government. Government support for enhanced electricity interconnection, including	EirGrid thanks the Department of the Environment, Climate and Communication for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. We welcome the confirmation that the proposed Celtic Interconnector project is consistent with relevant Government energy and climate policy.

Statutory Body	Applicant's Response
interconnectors that have been designated EU Projects of Common Interest (PCI), such as the Celtic Interconnector, is further emphasised in the National Marine Planning Framework published in July 2021. Irish and French Government support for development of the Celtic Interconnector was reiterated in the Ireland France Joint Plan of Action 2021-25, signed by the Foreign Ministers of Ireland and France on 26 August 2021. In addition to the above, electricity interconnection is viewed as critical infrastructure by the European Commission, with enhanced interconnection between EU member states an essential component of creating a pan-EU internal energy market. EU policy is therefore explicit in its support of electricity interconnection, with interconnection projects facilitated under the EU PCI process. In this regard, it is important to note that the Celtic Interconnector has been awarded €530 million in EU grant funding by the European Commission to ensure project development and the return of direct electricity interconnection between Ireland and the European Internal Energy Market, following the UK's exit from the EU. In summary, the DECC can confirm that development of the Celtic Interconnector, subject to receipt of all necessary associated consents and permits, is consistent with related Government energy and climate policy.	
Environmental Protection Agency In accordance with the requirement as set out the Foreshore Regulations 2011 (S.I. No. 353 of 2011), the Agency advised as follows: In relation to the offshore elements of the project, there was previous engagement between the Agency and Eirgrid regarding the requirement for a Dumping at Sea (DaS) Permit. Eirgrid confirmed that a Dumping at Sea Permit would not be required. The project proponent has been advised by the Agency of the requirement to apply for a DaS permit where 'any deliberate disposal in the maritime area', including plough dredging, as defined in the Dumping at Sea Act 1996 as amended, is proposed. The Agency is satisfied, based on the information provided during pre-application consultation meetings to date in relation to the proposed works and the techniques that will be employed, as also set out in the Foreshore Application and EIAR, that there is no requirement for a DaS Permit. The Agency would further advise:	EirGrid thanks the Environmental Protection Agency for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. In particular, we welcome confirmation that there is no requirement for a Dumping at Sea Permit under the Dumping at Sea Act 1996 (as amended). The Agency's position that operation and construction of the proposed Celtic Interconnector shall not result in a contravention of the Water Framework Directive, Marine Strategy Framework Directive, Bathing Water Directive or Environmental Liabilities Directive.

Statutory Body	Applicant's Response
That the proposed activity shall not result in a contravention of the Water Framework Directive 2000/60/EC, Habitats Directive 92/43/EEC, Marine Strategy Framework Directive 2008/56/EC, Bathing Water Directive 73/160/EEC or Environmental Liabilities Directive 2004/35/EC.	
Underwater and Archaeology Unit/ National Parks and Wildlife Service Underwater Archaeology Having reviewed the archaeological documentation submitted for the above Foreshore Application the Department makes the following observations/recommendations. Please note that our previous observations/recommendations in relation to the SID application by Eirgrid for the development of portion of an electricity transmission connector for the Celtic Interconnector Project, Co Cork remain unchanged (see below). The observations/recommendations below are additional to those previously made by this Department and are specific to the works proposed below the High Water Mark at the Irish landfall at Claycastle Beach. Previous investigations and archaeological (Licence Nos. 18E0322; 18R0118; 19E0278) and geotechnical surveys for this project have identified submerged intertidal and subtidal peat deposits extending seaward from the coastline at Claycastle Beach. The peats have produced Neolithic and Iron Age radiocarbon dates and there are antiquarian accounts of flints and Bronze Age metal objects, including a gold dress-fastener, having been discovered here during previous exposures. The EIAR points out that though no archaeological material was identified associated with the peat deposits during the investigations to date 'there is a potential that such could survive given the characteristics of the palaeo-landscape' (EIAR Vol. 3C part p. 413). Evidence of Ireland's drowned landscapes and settlements presently comprises around 50 sites spread across the entire island (Westley and Woodman, 2020, Ireland: Submerged Prehistoric Sites and Landscapes). Radiocarbon dates from these intertidal and subtidal deposits give ages from as early as 13,500 cal BP right up to 5000 cal BP. In the main they are intertidal find spots or small collections of flint artefacts and only eleven are subtidal, comprising of find spots of stray finds or reworked assemblages of lithic material which have been found either by dredging or by divers. The only subtidal site in Ireland to have been subjected to systematic archaeological investigation is Eleven Ballyboes, Co. Donegal, where a large collection of early Mesolithic flints have been recovered from a submerged peat deposit.	EirGrid thanks the Underwater Archaeology Unit for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. With regards to the specific comments raised, the EIAR mitigations were set out as in-principle proposals, and consequently the additional detail provided by the UAU provides welcome detail on which to base a more detailed project design for an Underwater Archaeological Impact Assessment (UAIA) and, where appropriate, further mitigation proposals. It is confirmed that the project design will be prepared by an appropriately qualified licence-eligible marine archaeologist. This investigative scope will be agreed with the UAU to ensure compliance with the relevant requirements of any necessary licencing, and that the proposed investigative works are appropriate to the aims and scope of the project and can be safely delivered.

Statutory Body	Applicant's Response
As the peat deposits overlie what is considered to be a Late Pleistocene glacial till and the date of their initial formation in the Early Neolithic is reliant on a single radiocarbon determination, it is possible that some of the deposit is considerably older in age than the Neolithic and perhaps of Late Glacial or Early Holocene date (Cotswold Archaeology p. 43). This hypothesis is supported by the Relative Seal Level (RSL) curves, which indicate that in the extreme south and south-west of Ireland RSL rose from a lowstand of c. −50 to − 90 m and did not reach modern sea level until the Late Holocene. Early and Late Mesolithic human occupation of SW Ireland is well attested archaeologically and Mesolithic dates have been obtained on submerged forest deposits at Ballycotton Bay, 12km to the south-west of Claycastle Beach. Submerged Neolithic megalithic tombs present on the south-west coast at Cork Harbour and Ringarogy Island also attest to sea level rise along this coastline. The development works associated with the Claycastle Beach landfall thus provide an important and rare opportunity to archaeologically investigate a relatively large, apparently stratified, and intact submerged intertidal and subtidal landscape represented by peat and forest remains, in a coastal zone that was potentially occupied during Ireland's earliest colonisation and settlement. Excavations associated with the cable landfall infrastructure as well as temporary construction compounds could potentially uncover previously unidentified archaeology, in particular associated with these submarine forest and peat deposits. The EIAR recommends as mitigation that a suitably qualified and experienced Project Environmental Specialist be retained to develop a strategy in relation to the investigation and sampling of the submerged landscape along the cable route, in accordance with TII Environmental Sampling Guidelines (EIAR Vol. 3C part p. 437). The EIAR also recommends that targeted test excavations are undertaken to assess the character of the peat deposits (EIAR Vol. 3C part p. 431). Test excavations are also proposed at the landfall area of Claycastle Beach as part of an advance works programme and it is also recommended that exposed peat deposits (15m buffer) and the site of metal object (CH3001) are fenced off and a buffer zone instituted. Archaeological monitoring of construction works is also proposed. Whilst we concur with these mitigation measures, we also recommend, given the potential archaeological significance of the intertidal and subtidal peat deposits which will be impacted upon by the development, that they are subjected to a detailed and comprehensive evaluation, as follows, over and above the test-excavations recommended in the EIAR.	

Statutory Body	Applicant's Response
<u>Underwater Archaeological Impact Assessment (UAIA)</u> An Underwater Archaeological Impact Assessment (UAIA) shall be undertaken to address any potential impact to the Underwater Cultural Heritage. • A licence-eligible, suitably qualified, underwater archaeologist shall be engaged to carry out the Underwater Archaeological Impact Assessment (UAIA). • The archaeologist should also be suitably experienced, with a track record in dealing with marine and offshore developments, resultant report submission, etc. • This evaluation should be conducted by a multidisciplinary team of specialists to determine the archaeological, including artefact-bearing, potential of the submerged forest deposits and the nature, date and extent of any such archaeological materials that may exist. • The evaluation shall include detailed topographical mapping of the peat horizon, a systematic wade and dive survey and careful manual excavation and palaeoenvironmental sampling of a substantial section of the deposit (to be agreed with this Department via a method statement), aimed at retrieving and plotting the locations of worked stone tools and other archaeological materials, should they be identified. • The UAIA shall include a hand-held metal detection survey, undertaken by a suitably licenced and experienced detectorist. A Dive Licence (section 3 1987 Act) and Detection Device consent (section 2 1987 Act) will be required for these works. • A detailed method statement shall accompany their licence applications to the National Monuments Service for consideration (both for a Dive Survey Licence to cover the UAIA and a Detection Device Consent to cover the geophysical survey assessment for archaeological purposes and metal detector for the foreshore survey). The licences shall be issued as required under the National Monuments Acts 1930-2004. • The archaeologist shall be compliant with all licensing requirements, including being up to date with report submissions. • A preliminary report shall be issued to the Department within four weeks of the end of the excavation works and this report shall summarise the results. The UAIA Report is to contain a detailed Impact Assessment to address all identified cultural heritage and shall also make recommendations for mitigation measures to avoid all impacts to the archaeology. If potential or identified sites, features or artefacts cannot be avoided to allow for preservation in situ, then the UAIA	

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Report Recommendations shall put forward an archaeological mitigation strategy to address this, including preservation by record (archaeological testing and/or full archaeological excavation). • Once all surveys and follow up interpretations (including radiocarbon dating and palaeoenvionmental analysis) have been completed, the full information is to be compiled into a UAIA report and submitted to the Underwater Archaeology Unit, National Monuments Service for review and further comment. The applicant shall be prepared to be advised by the Department in this regard. • For wrecks and other sites identified, or the potential location of same, the results to be reviewed by the applicants and the archaeologists and appropriate exclusions placed around them to ensure they are avoided by any works, including SI works. Once the UAU or the National Monuments Service has had the opportunity to review the UAIA Report, further recommendations may issue. It should be borne in mind that should significant archaeological remains be identified, further archaeological mitigation may be required. These may include refusal of planning permission, relocation and/or redesign (in whole or in part) of the development to allow for preservation in situ, further excavation ('preservation by record') and/or monitoring. The Department of Housing, Local Government and Heritage will advise the applicant with regard to these matters. Nature Conservation The proposed development of an electrical cable at Claycastle Beach, Youghal has been evaluated by a Natura Impact Statement (NIS) 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. This is supported by the available evidence. The Department concur with this conclusion in and request that mitigation outlined in Section 3.6 of the NIS document is implemented in full.	
Department of Agriculture Food and the Marine (DAFM) The Department of Agriculture, Food and the Marine has no objections to any licence that issues with regards to this application by Eirgrid for the Celtic Interconnector Electricity Cable Project.	EirGrid thanks the Department of Agriculture, Food and the Marine for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. We welcome the confirmation that there are no objections raised to any licence which may be issued for the project.

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Marine Survey Office After careful consideration the Marine Survey Office has no objection to the above referenced application from a navigational safety perspective. However, the following points shall be of note; An appropriate Marine Notice detailing the works and vessels engaged in said works shall be published for the information of all marine users in the sea area covered by the application. Safety notices for mariners shall be promulgated by all available means appropriate during the duration of the subsea cable operations to ensure the safety of navigation is maintained. The applicant shall ensure the information regarding the final location, depth and shore markings of submarine cables is submitted to the United Kingdom Hydrographic Office (UKHO) for inclusion on relevant navigation charts	EirGrid thanks the Marine Survey Office for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector, and welcome the conclusion that the Office has no objections to the project from a navigational safety perspective. It is also confirmed that an appropriate Marine Notice shall be prepared and published, detailing planned works, and the vessels to be engaged in those works. These shall be distributed by all appropriate means for the duration of works, and updated as necessary. Further, EirGrid shall ensure full details of the project, specifically the final cable route, depth and shore markings of the cable are submitted to the United Kingdom Hydrographic Office for inclusion on relevant navigation charts.
Bord Iascaigh Mhara BIM noted that colleagues in BIM have already made a submission on this consultation via DAFM. Therefore BIM will not be making a separate submission at this time.	EirGrid thanks Bord Iascaigh Mhara for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector, and notes that no specific, separate submission is being made at this time, following previous submission via the Department of Agriculture, Food and the Marine.
Commissioner of Irish Lights Irish Lights has reviewed this application and observe the application corridor transits through a Marine Aid to Navigation, namely the south cardinal Bar Rocks buoy. Should approval be granted, the Commissioners of Irish Lights should be consulted during the installation phase to avoid any impact to safety of navigation. If you have any questions please do not hesitate to contact myself or a member of the team.	EirGrid thanks the Commissioners of Irish Lights for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. We can confirm that CIL will be consulted during the installation phase of the project to avoid any adverse effects on navigational safety in the vicinity of the works.
Sea-Fisheries Policy Management Division, Department of Agriculture Food and the Marine These comments from the Department of Agriculture, Food and the Marine relate to commercial fisheries. This document has been prepared with scientific input from the Marine Institute and BIM. Commercial sea fishing is a long standing, pre-existing and traditional activity in the	EirGrid thanks the Sea-Fisheries Policy and Management Division, Department of Agriculture, Food and the Marine for taking the time to provide a detailed response to Foreshore Licence application FS006916 for the Celtic Interconnector. **<u>Point 1 and 2</u>** We acknowledge that herring are a vitally important part of the

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marine environment. The evaluation and consideration of potential impacts on any commercial sea fishing activities needs to be given consideration as part of any planning/proposal process and during the development process itself. It is imperative that engagement should be sought with the fishing industry and other relevant stakeholders at as early a stage as possible, and at every stage of any planning/proposal process and during the process itself, to discuss any changes that may affect them to afford a chance for their input. Fishers' interests, access to fishing grounds, and livelihoods must be fully recognised and taken into account. For instance, Volume 3D2's material assets should also include fisheries. The concerns of this Department are set under the following key points: 1. Herring stocks around Ireland are regarded as depleted and interference with spawning grounds for these stocks during the time proposed is strongly discouraged. 2. Volume 7 does not adequately address concerns that the selected route passes close to known herring spawning grounds. The proposed timing of construction overlaps with the herring spawning season and this season should be avoided and construction carried out in the period April to mid-August. 3. While meetings were held with two local Fisherman's Associations, the Department would also recommend liaising with national representative organisations whose members operate in the area. 4. Importance of avoiding to the greatest extent possible the Labadie *Nephrops* (Dublin Bay Prawns) ground. 5. Possible interaction of fishing gear with the cable and consideration of mitigation measures. 6. Concerns with regarding the use of AIS (Automatic Identification System) data. ***1. Celtic Sea Herring stocks are depleted*** Herring are a vitally important part of the marine ecosystem, being prey for marine mammals, birds and many predatory fish. They are also a valuable fishery species, with Irish landings worth up to €13m in 2012 (Fig. 1). Celtic Sea Herring (CSH) is one of three such herring stocks that occurs in Irish waters. The CSH stock encompasses the south east, south and south west of the country. It has been a key fishery for over a century and Ireland holds the vast majority of the yearly allowable catch for this stock. In recent years, however, the size of the CSH stock has fallen to its lowest ever observed biomass (Fig. 2). Due to the extreme sensitivity of CSH, both from an ecological and	ecosystem and a valuable fishery species. Also, that the Celtic Sea Herring (CSH) stock has fallen to its lowest ever observed biomass (Figure 2 in your consultation response), is sensitive (ecologically and economically) and activities that have the potential to disturb the life-cycle of these fish must be avoided. Also, that spawning is known to occur between late August / September and March and with the first phase of the installation sequence being completed in the winter months there is a seasonal overlap for the herring spawning period. With reference to (Figures 3 and 4 in your consultation response), the route option that has been assessed within the EIAR is the option that lands at Youghal (Claycastle Beach). On this basis it is evident that direct disturbance and impact to all herring spawning grounds have been avoided. The footprint of the cable corridor through the nearshore environment is considered to be localised. Within the EIAR it was also identified that benthic habitat along the cable corridor from Claycastle Beach and within Youghal Bay did not identify optimal herring spawning habitat or features / significant substrate that may provide habitat for herring spawning. Whilst fish may occasionally spawn on features within the intertidal zone these eggs may become desiccated or predated during low water periods and are not considered to contribute to recruitment.

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economic point of view, activities that have the potential to disturb the life-cycle of these fish must be avoided. (Main source: Marine Institute Stockbook 2021). Unusually for a marine fish, herring eggs are deposited on the bottom of the seafloor in discrete gravel beds or flat stone and the herring are completely reliant on these spawning beds for reproduction. However, the locations of the discrete gravel beds can move over time (e.g. due to water movement) so nearby spawning beds are grouped into "spawning grounds", which may contain one or more spawning beds. Spawning grounds are further grouped into spawning areas. The spawning areas, grounds and beds for herring in the Celtic Sea are well known and are located close to the coast (Fig. 3). (Main sources: O'Sullivan et al., 2013; Breslin, 1998). CSH consist of a mixture of autumn- and winter-spawners, and spawning occurs between late September and March. Spawning either side of this period, in late August and spring, has occasionally been reported by fishermen but appears restricted to very exceptional events. (Main source: Molloy 2006). ***2. Interactions with herring spawning grounds*** Volume 7 does not adequately address concerns that the selected route passes close to known herring spawning grounds. <u>The proposed timing of construction overlaps with the herring spawning season and this season should be avoided, and construction carried out in the period April to mid-August.</u> The impact of cable installation on herring spawning grounds is addressed in volume 3D2, pages 218 and 219, which concludes that the impact is Negligible and Not Significant; mainly because the proposed cable route from Claycastle Beach, Youghal follows a channel that avoids outcropping rocks with surface sediments predominantly formed of sandy mud, with patches of sand, and because cable installation occurs over relatively short time periods and is a singular event that will occur outside of the main herring spawning period. In contrast to this, Volume 7a states that: The installation sequence (foreshore/nearshore) would be completed in the winter months, i.e. October 2024 to April 2025. <u>This does overlap with the spawning period for herring</u>. Volume 7a – Part 7 also states that: Fishing / Aquaculture considerations: "The Celtic	

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Interconnector project: Does not cross through any known spawning or nursery habitat." This contradicted by a statement in Vol-3D2-technical-chapters: "This data indicates that the proposed marine cable route passes within or close to the spawning grounds of nine principal fish species including cod, haddock, hake, herring, lemon sole, ling, megrim, mackerel, pollock, sprat and whiting" It should be noted that the proposed route is very close to a known spawning ground. In terms of spawning grounds, this cable should only directly affect species that spawn on the seabed; species that spawn in the water column (broadcast spawners) are unlikely to be significantly affected. The main species of commercial interest that spawn on the seabed are herring, skates and rays and squid. Detailed maps of spawning grounds exist for herring but not for other species that spawn on the seabed. Figure 4 shows the locations of herring spawning grounds off the Irish south-east coast in relation to the proposed cable route options. It is clear that the easterly route options are likely to interfere with the group of spawning grounds off Dunmore East. The westerly route options come close to the Ballycotton and Youghal grounds and may interfere with these grounds. The spawning activity around Ballycotton and Youghal occurs mainly in November and October respectively. It is important to note here that some species of skates are critically endangered and also given that the main Herring stocks around Ireland are regarded as depleted, interference with spawning grounds for these stocks during this time is strongly discouraged. Herring spawning grounds are vulnerable to anthropogenic damage (damage caused by human activity) such as dredging, sand and gravel extraction, dumping of dredge spoil and waste from fish cages. The International Council for the Exploration of the Seas ICES has consistently stated that: "*Activities that have a negative impact on the spawning habitat of herring, such as the dumping of dredge spoil, the extraction of marine aggregates (e.g. gravel and sand), and the erection of structures such as wind turbines in the vicinity of spawning grounds are a cause for concern" and advises that: "Activities that have a negative impact on the spawning of herring should not occur unless the effects of these activities have been assessed and shown not to be detrimental to the productivity of the stock1"*. Smothering of gravel spawning beds via sediment plumes and noise during works would also cause disruption to herring spawning behaviour. Due to the sensitivity of Celtic Sea Herring, **disturbance to spawning must be**	

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avoided; mitigation is not an option. Due to a planned route bisecting a known spawning ground, works should be restricted to non-spawning time, i.e. April to mid-August. The geospatial coordinates of known spawning gravel beds must be adequately buffered to allow for minor mapping inaccuracies and substrate movements. Similarly, a further buffer zone should be added to avoid any resulting sediment plume from reaching the spawning beds. This may require an analysis of water movement in the area and restricting works to times with favourable conditions. Spot testing for gravel along the chosen route through the spawning ground is also advised.	
3. Suggest meetings with Irish producer organisations In volume 2B and other mentions elsewhere, we note meetings were held with both Youghal and Ballycotton Fisherman's Associations. The Department would also recommend liaising with national representative organisations whose members operate in the area. We would recommend also contacting the local fishing producer organisations including, but not limited to: the Irish South & East Fish Producers Organisation (ISEFPO@gmail.com), the National Inshore Fisheries Forum (denise.maloney@bim.ie), the local Regional Inshore Fisheries Forums (SWRIFF@inshoreforums.ie and SERIFF@inshoreforums.ie) and the Irish South & West Fish Producers Organisation (Carmel@IrishSouthAndWest.ie) It is likely that members of the different organisations will have previous experience in dealing with subsea cables and pipelines and will understand what this will mean to their operation. Mention elsewhere is made to a fisheries liaison officer tasked on the project, which is encouraging. The fisheries liaison officer should be a key link with the stakeholders in the Celtic Sea fisheries and will need to keep them well informed on key developments, e.g. restrictions because of cable laying and rock armour deployments. Discussions with the various fishery representative groups would also help clarify how fishers have managed cable related risks in the past, considering the number of subsea cables and pipelines there are in the Celtic Sea.	**Point 3** We agree with the recommendation to liaise with the national representative organisations and their members who operate in the area i.e. the local fishing producer organisations, as the project continues to progress. The following organisations shall be added to the list of proposed contacts for any future engagement on the project: Irish South & East Fish Producers Organisation. National Inshore Fisheries Forum. Regional Inshore Fisheries Forums. Irish South & West Fish Producers Organisation. We also agree that the FLO should be a key link with the stakeholders in the Celtic Sea fisheries and will need to keep them well informed on key developments e.g. restrictions because of cable laying and rock armour deployments. Also, the FLO is key for implementing the measures to offset the effects to fisheries.
4. Overlap with the Labadie Nephrops ground It is important to avoid, to the greatest extent possible, the Labadie *Nephrops* (Dublin Bay Prawns) ground and where this is not possible that there is prior engagement with fishing industry to ensure the minimum of disruption.	**Point 4** For overlap with the Labadie Nephrops grounds (Figure 6 in your consultation response), these are located beyond the limits of the Foreshore Licence application FS006916. It is however noted that

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Volume 3D2 contains a section on commercial fisheries. The following appears on page 368: "The proposed cable route avoids the principal *Nephrops* (Dublin Bay Prawn) fisheries located to the east and south west of the cable route.". This statement is somewhat misleading as the cable does cross the north-eastern part of the Labadie *Nephrops* grounds, an area with a significant amount of Nephrops directed fisheries. (figs 5 and 6). This is not acknowledged in the documentation. The basis for identifying the selected route as the preferred option is not well documented and, from a fisheries point of view, not supported by VMS data (Vessel Monitoring Systems) which automatically collect positional data from fishing vessels. When combined with the reports as outlined in the Introduction (page 337), the survey of fishing vessels is a little limited (Apr – Sept 2014 and May –Oct 2015 for AIS, and 2009 for VMS) and may not reflect current fishing operations in the Celtic Sea given that the most recent data is almost six years old. The limitations of the survey could mean that some fishing operations have not been identified. For example, demersal (whitefish) seine net fishing does not appear to be a significant fishing operation in this report but does feature in the areas near the proposed routes in Figure 19.3 (page 347). The fishing industry representative organisations will be best placed to comment on how the survey data compares to current fishing operations and potential associated changes to fisheries management. The appointment of the fisheries liaison officer is key for implementing the measures to offset the effects to fisheries. The fisheries liaison officer needs to make sure that they can contact and keep all relevant stakeholders in the Celtic Sea fishery informed. ***5. Interactions between gear and the seabed*** The Department wishes to highlight concern about possible interaction of fishing gear with the cable and urges consideration of mitigation measures to be discussed with fishing industry representatives. We note on page 150 of Volume 5: "*Fishing vessels, and trawlers in particular, are likely to change their fishing areas due to rock placement work in certain sectors. There will be a greater risk of nets getting caught in these areas. However, the external protection is designed in such a way as to allow trawl nets to pass over them. It will be up to the examining authorities to decide whether fishing can take place around the subsea*	these grounds will not be avoided completely, in the waters beyond the 12nm, and only a very small percentage of the entire grounds will be intersected. It is also agreed that prior engagement with the fishing industry will be carried out to ensure the minimum disruption. For the survey of fishing vessels, it is noted that this assessment was carried out using best available information (project specific reports from Wood, NetWork Services and Anatec Limited to EirGrid & RTE), liaison work undertaken by the proposed FLO, review of a list of peer-reviewed and grey literature and was supported further by a data request to the Sea Fisheries Protection Authority. The date range for the available project specific reports is also noted from 2013 to 2019. The applicant acknowledges continuing developments in the marine environment and are committed to ongoing stakeholder engagement and information gathering. For demersal (whitefish) seine net fishing, Section 19.7 (Page 351) of the EIAR sets out the principal target species for the commercial fisheries in the Celtic Sea and provides a focus on demersal fish and those that are captured via seine vessels (notably whiting Merlangius merlangus and Atlantic mackerel Scomber scombrus). Also, with reference to Figures 5 and 6 in your consultation response, it is noted that international fishing activity for Danish Seine and Scottish Seine (Figure 5) is primarily located out with the limits of the Foreshore Licence application FS006916 (beyond 12nm), and the majority of the route (within 12nm) does not intersect any of the main demersal (whitefish) fishing grounds. For the fishing industry representative organisations providing comments on how the survey data compares to the current fishing operations and potential associated changes to fisheries management, the applicant again acknowledges continuing developments in the marine environment and are committed to ongoing stakeholder engagement and information gathering.

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construction site." Otter and beam trawl fishing gear will be able to pass over most obstacles but demersal (whitefish) seine nets (especially those without large disc ground gear) and dredges are unlikely to be able to pass over rock placements or exposed cable. Additionally, rock placements will be a potential entanglement for static nets and traps. The information regarding gear penetration in volume 3D2 Appendices omits specifics on dredging (e.g., scallop gear). Scallop dredges will penetrate the substrate by up to 50 mm; some information on scallop dredges is included in Volume 3D (pages 346) and highlights that they should not be an issue unless the cable is uncovered or not buried deep enough. While the cable remains buried it is unlikely to restrict fishing activity for most gears. However, in areas where rock armour is used to cover the cable there will likely be some restrictions to those gears that are typically towed over clean (free of obstruction) ground, i.e. dredges and seines. Again, while the cable remains buried it is unlikely to restrict fishing activity for most gears. However, in areas where rock armour is used to cover the cable there will likely be some restrictions to those gears that are typically towed over clean (free of obstruction) ground, i.e. dredges and seines. The fisheries liaison officer and meetings with the industry representatives will be a key link with the stakeholders in the Celtic Sea fishery and the need to keep them well informed on the location of any obstructions. ***6. Concerns over use of AIS data (Automatic Identification System data)*** Volume 3D2 Appendices: pg 412: Fishing analysis: Investigates the presence of vessels in the area. This section describes a detailed analysis of AIS data (Automatic Identification System data or vessel traffic data) but it is not particularly informative. Although all vessels of 15 metres and over are obliged to carry AIS, the coverage of the AIS data is highly variable in space because only data that is received by a base station or a satellite is recorded. In general, the coverage close to shore is quite good (close to 100%) but further offshore the coverage can be as low as 10%. This can lead to significant bias in the results. The analysis was carried out along a study transect. The results are then extrapolated to the various route options by identifying general regions of high activity. The two main areas of fishing activity that were identified are 1) the area close to the Irish shore and 2) south of the Scilly Isles (p425 of the pdf). These findings	It is also recognised that the FLO will be key for implementing measures to offset the effects to fisheries and that the FLO will make contact and keep all relevant stakeholders in the Celtic Sea fishery informed. **Point 5** For interactions between gear and the seabed, concerns about possible interaction of fishing gear with the cable (notably rock placements/berms/concrete mattressing, exposed cable and entanglement of passing demersal (whitefish) seine nets, dredges, static nets, traps and scallop gear with 50mm substrate penetration) is recognised, and we will discuss the mitigation measures with fishing industry representatives (where applicable). Exposed cable is not likely to restrict fishing activity providing the target burial depth is met, the seabed is restored to its original profile and it remains following installation and during operations. For rock placements/berms/concrete mattressing, Section 8.4.3 (Page 91) of the EIAR identifies that these are not anticipated within the first 18km of the cable from the landfall at Claycastle Beach. This covers the majority of the seabed area within the limits of the Foreshore Licence application FS006916 and for the remaining 3km in the Irish territorial waters (within 12nm) the water depth is over 60m BCD. It is noted that entanglement does not apply to all activities (i.e. deploying static nets, traps and use of scallop gear with 50mm substrate penetration, which has been identified as a receptor beyond 12nm within the Irish EEZ) and / or during the operational phase of the Project (i.e. beyond any temporary fishing vessel exclusion periods during installation). Section 19.11 (Page 364 and 365) of the EIAR identifies that seabed obstructions created by installation of the marine cables, that are considered to pose a risk to the fishing industry will be

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are not fully supported by the VMS data (Figure 5). The high levels of activity near the Irish coast could be an artefact of higher AIS coverage, compared to further offshore areas. Figure 5 does not indicate that this is an area of particularly high activity. Figure 5 does confirm that there is beam trawl activity in the other main area of activity (south of the Scilly Isles) but when the total activity of all bottom contacting gears is considered (top-left map in Figure 5) this does not appear to be an area of particularly high activity and not necessarily a reason to choose route 2 over route 1 (which passes closer to the Scilly Isles but avoids the Labadie grounds). In summary, the basis for identifying areas of fishing activity is not particularly sound. Having said that, the proposed preferred option (route 2) does avoid the Smalls grounds, which has by far the most activity in the area. **A collection of figures included within the Sea-Fisheries Policy and Management Division's response are included below:**	made safe for towed fishing gear. Also, that where seabed obstruction such as rock berms and concrete mattressing will be installed (where cable burial has not been possible), they will be designed to have a smooth over-trawlable profile so that they do not present an obstruction to fishing activity (i.e. ensuring operational safety and minimising risk of gear snagging). The locations of any rock placement/berm/concrete mattress will also be communicated to fishermen via Notice to Mariners. **Point 6** For concerns over use of AIS data, it is noted that this assessment was carried out using best available information (Anatec Limited to EirGrid & RTE) with the AIS coupled with VMS data for commercial fishing vessels and qualitative information on recreational vessels/small fishing craft from local harbours (where available). Consultation also took place with the Ballycotton and Youghal Fisherman's Associations in 2017 and 2018, and further consultation with the national representative organisations and their members who operate in the area (i.e. the local fishing producer organisations) will be undertaken as part of the process of communicating detailed proposals for construction activity, when these are available. With reference to the comparison that is being made between the main areas of fishing activity, 1) the area close to the Irish shore, and 2) south of the Scilly Isles (Fig 7.15 and 7.16 of the Vol 3D2 Appendices), and the findings of the ICES VMS data (Fig 5 in your consultation response) these datasets are not directly comparable. The former is illustrating a total of 12 months fishing crossing frequency and fishing crossing results by gear type (below 6 knots and varied gear types e.g. including pelagic) in the period April to September 2014 and May to October 2015. It also has a different purpose and is attempting to identify risk from fishing vessels. The latter is illustrating international fishing activity in a different period

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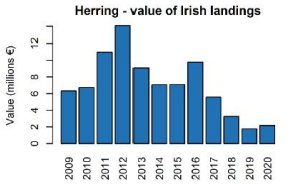
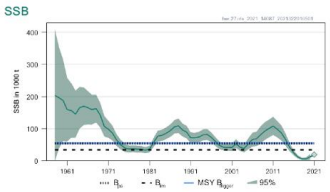
 Figure 1. Yearly value of Irish herring landings (all stocks)  Figure 2. Stock biomass of Celtic Sea Herring. Horizontal lines depict management targets and limits.  Figure 3. Herring spawning grounds and areas around Ireland (O'Sullivan et al 2013).	(2013-18), is specific to mobile bottom fishing only and is attempting to reduce fishing disturbance on the seafloor habitats that affect fisheries landings and value. As an additional observation the 'All mobile bottom gears' part of Figure 5 in your consultation response does actually show a main area of fishing activity close to the Irish shore. The 'Bottom trawl - Demersal fish' and 'Beam trawl - Demersal Fish' parts of Figure 5 in your consultation response also show areas of fishing activity to the south of the Scilly Isles. Both of these overlap with sections of high annual fishing crossing frequency and high annual fishing crossing results by gear type (Figures 7.15 and 7.16 of the Vol 3D2 Appendices). Also, it is possible that the sections to the south of the Scilly Isles (Figures 7.15 and 7.16 of the Vol 3D2 Appendices) is showing high annual fishing crossing frequency and high annual fishing crossing results by gear type (beam trawlers in particular), as the model is picking up on these beam trawlers as they slowly (<6 knots) navigate and traverse in and out of the mid to northern waters of the English Channel entrance. It is also possible that they are not actively fishing within the dataset and time period that was examined and this caveat is identified in the Anatec work (Vol 3D2 Appendices).

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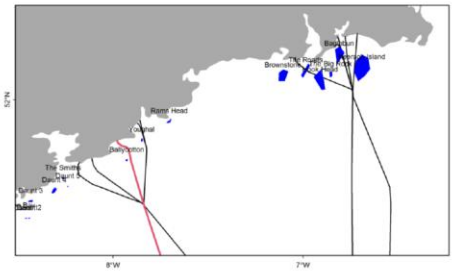
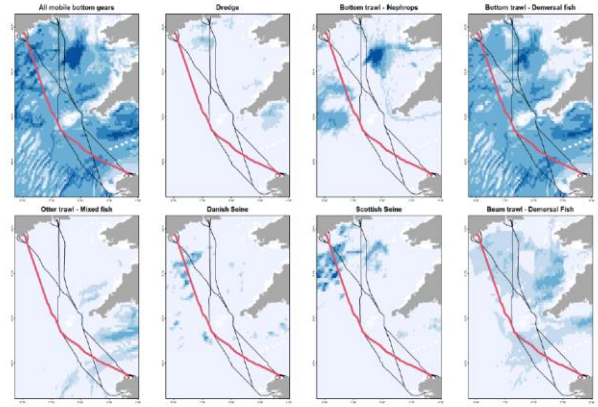
 *Figure 4. Location of herring spawning grounds[3] and the various cable route options. The preferred route 2 is highlighted in red. This is the only option shown in volume 7B.*  *Figure 5. International fishing activity in the period 2013-18[4] and the various cable route options. The preferred route 2 is highlighted in red. This is the only option shown in volume 7B.* [3] O'Sullivan, D., O'Keeffe, E., Berry, A., Tully, O., and Clarke, M. (2013) An Inventory of Irish Herring Spawning Grounds. Irish Fisheries Bulletin No. 42: Marine Institute [4] ICES. 2021. ICES advice to the EU on how management scenarios to reduce mobile bottom fishing disturbance on seafloor habitats affect fisheries landing and value.: ICES data product release, https://doi.org/10.17895/ices.data.8192	

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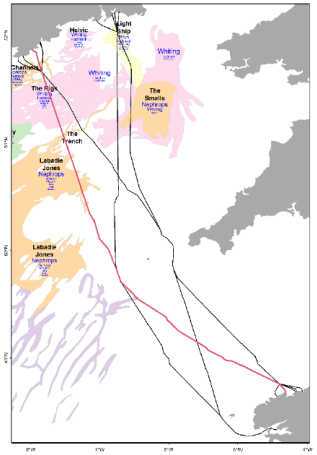 *Figure 6. Main demersal (whitefish) fishing grounds of interest to Irish vessels[5] and the various cable route options. The preferred route 2 is highlighted in red. This is the only option shown in volume 7B.*	

Sources:
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Marine Advisor Environment, Department of Housing, Local Government and Heritage Your email of the 17th of November 2021 refers to this licence application for the construction and operation of a subsea electrical interconnector cable from the Irish EEZ to landfall at Claycastle, Co. Cork. There are ten Natura 2000 sites within the zone of influence of this project. This SPA is one of the few sites in the country which regularly supports more than 20,000 wildfowl and is therefore one of the most important. These sites hold nationally and internationally important populations of a variety of bird species, they are important for a variety of fish species including Salmon and Twaite Shad and breeding sea birds. **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 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. **Habitats Directive** 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. 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.	EirGrid thanks the Marine Advisor of the Department of Housing, Local Government and Heritage for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. We welcome the Advisor's conclusion that in principle they have no objections to the application, noting the recommendation that the Foreshore Unit engage a suitably-qualified Independent Environmental Consultant to undertake independent assessment of the application.

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• Article 6.3 states that: "*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."* • Article 6.4 states: *"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 compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.* *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."* 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: 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*	

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European site". 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".* The Birds and Natural Habitats Regulations further provide as follows at Regulation 42 (6) and 42 (7):- *6. 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.* *7. 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 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.* 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. **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. 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,	

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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. 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. **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. 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. 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. 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	

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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: 1. 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 2. 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 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. The proposed project is not of a type/class that is included in Annex I and II of the EIA Directive (Schedule 5 to the Planning & Development Regulations). However an EIA Pre-Screening process is a requirement to demonstrate this analysis. Accordingly, **please find attached an EIA Pre-Screening** for the proposed project. **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. **Independent Environmental Consultants (IEC)** Owing to the scale and complexity of the environmental assessment required, and	

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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 (Ha**bitats Directive**), Directive 2009/147/EC (**Birds Directive**) and Directive 2011/92/EU, as amended by Directive 2014/52/EU (**EIA Directive**). **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 AA 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 consultation will be held on the AA. The Final Environmental Report with Determinations (if an EIAR Reasoned Conclusions should be address here) which may include any case specific conditions identified through the environmental assessments will follow having regard to the information obtained during public participation.	
Engineering Inspector and Marine Advisor, Department of Housing, Local Government and Heritage **1.0 Project Overview and Background** EirGrid plc propose pre-lay installation works, the cable installation works, the operation and periodic maintenance of a submarine electricity interconnector between Ireland and France. The interconnector will include a fibre optic cable to enable communication and operational control of the interconnector, with the potential to also be used for commercial use. **1.1 Brief Description of the proposed works** **1.1.1 The Celtic Interconnector comprises:** • Two no. high voltage direct current (HVDC) electricity power cables, cable	EirGrid thanks the Engineering Inspector and Marine Advisor of the Department of Housing, Local Government and Heritage for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. We welcome the conclusion that there are no conflicts between the proposed project and existing licences / applications, and that the works will not have significant adverse impacts on the public use of, access to, and enjoyment of the area and its users. Further, we acknowledge the request that the granting of any Foreshore Licence be subject to the conditions presented, and are happy to support this request.

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diameter 100mm to 200mm; • One no. fibre optic cable for control and communication purpose, cable diameter approx. 20mm; • All associated works and work sites required to construct, install, test, and commission the three no. cables; and • All associated works and work sites required to operate, maintain, repair and decommission the three no. cables over the approximately 40 year lifetime of the Project. **1.1.2 The Cable Route** The proposed Celtic Interconnector cable route extends from the land fall at Claycastle Beach, Youghal County Cork to 12nm Limit. The route follows a south easterly course from the landfall to offshore where it turns south westerly until it crosses the 12nm limit and the seaward limit of state owned foreshore, a total of approx. 35km. It continues then in a south easterly direction across the Irish, UK and French EEZs until making land fall at Kerradénce, France. The entire cable route is approx. 497km with 35km on state owned foreshore **1.1.3 Marine Construction Works** **1.1.3.1 Pre-Lay Grapnel Run** Pre-lay grapnel runs will be required along the cable route on the seabed to ensure debris, for example redundant cables, fishing gear, discarded ropes, are cleared in advance of cable lay. The cable footprint on the seabed is anticipated to be approximately 5.0m wide. However, this may increase to approximately 15.0m during seabed preparation and cable installation works due to the size of the equipment deployed for these activities. **1.1.3.2 Cable Lay & Burial** It is proposed that the submarine cable will be installed in a bundled configuration, with the fibre optic cable also installed within the bundle. The submarine cable is loaded on to the cable laying vessels into a carousel located on-board and is fed to the laying arm at the stern of the vessel and on to its position on the ocean floor. The cable laying vessels have the ability to simultaneously lay and bury the cables. The target burial depth of the cable is 0.8m to 2.5m for offshore. The burial technique will vary depending on geology of the seabed. The sediment	

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coverage along the cable route is considered good, consisting of a combination of loose to dense sand, dense sandy gravel and high strength clay. Cable installation is envisaged using standard burial tools such as plough or jetting tools. Some rock protection may be required where the target depth is not fully achieved through burial. **1.1.4 Landfall Installation Construction Works** The cable landfall installation method selected for Claycastle Beach is an open cut installation method with temporary cofferdams to install the conduits to take the cables ashore. Horizontal Directional Drilling (HDD) is not feasible due to the distance to the 5m water depth required. The target burial depth of the cable is 1.8m to 3.0 m for the land fall. It is envisaged by applicants that landfall installation construction works will take up to approximately 10 days max. **2.0 Estate Management** **2.1 Site Inspection, Existing Use and Activities** I inspected the landfall site at Claycastle Beach, Youghal County Cork on 09/12/2021 at approx. 10:30hrs. Claycastle Beach is part of a 3.5km long beach with good public access, parking, toilets and the lifeguard service in Youghal Town. As the use of HDD was deemed not feasible by the applicants so the potential disruption to existing amenity and leisure users, walkers etc. will be significant where the cable makes land fall for the approx. 10 days max that the landfall installation construction works will take. However the beach and strand at Youghal is over 3.5km long with numerous access points and ample parking and so there is ample alternative access and amenity available to beach users so the overall disruption impact will not be significant **2.2 Site Consent and Application History** Over its route to the 12nm the proposed licence area overlaps with the following foreshore consents/applications; FS006722 Geophysical Marine Survey Works; FS006811 Geotechnical and Environmental Marine Survey Works; FS006859 Site Investigations Relating To a Possible Windfarm; FS005997 Site Investigation Re Possible Site for Aggregate Extraction; The following consents are adjacent to the site of the landfall site; FS005447 Youghal Town Council Coastal Protection Works; FS005715 Irish Water Stormwater Outfall.	

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The proposed Celtic Interconnector proposed under this application will not conflict with any existing consented activities or any applications under consideration. All foreshore is presumed state owned unless proven otherwise. There are no known or established claims of private ownership of the foreshore along the route of the cable. Therefore the foreshore the subject of this application is currently presumed state owned and proposed development does not conflict with the existing overlapping and adjacent consents or applications nor does it significantly injure the public use of, access to and enjoyment of the foreshore. Total area of foreshore the subject of the application: 1757.14ha. from the HWM to the 12nm limit, however this is the corridor within which the licensee shall place the cable. Following laying of the cable the licence area shall revert to the as laid route and include 5 metres either side of the cable. For valuation purposes the foreshore licence area for cable shall be the length to the 12mn limit, which is approx. 35km by a 10m width. Therefore the total area for valuation purposes is 35ha. **3.0 Public Interest** Section 2 and 3 of the Foreshore Act, as amended, states that a lease or licence of state foreshore may be granted "If, in the opinion of the Minister, it is in the public interest". As state owned foreshore is a finite and valuable state resource and a public amenity, it is important that each plan and project is fully assessed to ensure, that if consented to, it is a sustainable and proper use of that resource. Transmission Policy 1 of the National Marine Planning Framework states subject to the appropriate environmental assessments, electricity transmission proposals that maintain or improve the security and diversity of Ireland's energy supply should be supported, including interconnectors, relevant EU Projects of Common Interest (PCIs), and projects in receipt of relevant alternative EU priority energy infrastructure classification provided for by the EU TEN-E regulations. This should include development of the offshore transmission system and connection with the onshore transmission system necessary to meet the Government's target of 5 GW of offshore renewables by 2030, as well as development of associated transmission system/interconnector infrastructure for hybrid offshore projects, connecting offshore renewable energy installations with Ireland and one or more other electricity	

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transmission systems. Once laid the cable will not impact the public's use and enjoyment of the foreshore. Having considered the works as proposed I am satisfied that the proposed project is in the public interest. **4.0 Assessment & Conclusion** The foreshore the subject of this application from Claycastle Beach, Youghal County Cork to 12nm Limit is state owned, there are no conflicts with existing licences or applications and the works as proposed are in the public interest. The works if completed as proposed will not have significant adverse impacts on the public use of, access to and enjoyment of the foreshore, navigation, fisheries or the environment (subject to MLVC confirmation). **5.0 Recommendation** I have no objection to the granting of Foreshore Licence under Section 3 of the Foreshore Act for this application subject to the following conditions; 1. The licensee shall use that part of the foreshore, the subject matter of this licence for the purposes as outlined in the application and for no other purposes whatsoever. 2. The following drawings shall be attached to and referenced in the licence document; Foreshore Licence Map 1, Drawing Number: 400584-PL-DWG-009 Rev: D. Date: 10/06/21, Foreshore Licence Map 2, Drawing Number: 400584-PL-DWG-009 Rev: D. Date: 10/06/21. 3. Cable installation and maintenance shall be completed in accordance with the application and supporting documents provided in the application process. 4. Decommissioning procedure shall be in accordance with best practise at that time. This could involve leaving in situ, mitigation works, partial removal and full removal or otherwise agreed with the lessor and the relevant competent authorities at that time in compliance with all relevant legislation and environmental requirements. 5. On completion of the works, the Licensee shall submit to the Department of Housing, Local Government and Heritage a statement from a suitable qualified Chartered Engineer confirming that works are completed in accordance with the documents submitted together with a drawing and a route position list showing the "as-laid location" for the submarine cable. 6. The licensee shall notify the Department of Housing, Local Government and Heritage	

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at least 14 days in advance of the commencement of any works on the foreshore. This notification shall include an up to date Programme of Works for the completion of the project. 7. During the course of the nearshore/landfall cable lay operations the Licensee shall ensure that existing public access arrangements are maintained, where possible, and all necessary precautions are put in place to protect the public in accordance with relevant Health and Safety Legislation. 8. The foreshore and adjacent seashore beach area shall be restored to its natural condition on completion of the cable installation works to the satisfaction of the Department of Housing, Local Government and Heritage.	
Sea Fisheries Protection Authority Eastern Region **1. Wild Fisheries** There are a number of wild fisheries adjacent to the applied area however it has been highlighted by SFPA Clonakilty Port Office that the potential effects will be negligible. The SFPA will not be restricted in conducting official controls within the applied area. **2. Shellfish Production Areas** There are no shellfish production areas within the applied area **3. Seafood Safety** All spillages and pollution events at the development site which may cause potential contamination of seafood are to be immediately reported to the Clonakilty SFPA Food and Fisheries Support Office sfpafood&fisheriessupport@sfpa.ie	EirGrid thanks the Sea Fisheries Protection Authority (Eastern Region) for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. We confirm acceptance of your request and confirm that you will be notified immediately (as a statutory body and regulator for the sea-fisheries and seafood production sectors) of any pollution incidents. These will be reported to the local SFPA office also (assumed to be Dunmore East, County Waterford).
Met Eireann Thanks for your e-mail regarding the Foreshore licence for the Celtic Interconnector. The only concern Met Eireann have is that we have an automatic climate monitoring station about 3km due north form Claycastle beach. To avoid negative impacts on sensitive climate monitoring equipment, dust mitigation measures would be required from the perspective of heavy vehicles in the area during the construction phase of the project. Please let me know if you need any further information. Kind regards, Observations Division Web: www.met.ie	EirGrid thanks Met Eireann for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. We acknowledge the requirement for dust mitigation measures to be implemented, to avoid negative impacts arising on the climate monitoring station north of Claycastle Beach; this will be implemented through liaison with contractors, once commissioned.

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Department of Defence I write in response to your e-mail dated 08 December 2021 re. EirGrid Celtic Interconnector Electricity Cable. Having consulted with the subject matter experts in the Naval Service, the Department of Defence has nil observations to make on the application. Please contact me if you have any queries in this regard. Property Management Branch An Roinn Cosanta Department of Defence Bóthar an Stáisiúin, An Droichead Nua, Contae Chill Dara, W12 AD93. Station Road, Newbridge, Co.Kildare, W12 AD93.	EirGrid thanks the Department of Defence for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. The Department's own consultation with the Naval Service is noted, and the conclusion that there are no observations made on the application.
Irish Coast Guard and Maritime Services IRCG have no comment at this point, other than a reminder to operators to provide the usual notifications of their operations in good time to the Irish Coast Guard, Maritime Rescue Coordination Centre (MRCC) Dublin. *IRCG Admin_Maritime Strategy & Governance Division*	EirGrid thanks the Irish Coast Guard and Maritime Service for taking the time to provide a response to Foreshore Licence application FS006916 for the Celtic Interconnector. We note that there are no specific comments raised at this point, and also confirm that the full suite of Marine Notices will be issued in relation to works on the project, the distribution of which will include the Irish Coast Guard.
Bird Watch Ireland Many thanks for your email. I have scanned some of the documents. It would appear that at least some of the EIAR docs are scanned PDFs making word searches impossible. Can the original docs be provided please? Also, it there a non-technical summary available? There are thousands of pages to be reviewed and we don't have the capacity to review them all. To assist us, can you pin point the sections in the reports where the exact route is outlined from Claycastle beach to the substation? And is Claycastle the final choice for landfall?	EirGrid thanks Bird Watch Ireland for taking the time to provide an initial response to Foreshore Licence application FS006916 for the Celtic Interconnector, and understand that a fuller response may be received in due course, following a more detailed review of the presented documentation. To confirm, the particular volumes / sections of the marine-related application which we believe are most pertinent to Bird Watch Ireland are: • Volume 3D1, presenting an introduction to and overview of the project; • Volume 3D2 (Chapters 5 and 6), presenting a detailed description of the project; • Volume 3D2 (Chapter 13), presenting the impact assessment in relation to marine biodiversity (including ornithology); and • Volume 6B, presenting the findings of the Appropriate Assessment Screening Report and Natura Impact

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	• Statement. With regards to the queries raised, EirGrid can confirm that Claycastle Beach is the final choice for the Celtic Interconnector's landfall, and a detailed description / environmental assessment of the route between Claycastle Beach and the substation is provided within EIAR Volume 3C Part 2, with biodiversity specifically (including birds) addressed in Chapter 8 (p.213-369). The appendices to EIAR Volume 3C Part 2 Chapter 8 biodiversity (Appendices 8.1-8.6) include the complete baseline bird survey reports in Appendix 8.6.

Table 1.2: Summary of Observations made by the Public, the Applicant's Response, and Arup's Response

Public Submissions	Applicant's Response	Arup's Response
Submission 1: With reference to planning application reference number FS006916, EirGrid Public Limited Company for the installation of a submarine High Voltage Direct Current electricity cable, the National Inshore Fishermen's Association (NIFA) and the National Inshore Fishermen's Organisation (NIFO) wish to make the following joint submission. NIFA and NIFO acknowledged that the applicant has consulted with the fishing Industry, which has included some of our members. NIFA and NIFO would always advocate that applicants consult directly with operators likely to be directly affected on such projects and commend the applicant on their efforts in this regard to date. NIFA and NIFO look forward to future engagement between the developer and our members. That said however we have members that have raised, what NIFA and NIFO feel are valid concerns regarding this application. This submission is based on the same, the main points being as follows **Importance of area to Inshore Fishing Activity** The area in question is important in general to Inshore Commercial fishing, particularly static gear fishing using pots targeting lobster, brown, velvet and green crab but in particular Shrimp during the regulated season of August 1st to March 15th. The Shrimp fishery accounts for a significant portion of these members annual income and is confined geographically to this area. The area is also important to our members for static netting for a mixture of species. It is of particular importance to our members based in Youghal Co.Cork and they have a longstanding traditional economic dependency on it. Members concerned operate small vessels, typically between six and ten meters in length, given the size of these vessels and the nature of fishing activity in the broader general area, operating elsewhere, to where the traditionally have done, is not realistically a viable option for them, even on short term basis. **Likely short term disruption of activity and economic impact caused by**	The Applicant recognised the importance of open and timely engagement with the fishing community and stakeholders whose activities have the potential to be affected by the proposed development. The Applicant is committed to the appointment of a Fisheries Liaison Officer (FLO) during the proposed development, who will maintain communication with fisheries representatives and organisations throughout construction and installation in accordance with good practice (FLOWW, 2014) (S. 19.11 - Mitigation). *Importance of the area to Inshore Fishing Activity* The Applicant recognised the importance of Youghal Bay to the inshore local fishing fleet that employs a diverse array of gear to harvest both shell- and fin-fish, including hand gathering of periwinkles. The Applicant's assessment of the fishery was in part drawn from data derived from the Central Statistics Office (An Phriomg-Oifig Staidrihm) (2019). By its very nature, the installation of the Proposed Development will cause disturbance to the seabed in the immediate vicinity however this disturbance will be temporary, mobile and localised, representing only a small footprint within the wider bay. Crustaceans are mobile	Arup notes that the landfall construction will be undertaken in the period from October to April. The works will be carried out above the low tide level. The impact on the shrimp fishery from the landfall works will be negligible. The main cable lay will be in the summer months. The footprint of the three trenches for the cables will occupy a relatively very small portion of the seabed off Youghal. Trenching to lay the cable will give rise to a plume of silt/ fine sand close to the trench. The plume would be expected to disperse quickly due to tidal currents. An estuary is a dynamic environment with sediment movement due to tidal currents and inclement weather a normal feature. Any sediment from the trenching operation is not expected to have a significant impact on the shrimp fishery. The interconnector will

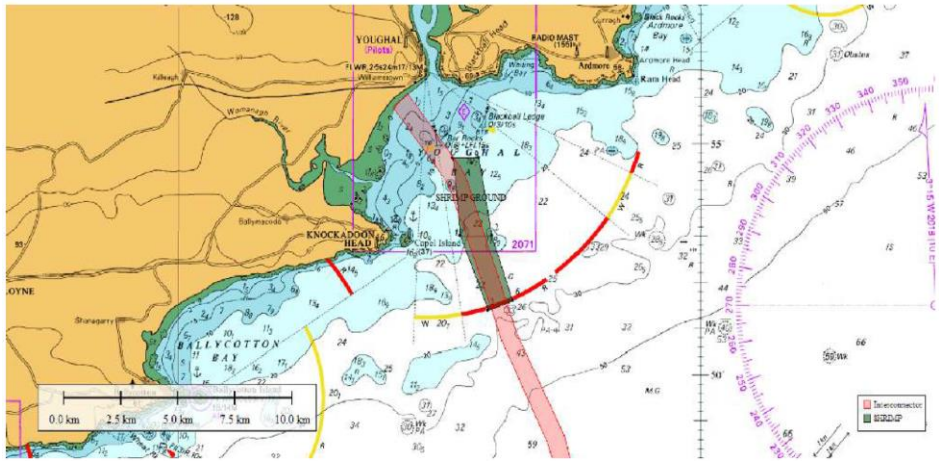
Public Submissions	Applicant's Response	Arup's Response
the same Our members are concerned that these works will disrupt their fishing operations and this disruption will have a negative economic impact on them. The extent of that disturbance is still unknown and will likely vary between members. Given the density of fishing activity, both in this specific and adjacent areas and the nature of the survey work, disruption is highly likely, and may involve static gear operators having to move gear, to avoid damage or loss to it, in advance of the survey. Our position is than any disruption should be kept to an absolute minimum. Given that avoiding this disruption completely is highly unlikely and given the principles of "avoid, minimise or mitigate" detailed in the National Marine Planning Framework (NMPF), we ask that consent to proceed be withheld until a Fisheries Management and Mitigation Strategy (FMMS) agreed with our relevant members. This FMMS must endeavour to avoid disturbance during the Shrimp Season as it contributes significantly the annual incomes of these members. Shrimp fishing operations require the use of heavy anchors to secure the pots and these anchors are know to sink deep into the mud during spells of poor weather. Members are concerned that if the cable isn't buried to a sufficient depth it could present as a serious snagging hazard in the future. This FMMS needs to be designed to keep displacement of activity to an absolute minimum, but where displacement occurs and in turn has a negative impact on members working outside of the area, the FMMS and agreement needs to take these members into account also. **Medium to long term economic impact.** Members have concerns that these works will have a negative effect that will be longer lasting than the duration of works. Members are concerned about the permanent effects the electromagnetic field from this cable will have on fisheries. Such effects are described in recently published research which can be found here (a PDF copy is also included as an accompanying document with this response) [see Appendix 2]. The FMMS needs to take these concerns into consideration also. Given the recent application for site investigation works	species and relatively tolerant of temporary disturbance with high and rapid recoverability. The FLO will maintain communication with mariners during this period of recovery. Inshore the course of the cable lies predominantly through soft sandy substrate where the target depth of cable lay is 1.8m below stable seabed. The proposed development has the potential to temporarily effect the shrimp fishery along the immediate course of the cable route. The first phase of the cable installation sequence is anticipated to take between approximately six to ten weeks and will be focused outside the peak summer months, i.e. October to April and undertaken predominantly on the foreshore and intertidal zone extending only a short distance into the subtidal zone. Whilst these works will be carried out during the shrimp fishing season the location of the works and any associated exclusion zone should not significantly impact the shrimp fishing grounds as the works take place primarily on land with land based equipment. The second phase of the cable installation sequence that would occur in subtidal waters must take place in an appropriate window during the summer months, i.e. May to September, to coincide with favourable weather & tidal windows for	comprise two high voltage direct current (HVDC) cables and a fibreoptic cable, with associated power supply. All three cables will be buried in a trench or covered with rock protection. The high voltage direct current will give rise to a minimal magnetic field and no electric field at the surface of the cables. The fibreoptic cable and associated power supply will give rise to a very low-level EMF field at the surface of the cables. These fields are not expected to have an impact on the shrimp fishery. It is noted that the Sea Fisheries Protection Authority observed that the expected impacts on fisheries would be negligible, and the Marine Institute observed that the mitigation measures for fisheries would be sufficient.

Public Submissions	Applicant's Response	Arup's Response
FS007404, which related to another possible power cable, members are also serious concerned about the cumulative effects of multiple power cables at this location, and would urge the Minister to give consideration to these applications in that context also. Article referenced available at: https://doi.org/10.3390/jmse9070776	nearshore cable installation. Although this time does overlap with the start of the Shrimp season (1st August), the window required is short (days) and Eirgrid will endeavour to carry out the works predominately outside of the shrimp fishing season but optimum tidal conditions may require that these works take place in a short window during August to September. The area affected will be temporary, mobile and localised The Fisheries Liaison Officer (FLO) will ensure timely engagement with the fishing community whose activities have the potential to be affected by the proposed development throughout construction and installation. Advanced warning and accurate location details of construction operation and associated mobile safety zones. Safety zones to be brought to the attention of mariners with as much advance warning as possible via frequent notice to Mariners and other means e.g. the Kingfisher Bulletin, VHF radio broadcasts etc. and through direct communications via the FLO. *Likely short term disruption of activity and economic impact caused by the same.* The request for a Fisheries Management and Mitigation Strategy (FMMS) is noted; the applicant would propose that this forms part of the conditions attached to the Foreshore Licence, the contents of which to be discussed and agreed with relevant	

Public Submissions	Applicant's Response	Arup's Response
	stakeholders prior to commencement of works. *Medium to long term economic impact.* Submission 1 raises concerns regarding EMF effects and attaches a research article. The Applicant drew attention to Section 8.1 of Volume 3D2 of the offshore EIAR where the static magnetic field strength at maximum circuit loading is given for the Celtic Interconnector as 15uT (micro tesla). The Applicant referenced Chapter 4 of Volume 3C Part 2 EIAR for Ireland Onshore (which accompanied the Foreshore Licence Application) where it is shown that the Earths geomagnetic field has a strength of 48uT for the project area. 15uT is a factor of 16 times lower than the lowest field level used in the attached research article (250 uT) and is a factor of 10 times lower than the range of field strengths estimated for typical subsea cables in the attached article (140uT to 8000uT). The low field strength for the Celtic Interconnector is due to the Bipolar System, bundled cable arrangement. *The potential for electromagnetic fields (EMF) emitted by subsea cables to disrupt electrosensitive and magneto sensitive fish have been discussed in s. 19.12.2 - Operational Phase Effects* (Volume 3D2 Environmental Impact Assessment Report	

Public Submissions	Applicant's Response	Arup's Response
	– Technical Chapters). Whilst there remains the potential for some fish and shellfish to detect EMF emissions within the immediate locale of the cable to date there has been no evidence to indicate that the sensitivity and/or magnitude of these impacts are sufficient to significantly impact fisheries resources and no sensitivity thresholds for fish or shellfish in the environment have been proposed by regulators. For the field strengths of the Celtic Interconnector, the magnitude of this effect has been assessed as Negligible or Minor and not significant. The Applicant noted the concern expressed by fishing operatives regards EMF and will ensure appropriate cable burial depths that will indirectly reduce potential effects from electro-magnetic fields.	
Submission 2: I refer to the above application & wish to make the following submission in relation to the same. I am making this response as a person directly dependant on a Commercial Inshore Fishing Enterprise, and am concerned the project outlined will impact negatively on this enterprise. I am concerned that these works will negatively affect the financial viability of the fishing enterprise I depend on, and my livelihood. I am also concerned about displacement of fishing activity as a result in the wider area and the negative impact this will have on this enterprise. In the event that it's not possible to avoid this negative impact then I ask	The Applicant recognised the importance of Youghal Bay to the inshore local fishing fleet that employs a diverse array of gear to harvest both shell- and fin-fish, including hand gathering of periwinkles. The Applicant's assessment was in part drawn from data derived from the Central Statistics Office (An Phriomg-Oifig Staidrihm) (2019). By its very nature, the installation of the Proposed Development will cause disturbance to the seabed in the immediate vicinity however this disturbance will be temporary, mobile and localised,	Refer to Arup's response to submission 1 above. Arup notes that the cable corridor, shown by the red line boundary on the Foreshore licence application mapping is 500m wide. However, the actual cable footprint, within this corridor will be circa 15m to 20m. The cable footprint will occupy a small portion of the fishing grounds indicated in the map which accompanied

Public Submissions	Applicant's Response	Arup's Response
consent be withheld for the proposed activity until a Fisheries Management and Mitigation Strategy is agreed between myself and the applicant. The fishing operation I depend on, operates in the following areas, at the following times, for the following species, fishing by means of the following methods, and I fear the proposed works will prevent or disrupt it from doing the same. Operating in the area roughly bound by the following latitude and longitude coordinates My vessel operates within the area between Ballycotton in the West and Helvick in the East and out to sea. The area I am most concerned with is bounded by the following area (51 53.00N 007 49.20W, 51 53.00N 7 48.0W, 51 54.70n 7 49.50W, 51 54.70N 7 48.50W, 51 51.40N 007 48.15W & 51 51.60N 007 47.20W). The positions supplied are for my crucial Shrimp fishery Aug to March annually. [Appendix 1] The fishing operation I'm dependant on, traditionally fishes for Shellfish, Shrimp and Whitefish all year round and is my only form of income for my family and the families of my crew. My fears are that any works carried out in and around my mentioned shrimp fishery (Map Supplied) will negatively impact my ability catch the single most valuable target species (shrimp) in the Youghal bay area which is totally within the applicants designated cable corridor. My feeling is that knowing the grounds, the constantly shifting sediments would not make this area suitable for cable burial should the applicant be successful in all stages and progress past the planning stage. My position is that I totally object to this scope of proposed works no mitigations could convince me that survey works/construction/cable burial will not damage the fishery in the area which will potentially put me and my family out of business, no project should come at the expense of any mans livelihood. Further to the above it is my feeling that very little work went into addressing the concerns of the fishers in the area in relation to the very valuable shrimp fishery, and this needs to be addressed further and the local fishing industry	representing only a small footprint within the wider bay. Crustaceans are mobile species and relatively tolerant of temporary disturbance with high and rapid recoverability. Inshore the course of the cable lies predominantly through soft sandy substrate where the target depth of cable lay is 1.8m below stable seabed. The proposed development has the potential to temporarily effect the shrimp fishery along the immediate course of the cable route. The first phase of the cable installation sequence (the construction of a joint bay on land and connecting cable ducts to the intertidal zone) is anticipated to take between approximately six to ten weeks and will be focused outside the peak summer months, i.e. taking place October to April and undertaken predominantly on the foreshore and intertidal zone extending only a short distance into the subtidal zone using primarily land based equipment. Whilst these works will be carried out during the shrimp fishing season the location of the works and any associated exclusion zone should not significantly impact the shrimp fishing grounds. The second phase of the cable installation sequence (final cable pull-in) that would occur in subtidal waters must take place in an appropriate window during the summer months, i.e. May to September, to coincide	submission 1. The main cable installation will take place in the summer months, with the only overlap with the operation of the fisher, who made submission 2, being in August. As the Applicant states, the temporal overlap will be a matter of days. A significant impact on the operations of the fisher, who made submission 2, is not expected.

Public Submissions	Applicant's Response	Arup's Response
consulted further before this project progresses and for that reason this application should be denied until such time the potential damage to the shrimp fishing can be addressed and our concerns discussed at length and addressed in the proper manner. (Map included below with shrimp grounds designated in green) 	with favourable weather & tidal windows for nearshore cable installation. Although this time does overlap with the start of the Shrimp season (1st August), the window required is short (days) and Eirgrid will endeavour to carry out the works predominately outside of the shrimp fishing season (prior to August) but optimum tidal conditions may nonetheless require that these works take place in a short window during August to September. The area affected will be temporary, mobile and localised. The Fisheries Liaison Officer (FLO) will ensure timely engagement with the fishing community whose activities have the potential to be affected by the proposed development throughout construction and installation. The Applicant is committed to appointment of a Fisheries Liaison Officer (FLO) who will ensure timely engagement with the fishing community whose activities have the potential to be affected by the proposed development throughout construction and installation. Advanced warning and accurate location details of construction operation and associated mobile safety zones. Safety zones to be brought to the attention of mariners with as much advance warning as possible via frequent notice to Mariners and other means eg the Kingfisher Bulletin,	

Public Submissions	Applicant's Response	Arup's Response
	VHF radio broadcasts etc. and through direct communications via the Fisheries Liaison Officer. The request for a Fisheries Management and Mitigation Strategy (FMMS) is noted; the Applicant would propose that this forms part of the conditions attached to the Foreshore Licence, the contents of which to be discussed and agreed with relevant stakeholders prior to commencement of works. The Applicant noted the concerns of the stakeholder regards the need for open and timely communication. The Applicant is committed to the appointment of an FLO during the proposed development who will maintain communication with fisheries representatives and organisations throughout construction and installation in accordance with good practice (FLOWW, 2014) (S. 19.11 - Mitigation)	

1.4 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). The latter outlines the requirements for screening for AA and AA under Regulation 42:

> *42. (1) 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.*
>
> *(2) A public authority shall carry out a screening for Appropriate Assessment under paragraph (1) before consent for a plan or project is given, or a decision to undertake or adopt a plan or project is taken.*
>
> *(6) 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.*

SECTION 2 - DESCRIPTION OF PROPOSED WORKS

2.1 Site Location and Project Overview

As noted in Section 1.1 above, the Celtic Interconnector is a proposed subsea link to allow the exchange of electricity between Ireland and France. The interconnector will link the Irish high voltage electricity transmission system, at the existing Knockraha substation in Cork in Ireland, with the French high voltage electricity transmission system at an existing substation in La Martyre in Brittany, France.

Both Irish and French electricity transmission grids operate using high voltage alternating current (HVAC). The interconnector will transmit electricity using high voltage direct current. Consequently, a converter station will be required close to each grid connection point to convert HVDC to HVAC and vice versa. Direct current (DC) will be used for the interconnector as it enables large amounts of electricity to be efficiently transported underground or subsea over long distances.

The elements of the project are outlined below and illustrated in Figure 2.1.

Onshore in Ireland:

- Connection to the Knockraha high voltage electricity transmission system substation
- 11km underground HVAC circuit from Knockraha substation to the converter station in Ballydam, Co. Cork
- Ballyadam converter station, on a brownfield site
- 32km underground HVDC circuit from Ballyadam converter station to the landfall transition joint bay (TJB), at which the subsea cable will be connected to the onshore cable, at Claycastle Beach, 2km south of Youghal in East Cork.
- HVDC circuit from the TJB to the landfall,

These onshore elements will require planning permission from An Bord Pleanála as strategic infrastructure development.

On the Irish Foreshore:

- Circuit landfall at Claycastle, Co. Cork (Figure 2.2).
- 35km subsea HVDC circuit to the outer limit of the Irish Foreshore (Figure 2.3).

This part of the interconnector will require a consent under the Foreshore Act, 1933, as amended, and is the subject of this application.

In the Irish EEZ:

- 116km subsea HVDC circuit.

In United Kingdom EEZ:

- 211km subsea HVDC circuit.

In French EEZ:

- 87km subsea HVDC circuit.

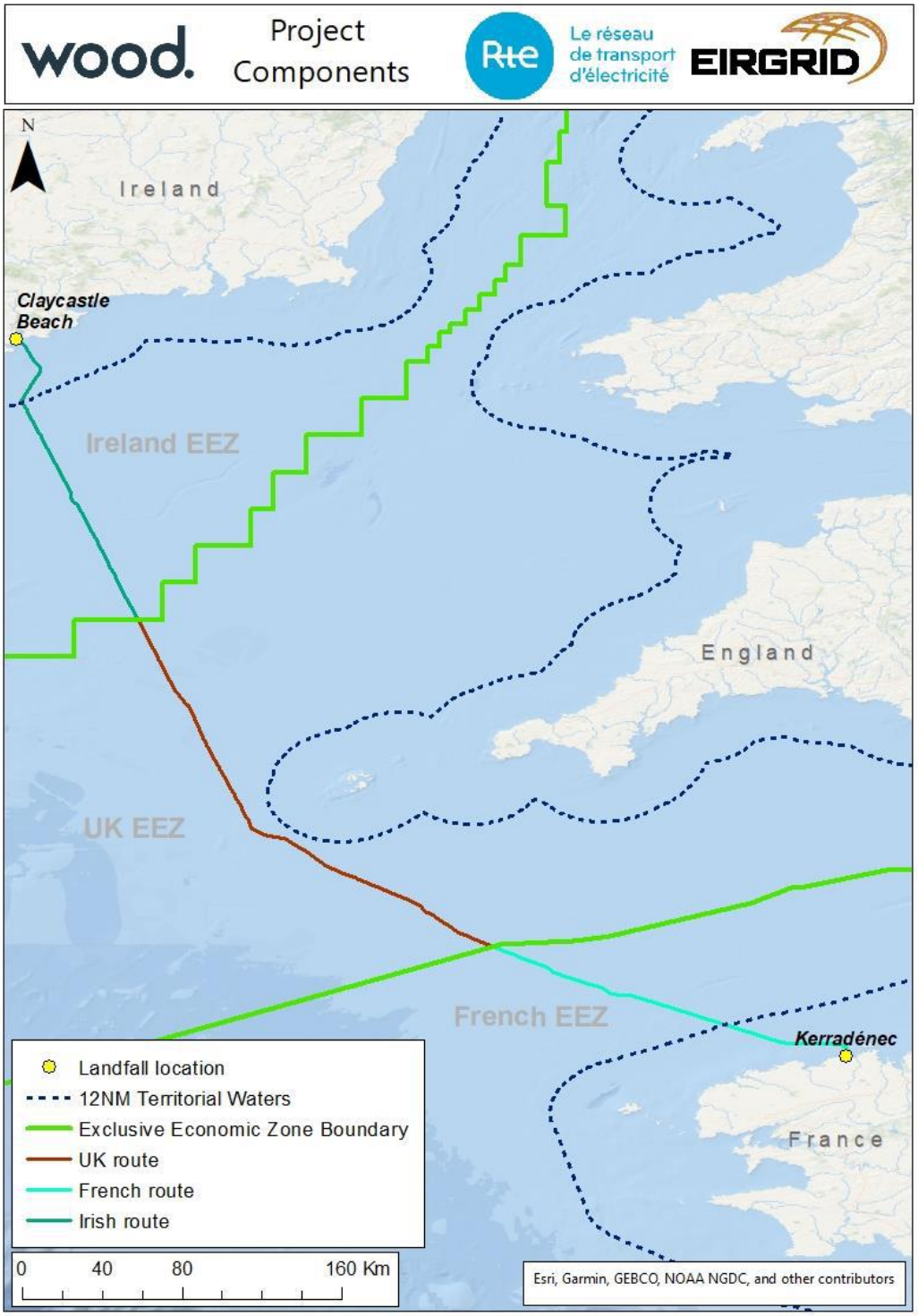
In French territorial waters:

- 48km subsea HVDC circuit
- Landfall at Kerradénec in Cléder, Brittany

Onshore in France:

- TJB at Kerradénec
- 35km underground HVDC circuit connecting the landfall at Kerradénec in Cléder, to the converter station at La Martyre
- Converter station at La Martyre
- Underground HVAC circuit (a couple hundred metres) from the converter station to the existing high voltage transmission grid substation at La Martyre.

Figure 2.1: The Celtic Interconnector



Source: Volume 3D1 Ireland Offshore: Environmental Impact Assessment Report

A fibre optic cable, with an associated power supply, will be installed for the full length of the interconnector. The purpose of the fibre optic link will be to remotely monitor the operation of the interconnector and enable communication and operational control between the converter stations. The fibre optic link between the two converter stations will have a dedicated power supply. This will require optical repeaters to be installed alongside the fibre optic link at intervals of approximately 100km. The fibre optic cable, with the associated power supply, will be laid with the submarine HVDC circuit. For the onshore segments the fibre optic cable, with the associated power supply, will be laid underground in a dedicated duct beside the HVDC circuit.

Subject to obtaining the necessary consents, the construction of the interconnector is proposed to commence in 2023 and the interconnector will enter into service in late 2026 – early 2027. The project schedule is as follows:

- Laying of subsea cable: three periods of two quarters in 2024, 2025 and 2026
- Laying of the onshore underground circuit in France and Ireland: 2023-2025
- Construction of converter stations in France and Ireland: 2023-2025

2.2 Project Elements on Foreshore in Ireland

The elements of the proposed interconnector on the Irish foreshore are the landfall at Claycastle Beach, near Youghal in East Cork, and the subsea HVDC circuit within Irish territorial waters. The sections below provide a description of these elements, and the construction works associated with them.

The Foreshore Licence Application Area covers a total area of 1,757.14ha, consisting of the landfall (3.64ha, Figure 2.2), and the cable corridor within territorial waters (1,753.5ha, Figure 2.3).

2.2.1 Description of Submarine Cables

2.2.1.1 Cable Configuration

The HVDC submarine cable package from the TJB at Claycastle to the TJB at Kerradénec will comprise two electrical cables and a fibre optic cable with associated power supply. The diameter of each HVDC cable will be between 100-200mm and the fibre optic cable will be circa 20mm.

The estimated length of the submarine route on the Irish foreshore is 35km, from Claycastle Beach to the outer edge of the territorial seas.

2.2.1.2 Submarine Cable Components

The submarine cable will comprise several elements including a central metallic conductor made of copper or aluminium that is surrounded by insulation. A lead alloy sheath will be located outside of the insulation layer. This will be surrounded by armouring that will be made of galvanised steel wires. This will all be contained in an external protection layer.

The operational life of each cable is expected to be approximately 40 years.

Figure 2.2: Foreshore Licence Application Area A nearshore and intertidal area

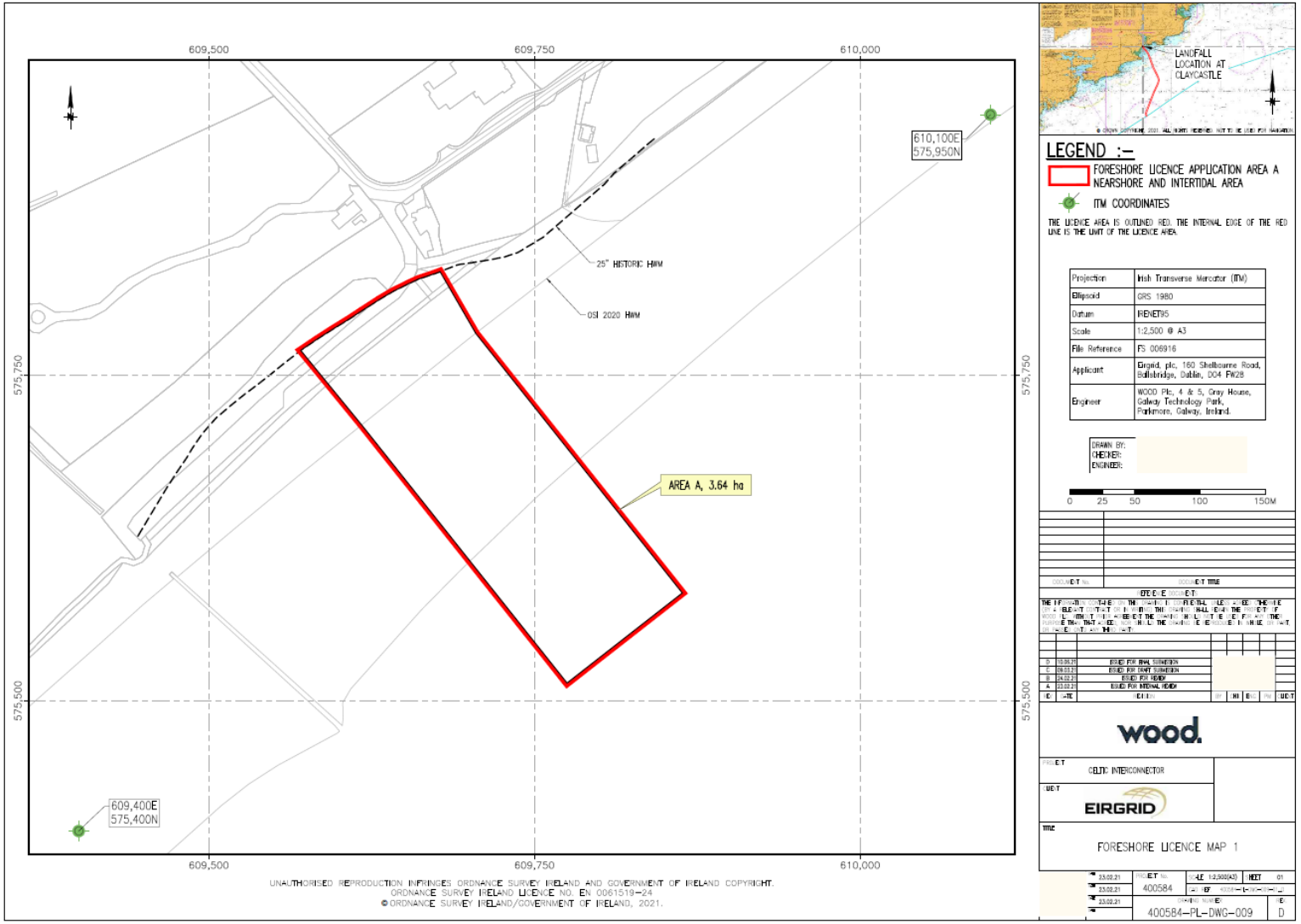
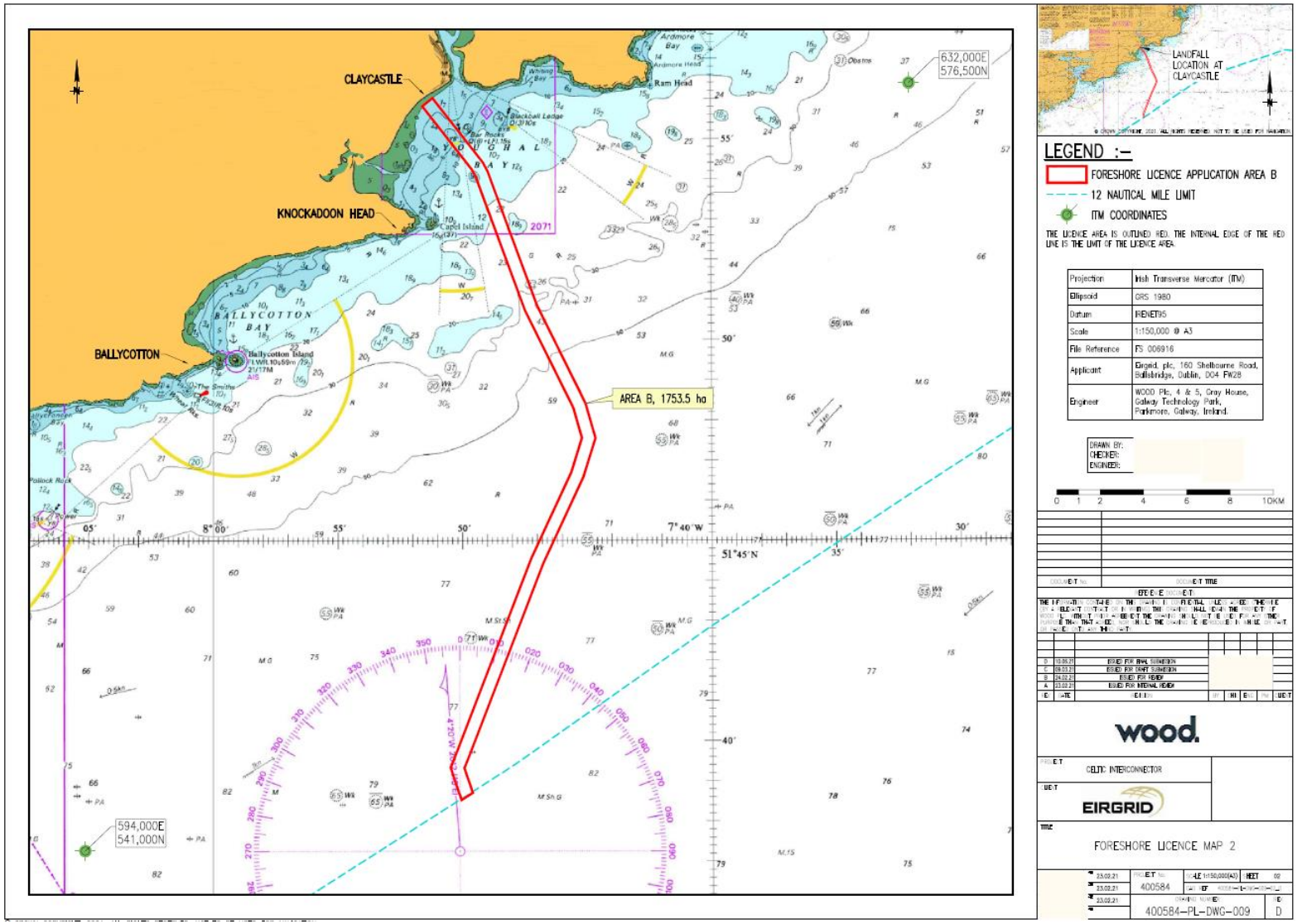


Figure 2.3: Foreshore Licence Application Area B 12 nautical mile limit



2.2.1.3 Submarine Cable Protection

When the cables are being laid at sea, where feasible, they will be buried in the seabed for protection. Several surveys were conducted to determine the preferred cable route. During these surveys, indicative targets for cable burial depth were determined for each region along the route. In instances where the cables cannot be buried or are not expected to reach the target depth of lowering, additional protection measures may be provided. Protection may also be provided in areas where the cable risk profile requires it due to the potential risk of damage due to anchor penetration or by fishing gear, or where existing cables are in the vicinity of the proposed cable. The methods of additional protection proposed are rock placement and concrete mattresses. Refer to Section 2.2.3.6 for detailed information on cable protection measures.

Rock placement as a means of primary cable protection is not envisaged to be necessary along the cable route in Irish territorial waters. The level of secondary rock protection will be minimised, and the installation contractor will endeavour to achieve the required level of protection through burial. The length of rock protection required in Irish territorial waters is expected to be up to 3km, requiring up to 10 tonnes of rock.

2.2.2 Construction Aspects at the Landfall

Two HVDC subsea cables and a fibre optic link with associated power supply will be buried within pre-installed Steel / High Density Polyethylene (HDPE) conduits beneath the beach and car park at Claycastle Beach. The HVDC cables extend across the HWM and enter the two underground concrete chambers of a Transition Joint Bay (TJB); this is where the subsea cables will connect with the onshore cables. In addition, a communications chamber will house the joint between the submarine communications / fibre optic link and the terrestrial communications / fibre optic link. The TJB, the onshore cable and fibre optic link are elements of a separate application to An Bord Pleanála for Approval of proposed Strategic Infrastructure Development (SID).

In order to minimise potential disruption to the beach area and to ensure that the main construction activities occur outside the bathing season, it is proposed to construct the landfall in two phases. Phase One involves the pre-installation of the conduits while Phase Two involves the pull-in and burial of the cables.

Two options are proposed for the construction of both phases. The option to be used will be decided by the construction contractor. The options are:

- Option 1 (Figure 2.4): Install the conduits from the TJB across the car park and below the beach extending 150m into the intertidal zone. This will minimise disruption to the beach during the summer months but increase the overall construction effort as it will require the construction of a temporary causeway to facilitate access for laying of the conduits. This option will also necessitate the construction of a cofferdam to prevent seawater ingress during construction.

- Option 2 (Figure 2.5): Install the conduits from TJB across the car park and extending a short distance below the top of the beach. This will reduce the construction effort as there will be no need for a causeway and the extent of the cofferdam piling would be less thus reducing associated noise and traffic. However, this option will require a short duration (approximately seven days) exclusion period with no access by the public to that portion of the beach and the car park during cable installation.

In each phase, three cable conduits will be installed, one each for the two HVDC cables and the fibre optic link with integrated power supply. There may also be a requirement for the installation of a spare conduit(s). The conduits will be constructed of carbon steel and designed with a specific gravity of approximately 1.4 to 1.6 to ensure they will not float. The proposed conduit will have an internal diameter of 300mm. Alternative conduit material such as HDPE may be used. The HDPE would be buoyant when flooded and will require the installation of concrete collars to provide ballast so that it will not float. The burial depth to the top of the conduits will vary from 3m onshore to 1.8m at the offshore end of the conduit.

The three conduits will be installed at a 5m spacing and will extend from the TJB, which will be located in the grassed area adjacent to the beach car park, to approximately 150m into the intertidal zone in Option 1 and to a short distance below the top of the beach in Option 2.

In Option 1 the conduit offshore entry point will be located in the intertidal zone, approximately 50m shoreside of Lowest Astronomical Tide (LAT). The advantages of locating the conduit offshore entry point above LAT is that it will allow land-based installation equipment to be used. This will remove the requirement for an extended cofferdam / causeway at the landfall and the use of pre-lay dredging vessels/equipment beyond the LAT.

2.2.2.1 Phase One Installation

The first phase for both Options 1 and 2 involves the installation of conduits in a trench excavated across the beach and car park to the area of the TJB. In the beach, the trench will be excavated using land-based equipment such as long-reach excavators. Both options will proceed as follows:

Option 1
A temporary 14m wide sheet pile cofferdam and a temporary 8m wide causeway will be constructed to install the cables and prevent ingress of sediments (see Figure 2.4). The steel sheet-piles will be installed using a piling rig with a hydraulic vibratory hammer. The piling rig will typically work from the top of the beach outward, using the formed temporary causeway adjacent to the cofferdam for access. The cofferdam will be approximately 130m long and formed with two lines of sheet piles parallel to the centreline of the conduits. The cofferdam will also be closed off by sheet piles at its offshore end. The temporary causeway will also be enclosed by sheet piles on the three sides facing the beach to mitigate against the ingress of seawater and sediments particularly at high tides. The causeway will need to be of sufficient width to allow heavy land-based equipment to manoeuvre during trench excavation and conduit installation. The temporary causeway will require an estimated 6000m^3 of aggregate material. The temporary causeway will be constructed, used and removed during the 10-week period of Phase one.

Figure 2.4: Phase One landfall construction for Option 1

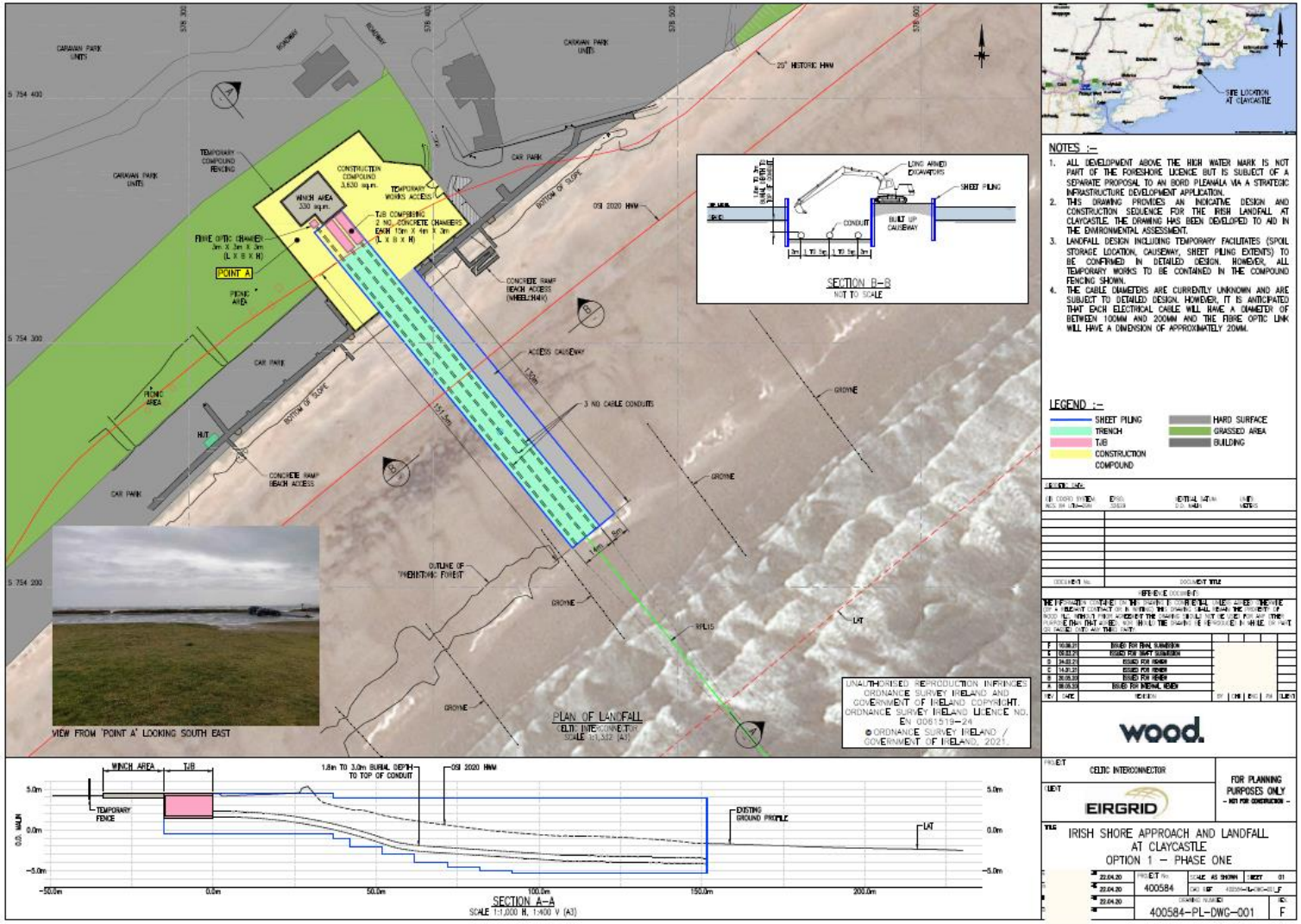


Figure 2.5: Phase One landfall construction for Option 2

The trench will be excavated using long-reach excavators from the causeway. The trench depth will taper from 3m at the TJB to 1.8m in the intertidal areas. The spoil material from the trench, estimated to be 4000m^3, will be stored in the temporary construction compound at the back of the beach. The spoil will be re-used to restore the beach, car park and grassed area to their previous condition following conduit installation. Stored spoil will be covered to prevent exposure to the elements.

Upon completion of the trench, the conduits will be transported from a staging area in the construction compound and laid out adjacent to the trench on support structures. The conduit segments, expected to be 3m to 5m in length, will be welded together to form a pipe string and transferred shoreward using lifting equipment. The supports will be removed, and a messenger wire will be inserted the conduits. The trench will be backfilled to retore the beach to its prior condition. Following this, the cofferdam and causeway will be removed, and the car park will be reinstated.

For Phase 2, a temporary winch platform measuring approximately 20m x 20m will be constructed on the shore side of the TJB. The winch will be used to pull the HVDC and fibre optic cables ashore from the offshore lay vessel through the conduits into the TJB. The winch platform will be a hard standing, typically of compacted aggregate. This platform will be constructed during Phase one.

The estimated duration for Option 1 for Phase one is anticipated to be 10 weeks, as follows:

- Mobilisation/Site Preparation – 1 week
- Landfall Civil Works – 4 weeks
- Conduit Stringing and Installation – 3 weeks
- Backfilling and Site Reinstatement – 2 weeks

Option 2

Construction of a causeway will not be required for Option 2 and the cofferdam will extend an estimated 5m into the intertidal area. A 14m wide cofferdam will be constructed to allow for the same 5m spacing of conduits. Long-reach excavators will be used for trench excavation to the same burial depth.

As with Option 1, upon completion of the trench, conduit will be welded together to form a pipe string. The pipe string will then be transferred to the shore. The supports will be removed, and messenger wires installed. The trench will be backfilled, and the beach re-instate to its prior condition.

The estimated duration for Option 2 for Phase one is 6 weeks as follows:

- Mobilisation/Site Preparation – 1 week
- Landfall Civil Works – 2 weeks
- Conduit Stringing and Installation – 2 weeks
- Backfilling and Site Reinstatement – 1 week

Land take of approximately 3,360m^2 will be required along the beach, the car park, and the grassed area for the Phase one. This area will be used for installation of the onshore trench, the TJB and the winch platform.

Land take of approximately 2,860m^2 will also be required into the intertidal zone for installation of the sheet pile cofferdam and temporary causeway for Option 1. The land take in the intertidal zone for Option 2 would be approximately 200m^2.

2.2.2.2 Phase Two Installation

The second phase of the installation sequence involves the pull-in of the offshore cables through the conduits, using a cable winch on the shoreside of the TJB. The locations of the receiver pits will vary between options. However, all other activities are similar. Option 2 will require an exclusion corridor of approximately 50m along the beach for 2-3 days per cable. However, the car park will remain fully accessible. There will be a localised temporary diversion for pedestrians on the beach around the exclusion zone. The installation of the three cables will not occur simultaneously and may require three separate timeslots.

A receiver pit is required to retrieve the pre-installed messenger wire from the seaward end of the conduit and to provide a smooth transition from the seabed down to the conduits during cable pull-in. In each instance, the receiver pit will be a tapered trench (approximately 10m long) at the seaward end of the conduit extending towards the LAT to taper towards the seabed. The receiver pit will be excavated using land-based equipment at low tide to minimise sediment dispersal within the water column. The excavation of these pits is expected to be undertaken to coincide directly with each cable pull-in operation. Each receiver pit will be backfilled prior to the excavation of the next pit.

A cable winch will be positioned on the platform erected in Phase one, in the grassed area on the landward side of the car park. The submarine cables will be transported on a cable lay vessel which will be stationed offshore. Floats will be attached to each cable which will be floated to shore, pulled by the cable winch, using the guidance of the messenger cable. The buoyancy aids will be removed, and the cable winch will pull the cable to the TJB.

Once the cables are secured in the TJB, the offshore cable lay and burial process will commence with a plough / jet setter transferred to the beach to bury the cable from the receiver pit towards the open sea. Following the successful connection of all three cables, the beach will be restored to its previous condition.

The estimated duration for each cable pull-in phase will be two weeks as follows:

- Mobilisation / Site Preparation / Winch Setup – 1 week
- Cable Pull (total) – 3 days
- Cable Jointing Activities / Site Reinstatement – 1 week

In Phase two, a land take of approximately 1,750m^2 (in addition to the construction compound) is required in the section of grass on the landward side of the car park. This area will be used for the winch, its retaining system (back anchorage) and all associated equipment. Carpark access will not be restricted in this phase.

For Option 1, limited land take is also required in the intertidal zone around the seaward end of each conduit. This is required to retrieve the pre-installed messenger wire to be used in the pull-in. In Option 2, an exclusion corridor of approximately 50m will extend from the receiving pit near the top of the beach to the water line during cable installation. Access to the car park will not be restricted and provision will be made for pedestrian access to the southern part of the beach.

2.2.3 Construction of Submarine Cable in Foreshore

The landfall at Claycastle Beach is formed by a long gently sloping sandy beach. The intertidal region is approximately 200m long with a gradient of approximately 4 degrees. Beyond the intertidal zone the seabed profile is relatively flat with gentle gradients leading to an uninterrupted smooth progression to the 10m water depth at approximately Kilometre Point (KP) 2.9.

The distance from the landfall site at KP 0 to the edge of the 12nm limit is approximately 35km (see Figure 2.3). The offshore route follows a sediment channel in a band of bedrock to provide ease of burial to the required target depths. The cables will be buried beneath the seabed to varying depths between 0.8m and 2.5m depending on the risks posed to the cable by fishing and shipping, seabed conditions and seabed mobility along the route. Following installation, there will be no restrictions on fishing or other activities over the cable.

A pre-lay survey will be undertaken in Irish territorial waters and the Irish EEZ prior to construction. The survey is expected to take 28 days.

Standard cable burial tools comprising either a plough or a mechanical trenching tool will be used for offshore cable installation. In the 35km stretch, challenging strata consisting of underlying chalk has been identified. Where a plough or a mechanical trenching tool is not appropriate along these stretches, a specialist rock cutting tool may be utilised for trenching. These techniques are described below in Section 2.2.3.5.

The following subsections describe the cable installation on the foreshore. It is anticipated that these steps will be required for the full length of the proposed subsea route.

The installation of the submarine cable will typically be as follows:

- Contractor survey, route engineering and finalisation
- Unexploded ordnance (UXO) intervention campaign (if required)
- Boulder clearance
- Sand wave pre-sweeping (not required in Irish territorial waters or Irish EEZ)
- Pre-lay grapnel runs
- Construction of infrastructure crossings
- Pre-lay route survey
- Cable lay
- Post-lay survey
- Cable burial
- Installation of external / secondary protection, and
- Post-burial survey.

2.2.3.1 Survey, Route Engineering and Finalisation

The installation contractor will survey and finalise the route within the 500m wide route corridor which is referred to in the application form and indicated by a red line boundary in Figure 2.3. The contractor will carry out route engineering to optimise conditions for the specific installation tools / techniques to be used. This will include identifying the areas for boulder clearance, sand wave pre-sweeping and deployment of the different burial tools.

The applicant's screening does not provide details of the survey equipment that will be used for the subsea survey of the pipeline route pre- and post-cable installation. Table 2.1 provides an example of side scan sonar and/or multibeam echosounder equipment that could be used and details of potential noise source levels.

Table 2.1: Source level and frequency of survey equipment which could be used

Equipment type	Purpose	Frequency range	Maximum Source Pressure Level (dB re 1 µPa @ 1m)
Multibeam Echo	Determines depth and	190-500 kHz	200-228 (figure only

Equipment type	Purpose	Frequency range	Maximum Source Pressure Level (dB re 1 µPa @ 1m)
Sounder (MBES)	nature of the seabed by transmitting sound pulses (active sonar). Transmits broad acoustic pulse.	(depending on selected option)	provided for the Kongsberg EM710)
Side Scan Sonar (SSS)	Determines depth and nature of the seabed by transmitting sound pulses (active sonar).	100-500 kHz	235

2.2.3.2 Unexploded Ordnance Clearance

A full UXO survey will be undertaken prior to cable installation. It is not anticipated that UXO clearance will be necessary in Irish waters. Pre-installation surveys of the cable route will determine the presence of any UXO. In the unlikely event that UXO are found, they will be either avoided, removed, or detonated in situ under licence (informed by relevant environmental assessments) held by the contractor.

2.2.3.3 Seabed clearance

Boulder Clearance

There are boulders, in varying concentrations, in certain areas of the cable route. These areas will be avoided in the detailed route engineering and design, if feasible. However, unavoidable boulders are a common challenge and boulder clearance is generally undertaken in three ways:

- The boulders may be pre-cleared using a purpose-built plough, or individually using a grab in advance of cable lay and burial operations.
- The boulders may be dealt with on an as-encountered basis. The options here would be limited to a grab or (if possible) micro-routeing of the cable.
- The concentration of boulders may make clearance impractical, and the decision may be taken to use secondary protection only (e.g., rock placement).

Sand wave pre-sweeping

It is not anticipated that sand wave sweeping will be necessary in Irish waters as sand waves have not been identified in the route surveys.

2.2.3.4 Seabed Preparation

Pre-lay grapnel runs

Pre-lay grapnel runs will be required along the cable route on the seabed to ensure debris (e.g., redundant cables, fishing gear, or discarded ropes) is cleared in advance of cable lay. The cable footprint on the seabed is anticipated to be approximately 5m wide. However, this may increase to approximately 15m during seabed preparation and cable installation works due to the size of the equipment deployed for these activities.

Construction of infrastructure crossings

Rock placement or concrete mattresses/sleepers will be used where the cables cross third-party infrastructure such as other cables or pipelines. Concrete mattresses are prefabricated and consist of a number of concrete block sections connected by polypropylene rope.

There are six operational cables in the Irish EEZ that the interconnector will cross and two decommissioned cables. Each cable crossing will require a specific crossing design to be agreed with the asset owner. Where cables cross, if possible, the interconnector will be buried to avoid damage to either cable. In instances where existing cables are currently buried at the target depth, the interconnector will be laid without burial, or on pre-laid concrete mattresses or rock to achieve adequate separation between the cables. In either case, cable protection in the form of rock mattresses or a rock berm will be installed to protect both cables.

For decommissioned cables on the proposed route, a separate procedure will be undertaken. The cables will be cut a minimum of 50m on either side of the crossing point and the ends secured by dead-weights or buried. In each instance, coordinates and details of the ends or weights will be recorded.

2.2.3.5 Installation techniques

It is anticipated that the submarine cable will be installed in a bundled configuration, with the fibre optic link also installed in the bundle. Bundling the cables ensures the installation footprint is minimised (reducing boulder sweeping and potential rock placement volumes). The submarine cable will be transported on the cable laying vessels in a carousel. To lay the cable, it is fed via the laying arm at the stern of the vessel to its position on the sea floor. The cable laying vessels can simultaneously lay and bury the cables. The burial technique will vary depending on the geology of the seabed as indicated in the pre-lay route survey.

The cable lay vessel, with a crew of approx. 90, will arrive off Claycastle Beach with all the equipment required to install the cable. It will be necessary to transfer the plough from the cable lay vessel to shore to the seaward end of the landfall. It is envisaged that the plough will be transferred on a shallow draught barge at high water and lifted by an on-board crane and placed in the receiving pit. Alternatively, it may be off-loaded in Cork Port and transported by road, as an abnormal load.

Standard cable lay techniques are as follows:

Plough
Ploughs may be of displacement and non-displacement varieties. Displacement ploughs are used to dig trenches in the sediment in advance of cable installation. A back-filling pass may be employed post lay to close the trench back over the cable. A non-displacement plough works by passing the cable through the plough share to a level below the seabed with minimum disturbance and leaving an effectively closed trench in its wake.

Jetter
Jetting tools work by injecting high-pressure water into the seabed material to fluidise it and allow the cable to sink into it. They work by fluidising the seabed and are therefore generally used in soft seabed material such as clay and silts. They perform less well in sands and gravels, and particularly cobbles. Water jetting may be employed as a standalone method or form part of a hybrid solution.

Mechanical Trencher
The tool most commonly used for the sediment type that covers the most of the route is the mechanical or hybrid trenching machine. These tools are controlled remotely and run on tracked wheels along the seabed, burying the cable beneath the body of the machine.

The cable installation is expected to be undertaken using standard burial tools such as a plough or a mechanical trenching tool. Approximately 33km of the marine route in the Irish

EEZ, from KP 57.5 to KP 90.7, has more challenging strata, consisting of underlying chalk. Sections of this route may pose a challenge to cable burial using standard burial tools and may require the use of specialist rock cutting tools for trenching.

2.2.3.6 Cable Burial and Protection

Following cable installation, a post lay survey will be conducted to determine the extent of protection needed. The primary means of protection for the cables in Irish waters will be burial. Rock placement as a means of primary cable protection is expected to be minimal. As indicated in Section 2.2.1.3, the extent of rock protection in Irish territorial waters is expected to be between 0km and 3km.

Some secondary rock protection may be required where the target depth of lay is not fully achieved through burial. The secondary protection is most likely to be rock placement. However, a number of other options may be considered, including concrete mattresses. These options, however, are only economic over short distances and are considered a more localised solution, for example at infrastructure crossings. The rock will be sourced from quarries with the necessary consents.

Following the installation of cable protection throughout the proposed route, post-burial surveys will be undertaken to determine the overall protection of the interconnector.

2.2.3.7 Offshore Construction Vessel Traffic

The offshore works will involve several vessels for a variety of activities. Prior to cable installation, a survey vessel, carrying a crew of approximately 15, will be deployed for surveys. Seabed preparation will be undertaken prior to cable laying by a vessel with a crew of 30 to 40. A cable lay vessel, with a crew of circa 90, will follow seabed preparation for cable lay and burial in Irish territorial waters and EEZ. Finally, a rock placement vessel, if required, will follow cable installation.

All vessels may require access to Cork Harbour, particularly in adverse weather conditions.

2.2.3.8 Duration and Timing of Offshore Construction Works

The timeframes allocated to each offshore construction element is summarised below:

- The first activity will be the pre-lay survey, which is expected to last 28 days in Irish waters. It can be undertaken well in advance of the main installation activity.
- The preparatory works shall be carried out in advance of cable lay for approximately 30 days in Irish territorial waters and EEZ.
- The overall schedule for cable lay and burial in Irish territorial waters and EEZ excluding weather or mechanical damage stand by is 60 days.
- A rock placement vessel, if required, will follow cable installation. It will be required in Irish TW and EEZ for between 0 days and approximately 16 days.
- The durations of the works provided are indicative only and based on 24/7 operations.
- Safety requirements for the installation operations / procedures and weather condition may ultimately dictate the final programme.

2.2.4 Construction Environment Management Plan

A copy of the Outline Construction Environmental Management Plan (OCEMP) accompanies the application. This will form the basis for the Construction Environmental Management Plan (CEMP). All conditions of the consents will be included in the CEMP.

The CEMP will be prepared and implemented during the construction phase in consultation with the Planning Authorities and the Department of Housing, Local Government and Heritage. The CEMP will remain a 'live' document which will be reviewed regularly and revised as necessary to ensure that the measures implemented are effective.

Daily inspections will be undertaken by the contractor's environmental manager (CEM) which will include monitoring conformance with the CEMP. Daily assessment forms will be completed by the CEM during the daily checks. Checks on equipment will be undertaken to reduce the risk of incidents occurring such as oil leaks. As a minimum, unless otherwise agreed with the Department or other relevant stakeholders, the following equipment will be inspected:

- Waste storage facilities
- Sediment management
- Oil separators
- Chemical storage facilities
- Storage vessels and equipment including tanks, pumps, gauges, pipework and hoses
- Secondary containment i.e., bunds and secondary skins for oil tanks
- Spill response materials
- Equipment with potential to leak oils and other liquids (i.e. compressors and transformers)

2.3 Interconnector Operation

2.3.1 Operational Overview

Upon completion, the proposed interconnector will be operated and monitored by EirGrid in Ireland and Réseau de Transport d'Électricité in France. It is envisaged that the interconnector will be managed remotely in a similar fashion to existing interconnector from Ireland to the UK. The converter stations in Ireland and France will also be operated remotely.

Once operational, it is anticipated that the onshore and submarine cables will require minimal maintenance. For offshore components requiring maintenance, the cable may need to be cut at relevant places, lifted to the surface for repair, and replaced in or on the seabed. Operational maintenance activities will require similar vessels and machinery to that used for the installation works.

2.3.2 Electromagnetic Field

The cables will give rise to a permanent electromagnetic field (EMF) being generated along their length. EMFs surround any object that is generating, transmitting or using electricity, including appliances, wiring, office equipment, batteries and any other electrical devices. Electric and magnetic fields are common in modern life. In many cases, domestic electrical appliances and tools generate much higher magnetic and electric fields, near a sensitive receptor, than transmission lines at standard separation distances.

Independent and authoritative international panels of scientific experts have reviewed studies on possible human health effects from EMFs. These have concluded, based on the weight of the evidence available, that the power frequency electric and magnetic fields encountered in normal living and working conditions do not cause adverse health effects in humans when properly designed and constructed. These form the basis for guidelines

published by the International Council on Non-Ionising Radiation Protection (ICNIRP) for EMF. EirGrid and ESB Networks have had strict regard to the ICNIRP guidelines in the design and operation of the transmission system.

The Celtic Interconnector Project has been assessed. It has been determined that ICNIRP guidelines will not be exceeded, and that the strength of the electric and magnetic fields generated during operation will have no significant effects. This is largely due to the direct current utilised for the most of the interconnector. Direct current cables have no frequency and, consequently, produce no electric fields.

Electric fields are normally fully contained within the insulation surrounding the cable whilst magnetic fields propagate outside the cable. The methods of cable burial and protection outlined above will further minimise the magnetic field in the vicinity of the cable.

2.4 Decommissioning

The Celtic Interconnector is considered strategic infrastructure of national and European importance. Consequently, it is not expected to be decommissioned. The operational life of the submarine cables and other equipment is expected to be 40 years, and it is assumed that they will be replaced with new cables and equipment at that time.

If replaced, the submarine cables will either be left in place or removed and recycled in line with the waste management practices in place at the time of replacement. The same procedure will be implemented for onshore HVAC and HVDC cables. Equipment for the onshore converter station will be removed for recycling or disposal as required by the waste management practices at the time.

It is envisaged that activities associated with replacing the cable components will be similar to those associated with the construction phases outlined in Section 2.2 above.

2.5 Review of proposed works

EC (2002, 2021) guidance indicates that a project description should identify all those elements of the project, alone or in combination with other projects or plans, that have the potential to have significant effects on the Natura 2000 site. To this end, the guidance (EC 2021) provides an indicative list of the key parameters of the plan or project to be identified.

Size (e.g. in relation to direct land-take)	Yes: The foreshore licence overall route is described in Section 2.1 and Figures 2.2 and 2.3.
Overall affected area including the area affected by indirect impacts (e.g. noise, turbidity, vibrations)	Yes. Relevant information regarding size and scale of the works can be found in Section 2.1.
Physical changes in the environment (e.g. modification of riverbeds or morphology of other water bodies, changes in the density of forest cover)	Yes: The potential for physical changes to the environment from the proposed cable installation activities are discussed in Section 2.5 of the applicant's AA Screening and NIS report.
Changes in the intensity of an existing pressure (e.g. increase in noise, pollution or traffic);	Yes. Increase in vessel traffic and use of beach.

Resource requirements (e.g. water abstraction, mineral extraction);	Yes: The equipment that will be required is summarised in Section 2.2 above.
Emissions (e.g. nitrogen deposition) and waste (and whether they are disposed of on land, water or in the air)	Yes. Potential emissions to water (increased suspended sediment and accidental spillages) described and assessed in Section 2.5 of the AA Screening and NIS report.
Transportation requirements (e.g. access roads)	Yes. Section 2.2 above provides details of potential vessels to be used during the works.
Duration of construction, operation, decommissioning, etc.	Yes. See Section 2.2 above. The cable will be a permanent structure that will occupy the relevant seabed and foreshore for the operational lifespan of the cable (Foreshore Licence is anticipated to be issued for 40 years). See Application form.
Temporal aspects (timing of the different stages of a plan or project)	Yes. See Sections 2.1 and 2.2 above.
Distance from Natura 2000 sites and in particular from their designating features	Yes. See Section 3 of this report.
Cumulative impacts with other projects or plans	Yes addressed in Section 3.5 of this report.

SECTION 3 - STAGE 1 SCREENING FOR APPROPRIATE ASSESSMENT

3.1 Basis for screening the project

Article 6(3) of the Habitats Directive indicates that, "*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[2], 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*." These provisions are transposed under regulation 42 of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended).

The project, as defined in Section 2, is not directly connected with the management of a Natura 2000 site, and under the provisions of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended), and the Competent Authority (in this case the Department of Housing, Local Government and Heritage) must therefore determine whether an Appropriate Assessment is required.

The AA screening has been informed by European guidance (European Commission 2019, 2021) and national guidance (DoEHLG 2010, Office of the Planning Regulator 2021).

3.2 Sources of likely significant effect

Habitat loss/degradation from physical disturbance of the seabed
Receptors: benthic habitats and fauna, birds, marine mammals and migratory fish

The applicant indicated that this may result in a reduction in prey availability for birds, marine mammals, and migratory fish due to habitat change.

The sediment type observed during survey within the Irish Territorial Waters and Irish EEZ (Next Geosolutions 2018) showed substrate was variable, ranging from areas of soft rippled sand to large rocks and cobbles. Epifauna was also relatively variable reflecting substrate type with reasonably low abundance in the sandy regions, increasing in areas of cobbles and boulders where a hard substrate was present for encrusting fauna. The offshore route follows a sediment channel in a band of bedrock to provide ease of burial to the required target depths. The disturbance to the seabed from construction works will likely be temporary, in particular in the sand and gravel substrates which are present along the majority of the route within Irish territorial waters. As the substate would re-establish rapidly (within a period of days or weeks) following installation (RPS 2019), this effect is not expected to result in a marked change in the locality either during construction (even allowing for the temporary suspension of sediments) or operation.

Section 10.5.2 of Volume 3D2 EIAR – Technical chapters provides further information, indicating that compared to other offshore activities such as bottom trawling, ship anchoring

[2] Article 6(4) relates to plans or projects which must be undertaken despite identification of an assessment determining a negative effect on a given site due to imperative reasons of overriding public interest (IROPI), including those of a social or economic nature. Suitable compensatory measures are required to maintain the coherence of the network should such a case be made.

or large-scale dredging, seabed disturbance resulting from subsea cable activities is considered temporary and has a relatively limited extent (Carter *et al.* 2009, OSPAR 2012), with the seabed usually returning to its original state (BERR 2008). The disturbance itself is restricted to a narrow strip of seabed, normally limited to an area 2-3m either side of the cable (Bald *et al.* 2014, Carter *et al.* 2009), or in the order of 10m width if the cable has been ploughed into the seabed (OSPAR 2009).

Dispersion of disturbed sediments is dictated by the local hydrodynamic regime, particularly near-bottom current speeds (BERR 2008). Coarser sediments such as sand and gravel settle relatively close to the origin of disturbance, while finer sediments such as clay and silt can remain in suspension for a longer period creating a larger impact footprint. However, a greater dispersion also results in a smaller level of deposition at a given point. The majority of sediment deposition occurs within tens of metres of the cable route (OSPAR 2009).

The disturbance to the seabed will be temporary and is not expected to result in a marked change in prey availability in the locality either during construction (even allowing for the temporary suspension of sediments) or operation.

During landfall installation works at Claycastle Beach, a trench will be cut, removing approximately 4,000m^3 of beach sediment. This spoil shall be stored within the compound on the hard standing, to allow the site to be restored to its previous condition following installation of the conduits. The spoil shall be adequately covered in order to prevent exposure to the elements. This, combined with use of the cofferdam, will help to prevent disturbed sediment entering the marine environment. Even if sediment is resuspended during beach works, intertidal habitats such as sand and mudflats tend to display a low sensitivity to and high recoverability from temporary sediment displacement likely to occur from trenching. The recovery of these habitats is dependent on the hydrodynamics of the surrounding area, although sandy sediments (such as those found at Claycastle Beach) are likely to recover in less than a year (Tillin & Budd 2016).

Temporary habitat loss associated with the landfall connection does not directly impact any Natura 2000 site. However, wintering waterbird species present at a number of SPAs during the non-breeding period have the potential to utilise areas of un-designated habitat within the intertidal for foraging and roosting, which will be temporarily unavailable during construction and installation, scheduled to take place between October and April (year subject to confirmation) for a 10 week period.

Suspension and deposition of sediments by offshore construction activities
Receptors: benthic habitats and fauna, birds, marine mammals and migratory fish

Increased suspended sediment concentrations may result in a reduction in foraging efficiency for birds, marine mammals, and migratory fish due to both direct (e.g. reduction in visual acuity) and indirect effects (e.g. changes in the behaviour of prey). The suspended sediments in the water column may also act a barrier to movement of migratory fish. The deposition of these sediments may result in smothering of habitats leading to habitat loss / degradation which may cause a reduction in prey availability for birds, marine mammals, and migratory fish due to habitat change.

Suspended sediments would largely be deposited from the water column close to the works (90% within 1km, e.g. BERR 2008) and within a few hours of disturbance. This would occur in a highly localised area. Given the modest progress of the cabling vessel (20-300m per hour dependent on substrate), it will be easy for individual fish and/or mammal species to pass through or avoid the suspended sediments without significantly affecting their behaviour.

Accidental loss of pollutants and dispersal of existing pollutants within sediments during cable laying and burial activity
Receptors: benthic habitats and fauna, birds, marine mammals and migratory fish

This may result in the direct toxic/injurious effects of pollutants including hydrocarbons and marine litter.

During all works at sea and in the intertidal zone, there is the potential for loss of chemicals, fuels, or other pollutants as a result of accidental spills from installation vessels and other associated heavy plant. This can result in both direct toxic effects on individuals in the water column and on the seabed, and subsequent effects on other species in the food-web, including predator species such as seabirds and marine mammals.

To minimize risks of pollution incidents international good practice will be followed, for example adherence to the International Convention for the Prevention of Pollution from Ships (the MARPOL Convention), the main convention covering pollution prevention in the marine environment, including from operational or accidental causes. The risk of the loss of pollutants from the vessels installing or maintaining the cable is therefore low.

The installation phase has the potential to release / remobilise contaminants held within the sediment when the seabed is disturbed (BERR 2008). The location and type of sediment will determine whether contaminants are likely to be held in the benthic environment. Contaminants such as oil and heavy and trace metals are most likely found near the coastline, generally attached to fine sediments, although certain chemicals can persist in coarser sediments (BERR 2008). Contaminant release is only a concern in heavily contaminated locations, such as major ports, oil and gas developments, historical industrial areas, and waste disposal or natural sinks, and is of less importance when considering offshore areas (OSPAR 2009).

Sediment samples collected as part of the cable route surveys in 2015 and 2018 indicate that neither Claycastle Beach nor the seabed along the cable route in Irish waters is contaminated. Furthermore, bioavailable metals and hydrocarbons are generally associated with fine sediments (i.e. <63µm) and higher total organic carbon (TOC) content. As the surficial sediments along the interconnector cable route are predominantly sands with low associated TOC values, the risk of resuspension and subsequent desorption of contaminants is lower than in very muddy sediments.

Disturbance due to noise and vibration and movement created during survey, construction and operation
Receptors: birds, marine mammals and migratory fish

This may result in the disturbance / displacement of marine mammals, migratory fish, and birds with effects on fitness due to reduced foraging efficiency and increased energy expenditure to avoid source.

The applicant indicated that waterborne noise generated by cable laying vessels, cable burial and cable protection placement does not occur at levels great enough to result in either temporary or permanent auditory or non-auditory effects (Inch Cape Offshore Limited 2013, Niras 2015, Natural Power 2018). However, no reference was made to relevant TTS and PTS thresholds (e.g. Southall *et al.* 2019). Waterborne noise from activities such as placement of rock for cable protection may result in localised and temporary behavioural effects (such as displacement). The presence of cable laying and support vessels (unweighted noise levels of 155 to 180dB re 1µPa @ 1m depending on vessel type, and in

line with existing vessel traffic in the area) is considered unlikely to alter the baseline situation for the individuals present in the area in view of the existing level of vessel traffic. The applicant has provided a consideration of potential underwater noise (Table 2.7 of the AA Screening and NIS) for sites with migratory fish as qualifying interests but not marine mammals, which are more sensitive to underwater noise.

As indicated in Section 2.2.3.1, the applicant has not provided details of potential survey equipment (or underwater noise source levels) that will be used and the screening assessment (Table 2.7 of the applicant's AA Screening and NIS) does not address this aspect. However, Section 3.4.2 of the NIS indicates that, "*the underwater noise source levels, from subsea survey and monitoring equipment would exceed the threshold over which mitigation for marine mammals would be necessary (240dB verses 180dB).*" Therefore, for the purposes of the screening assessment, examples of potential equipment (side scan sonar and multibeam echosounder) have been used (see Table 2.1).

Birds
With respect to offshore works, the applicant could have noted that a number of species from relevant SPAs which are within foraging range of the proposed works area (e.g. Saltee Islands SPA) have a moderate sensitivity to disturbance by shipping traffic; including razorbill and guillemot (Garthe & Hüppop 2004, Fliessbach *et al.* 2019). However, it can be reasonably concluded that disturbance of seabirds will be temporary and comparable to that experienced from the existing shipping traffic. It would have been useful to have placed this within the context of existing vessel traffic levels which are widely available (e.g. AIS-based data via EMODnet[3]; commercial sources are also available), albeit for larger vessels.

During phase one (and to a lesser extent phase two) of installation, activities on the foreshore and presence of personnel have the potential to result in disturbance that would render the installation area and an additional buffer of 250m from disturbance sources (Cutts *et al*. 2009) unsuitable for wintering waterbirds resulting in effective loss of habitat for a 10-week period during the installation phase. The peak of disturbance would be during the construction period of the cofferdam though human presence throughout could still result in disturbance within the defined ZOI (see Section 3.3).

Marine mammals
With respect to the potential for LSE (from vessel noise or survey noise), no reference is made by the applicant to TTS and PTS threshold criteria from Southall *et al*. (2019) for relevant Annex II marine mammal species. Of such species, the harbour porpoise has the lowest threshold criterion for the onset of PTS at 202dB re 1µPa, followed by grey seal (218dB re 1µPa and bottlenose dolphin (230dB re 1µPa, after Southall *et al*. 2019). The emitted sound fields from sources such as the side-scan sonar and multibeam echosounder components of the proposed survey (see Table 2.1), are of much lower amplitude and extent, compared to for example, seismic surveys using airguns, due to their lower source levels, higher central operating frequencies and greater directionality (narrower beam widths) (e.g. Boebel *et al.* 2005, Genesis 2011). However, very few empirical field data are available to quantify these expectations (excepting Halvorsen & Heaney 2018, but noting the caveats presented in Labak 2019), though it is expected that sound levels from these devices would rapidly attenuate away from the source.

Reported responses of marine mammals to the presence and movement of vessels include avoidance, interrupted foraging behaviour, changes in swimming speed, direction and surfacing patterns, and alteration of the intensity and frequency of calls (review in Erbe *et al*.

[3] https://www.emodnet-humanactivities.eu/view-data.php

2019). Chronic exposure has also been linked to an increase in stress-related hormones (Rolland *et al.* 2012). Harbour porpoises, white-sided dolphins and minke whales have been shown to respond to survey vessels by moving away from them, while white-beaked dolphins have shown attraction (Palka & Hammond 2001). A study on captive harbour porpoises in a semi-natural net-pen complex in a Danish canal, recorded their behaviour while simultaneously measuring underwater noise of vessels passing the enclosure; reaction to noise was defined to occur when a highly stereotyped 'porpoising' behaviour was observed. Porpoising occurred in response to almost 30% of vessel passages; the most likely behavioural trigger were medium- to high- frequency components (0.25–63kHz octave bands) of vessel noise, while low- frequency components of vessel noise and additional pulses from echo-sounders could not explain the results (Dyndo *et al*. 2015). A tagging study of a small number of free-ranging porpoises in Danish coastal waters estimated that porpoises encountered vessel noise 17-89% of the time (from evaluation of the wideband sound and movement tag recordings). Occasional high-noise levels (coinciding with a fast ferry) were associated with vigorous fluking, bottom diving, interrupted foraging and even cessation of echolocation, leading to significantly fewer prey capture attempts at received levels greater than 96dB re 1 mPa (16 kHz third-octave, Wisniewska *et al.* 2018).

More evidence is available on bottlenose dolphins, especially for coastal populations. Shore-based monitoring of the effects of boat activity on the behaviour of bottlenose dolphins off the US South Carolina coast, indicated that slow moving, large vessels, like ships or ferries, appeared to cause little to no obvious response in bottlenose dolphin groups (Mattson *et al*. 2005). Pirotta *et al*. (2015) used passive acoustic techniques to quantify how boat disturbance affected bottlenose dolphin foraging activity in the inner Moray Firth. The presence of moving motorised boats appeared to affect bottlenose dolphin buzzing activity (foraging vocalisations), with boat passages corresponding to a reduction by almost half in the probability of recording a buzz. The boat effect was limited to the time where a boat was physically present in the sampled area and visual observations indicated that the effect increased for increasing numbers of boats in the area. Dolphins appeared to temporarily interrupt their activity when disturbed, staying in the area and quickly resuming foraging as the boat moved away.

Fish

Fish exhibit large variation in their response to sound, largely due to the great diversity in anatomical features, hearing physiology and behaviour; all species respond to particle motion, but several have adaptations that make them sensitive also to the pressure component of sound. Most species can detect sounds from <50Hz to a few hundred Hz, with some extending this range to approximately 500Hz (e.g. cod, saithe), and those with specialisations to be sensitive to sound pressure being able to detect sounds up to several kHz (e.g. herring) (review in Hawkins & Popper 2017). Injury threshold criteria have been suggested by Popper *et al.* (2014), with the criteria for mortality and potential injury for species lacking a swim bladder being $L_{p,pk}$ >213 dB re 1 µPa and for all other groups, $L_{p,pk}$ >207 dB re 1 µPa. There is no evidence of mortality or potential mortal injury to fish from ship noise (Popper *et al*. 2014). Slabbekoorn *et al*. (2019) note that there are few good case-studies in the peer-reviewed literature that report on the impact of a seismic survey on the behavioural response of free-ranging fish or the direct impact on local fisheries. Existing studies do not yield completely coherent results but suggest that fish could stop foraging and move down in the water column. Such temporary displacement and/or altered feeding behaviour are likely to be responsible for the reduced catches reported in some circumstances.

The ability of salmon to respond to sound pressure is regarded as relatively poor with a narrow frequency span, a limited ability to discriminate between sounds, and a low overall sensitivity relative to other fish species (Hawkins & Johnstone 1978, Harding *et al.* 2016). A

study of the hearing ability of sea lamprey (*Petromyzon marinus*) reported that, consistent with fish lacking a swim bladder, sea lamprey showed a limited sensitivity to sound, with juveniles detecting tones of 50-300Hz, but not higher frequencies (Mickle *et al*. 2019). Injury threshold criteria have been suggested by Popper *et al.* (2014), with the criteria for mortality and potential injury for species lacking a swim bladder being $L_{p,pk}$ >213 dB re 1 µPa and for all other groups, $L_{p,pk}$ >207 dB re 1 µPa. Teague & Clough (2011) indicate that shad may be able to detect ultrasound at frequencies of up to 180kHz, with a preliminary exposure trial of twaite shad eliciting significant reactions at sound frequencies of between 30 and 60kHz.

Collision risk associated with increased vessel movements
Receptors: marine mammals

This may increase collision risk to marine mammals due to vessel movements resulting in injury or death.

Collision with vessels is not considered to present a risk to fish or mammal species due to the slow progress of the vessels laying the cable (20 to 300m per hour dependent on substrate), its predictable path, and the agility of the species in question. This aligns with the literature on this issue (Palka & Hammond 2001). Given this, it is curious that the applicant has identified the potential for LSE from collision risk for all sites with marine mammal qualifying interests in Table 2.7 of the AA Screening and NIS report. In agreement with the text above, in this instance collision risk is not considered to represent a LSE and this is reflected in Table 3.2 of this report.

Electro-magnetic fields (EMF) created during cable operation
Receptors: marine mammals and migratory fish

This may result in the interference in the behaviour of migratory fish and marine mammals.

The EMF produced by an operational cable has the potential to interfere with navigation and foraging efficiency of migratory fish species. However, the applicant notes that the Subsea cable interactions with the marine environment: expert review and recommendations report (Andrulewicz *et al.* 2003), recorded no difference to natural background levels within 20m of the SwePol link cable, a 254km HVDC cable in the Baltic Sea. On this basis, the applicant indicates that the effect of the Proposed Development would be highly localised, in waters deep enough to allow a modest change in individuals' swim profile (their location within the water column) to enable crossing in an unaffected area and would not result in a marked change in foraging or navigational ability.

Section 13.7.2 Assessment of effects – Natural Fish Ecology of Volume 3D2 Environmental Impact Assessment Report – Technical Chapters provides further relevant information on the potential for EMF effects.

The EMF is composed of both an electric (E) and an induced magnetic (B) field (Cada *et al*. 2011). The E field is normally fully contained within the cable by the insulation that surrounds the conductor however the B field may propagate outside the cable and can be sensed by magneto-sensitive species. Where a fish or tidal movement occurs through a B field, a further induced electric (iE) field can be created (Gill & Bartlett 2010).

Returning adult Atlantic salmon migrating through coastal waters are typically found near the surface (although deeper dives are observed), at depths of between 0.5–5m (Davidsen 2013; Godfrey *et al*. 2015), where they will not encounter the strongest magnetic flux densities at the substrate surface directly above the cable. While salmon are believed to utilise the earth's magnetic field to aid navigation in open oceans, in shallow coastal waters

their surface migratory behaviour may indicate that olfactory cues contained within the buoyant freshwater plumes that emanate from estuaries override the weaker magnetic cues, a theory supported by the increase in near shore migration speeds observed with increasing river discharge, that may serve to ease river recognition (Davidsen 2013).

Armstrong *et al*. (2015) observed the response of captive Atlantic salmon to activated Helmholtz coils. The study demonstrated that neither large salmon (62-85cm) or smaller post-smolts (24-41cm) showed a significant response (alarm behaviour, avoidance, accelerated or decelerated swimming) when passing through a magnetic field of up to 95 microtesla (μT) (values measured on the HVDC EWIC Interconnector cable, a 500MW 400kV AC (DC ±200 kV) submarine cable, indicate that the magnetic field strength was approximately 44 μT at 0m.

Whilst there is generally a paucity of studies that observe the effect of subsea cables on Atlantic salmon migration (Gill & Bartlett 2010), Gill *et al*. (2005) cite observations from the Dee estuary where there are several buried cables which are considered not to have affected salmonid and eel migrations historically. Sigray & Westerberg (2008) cite an earlier study by Yano *et al*. (1997) who were similarly unable to demonstrate that the orientation of chum salmon (*Oncorhynchus keta*) was altered when the magnetic field was increased by two orders of magnitude in relation to the Earth's geomagnetic field.

Both river lamprey and sea lamprey are diadromous species known to frequent rivers adjacent to the Claycastle Beach landing site (King & Linnane 2004). Although at the lower end of the electroreceptive spectrum (*P. marinus* behavioural response of 10μV m-1), E-fields have the potential to influence the movements of lamprey. Again, the ability to sense E-fields may not necessarily elicit a negative response. Studies carried out on a 33kV cable crossing the Clwyd estuary in North Wales have indicated elevated E-fields (> 70μV m-1) and B-fields (50μT) (CMACS 2003), with both values well within the sensory range of both lamprey and salmonids. Notwithstanding, the Clwyd is well known for its population of lamprey (Kelly & King 2001) and salmonids, suggesting that the effect of the cables on these species is restricted.

The cable will be buried to a depth of >1.8m across the intertidal zone to a distance approximately 50m shoreside of the lowest astronomical tide. Offshore the cables shall be buried beneath the seabed varying in depth between 0.8m and 2.5m dependent on risk of third-party interactions and seabed conditions.

Both iE- and B-fields dimmish rapidly with increasing distance from the cable. Burial of the cable along the cable corridor is likely to provide some mitigation for the possible impacts of the strongest B- and iE-fields that exist close to the surface of the cable, owing to the physical barrier of the substratum. Whilst B-fields decrease exponentially with distance from the cable iE-fields may remain detectable by electrosensitive species for tens of metres from the cable. Whilst burying the cable will not fully mitigate the potential impact resulting from the propagation of EMFs, it will prevent fish encountering the strongest magnetic flux densities at the surface of the cable (Cada et al., 2011).

Summary: The applicant could have provided more information on the sources of likely significant effects associated with the proposed works. However, based on the information presented above, it is concluded that potential sources of likely significant effect for relevant Natura 2000 sites and their related qualifying interests, from the cable installation activities are correctly identified and adequately described.

3.3 Identification of relevant sites

Section 2.5 of the applicant's AA Screening and NIS report provides details of the geographic extent or zone of influence (ZOI) associated with the potential sources of effects.

Habitat loss/degradation from physical disturbance of the seabed
Offshore construction
Directly along the cable laying route for a width of up to 15m. Although the geographic extent of the habitat change is localised, the mobile designated features of European sites (e.g. seabirds, marine mammals and migratory fish, see below) may interact with it when remote from the relevant European site.

Landfall construction
Directly along cable route (corridor width of up to 15m) and construction areas in intertidal zone (see project description). During Phase One approximately 2,860m^2 of intertidal habitats are required for the construction of the sheet pile cofferdam and temporary causeway.

Although the geographic extent of the construction and habitat loss is localised, the mobile features of nearby European sites, such as wintering waterbirds may use the habitats present (in particular the intertidal habitats) as *ex-situ* habitat. Therefore, a search radius of up to 5km (informed by Chapman & Tyldesley 2016) was applied to identify European Sites with Qualifying Interests recording using the beach and intertidal zone during baseline surveys completed between 2019 and 2021.

Suspension and deposition of sediments by offshore construction activities
Applying a precautionary approach, the geographic extent of any increase in suspended sediment concentration due to cable burial was not expected to extend more than 10km away from the construction area, with the majority of particles (over 90%) being deposited within 1km (e.g. BERR 2008). The sediment is expected to have settled out within a few hours.

Although the geographic extent of the habitat change is localised, the mobile designated features of European sites (e.g. seabirds, marine mammals and migratory fish, see below) may interact with it when remote from the relevant European site.

Accidental loss of pollutants and dispersal of existing pollutants within sediments during cable laying and burial activity
Offshore construction
Dilution effects will vary dependant on at sea conditions and the volume of any pollutant loss. The effects of any pollution events would not be expected to be detectable more than several hundred metres from the location of the incident. With respect to dispersal of existing pollutants, the ZOI was considered the same as for increased suspended sediment concentrations above. This is considered adequate for small releases of pollutants but not for large diesel fuel releases resulting for example from vessel collision and tank rupture, in such cases a larger ZOI of 25km would be appropriate.

Although the geographic extent of the habitat change is localised, the mobile designated features of European sites (e.g. seabirds, marine mammals and migratory fish, see below) may interact with it when remote from the relevant European site.

Landfall construction
The geographic extent of any pollution effects would be restricted to the cable route and supporting construction areas plus an additional buffer of several hundred metres. The

extent of any pollution event will depend on prevailing conditions and the nature and volume of any pollutant.

The applicant indicates that with respect to the dispersal of pollutants currently within sediments during construction activity, the geographic extent of any pollution effects would be restricted to the cable route, marine construction area, plus an additional buffer of 500m.

Although the geographic extent of the construction and potential pollution is localised mobile features of nearby European sites, such as wintering birds, may use the habitats present (in particular the intertidal habitats) as *ex-situ* habitat. Therefore, a search radius of up to 5km (informed by Chapman & Tyldesley 2016) has been applied to identify sites with features known to use the beach and intertidal zone (as identified during baseline surveys completed in 2019/20).

Disturbance due to noise and vibration and movement created during survey, construction and operation

Offshore construction

Specific distance not provided. Applicant indicated that although the geographic extent of the habitat change (presumably the applicant means disturbance) is localised, the mobile designated features of European sites (e.g. seabirds, marine mammals and migratory fish, see below) may interact with it when remote from the relevant European site.

Landfall construction

Directly along cable route and construction area plus an additional 250m either side due to disturbance (based on Cutts *et al*. 2009).

Although the geographic extent of the construction and disturbance is localised, mobile features of nearby European sites, such as wintering birds, may use the habitats present (in particular the intertidal habitats) as *ex-situ* habitat. Therefore, a search radius of up to 5km (informed by Chapman & Tyldesley 2016) was applied to identify sites with features known to use the beach and intertidal zone (as identified during baseline surveys completed in 2019/20).

Cable operation

Maintenance or other works during operation at the landfall location have the potential to cause disturbance events local to the cable route and other associated infrastructure. For wintering waterbirds, the presence of personnel and/or plant on or close to intertidal habitats has previously been identified as causing “High” or “Moderate” levels of disturbance within 250m (Cutts *et al*. 2009), displacing birds from foraging or resting areas.

The approach for identifying effects on European sites follows the approach considered for disturbance during the construction phase and a search radius of up to 5km (informed by Chapman & Tyldesley 2016) was applied to identify any European sites with mobile features which may use the proposed landfall location (and surrounding habitat) as *ex-situ* habitat.

Collision risk associated with increased vessel movements

Offshore construction

Specific distance not provided. Applicant indicated that although the geographic extent of the habitat change is localised, the mobile designated features of European sites (e.g. seabirds, marine mammals and migratory fish, see below) may interact with it when remote from the relevant European site. Presumably this is in error as no habitat change likely and therefore assumed that applicant means the geographic extent of collision risk is localised to the immediate area surrounding the survey and construction vessels.

Electro-magnetic fields (EMF) created during cable operation
Although the geographic extent of EMF is localised (within 20m of the cable – Taormina *et al.* 2018), the mobile designated features of European sites (e.g. marine mammals and migratory fish, see below) may interact with it when remote from the relevant European site.

Mobile designated features of European sites
Table 3.1 provides a summary of species-specific search distances and source information used to identify the potential for effects on European Sites (taken from Table 2.6 of the AA Screening and NIS) with respect to mobile designated features remote from the relevant site.

Table 3.1: Species-specific search distances and source information used to identify potential effects on European Sites

Species	Approximate search distance	Source
Seabirds	Varies by species	Woodward *et al*. (2019)
Non-breeding water birds	5km	Chapman & Tyldesley (2016)
Grey seal	145km	SMRU (2011), Thompson *et al.* (1996)
Harbour seal	120km	
Harbour porpoise	All sites which include Harbour Porpoise within the Celtic Sea Management Unit for Cetaceans	IAMMWG (2015)
Bottlenose dolphin	All sites which include Bottlenose dolphin within the Offshore Channel, Celtic Sea and South West England Management Unit for Cetaceans	IAMMWG (2015)
Migratory Fish species	100km	The distance of 100km has been applied using professional judgement. This is based on both a precautionary consideration of the ecology of the species being considered and the general acceptance of this figure in ecological assessments of various offshore cable and offshore wind farm projects.

Summary: The basis of information provided to understand the geographic extent of impacts of the works (i.e. a Zone of Influence) and the underpinning evidence is adequate with the exception of large diesel fuel releases when a larger ZOI of 25km would be appropriate.

3.4 Sites identified by the applicant to be screened for AA

The sites which were identified by the applicant to be within the ZOI of the project (Figure 3.1) were subject to screening assessment. The high level outcome for each site is presented in Table 3.2. The table lists the sources of potential likely significant effect which are considered against each of the relevant sites. An assessment is made for each qualifying interest identified as being potentially within the ZOI of an identified effect (see Section 3.3). Where a potential for LSE has been identified this is indicated for each site against the relevant source of effect. Blank cells indicate those impacts which were screened out as the habitat or species were outside of the ZOI.

Figure 3.1: Relevant Natura 2000 sites

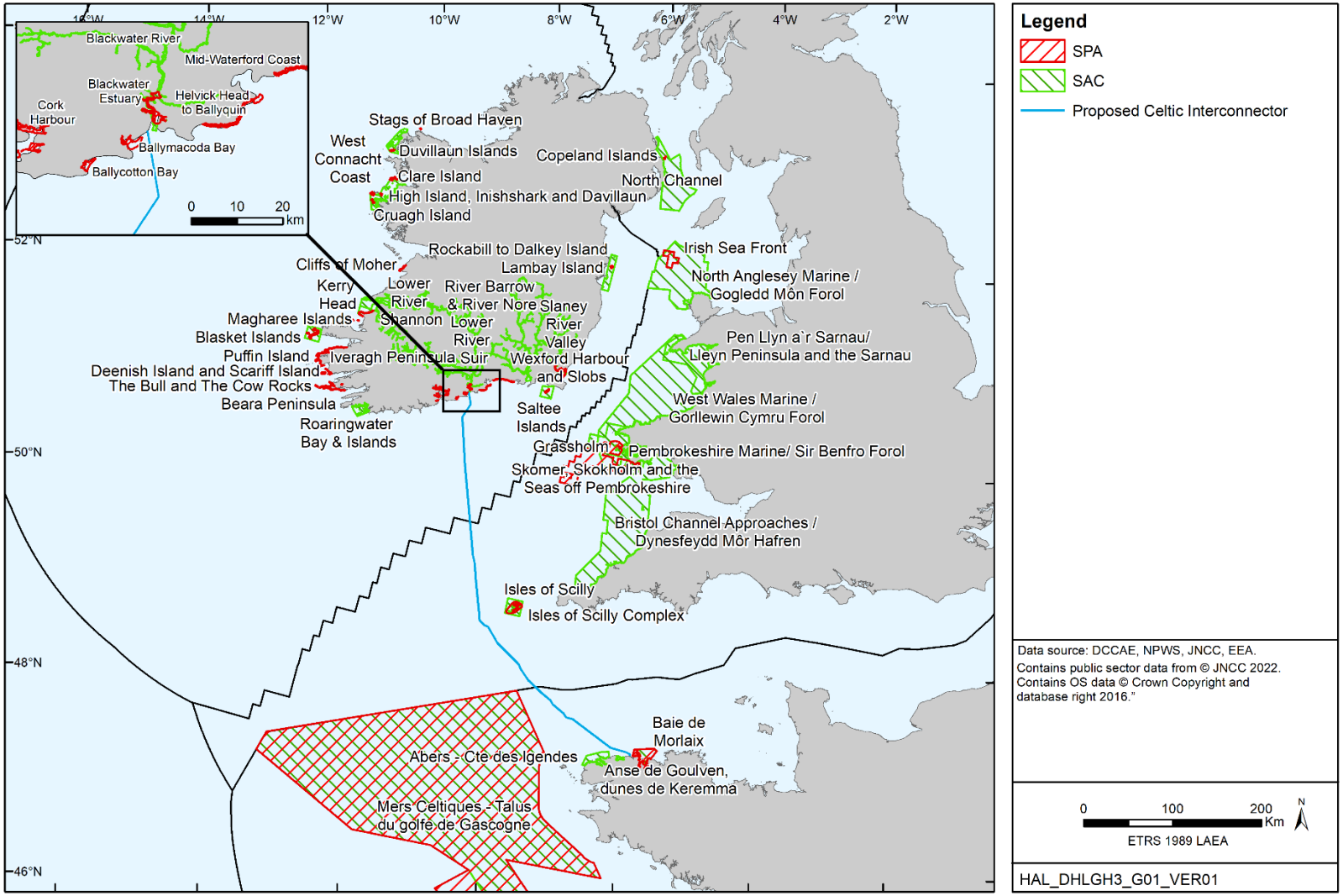


Table 3.2: Sites screened for likely significant effect and the high level outcome for each site

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
SACs										
Blackwater River (Cork/ Waterford) SAC	002170	1.4	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Perennial vegetation of stony banks [1220] *Salicornia* and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Lutra lutra* (Otter) [1355] *Petromyzon marinus* (Sea Lamprey) [1095] *Lampetra fluviatilis* (River Lamprey) [1099] *Alosa fallax fallax* (Twaite Shad) [1103] *Salmo salar* (Salmon) [1106]	No LSE	No LSE	**LSE**	No LSE	No LSE	No LSE	No LSE
			Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Old sessile oak woods with Ilex and Blechnum							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] *Trichomanes speciosum* (Killarney Fern) [1421] *Austropotamobius pallipes* (White-clawed Crayfish) [1092] *Lampetra planeri* (Brook Lamprey) [1096]							
River Barrow and River Nore SAC	002162	6.5	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Reefs [1170] *Salicornia* and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Lutra lutra* (Otter) [1355] *Petromyzon marinus* (Sea Lamprey) [1095] *Lampetra fluviatilis* (River Lamprey) [1099]	No LSE	No LSE	**LSE**	No LSE	No LSE	No LSE	No LSE

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Alosa fallax fallax (Twaite Shad) [1103] *Salmo salar* (Salmon) [1106]							
			Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] European dry heaths [4030] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Petrifying springs with tufa formation (Cratoneurion) [7220] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and Frax*inus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] *Trichomanes speciosum* (Killarney Fern) [1421] *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016] *Margaritifera durrovensis* (Nore Pearl Mussel) [1990] *Austropotamobius pallipes* (White-clawed Crayfish) [1092]							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Lampetra planeri (Brook Lamprey) [1096]							
Lower River Suir SAC	002137	37.5	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Taxus baccata woods of the British Isles [91J0] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Austropotamobius pallipes* (White-clawed Crayfish) [1092] *Lampetra planeri* (Brook Lamprey) [1096] *Lutra lutra* (Otter) [1355]							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Lampetra planeri (Brook Lamprey) [1096] *Lampetra fluviatilis* (River Lamprey) [1099] *Alosa fallax fallax* (Twaite Shad) [1103] *Salmo salar* (Salmon) [1106]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
Lower River Shannon SAC	002165	76 (straight line distance, >300km for marine connectivity)	Sandbanks which are slightly covered by sea water all the time [1110] Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] *Salicornia* and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Petromyzon marinus* (Sea Lamprey) [1095] *Lampetra planeri* (Brook Lamprey) [1096] *Lampetra fluviatilis* (River Lamprey) [1099] *Salmo salar* (Salmon) [1106] *Lutra lutra* (Otter) [1355]							
			Tursiops truncatus (Common Bottlenose Dolphin) [1349]	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
Saltee Islands SAC	000707	78	Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Submerged or partially submerged sea caves [8330]							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Halichoerus grypus (Grey Seal) [1364]	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
Slaney River Valley SAC	000781	96	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Lampetra planeri* (Brook Lamprey) [1096] *Lutra lutra* (Otter) [1355]							
			Petromyzon marinus (Sea Lamprey) [1095] *Lampetra planeri* (Brook Lamprey) [1096]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Lampetra fluviatilis (River Lamprey) [1099] *Alosa fallax fallax* (Twaite Shad) [1103] *Salmo salar* (Salmon) [1106]							
			Phoca vitulina (Harbour Seal) [1365]	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
Roaring water Bay and Islands SAC	000101	107	Large shallow inlets and bays [1160] Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030] Submerged or partially submerged sea caves [8330] *Lutra lutra* (Otter) [1355]							
			Phocoena phocoena (Harbour Porpoise) [1351] *Halichoerus grypus* (Grey Seal) [1364]	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
Blasket Islands SAC	002172	179	Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030] Submerged or partially submerged sea caves [8330] *Halichoerus grypus* (Grey Seal) [1364]							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Phocoena phocoena (Harbour Porpoise) [1351]	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
Rockabill to Dalkey Island SAC	003000	189	Reefs [1170]							
			Phocoena phocoena (Harbour Porpoise) [1351]	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
West Connacht Coast SAC	002998	228	*Tursiops truncatus* (Common Bottlenose Dolphin) [1349]	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
UK										
Isles of Scilly complex SAC	UK0013694	96	Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Reefs Shore dock							
			Grey seal	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
Bristol Channel Approaches /Dynesfeydd	UK0030396	132	Harbour Porpoise	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
Mor Hafren SAC										
Pembrokeshire Marine / Sir Benfro Forol SAC	UK0013116	134	Estuaries Large shallow inlets and bays Reefs Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Coastal lagoons Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Submerged or partially submerged sea caves Shore dock Sea lamprey River lamprey Allis shad Twaite shad Otter							
			Grey seal	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
West Wales Marine /	UK0030397	146	Harbour Porpoise	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
Gorllewin Cymru Forol SAC										
Cardigan Bay / Bae Ceredigion SAC	UK0012712	194	Sandbanks which are slightly covered by seawater all the time Reefs Submerged or partially submerged sea caves Sea lamprey River lamprey Grey seal							
			Bottlenose dolphin	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC	UK0013117	222	Sandbanks which are slightly covered by sea water all the time Estuaries* Coastal lagoons Large shallow inlets and bays Reefs Mudflats and sandflats not covered by seawater at low tide *Salicornia* and other annuals colonizing mud and sand Atlantic salt meadows (Glauco-							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Puccinellietalia)* Submerged or partially submerged sea caves Otter Grey seal							
			Bottlenose dolphin	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
North Anglesey Marine / Gogledd Mon Forol SAC	UK0030 398	234	Harbour porpoise	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
North Channel SAC	UK0030 399	293	Harbour porpoise	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
France										
ZSC Anse de Goulven, dunes de Keremma	FR5300 016	308	Grey seal (in-combination only) Harbour seal (in-combination only)							**LSE**
ZSC Abers – Côtes des	FR5300 017	292	Harbour porpoise Bottlenose dolphin	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
Légendes			Grey seal (in-combination only) Harbour seal (in-combination only)							**LSE**
Baie de Morlaix	FR5300 015	314	Harbour porpoise	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
			Grey seal (in-combination only)							**LSE**
Mers Celtiques - Talus du golfe de Gascogne	FR5302 015	195	Harbour porpoise Bottlenose dolphin	No LSE	No LSE	No LSE	**LSE**	No LSE	No LSE	**LSE**
SPAs										
Ballymacoda Bay SPA	004023	1	Teal (*Anas crecca*) [A052] Ringed Plover (*Charadrius hiaticula*) [A137] Grey Plover (*Pluvialis squatarola*) [A141] Sanderling (*Calidris alba*) [A144] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Common Gull (*Larus canus*) [A182] Lesser Black-backed Gull (*Larus fuscus*) [A183]	**LSE**	No LSE	**LSE**	**LSE**	No LSE	No LSE	**LSE**

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Wigeon (*Anas penelope*) [A050] Golden Plover (*Pluvialis apricaria*) [A140] Lapwing (*Vanellus vanellus*) [A142] Dunlin (*Calidris alpina)* [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Redshank (*Tringa totanus*) [A162] Turnstone (*Arenaria interpres*) [A169] Wetland and Waterbirds [A999]							
Blackwater Estuary SPA	004028	2.6	Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Wigeon (*Anas penelope*) [A050] Golden Plover (*Pluvialis apricaria*) [A140] Lapwing (*Vanellus vanellus*) [A142] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Redshank (*Tringa totanus*) [A162] Wetland and Waterbirds [A999]	**LSE**	No LSE	**LSE**	**LSE**	No LSE	No LSE	**LSE**
Ballycotton Bay SPA	004022	12	Common Gull (*Larus canus*) [A182] Lesser Black-backed Gull (*Larus fuscus*) [A183] Teal (*Anas crecca*) [A052] Ringed Plover (*Charadrius hiaticula*) [A137] Golden Plover (*Pluvialis apricaria*) [A140]	No LSE	No LSE	**LSE**	No LSE	No LSE	No LSE	No LSE

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Turnstone (*Arenaria interpres*) [A169] Wetland and Waterbirds [A999]							
Cork Harbour SPA	004030	21	Cormorant (*Phalacrocorax carbo*) [A017] Oystercatcher (*Haematopus ostralegus*) [A130] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius* arq*uata*) [A160] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Common Gull (*Larus canus*) [A182] Lesser Black-backed Gull (*Larus fuscus*) [A183] Little Grebe (*Tachybaptus ruficollis*) [A004] Great Crested Grebe (*Podiceps cristatus)* [A005] Grey Heron (*Ardea cinerea*) [A028] Shelduck (*Tadorna tadorna*) [A048] Wigeon (*Anas penelope*) [A050] Teal (*Anas crecca*) [A052] Pintail (*Anas acuta*) [A054]	No LSE	No LSE	**LSE**	No LSE	No LSE	No LSE	No LSE

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Shoveler (*Anas clypeata*) [A056] Red-breasted Merganser (*Mergus serrator*) [A069] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Redshank (*Tringa totanus*) [A162] Common Tern (*Sterna hirundo*) [A193] Wetland and Waterbirds [A999]							
Cruagh Island SPA	004170	31	Manx Shearwater (*Puffinus puffinus*) [A013]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Barnacle Goose (*Branta leucopsis*) [A045]							
Helvick Head to Ballyquin SPA	004192	75	Cormorant (*Phalacrocorax carbo*) [A017] Herring Gull (*Larus argentatus*) [A184] Kittiwake (*Rissa tridactyla*) [A188]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Peregrine (*Falco peregrinus*) [A103] Chough (*Pyrrhocorax pyrrhocorax*) [A346]							
Saltee Islands SPA	004002	84	Fulmar (*Fulmarus glacialis*) [A009] Gannet (*Morus bassanus*) [A016] Lesser Black-backed Gull (*Larus fuscus*)	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			[A183] Kittiwake (*Rissa tridactyla*) [A188] Puffin (*Fratercula arctica*) [A204]							
			Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Herring Gull (*Larus argentatus*) [A184] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200]							
The Bull and The Cow Rocks SPA	004066	101	Storm Petrel (*Hydrobates pelagicus*) [A014] Gannet (*Morus bassanus*) [A016]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Puffin (*Fratercula arctica*) [A204]							
Wexford Harbour and Slobs SPA	004076	102	Lesser Black-backed Gull (*Larus fuscus*) [A183]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Little Grebe (*Tachybaptus ruficollis*) [A004] Great Crested Grebe (*Podiceps cristatus*) [A005] Cormorant (*Phalacrocorax carbo*) [A017] Grey Heron (*Ardea cinerea*) [A028] Bewick's Swan (*Cygnus columbianus bewickii*) [A037] Whooper Swan (*Cygnus cygnus*) [A038] Light-bellied Brent Goose (*Branta bernicla*							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			hrota) [A046] Shelduck (*Tadorna tadorna*) [A048] Wigeon (*Anas penelope*) [A050] Teal (*Anas crecca*) [A052] Mallard (*Anas platyrhynchos*) [A053] Pintail (*Anas acuta*) [A054] Scaup (*Aythya marila*) [A062] Goldeneye (*Bucephala clangula*) [A067] Red-breasted Merganser (*Mergus serrator*) [A069] Hen Harrier (*Circus cyaneus*) [A082] Coot (*Fulica atra*) [A125] Oystercatcher (*Haematopus ostralegus*) [A130] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Knot (*Calidris canutus*) [A143] Sanderling (*Calidris alba*) [A144] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa totanus*) [A162] Black-headed Gull (*Chroicocephalus*							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			ridibundus) [A179] Lesser Black-backed Gull (*Larus fuscus*) [A183] Little Tern (*Sterna albifrons*) [A195] Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395] Wetland and Waterbirds [A999]							
Mid-Waterford Coast SPA	004193	104	Herring Gull (*Larus argentatus*) [A184]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Cormorant (*Phalacrocorax carbo*) [A017] Peregrine (*Falco peregrinus*) [A103] Chough (*Pyrrhocorax pyrrhocorax*) [A346]							
Beara Peninsula SPA	004155	118	Fulmar (*Fulmarus glacialis*) [A009]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Chough (*Pyrrhocorax pyrrhocorax*) [A346]							
Cliffs of Moher SPA	004005	156	Fulmar (*Fulmarus glacialis*) [A009]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200] Puffin (*Fratercula arctica*) [A204] Chough (*Pyrrhocorax pyrrhocorax*) [A346]							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
Puffin Island SPA	004003	175	Fulmar (*Fulmarus glacialis*) [A009] Manx Shearwater (*Puffinus puffinus*) [A013] Storm Petrel (*Hydrobates pelagicus*) [A014]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Lesser Black-backed Gull (*Larus fuscus*) [A183] Razorbill (*Alca torda)* [A200] Puffin (*Fratercula arctica*) [A204]							
Magharee Islands SPA	004125	177	Storm Petrel (*Hydrobates pelagicus*) [A014]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Shag (*Phalacrocorax aristotelis*) [A018] Barnacle Goose (*Branta leucopsis*) [A045] Common Gull (*Larus canus*) [A182] Common Tern (*Sterna hirundo*) [A193] Arctic Tern (*Sterna paradisaea*) [A194] Little Tern (*Sterna albifrons*) [A195]							
Blasket Islands SPA	004008	182	Fulmar (*Fulmarus glacialis*) [A009] Manx Shearwater (*Puffinus puffinus*) [A013] Storm Petrel (*Hydrobates pelagicus*) [A014]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Shag (*Phalacrocorax aristotelis*) [A018] Lesser Black-backed Gull (*Larus fuscus*) [A183] Herring Gull (*Larus argentatus*) [A184]							

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Kittiwake (*Rissa tridactyla*) [A188] Arctic Tern (*Sterna paradisaea*) [A194] Razorbill (*Alca torda*) [A200] Puffin (*Fratercula arctica*) [A204] Chough (*Pyrrhocorax pyrrhocorax*) [A346]							
Skelligs SPA	004007	183	Fulmar (*Fulmarus glacialis*) [A009] Manx Shearwater (*Puffinus puffinus*) [A013] Storm Petrel (*Hydrobates pelagicus*) [A014] Gannet (*Morus bassanus*) [A016]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Puffin (*Fratercula arctica*) [A204]							
High Island, Inishshark and Davillaum SPA	004144	198	Fulmar (*Fulmarus glacialis*) [A009]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Barnacle Goose (*Branta leucopsis*) [A045] Arctic Tern (*Sterna paradisaea*) [A194]							
Duvillaun Islands SPA	004111	218	Fulmar (*Fulmarus glacialis*) [A009] Storm Petrel (*Hydrobates pelagicus*) [A014]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Barnacle Goose (*Branta leucopsis*) [A045]							
Kerry Head SPA	004189	221	Fulmar (*Fulmarus glacialis*) [A009]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
			Chough (*Pyrrhocorax pyrrhocorax*) [A346]							
Stags of Broad Haven SPA	004072	224	Storm Petrel (*Hydrobates pelagicus*) [A014] Leach's Storm-petrel (*Oceanodroma leucorhoa*) [A015]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
Lambay Island SPA	004069	225	Fulmar (*Fulmarus glacialis*) [A009]							
			Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Greylag Goose (*Anser anser*) [A043] Lesser Black-backed Gull (*Larus fuscus*) [A183] Herring Gull (*Larus argentatus*) [A184] Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge)* [A199] Razorbill (*Alca torda*) [A200] Puffin (*Fratercula arctica*) [A204]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
Deenish Islands and Scariff Island SPA	004175	241	Fulmar (*Fulmarus glacialis*) [A009] Manx Shearwater (*Puffinus puffinus*) [A013] Storm Petrel (*Hydrobates pelagicus*) [A014]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Lesser Black-backed Gull (*Larus fuscus*) [A183] Arctic Tern (*Sterna paradisaea*) [A194]							
Iveragh	004154	266	Fulmar (*Fulmarus glacialis*) [A009]	No	No	No	No	No	No	No

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
Peninsula SPA				LSE	LSE	LSE	LSE	LSE	LSE	LSE
			Peregrine (*Falco peregrinus*) [A103] Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Chough (*Pyrrhocorax pyrrhocorax*) [A346]							
Clare Islands SPA	004136	284	Fulmar (*Fulmarus glacialis*) [A009]	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
			Shag (*Phalacrocorax aristotelis*) [A018] Common Gull (*Larus canus*) [A182] Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200] Chough (*Pyrrhocorax pyrrhocorax*) [A346]							
UK										
Grassholm SPA	UK9014041	155	Gannet	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
Skomer, Skokholm and the seas off Pembrokeshire SPA	UK9014051	103	Manx shearwater Storm petrel Puffin Lesser black-backed gull	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE

Site name	Site code	Distance to application area (km)	Qualifying interests	Habitat loss/degradation	Suspension and deposition of sediments	Accidental loss or dispersal of existing pollutants	Disturbance	Collision risk	EMF effects	In-combination effects
Isles of Scilly SPA	UK9020 288	103	Lesser black-backed gull Storm petrel	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
St Kilda SPA	UK9001 031	649	Manx shearwater	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
Rum SPA	UK9001 341	559	Manx shearwater	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
Copeland Islands SPA	UK9001 341	342	Manx shearwater	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
Irish Sea Front SPA	UK9020 328	264	Manx shearwater	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
France										
Baie de Morlaix SPA	FR5310 073	314	Storm petrel	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE
Mers Celtiques - Talus du golfe de Gascogne SPA	FR5212 016	195	Fulmar Gannet Leach's storm petrel Manx shearwater Storm petrel	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE	No LSE

3.5 In-combination effects

Section 1.9.3 of the applicant's AA Screening and NIS describes the methodology used to identify in-combination effects and other plans or projects for inclusion. Existing activities in the area of the Proposed Development including shipping and commercial fishing activities are unlikely to change significantly during the duration of the installation activities (where vessel presence is directly relevant) and is therefore considered to be part of the baseline situation.

Intra-plan
With respect to sites with marine mammal qualifying interests, the applicant in Table 2.7 of the AA Screening and AA identified the potential for in-combination effects with respect to disturbance / displacement due to aural and visual stimuli (and collision risk, although note the comment in Section 3.2 that collision risk in this instance is not considered to represent an LSE). It is thought that this relates to underwater noise, primarily generated by survey activities, but including vessel noise and noise generated by cable laying activities in other elements of the Celtic Interconnector project (i.e. in UK and French waters) as potentially acting in-combination. The sequential nature of the cable laying process is likely to reduce the potential for in-combination effects.

Other plans and projects

OREDP
Section 3.5.2 of the NIS indicates that the Offshore Renewable Energy Development Plan (OREDP) published in 2014, with an interim review in 2018, identified the need for sustainable development of offshore wind and tidal energy and examined three different scenarios for delivery of increasing amounts of offshore energy. Whilst this plan does not provide locations of potential sites it does consider the potential capacity of regional marine and coastal areas and further considers potential cumulative impacts with other existing projects in Irish Waters. Through a Strategic Environmental Assessment (SEA) and associated screening for impacts on environmental receptors (including fish, shellfish, marine mammals, seabirds and marine reptiles) and European Sites an assessment has been made by the Department of the Environment, Climate and Communications with regard to the potential impacts of a significant increase in offshore development in Irish waters.

Given the time that would be needed to develop the hypothetical capacity proposed in OREDP there would be no temporal overlap with the Proposed Development and therefore no in combination effects on European Sites.

Inis Ealga Marine Energy Park
This project relates to an offshore floating wind energy project off the coast of Cork which is at an early optioneering stage of development. There is an intersection between the submarine cable route of the Celtic Interconnector and the indicative installation corridor identified for the Inis Ealga Marine Park.

No indicative timeframe is available to determine whether works will run in parallel to the construction phase of the Celtic Interconnector project.

The onshore transmission connection proposals are not yet available. Following the design of substation, the project will be subject to the provisions of the Directive in its own right, i.e. requiring screening for Appropriate Assessment.

3.6 Transboundary effects

A number of potential transboundary effects were identified in Table 3.2 above with respect to disturbance / displacement due to aural and visual stimuli of marine mammal qualifying features from Natura 2000 sites in the UK and France (see Section 3.7 below).

3.7 Screening conclusion

Finding of no significant effects statement:
The applicant provides a reasonably clear explanation of the basis for site selection based on the nature of the potential effects, their likely zone of influence and the sensitivity of relevant qualifying interests.
SACs
LSE was discounted for the following SACs (and qualifying interests): • Blackwater River (Cork/ Waterford) SAC (Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation, Old sessile oak woods with Ilex and Blechnum in the British Isles, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae), Killarney Fern, White-clawed Crayfish, Brook Lamprey) • River Barrow and River Nore SAC (Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation, European dry heaths, Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels, Petrifying springs with tufa formation (Cratoneurion), Old sessile oak woods with Ilex and Blechnum in the British Isles, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae), Killarney Fern, Desmoulin's Whorl Snail, Nore Pearl Mussel, White-clawed Crayfish, Brook Lamprey) • Lower River Suir SAC (all qualifying interests) • Lower River Shannon SAC (all qualifying interests except Common Bottlenose Dolphin) • Saltee Islands SAC (all qualifying interests except Grey seal) • Slaney River Valley SAC (all qualifying interests except Harbour seal) • Roaringwater Bay and Islands SAC (all qualifying interests except Harbour porpoise, Grey seal) • Blasket Islands SAC (all qualifying interests except Harbour porpoise) • Rockabill to Dalkey Island SAC (all qualifying interests except Harbour porpoise) **UK** • Isles of Scilly complex SAC (all qualifying interests except Grey seal) • Pembrokeshire Marine / Sir Benfro Forol SAC (all qualifying interests except Grey seal) • Cardigan Bay / Bae Ceredigion SAC (all qualifying interests except Bottlenose dolphin) • Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (all qualifying interests except Bottlenose dolphin) It is accepted that likely significant effects can be discounted for these sites (and their qualifying interests).

SPAs
LSE was discounted for the following SPAs (and qualifying interests): • Cruagh Island SPA (all qualifying interests) • Helvick Head to Ballyquin SPA (all seabird qualifying interests) • Saltee Islands SPA (all qualifying interests) • The Bull and The Cow Rocks SPA (all qualifying interests) • Wexford Harbour and Slobs SPA (all qualifying interests) • Mid-Waterford Coast SPA (all qualifying interests) • Beara Peninsula SPA (all qualifying interests) • Cliffs of Moher SPA (all qualifying interests) • Puffin Island SPA (all qualifying interests) • Magharee Islands SPA (all qualifying interests) • Blasket Islands SPA (all qualifying interests) • Skelligs SPA (all qualifying interests) • High Island, Inishshark and Davillaum SPA (all qualifying interests) • Duvillaun Islands SPA (all qualifying interests) • Kerry Head SPA (all qualifying interests) • Stags of Broad Haven SPA (all qualifying interests) • Lambay Island SPA (all qualifying interests) • Deenish Islands and Scariff Island SPA (all qualifying interests) • Iveragh Peninsula SPA (all qualifying interests) • Clare Islands SPA (all qualifying interests) **UK** • Grassholm SPA (all qualifying interests) • Skomer, Skokholm and the seas off Pembrokeshire SPA (all qualifying interests) • Isles of Scilly SPA (all qualifying interests) • St Kilda SPA (all qualifying interests) • Rum SPA (all qualifying interests) • Copeland Islands SPA (all qualifying interests) • Irish Sea Front SPA (all qualifying interests) **France** • Baie de Morlaix SPA (all qualifying interests) • Mers Celtiques - Talus du golfe de Gascogne SPA (all qualifying interests) It is accepted that likely significant effects can be discounted for these sites and their qualifying interests.
Consultation
The consultation feedback from the prescribed bodies and the public to consultation (11 October – 6 December 2021) is provided in Tables 1.1 and 1.2. Relevant observations were made by the Marine Institute, IFI, NPWS, and the DHLGH Marine Advisor, concluding generally that they agreed with the Screening for AA and its conclusions.
Screening determination
SACs

LSE with respect to disturbance and accidental events (and in-combination with other elements of the Celtic Interconnector project) could not be ruled out for the following sites (and qualifying interests):

- Blackwater River (Cork/ Waterford) SAC (Estuaries, Mudflats and sandflats not covered by seawater at low tide, Perennial vegetation of stony banks, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows (Glauco-Puccinellietalia maritimae), Mediterranean salt meadows (Juncetalia maritimi), Freshwater Pearl Mussel, Otter, Sea Lamprey, River Lamprey, Twaite Shad, Salmon)
- River Barrow and River Nore SAC (Estuaries, Mudflats and sandflats not covered by seawater at low tide, Reefs, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows (Glauco-Puccinellietalia maritimae), Mediterranean salt meadows (Juncetalia maritimi), Freshwater Pearl Mussel, Otter, Sea Lamprey, River Lamprey, Twaite Shad, Salmon)
- Lower River Shannon SAC (Common Bottlenose Dolphin)
- Saltee Islands SAC (Grey seal)
- Slaney River Valley SAC (Harbour seal)
- Roaringwater Bay and Islands SAC (Harbour porpoise, Grey seal)
- Blasket Islands SAC (Harbour porpoise)
- Rockabill to Dalkey Island SAC (Harbour porpoise)
- West Connacht Coast SAC (Common Bottlenose Dolphin)

UK

- Isles of Scilly complex SAC (Grey seal)
- Bristol Channel Approaches / Dynesfeydd Mor Hafren SAC (Harbour porpoise)
- Pembrokeshire Marine / Sir Benfro Forol SAC (Grey seal)
- West Wales Marine / Gorllewin Cymru Forol SAC (Harbour porpoise)
- Cardigan Bay / Bae Ceredigion SAC (Bottlenose dolphin)
- Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (Bottlenose dolphin)
- North Anglesey Marine / Gogledd Mon Forol SAC (Harbour porpoise)
- North Channel SAC (Harbour porpoise)

France

- ZSC Anse de Goulven, dunes de Keremma (Grey seal, Harbour seal – in-combination effects only)
- ZSC Abers – Côtes des Légendes (Harbour porpoise, Bottlenose dolphin; Grey seal and Harbour seal – in-combination effects only)
- Baie de Morlaix (Harbour porpoise; Grey seal – in-combination effects only)
- Mers Celtiques - Talus du golfe de Gascogne (Harbour porpoise, Bottlenose dolphin)

It is accepted that likely significant effects cannot be discounted for these sites and qualifying interests and that Stage 2 Appropriate Assessment is required.

SPAs

LSE with respect to habitat loss/degradation, disturbance, accidental events and in-combination effects could not be ruled out for the following sites (and qualifying interests):

- Ballymacoda Bay SPA (all qualifying interests)
- Blackwater Estuary SPA (all qualifying interests)

- Ballycotton Bay SPA (all qualifying interests)
- Cork Harbour SPA (all qualifying interests)

It is accepted that likely significant effects cannot be discounted for these sites and qualifying interests and that Stage 2 Appropriate Assessment is required.

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