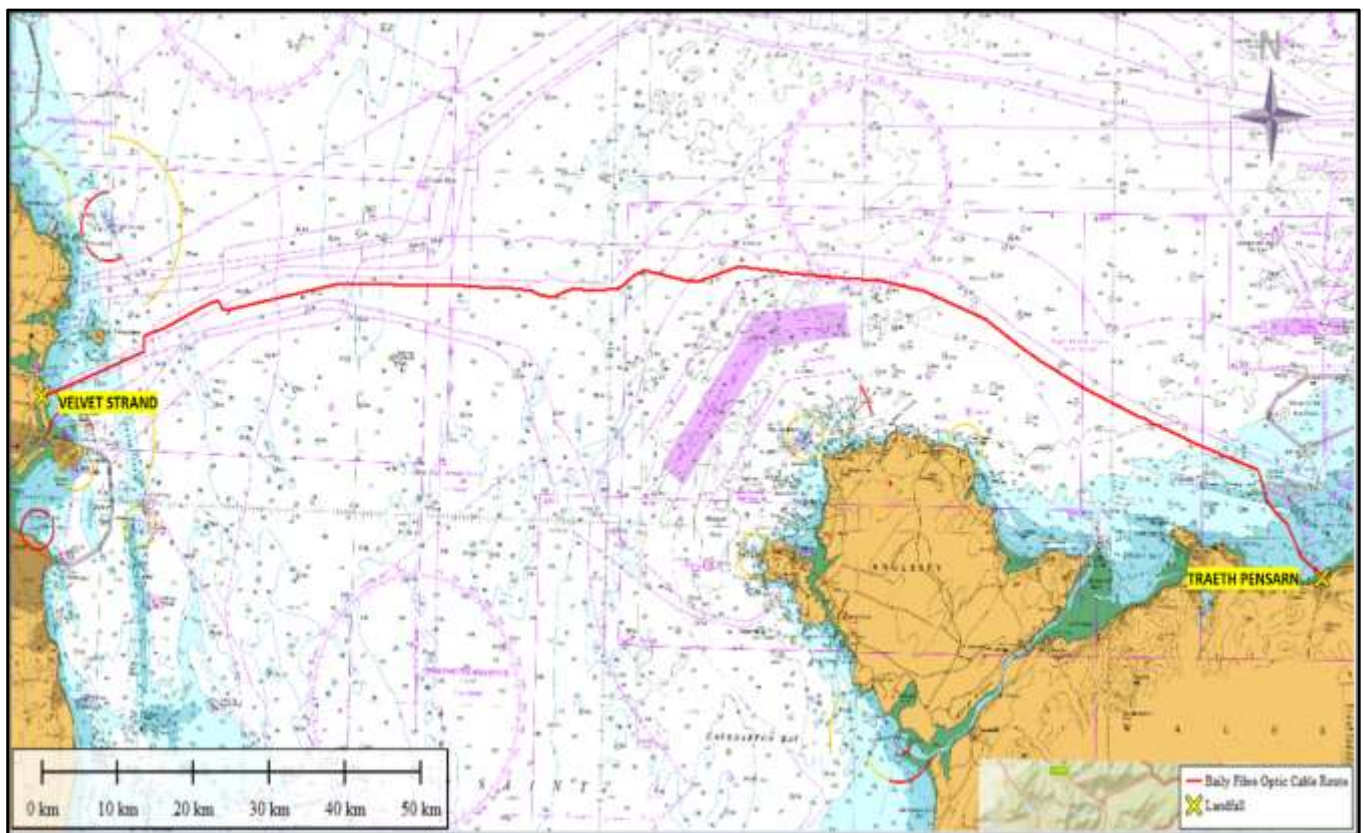


Supporting Information: Screening for Appropriate Assessment for Marine Survey and Site Investigation Works for a Fibre Optic Cable at Velvet Strand, Portmarnock, Co. Dublin.



01st September 2026

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1. Introduction

An Appropriate Assessment is an assessment of the potential effects of a proposed project or plan, on its own, or in combination with other plans or projects, on one or more Natura 2000 sites. Natura 2000 sites are those sites designated as Special Areas of Conservation (SAC) or Special Protection Areas (SPA).

The AA Screening stage examines the likely significant effects of a plan or project, either on its own, or in combination with other plans and projects, upon a Natura 2000 site and considers whether, on the basis of objective scientific evidence, it can be concluded that there are not likely to be significant effects on any European site, in view of best scientific knowledge and the conservation objectives of the relevant European sites.

The following Supporting Information for Screening for Appropriate Assessment Report (SISAA) has been prepared by **Altamar Ltd.** at the request of **euNetworks Fiber UK Limited**, as part of this Maritime Usage Licence (MUL) application. The MUL application relates to the proposed marine survey and site investigation works for an Ireland/UK marine fibre optic cable within the Irish Exclusive Economic Zone (EEZ).

1.1 Altamar Ltd.

Since its inception in 2001, Altamar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altamar, is an Environmental Scientist and Marine Biologist with 32 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture). Bryan Deegan carried out all elements of this SISAA. Bryan has been involved in eleven international sub marine fibre optic cable projects, many of which involved Horizontal Directional Drills within designated sites and all works required ecological supervision.

2. Background to the Appropriate Assessment

The Habitats Directive 92/43/EEC (together with the Birds Directive (2009/1477/EC)) forms the cornerstone of Europe's nature conservation policy. The Directive protects over 1000 animals and plant species and over 200 "habitat types" which are of European importance. In the Habitats Directive, Articles 3 to 9 provide the legislative means to protect habitats and species of European Community interest through the establishment and conservation of an EU-wide network of conservation sites (Natura, 2000). These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive), Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment:

"Any plan or project not directly connected with or necessary to the management of the [EUROPEAN] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the component 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."

As outlined in “Managing European sites, The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC” (European Commission, 21 November 2018) *“The purpose of the appropriate assessment is to assess the implications of the plan or project in respect of the site’s conservation objectives, either individually or in combination with other plans or projects. The conclusions should enable the competent authorities to ascertain whether the plan or project will adversely affect the integrity of the site concerned. The focus of the appropriate assessment is therefore specifically on the species and/or the habitats for which the European site is designated.”*

As outlined in the EC guidance document on Article 6(4) (January 2007)¹:

“Appropriate assessments of the implications of the plan or project for the site concerned must precede its approval and take into account the cumulative effects which result from the combination of that plan or project with other plans or projects in view of the site's conservation objectives. This implies that all aspects of the plan or project which can, either individually or in combination with other plans or projects, affect those objectives must be identified in the light of the best scientific knowledge in the field.

Assessment procedures of plans or projects likely to affect European sites should guarantee full consideration of all elements contributing to the site integrity and to the overall coherence of the network, both in the definition of the baseline conditions and in the stages leading to identification of potential impacts, mitigation measures and residual impacts. These determine what has to be compensated, both in quality and quantity. Regardless of whether the provisions of Article 6(3) are delivered following existing environmental impact assessment procedures or other specific methods, it must be ensured that:

- *Article 6(3) assessment results allow full traceability of the decisions eventually made, including the selection of alternatives and any imperative reasons of overriding public interest.*
- *The assessment should include all elements contributing to the site’s integrity and to the overall coherence of the network as defined in the site’s conservation objectives and Standard Data Form, and be based on best available scientific knowledge in the field. The information required should be updated and could include the following issues:*
 - *Structure and function, and the respective role of the site’s ecological assets;*
 - *Area, representativity and conservation status of the priority and nonpriority habitats in the site;*
 - *Population size, degree of isolation, ecotype, genetic pool, age class structure, and conservation status of species under Annex II of the Habitats Directive or Annex I of the Birds Directive present in the site;*
 - *Role of the site within the biographical region and in the coherence of the European network; and,*
 - *Any other ecological assets and functions identified in the site.*
- *It should include a comprehensive identification of all the potential impacts of the plan or project likely to be significant on the site, taking into account cumulative impacts and other impacts likely to arise as a result of the combined action of the plan or project under assessment and other plans or projects.*
- *The assessment under Article 6(3) applies the best available techniques and methods, to estimate the extent of the effects of the plan or project on the biological integrity of the site(s) likely to be damaged.*
- *The assessment provides for the incorporation of the most effective mitigation measures into the plan or project concerned, in order to avoid, reduce or even cancel the negative impacts on the site.*
- *The characterisation of the biological integrity and the impact assessment should be based on the best possible indicators specific to the European assets which must also be useful to monitor the plan or project implementation.”*

¹ European Commission. (2007). Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission;

3. Stages of the Appropriate Assessment

This SISAA was undertaken in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (EC, 2001), Part XAB of the Planning and Development Act 2000, as amended, in addition to the December 2009 publication from the Department of Environment, Heritage and Local Government; 'Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities' and the European Communities (Birds and Natural Habitats) Regulations 2011. In order to comply with the above Guidelines and legislation, the Appropriate Assessment process must be structured as follows:

1) Screening stage:

- Description of plan or project, and local site or plan area characteristics;
- Identification of relevant European sites, and compilation of information on their qualifying interests and conservation objectives
- Identification and description of individual in combination effects likely to result from the proposed project;
- Assessment of the likely significance of the effects identified above. Exclusion of sites where it can be objectively concluded that there will be no likely significant effects; and, Conclusions

2) Appropriate Assessment (Natura Impact Statement):

- Description of the European sites that will be considered further;
- Identification and description of potential adverse impacts on the conservation objectives of these sites likely to occur from the project or plan; and,
- Mitigation Measures that will be implemented to avoid, reduce or remedy any such potential adverse impacts
- Assessment as to whether, following the implementation of the proposed mitigation measures, it can be concluded, beyond all reasonable scientific doubt, that there will be no adverse impact on the integrity of the relevant European Site in light of its conservation objectives"
- Conclusions.

If it can be demonstrated during the AA screening phase (Stage 1), that the proposed project will not have a significant effect, whether alone or in combination with other plans or projects, on the conservation objectives of a Natura 2000 site, then no further AA (Stage 2) will be required. It is important to note that there is a requirement to apply a precautionary approach to AA screening. Therefore, where effects are possible, certain or unknown at the screening stage, AA will be required.

In addition, it should be noted that Article 6(3) of the Habitats Directive must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an AA of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site.

4. Description of the Proposed Project

4.1 Management of the Site

The plan or project is not directly connected with or necessary to the management of Natura 2000 sites.

4.2 Background

The applicant plans to investigate the feasibility of constructing a new subsea telecoms cable system, Baily, linking Ireland to the United Kingdom, from a landfall at Velvet Strand, Dublin to a landfall at Traeth Pensarn, Wales as shown in Figure 1 below. The applicant intends to undertake the survey campaign at the proposed Licence Application Area within the IRL Exclusive Economic Zone (EEZ) in order to inform the location and design of the proposed cable route and landfall.

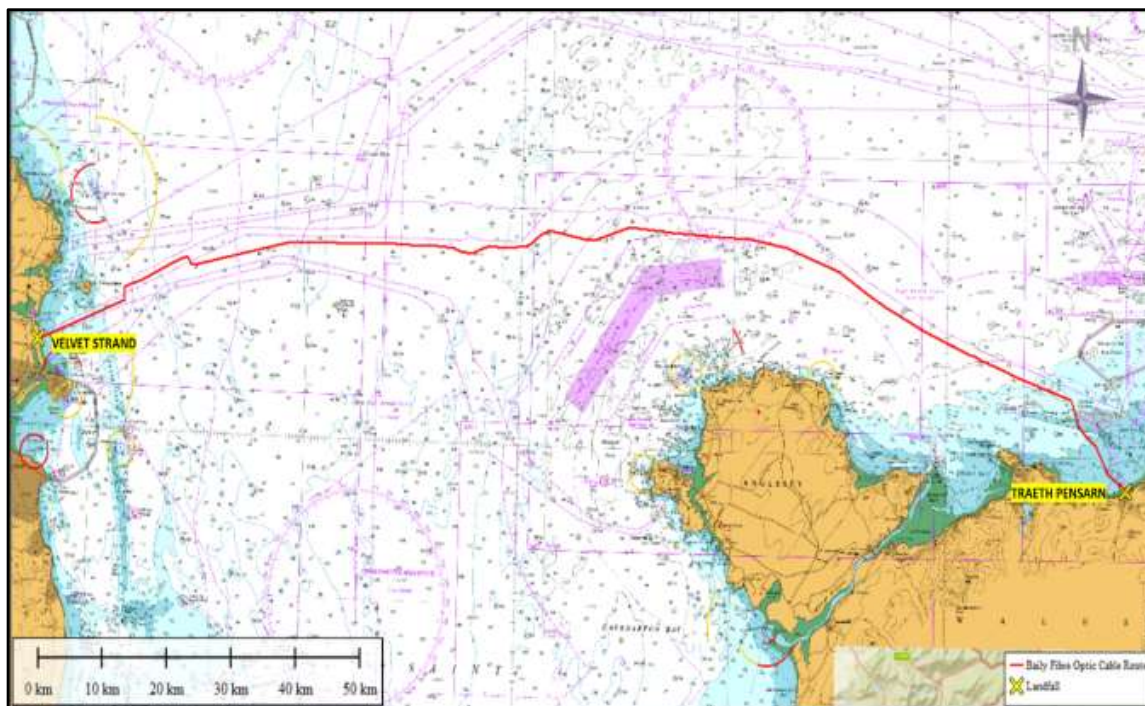


Figure 1. Proposed Baily Telecoms Cable System (source: MDM)

The works will be carried out predominantly by remote seabed mapping techniques (geophysical survey) with some selective sampling of the upper layers of the seabed (geotechnical survey). Once the results of the survey are obtained and analysed a preferred route corridor will be determined, design and method statements will be developed, and a final Route Position List (RPL) will be defined as part of further submissions for a Maritime Area Consent and Planning consent for the installation works.

PROPOSED SURVEY ROUTE AND SURVEY LICENCE APPLICATION AREA IN IRISH TERRITORIAL WATERS

Licence Application Area

The Licence Application Area is situated off the coast of North Dublin (Figure 2). The licenced survey corridor has length of approx. 60 km and a total area of 3000 hectares within EEZ limits. A cable route corridor of approx. 500m width will be surveyed within the licence application area.

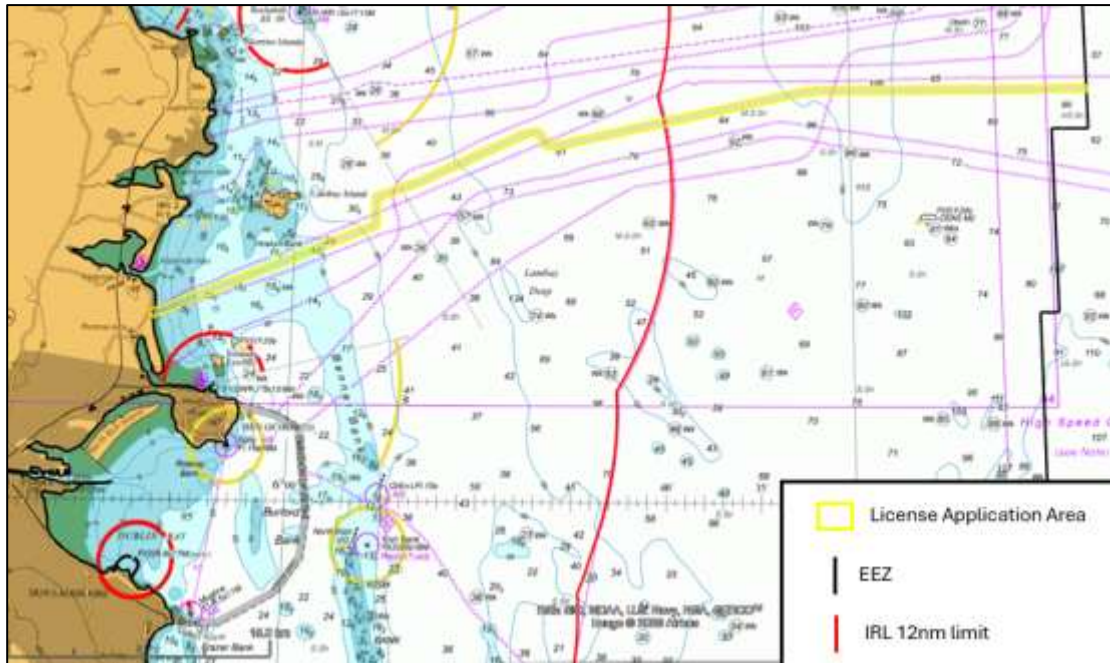


Figure 2. Proposed Survey Licence Application Area (Source: MDM)



Figure 3. Landfall Location (Source: MDM)

Landfall & Inshore Survey Corridors

The Licence application area covers the proposed landfall option at Portmarnock. The location of the proposed landfall and proposed survey route is shown above in Figure 3.

Portmarnock

The Licence application area covers potential landfall at Portmarnock. At Portmarnock the landfall location is adjacent to the Portmarnock Resort & Jameson Golf Links. The Route Position List represents the survey corridor and encompasses the landfall area. If required, access to the beach and intertidal zone at the landfall for vehicles or equipment will be via the concrete public slipway off the R106 Coast Road (Figure 4).

The Route Position List for the Licence Application Area is presented in Table 1.

Table 1. Survey Licence Area RPL (Source: MDM)

Idx	Latitude	Longitude	Idx	Latitude	Longitude
1	53° 25' 42.1995" N	6° 07' 26.5107" W	30	53° 33' 27.3736" N	5° 17' 4.8869" W
2	53° 26' 8.1669" N	6° 05' 41.7828" W	31	53° 33' 26.6720" N	5° 18' 58.5380" W
3	53° 26' 34.1083" N	6° 03' 57.0203" W	32	53° 33' 25.7897" N	5° 20' 52.2245" W
4	53° 27' 0.0170" N	6° 02' 12.2186" W	33	53° 33' 25.2761" N	5° 22' 45.9216" W
5	53° 27' 25.7409" N	6° 00' 27.2726" W	34	53° 33' 24.7323" N	5° 24' 39.6194" W
6	53° 27' 51.4567" N	5° 58' 42.3047" W	35	53° 33' 24.1585" N	5° 26' 33.3177" W
7	53° 28' 16.9428" N	5° 56' 57.1633" W	36	53° 33' 23.5547" N	5° 28' 27.0166" W
8	53° 28' 50.0408" N	5° 55' 27.5673" W	37	53° 33' 22.9296" N	5° 30' 20.7160" W
9	53° 29' 42.1344" N	5° 54' 48.3812" W	38	53° 33' 19.6834" N	5° 32' 14.0607" W
10	53° 30' 6.3266" N	5° 53' 2.3556" W	39	53° 33' 7.0152" N	5° 34' 5.6824" W
11	53° 30' 35.4342" N	5° 51' 19.8012" W	40	53° 32' 52.1330" N	5° 35' 56.5924" W
12	53° 31' 4.5167" N	5° 49' 37.2085" W	41	53° 32' 37.2431" N	5° 37' 47.4898" W
13	53° 31' 33.4103" N	5° 47' 54.4485" W	42	53° 32' 22.5097" N	5° 39' 38.4368" W
14	53° 31' 14.7959" N	5° 46' 25.3995" W	43	53° 32' 7.4024" N	5° 41' 29.2327" W
15	53° 31' 25.5822" N	5° 44' 34.1982" W	44	53° 31' 52.2520" N	5° 43' 20.0022" W
16	53° 31' 40.6710" N	5° 42' 43.4235" W	45	53° 31' 37.1517" N	5° 45' 10.7800" W
17	53° 31' 55.8584" N	5° 40' 52.6771" W	46	53° 31' 51.2870" N	5° 46' 42.9362" W
18	53° 32' 10.6500" N	5° 39' 1.7717" W	47	53° 31' 41.5394" N	5° 48' 29.8405" W
19	53° 32' 25.3795" N	5° 37' 10.8323" W	48	53° 31' 12.7371" N	5° 50' 12.6780" W
20	53° 32' 40.2886" N	5° 35' 19.9515" W	49	53° 30' 43.4891" N	5° 51' 55.1441" W
21	53° 32' 55.5876" N	5° 33' 29.2112" W	50	53° 30' 14.8125" N	5° 53' 37.9877" W
22	53° 33' 6.4570" N	5° 31' 37.1263" W	51	53° 29' 51.2561" N	5° 55' 24.4663" W
23	53° 33' 6.7738" N	5° 29' 43.4360" W	52	53° 28' 54.1453" N	5° 55' 54.3420" W
24	53° 33' 7.1774" N	5° 27' 49.7464" W	53	53° 28' 25.6606" N	5° 57' 32.5017" W
25	53° 33' 7.6351" N	5° 25' 56.0584" W	54	53° 27' 59.9412" N	5° 59' 17.4899" W
26	53° 33' 8.3431" N	5° 24' 2.3752" W	55	53° 27' 34.1957" N	6° 01' 2.4437" W
27	53° 33' 8.6489" N	5° 22' 8.6883" W	56	53° 27' 8.4241" N	6° 02' 47.3629" W
28	53° 33' 9.4403" N	5° 20' 15.0094" W	57	53° 26' 42.6264" N	6° 04' 32.2476" W
29	53° 33' 11.0904" N	5° 18' 21.3579" W	58	53° 26' 16.8025" N	6° 06' 17.0978" W



Figure 4. Landfall at Portmarnock (Source: MDM)

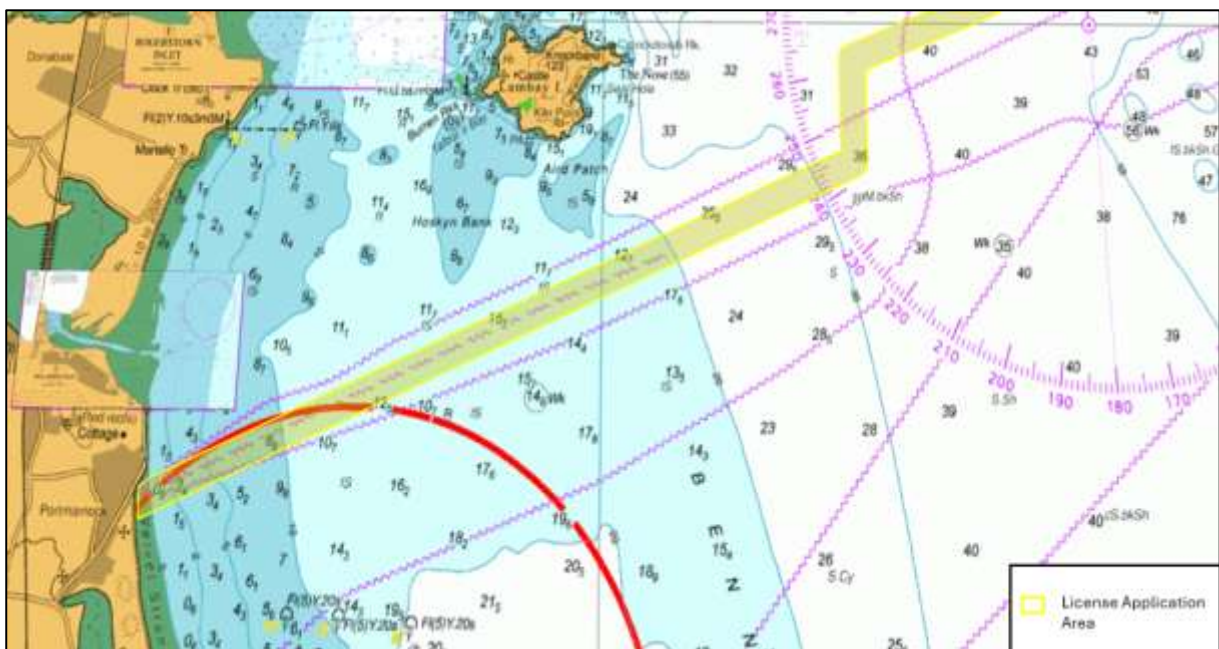


Figure 5. Inshore Survey Sections and Landfalls (Source: MDM)

PROPOSED MARINE SURVEY & SITE INVESTIGATIONS SCHEDULE OF WORKS

The principal objective of the Marine Survey & Site Investigations is to ascertain a feasible and safe route for cable system design, deployment, survivability and subsequent maintenance with due regard for environmental and ecological considerations. The survey will also enable decisions to be made on cable armouring and burial. The survey will identify the necessary water depths, route features, seabed obstructions, seabed geomorphology and cable hazards and will also provide detailed information on the seabed sediment, subsurface stratigraphy and upper sediment layers to support cable route and installation engineering. The site investigations will provide “ground-truthing” of the geophysical data along the route.

The objectives of the marine geophysical survey shall be:

- To collect up to date high-resolution bathymetry along a 400 – 500m wide cable corridor within the License Application Area;
- To obtain information on the seabed surface (type, texture, variability, etc.) and in particular, to identify any seabed features that may be of interest.
- Identify any shallow geohazards and man-made hazards (including but not limited to outcropping, boulders, shallow gas, wrecks, debris etc.);
- Determine the stratigraphy of the upper layers of the seabed along the cable route and quantify the variability in the lateral and vertical extents to depths of 2-5m
- Identify any magnetic anomalies;
- Identify sensitive marine habitats which will need to be avoided during site investigations and sampling.

The survey operations will be broken down into separate but overlapping areas, with boundaries defined by water depth as specified in the technical requirements outlined below. These water depth boundaries may be adjusted due to suitability of the survey vessel(s) and survey spread. The survey and survey line spacing will be designed to ensure adequate coverage and overlap of geophysical measurements.

- Landfall Survey – Intertidal Zone
- Inshore Survey – from 3m Chart Datum to 15m Chart Datum
- Offshore Survey – Water depths greater than 15m Chart Datum

In order to ensure data continuity, coverage between the survey areas is required with indicated overlap below;

- Landfall Survey to Inshore Survey – 50m overlap
- Inshore Survey to Offshore Survey – 500m overlap

Landfall Survey & Site Investigations

A non-intrusive topographic survey along the line of the proposed cable route at the landfall is required to the low water mark. Intertidal and beach surveys (walkover survey) will be carried out on the beach by the project ecologist and the project archaeologist. Access to the beach and intertidal zone at the landfall for vehicles or equipment will be via the concrete public slipway off the R106 Coast Road (Figure 4).

The topographical survey would typically be carried out by GPS Rover, Total Station or UAV Aerial Drone using photogrammetry or LiDAR techniques. The terrestrial geophysical survey will comprise remote sensing techniques such as Ground Penetrating Radar or Electrical Resistivity Tomography (ERT) to establish subsurface features and depth to bedrock and magnetometer or handheld marine metal detector to locate buried ferrous objects.

Landfall Site Investigations will be undertaken to establish the depth and nature of the sediment. The focus of the site investigations will be on the upper layers of sediment to assess the feasibility of cable burial and installation techniques. The following may be undertaken at the landfall:

- Bar probes on the intertidal at 10m spacing (approx. 8 to 10 at the landfall).
- Bar probes from the Low Water Line to the 3m water depth contour at 30m spacing. (approx. 8 to 10 at the landfall)
- 3 Trial Pits on the beach (target depth 2.5m).

The bar probes on the intertidal are manually driven to a depth of 2 metres simply to prove the depth of upper layers of sand, gravel or soft material.

The Trial Pits will be positioned at approximately 30 to 50m centres starting seaward of the High Water Mark. The Trial Pits will be excavated, logged, photographed and backfilled in a single tidal cycle. The trial pits will be backfilled with the original excavated materials in the sequence in which they are excavated.

A summary Method Statement for excavation of the Trial Pits is as follows;

- Excavate sand and place to one side.
- Excavate substrate and place separate from sand.
- Measure, log and photograph each Trial Pit.
- Backfill in sequence compacting with bucket of back-hoe as the backfilling proceeds.

Inshore Marine Survey

The area extending seaward from the low water mark at the landfall and inshore of the safe working draft limits of the primary survey vessel will be accurately surveyed with a small craft or Unmanned Survey Vessel (USV) using Multibeam Echosounder (MBES), sidescan sonar, marine magnetometer and sub-bottom profile equipment. Sub-bottom profile equipment will be able to discern the nature and density of the upper 3 metres of seabed and will be used on a non-interfering basis with other sounding systems. A minimum of seven survey lines, based upon the Survey RPL, is required.

Features such as shallow reefs, surge channels, debris fields, archaeological features or anything that could be a hazard to the cable or installation team will be noted. General reconnaissance of the survey corridor beyond the planned survey lines and tie-lines may be necessary to describe the seabed as accurately as possible. A line plan showing number of survey lines as a function of depth will be determined prior to start of survey operations.

Table 2. Inshore Survey (Source: MDM)

Survey Area	Depth Range	Survey Corridor Width	Min. # of Lines	Min. Overlap	Typical Survey Speed
Inshore	3m to 15m	400 - 500m	9	SSS: 100% MBES Bathy: 20%	4 knots

Offshore Marine Survey

The area extending seaward from the outer limits of the inshore survey to the EEZ limits will be surveyed by the primary survey vessel using Multibeam Echosounder (MBES), sidescan sonar, marine magnetometer and sub-bottom profiler equipment. A continuous bathymetric swathe along with side scan sonar imagery and sub-bottom traces will be obtained, centred on the preliminary route and along all wing lines needed to complete the route corridor coverage. A minimum of seven survey lines, based upon the Survey RPL, is required.

Sub-bottom profile equipment will be able to discern the nature and density of the upper 3 metres of seabed and will be used on a non-interfering basis with other sounding systems.

Table 3. Offshore Survey (Source: MDM)

Survey Area	Depth Range	Survey Corridor Width	Min. # of Lines	Min. Overlap	Typical Survey Speed
Offshore	> 15m	500m	7	SSS: 100% MBES Bathy: 20%	4 knots

Marine Site Investigations and Seabed Sampling

The purpose of the marine site investigations and seabed sampling is to evaluate the physical properties of the superficial seabed sediments along the cable route. These methodologies will ensure that a full understanding of the subsurface is achieved, focussing on the upper 3 metres of sediment to subsequently develop a cable burial assessment, installation and burial plan.

The scheduled site investigations and seabed sampling within EEZ limits will comprise of the following techniques:

- Up to 15 CPTs (2m to 3m)
- Up to 12 Gravity Cores / Vibrocores (3m)
- Up to 11 Grab Samples

Indicative locations for the relevant site investigation activities (Gravity or Vibrocore and CPT's) are shown in Figure 6. Typically, individual sampling positions will be determined following initial interpretation of the geophysical survey data. The positioning of individual site investigation locations will also take into consideration environmental constraints such as the position of sensitive habitats or archaeological features.

Two or more attempts may be made at each location to acquire a suitable sample. If an acceptable sample is achieved on the first attempt, there is no need to perform a second attempt.

An acceptable sample is defined as;

- Grab Sample – recovery of approximately a full bucket of sediment. Recovery of large size granular material may be taken as indication of a hard seabed.
- Gravity Core / Vibrocore – recovery of < 3m core of soil. If stiff or hard soils are encountered and are clearly indicated in the sample, it sample may be deemed acceptable. Any sample site yielding less than 1m of recovery must be investigated a second or third time unless there is obvious damage to the coring equipment indicating a hard or rocky substrate.
- CPT – Penetration to the 2m target depth or refusal. Any push resulting in less than 2m penetration will warrant a second attempt.

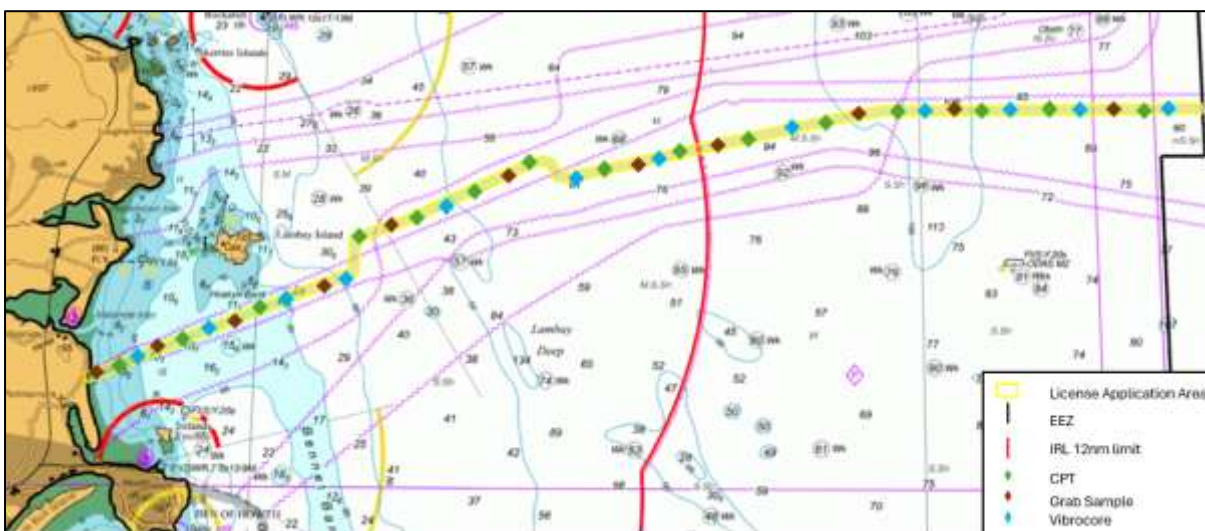


Figure 5. Indicative CPT and Vibrocore Locations (Source: MDM)

The total overall scope of the Site Investigations is as follows

- Bar Probes 10 No. on the intertidal
- Trial Pits 3 No. on the beach
- Bar Probes 10 No. from Low Water to 3m contour.
- Grab Samples 11 No. along the route corridor.
- Gravity Cores / Vibrocores 12 No. along the route corridor.
- Cone Penetration Tests 15 No. along the route corridor.

Underwater Video Survey

Underwater video camera system may be used for inspections of the seabed to investigate seabed obstructions, marine archaeology or benthic habitats. An underwater drop-down camera system or similar may be used in a series of video transects which would be georeferenced and later mapped in GIS.

Archaeological Survey

The proposed survey specification takes into account archaeological data acquisition to enable professional archaeological interpretation and analysis of data. The survey equipment deployed and data acquisition and processing shall comply with the requirements of the National Monuments Service, Underwater Archaeology Unit.

All archaeological assessments will be carried out by a suitably qualified and experienced marine archaeologist to determine the location of all known archaeological features in advance of the intrusive site investigations and seabed sampling. The data collected will be used to support the archaeological assessments.

SURVEY EQUIPMENT PARAMETERS

Multibeam Echosounder (MBES)

Echo-sounders are a diverse group of acoustic sources used to collect information on bathymetry, seabed features and objects in the water column (e.g. Multi beam echosounder, scientific echo-sounders/ fish-finders). They measure water depth by emitting rapid pulses of sound towards the seabed and measuring the sound reflected back.

Multibeam Echosounder (MBES) will be used during the marine survey to provide detailed 3 dimensional bathymetric mapping of the cable route corridor using multiple beams elongated in the across-track direction to cover a fan-shaped sector (or swath) (Figure 7). Measurements of the across-track beam from MBES showed 3 dB beam widths of 150-160°; in the along-track orientation beam width is narrow, typically ~1.5-3.0° (Crocker & Fratantonio 2016).

MBES is non-intrusive and does not interact with the seabed. The MBES system will be used will be confirmed following the appointment of a survey contractor but typical systems which can be taken as examples would be the R2 Sonic 2024, Kongsberg EM2040 or Teledyne Seabat T50 which would be hull mounted on the survey vessel.

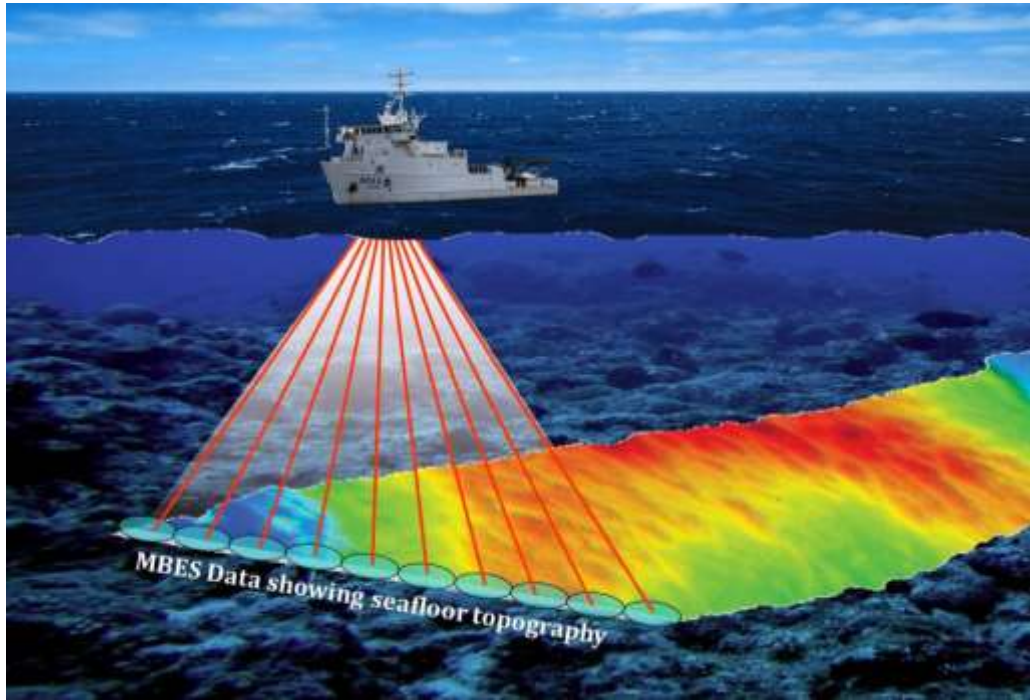


Figure 7. *Graphic of MBES survey in operation*

The acoustic signal emitted by MBES systems is short duration, typically of a few milliseconds or less, and can be configured to within the range 0.05-10 ms for certain systems. Repetition rates are highly customisable, varying with signal frequency and water depth. Ping rates of up to 10-20 pings per second may be used in very high frequency systems, whereas there may be several seconds between pings in low-frequency deep-water applications.

For collecting information on the seabed, emitted sound frequencies are typically between 12 – 400 kHz depending on water depth, with surveys in continental shelf applications operating at between 70 to 150 kHz, and in shallower waters of less than 200 m using multi-beam echosounders operating at between 200 and 500 kHz. The typical operating frequencies for the cable route survey within the licence application area will be in the range of 200kHz to 500kHz. (Danson 2005, Hopkins 2007, Lurton and DeReutier 2011)

Maximum sound source pressure levels of MBES have been reported as ranging from 210-245 dB re 1 μ Pa at 1m with the highest levels corresponding to the lowest frequency systems (DECC 2011, Lurton and DeReutier 2011, Lurton 2016, BEIS 2020). The highest measured source levels among three MBES systems when operated at maximum power for central operating frequencies of ≥ 100 kHz was between L_p,pk 225-228 dB re 1 μ Pa at 1m (L_E,p 181-197 dB re 1 μ Pa² s at 1m (Crocker & Fratantonio 2016).

Side Scan Sonar

Side-scan sonar (SSS) is a seabed imaging technique used to provide high-resolution and detailed 2-dimensional imagery of the seabed for a variety of purposes. SSS involves the use of an acoustic beam to obtain an accurate image over a narrow area of seabed to either side of the instrument.

Piezoelectric transducers in the SSS generate high-frequency acoustic pulses which are directed either side of the tow fish. The transducers are oriented such that the acoustic signal covers a wide angle perpendicular to the path of the tow fish through the water, providing information on a strip either side of the device (port and starboard). The intensity of the acoustic reflections from the seafloor is recorded in a series of cross-track images. When stitched together along the direction of motion, these images form a waterfall view of the sea floor within the swath of the beam. The range (swath width) is dependent upon the frequency, power and other source configurations, but is typically between 50-300 m on both sides.

Analysis of SSS data can aid identification of seafloor sediment, surficial bedrock outcrops and geomorphology mapping. Obstacles rising proud of the seafloor, such as shipwrecks, boulders, pipelines, outfalls, exposed cables, fishing gear etc. can cast shadows on the resulting seafloor image where no acoustic signal is returned. The size of the shadow can be used to determine the size of the feature casting it (Figure 8).

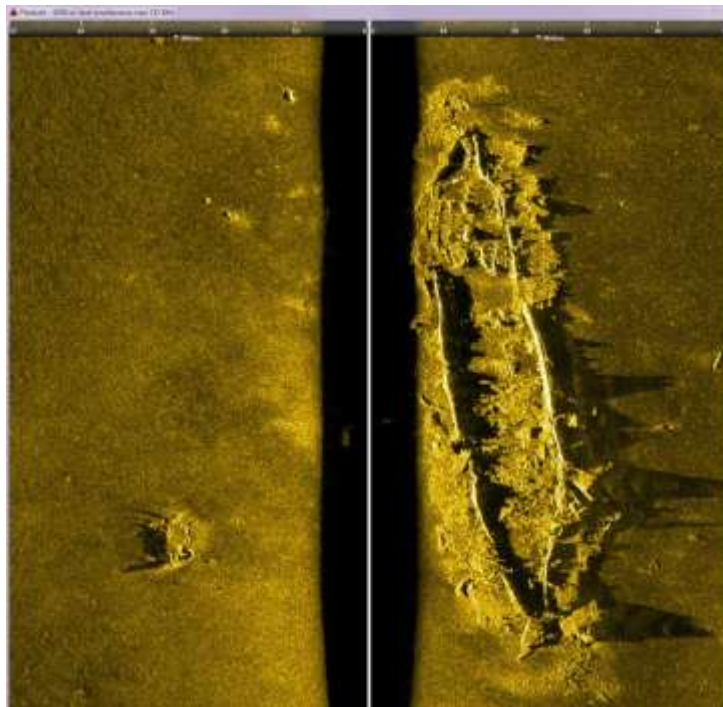


Figure 8. SSS image of shipwreck on seabed and nadir gap (Source: MDM)

SSS is non-intrusive and does not interact with the seabed. The SSS system will be used will be confirmed following the appointment of a survey contractor but typical systems which can be taken as examples would be the Klein 3000 or Edgetech 4200 (Figure 9). The SSS may be hull mounted but is typically towed at depth behind the survey vessel on an armoured tow cable.



Figure 9. Deployment of Edgetech 4200 Tow fish (Source: MDM)

Acoustic signal durations of SSS systems are short (0.4ms – 1.0ms) but vary between models and configurations with longer signal durations are required to survey greater ranges. Repetition rates are highly customisable with ping rates of up to several tens of pings per second (Crocker & Fratantonio 2016).

The frequencies used by side-scan sonar are relatively very high, typically between 100 and 900 kHz. Most SSS systems offer real-time dual frequency operation which allows acquisition of both frequencies across a swath independently and simultaneously. The higher frequency produces higher resolution data and sharper images but with a narrow swath width while the lower frequency results in wider seabed coverage at lower resolutions.

SSS typically offer a selection of two operational frequencies in the range of 100-500 kHz, or may operate both simultaneously. Some models may offer an upper frequency of up to 900 kHz for applications requiring the highest resolution data. Across-track resolutions vary between 1-8 cm with finer resolution at higher operating frequencies. The typical operating frequencies for the cable route survey within the licence application area will be between 200 to 700 kHz.

The line spacing for the survey will be determined after consideration of all factors including water depth and prevailing conditions at time of survey. Generally for SSS, full coverage requires two passes with 100% overlap over a given area of seafloor, with the two passes each insonifying the sea-floor from opposite directions to ensure targets are adequately imaged. This also ensures that the 'nadir gap' or the centre of the image directly under the path of the towfish is fully covered (Figure 8).

Sound source pressure levels of SSS systems have been reported typically in the range $L_{p,pk}$ 200-240 dB re $1\mu Pa$ at 1m. (BOEM 2016, BEIS 2020, DAHG 2014). Maximum calibrated source levels, (sound pressure) measured by Crocker & Fratantonio (2016) were $L_{p,pk}$ 227 dB re $1\mu Pa$ at 1m for a 0.1 ms pulse, whereas the highest energy source level of LE, p 205 dB re $1\mu Pa^2 s$ at 1m corresponded to a longer pulse of 1.1 ms at lower maximum pressure ($L_{p,pk}$ 210 dB re $1\mu Pa$ at 1m).

Marine Magnetometer

A marine magnetometer is a passive towed sensor used to measure magnetic field strength and to detect variations in the total magnetic field of the underlying seafloor. The magnetometer does not transmit any signals into the marine environment.

Usually, the increased magnetization is caused by the presence of ferrous (unoxidized) iron on the seafloor or buried below the surface, whether from a shipwrecked vessel made of steel or from natural rock formations containing grains of magnetite. After corrections are made to measurements of the total magnetic field, magnetic data is used to locate existing infrastructure such as buried pipelines, undersea cables and to identify shipwrecks and potential unexploded ordnance.

Marine magnetometers are non-intrusive and do not interact with the seabed. They are towed at depth at least two and a half ship-lengths behind the survey vessel, so that the ship's magnetic field does not interfere with magnetic measurements. The marine magnetometer may be integrated and towed in tandem with the SSS. The marine magnetometer will be of the Caesium Vapour type and capable of recording variations in magnetic field strength during survey to an accuracy of $\pm 0.5nT$.

The marine magnetometer system to be used will be confirmed following the appointment of a survey contractor but typical systems which can be taken as examples would be the Geometrics G-882 or Marine Magnetics SeaSpy (Figure 10). The line spacing and coverage will generally match the SSS as they are towed in tandem and the parameters of the survey may be determined by the requirements of the Underwater Archaeology Unit of the National Monuments Service.



Figure 10. Marine Magnetics SeaSpy towfish (Source: MDM)

Sub-bottom profiler

Sub-bottom profilers (SBPs) encompass a range of acoustic systems which are designed to collect information on the characteristics of strata below the seabed, establish changes in sediments and detect and image structures buried within the sediments (Figure 11). Shallow Sub-bottom profiling can penetrate the seabed to a range of depths, from a few metres to tens of metres depending on the geological conditions encountered, and with vertical resolutions from a few centimetres to a few metres. Most are towed behind a survey vessel, either at/near the surface or at depth, whereas some smaller devices may be hull-mounted or lowered over the side of a vessel on a pole mount.

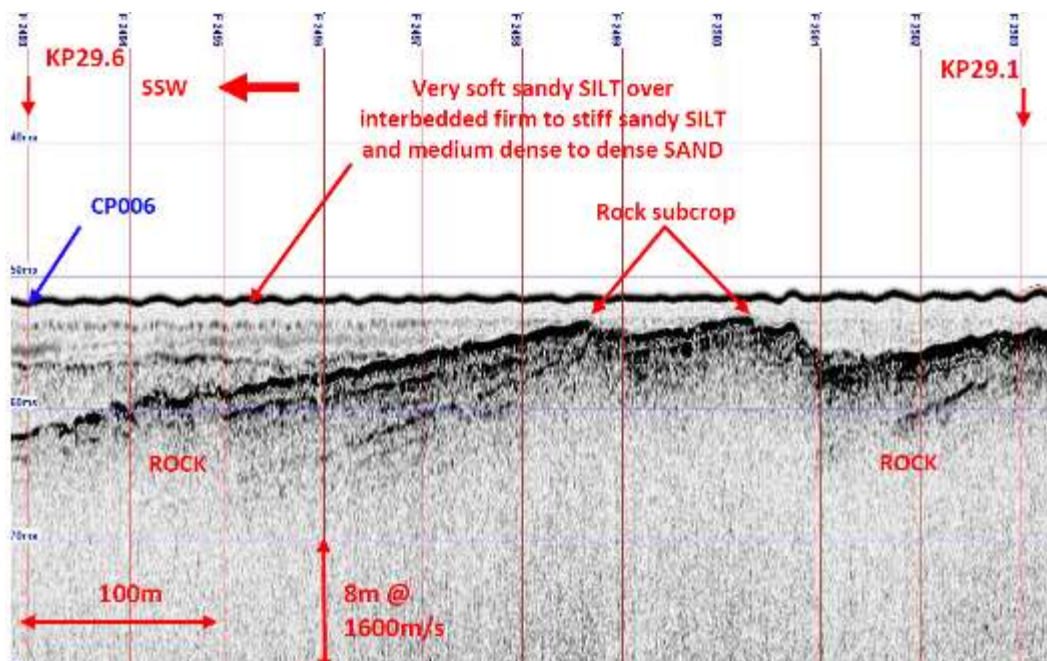


Figure 11. Interpreted SBP seabed profile.

Pulsed waveform SBPs generate an acoustic signal either through the impulsive physical processes of electrostatic discharge, as in sparkers, or electromechanically via accelerated water mass, as in boomers. All periodic waveform SBPs i.e. pingers, chirpers and parametric SBPs are electromechanical sources which employ piezoelectric transducers to generate an acoustic waveform by converting electrical energy into mechanical movement i.e. vibrations. Through the reverse of this process, the transducers can also detect sound. As such, these sources are highly customisable; in many cases, the signal is modulated in frequency and/or amplitude to improve its detectability and performance.

The systems most commonly used for high-resolution surveying are the boomer (such as the Applied Acoustics S-Boom), pinger (such as the Kongsberg GeoPulse), chirp (such as the Edgetech SB-424, Figure 12) and parametric chirp systems (such as the Innomar SES-2000). Whereas the boomer system provides best results for coarser sediments, the pinger and chirp systems deliver detail for finer sediments.

The objective of the SBP cable route survey is to investigate the upper layers of the seabed sediments for cable burial potential and installation risk from seabed obstructions such as subcropping rock formations and is not focussed on deep seabed conditions such as required for investigation of offshore wind farm foundations or deepwater seismic surveys carried out by Oil and Gas Exploration. The SBP system used for the survey will be confirmed following the appointment of a survey contractor and the most appropriate system chosen depending on the seabed, anticipated geological environment and the survey vessel capabilities.

Sound source pressure levels of various SBP systems have been reported typically in the range $L_{p,pk}$ 185-247 dB re $1\mu Pa$ at 1m. (Hartley Anderson 2020, Crocker & Fratantonio 2016). A summary of the Maximum Sound Pressure Levels for SBP systems is described in Table 4 below. The SBP survey is non-intrusive therefore does not interact with the seabed.



Figure 12. Edgetech SB-424 tow body (Source: MDM)

Table 4. Typical SBP specifications (Source: MDM)

Equipment Type	Frequency Range	Duration	Maximum Source Pressure Level (re 1µPa at 1 m)	Reference
Sub-bottom Profiler (SBP) - Pinger	2 kHz to 15 kHz	0.5 - 30 ms	214 dB.	Hartley Anderson 2020
Sub-bottom Profiler (SBP) - Chirper	2 kHz to 13 kHz	5 - 40 ms	185 - 215 dB.	Crocker & Fratantonio 2016, Hartley Anderson 2020
Sub-bottom Profiler (SBP) - Boomer	500 Hz to 15 kHz	0.5 - 1.0 ms	205 - 215 dB.	Crocker & Fratantonio 2016
Sub-bottom Profiler (SBP) - Parametric	4 to 15 kHz, 85 to 115 kHz	0.2 - 30 ms	238 - 247 dB. 200 - 206 dB.	Hartley Anderson 2020

Ultra-Short Baseline (USBL) Subsea Positioning

An Ultra-Short Baseline (USBL) is a subsea positioning system widely used by the offshore marine industry and scientific research vessels to accurately track the position of towed equipment and sensors. The USBL system consists of a transceiver mounted to the survey vessel, and transponders on the towed equipment.

To calculate a subsea position, the USBL calculates both a range and an angle from the transceiver to the subsea beacon. Angles are measured by the transceiver, which contains an array of transducers. The transceiver emits an acoustic signal at predetermined periods (often 0.5 seconds) which is returned by the transponder and allows for the bearing and distance to be calculated.

USBL systems are designed for close range transmission and thus typically emit pulses of medium frequency sound (20 to 50 kHz). Manufacturers report SPL values of 194 to 207dB re 1µPa at 1m depending on the model used, taking as an example the higher range of USBL source (Kongsberg HiPAP) with a SPL of 207dB re 1µPa at 1m.

Cone Penetration Test (CPT)

The survey vessel will position itself over the target position to carry out the CPT. The seabed CPT rig (such as a Neptune 3000, Figure 13) is deployed to the seabed from the vessel crane, A-frame or dedicated Launch and Recovery System (LARS). Once on the seabed, in a stable position, a steel rod with a conical tip (typically an apex angle of 60° and a diameter of 35.7 mm) is pushed at a steady rate into the seabed until it reaches target penetration depth of 3 to 6m or refusal. The penetration resistance at the tip and along a section of the shaft (friction sleeve) is measured and recorded for later analysis

Refusal is indicated by peak system thrust, excessive load on the tip or excessive inclination of the cone. If target penetration depth is not met, the CPT rig may be moved to a nearby position on the seabed and the test repeated. The time taken to complete a shallow CPT is typically less than 10 minutes but the total time in the water from deployment to recovery may be 1 to 2 hours at each position, depending on water depth and sea state.

There is very little published information on the sound pressure levels generated from CPT equipment, collected either from field experimentation or from manufactures specifications. Data from a similar device, deep boring, indicates that sound pressure source levels are typically within the range 118 - 145 decibels (dB) (BOEM 2012, EIRGRID 2014).



Figure 13. Neptune 3000 CPT rig (Source: MDM)

Gravity Core

Gravity corers (Figure 14) provide a rapid means of obtaining a continuous core sample in water depths from a few metres down to several thousand metres. A gravity corer consists of a steel tube in which is inserted a plastic liner to hold the core sample. Gravity corers are commonly used for cable route investigations.

A set of heavy weights, up to 750 kg, is attached at the top end of the tube above which is a fin arrangement to keep the corer stable and vertical during its fall to the seabed. The sampler penetrates the seabed under its own weight. Normal practice is to lower the device to within 10 m of the seabed before releasing. The penetration depth is between 1 m and 3 m. Penetration in stiffer clays or sands is usually limited.

The penetrating end of the tube is fitted with a cutter and a concave spring-steel core-catcher to retain the sample when the corer is retracted from the soil. The suction caused when withdrawing a core barrel from a soft soil such as clay, can pull the sample from the barrel, or in other ways disturb its homogeneity. By fitting a piston above the sample, the partial vacuum caused above the piston, when the barrel is withdrawn, keeps the sample from being pulled out of the tube.

Upon refusal or at target depth of 3m, the sampler is recovered on deck where the sample is split, typically into 1m lengths, logged, sealed and stored for later laboratory analysis. The typical diameter of the liner is in the region of 90mm with a typical maximum diameter of 120mm.



Figure 14. Gravity Corer schematic

Vibrocorer

Vibrocorers are used wherever soil conditions are unsuited to gravity corers or where greater penetration of the seabed is necessary. Vibrocore is best suited to non-cohesive soils (e.g. gravel or sand) as samples recovered are considered disturbed. Vibrocorers are commonly used for cable route investigations.

To penetrate soils such as dense sands and gravels, or to reach deeper into stiff clays, rather than depending on a gravity free-fall, the corer's barrel is vibrated, thus facilitating its penetration into the soil. This vibration energy allows the core barrel to penetrate the sediments under self-weight. In other respects, the barrel and sample retention systems are similar to gravity corers.

The typical vibrocorer consists of a tall steel frame and tripod support. Within the frame is a standard 102 mm steel coring barrel in which is inserted a PVC liner to contain the sample. The typical diameter of the PVC liner is in the region of 90mm with a typical maximum diameter of 120mm. A spring steel core catcher is fitted to the cutting shoe, as with the gravity corer. Two linear electric motors enclosed in a pressure housing provide the vibratory motion; the core barrel is attached directly to the motor housing. Power is fed to the motors via an electrical control line from the survey vessel.

Once in motion, the heavy motor housing provides the mass to drive the core barrel into the seabed. The penetration depth can be from 2m to 8m depending on seabed conditions. A typical 6 m vibrocorer will weigh nearly two tonnes and requires a crane for A-Frame or deployment and recovery. Vibrocorers come with barrel lengths of 3m, 6m and 8m. A normal coring operation in 100 m water depth will take about one hour.

Once coring is started, the core barrel will penetrate to the target depth. Upon refusal or at target depth of 3m, the vibrocore is recovered on deck where the sample in the liner is removed from the barrel, the sample is split, typically into 1m lengths, logged, sealed and stored for later laboratory analysis.

The sounds produced by the operation of a vibrocorer on the seabed consist of a series of impulses corresponding to the movement and impacts of the mechanics of the vibrating motion from the oscillating motors on the core barrel. Expected sound pressure levels generated by vibrocore equipment would be approximately 187.4 dB re 1µPa at 1m (LGL, 2010).



Figure 15. *Deployment of Vibrocorer from Survey Vessel (Source: MDM)*

Grab-samplers

Grab samplers are one of the most common methods of retrieving soil samples from the seabed surface. The grab sampler is a device that simply grabs a sample of the topmost layers of the seabed by bringing two steel clamshells together and cutting a bite from the seabed surface to a depth of 0.1 to 0.5m. The information they provide can be applied in a number of applications such as seabed classification, environmental sampling, chemical and biological analysis and ground truthing for morphological mapping and geophysical survey. Grab samplers can be used to recover samples of most seabed soils, although care is needed in selecting the right size unit for the task.

There are various grab sampler types to include but not limited to Van Veen (single or double, Figure 16), Hamon, Shipek and Day Grab samplers. Generally, some variants may come both as single or double, and in a variety of different sizes. The grab sampler comprises two steel clamshells acting on a single or double pivot. The shells are brought together either by a powerful spring (Shipek type) or powered hydraulic rams operated from the survey vessel.

In operation, the grab is lowered from the survey vessel to the seabed with the clamshells in the open position and which trigger shut when the sampler is in contact with the seafloor. The shells swivel together in a cutting action and retains a sample of seabed. The sampler is then recovered to the survey vessel for visual inspection, processing, logging and transfer to suitable sample containers for storage and later laboratory analysis. Typical performance rates are between three and four samples per hour.

The smaller Shipek type grab sampler is useful for ground truthing geophysical surveys for the surface layer, and samples are taken to about 0.1 m below the seabed. Larger hydraulic grabs are capable of recovering relatively intact samples of consolidated soils to a depth of about 0.5 m. In areas of large cobbles or boulders, grabs can become jammed open and their contents washed away during recovery to the surface. However, the hydraulic grab is more likely to recover cobbles and small boulders than any other system, and in this respect is invaluable. Various grabs will be available for the survey to ensure adequate sampling equipment for various sediment types.

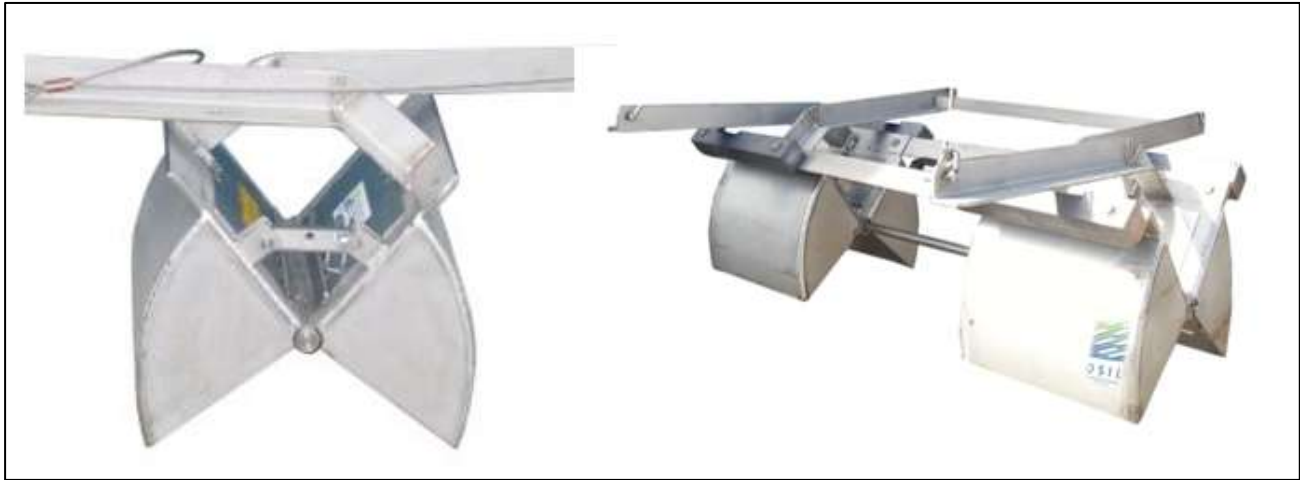


Figure 16. Single and Double Van Veen Grab (Source: MDM)

SURVEY VESSELS

Offshore survey vessels are typically between 15m and 75m in length with potential for smaller vessels to be used in nearshore / shallow water areas. Offshore survey vessels typically have an endurance of approximately 14 to 28 days. A vessel with a shallow water draft will be utilised for the inshore survey area. An unmanned surface vehicle (USV) and/or autonomous surface vehicle (ASV) may also be used for the geophysical survey. The survey vessels may use a local port for personnel / equipment mobilisation, bunkering and provisioning.

The marine survey works will consist of a dedicated marine spread which will be suitable for the scope of work required, the water depth and the anticipated seabed conditions of the survey area. The exact equipment to be used will be confirmed following a tender process to procure the marine survey contractor.

All survey vessels will be fit for purpose, will possess all relevant classification certificates and capable of safely undertaking the survey work required. Health, safety, environment and welfare considerations will be a priority and will be actively managed during the course of the survey scopes of work. Appointed contractors will be required to comply with all legislation relevant to the activities within their scope of work. Prior to survey works taking place under Licence, both Project Supervisor for Design Process (PSDP) and Project Supervisor for Construction Stage (PSCS) will be appointed under the relevant legislation and project / survey specific HSE plans will be put in place which will form part of the survey project execution plans.

The vessels will conform to the following minimum requirements as appropriate:

- Compliance with Safety of Life at Sea (SOLAS), International Maritime Organization (IMO) and national requirements for operating within Irish territorial waters.
- Station-keeping and sea keeping capabilities required to carry out the proposed survey operations safely;
- Calibrated equipment and spares with necessary tools for all specified works;
- Endurance (e.g. fuel, water, stores, etc.) to undertake the required survey works;
- Sufficient qualified staff to allow the survey operations to be carried out efficiently, (typically 24 hour continuous for offshore survey, 12 hour for nearshore survey); and
- Appropriate accommodation and crew welfare facilities.

Survey vessels will generate some subsea noise in the marine environment from engine noise and dynamic positioning thrusters. Shipping noise is typically within the 50-300 Hz frequency band and is the dominant noise source in deeper water (DECC, 2011). Propellers on vessels all have the potential to produce cavitation noise. This sound is caused by vacuum bubbles that were generated by the collapse of bubbles created by the spinning of the propellers.

Acoustic broadband source pressure levels typically increase with increasing vessel size, with smaller vessels (<50 m) having source pressure levels 160-175 dB (re 1µPa at 1m), medium size vessel (50-100 m) 165-180 dB (re 1µPa at 1m) and large vessels (>100 m) 180-190 dB (re 1µPa at 1m) (DECC, 2011). Every vessel has a unique noise signature and for each vessel this can change in response to a number of factors, including; ship speed, operational status, vessel load, the condition of the vessel and even the properties of the water that the vessel is operating in.

MARINE SURVEY AND SITE INVESTIGATIONS SOUND PRESSURE LEVEL SUMMARY

All survey works that involve the use of acoustic instrumentation will follow the Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters, 2014.

The ranges of noise frequency and sound pressure levels associated with all the surveys outlined in previous sections is summarised in Tables 5 and 6 below. It can be noted that as the focus of the cable route surveys within the licence application area is the seabed surface and upper layers of seabed sediments and generally obtaining higher resolution data, the geophysical equipment such as MBES and SSS is generally operated more towards the higher end of the frequency range where possible.

TIMELINE AND DURATION OF SURVEY ACTIVITIES

The intention is to commence the survey as soon as feasible following license award, taking into account survey vessel availability, the overall cable route survey programme, seasonality and suitable weather windows. The exact mobilisation dates will not be known until the process of procuring a contractor and issue of the marine licence is complete. It is anticipated that the marine geophysical survey and site investigations activities within the marine licence area will take less than 6 weeks in total and will be completed over a 6 month period.

The estimated time required to complete the cable route survey campaign activities is described in Table 7 below.

Table 5. Marine Survey Activities (Source: MDM)

Equipment Type	Purpose	Frequency Range	Duration	Maximum Source Pressure Level (re 1µPa at 1 m)	Reference
Multibeam Echo Sounder (MBES)	Measure detailed bathymetry by transmitting sound pulses (active sonar).	200 kHz to 500 kHz	0.05 - 10 ms	210 - 245 dB.	Danson 2005, Hopkins 2007, DECC 2011, Lurton and DeReutier 2011, Lurton 2016, BEIS 2020, Crocker & Fratantonio 2016
Side Scan Sonar (SSS)	Determine surficial nature of the seabed and detect objects by transmitting sound pulse.	200 kHz to 700 kHz	0.4 - 1.0 ms	200 - 240 dB.	BOEM 2016, BEIS 2020, DAHG 2014, Crocker & Fratantonio 2016
Sub-bottom Profiler (SBP) - Pinger	Identify different geological layers encountered in the shallow sediments and sediment thicknesses beneath the seabed.	2 kHz to 15 kHz	0.5 - 30 ms	214 dB.	Hartley Anderson 2020
Sub-bottom Profiler (SBP) - Chirper	Identify different geological layers encountered in the shallow sediments and sediment thicknesses beneath the seabed.	2 kHz to 13 kHz	5 - 40 ms	185 - 215 dB.	Crocker & Fratantonio 2016, Hartley Anderson 2020
Sub-bottom Profiler (SBP) - Boomer	Identify different geological layers encountered in the shallow sediments and sediment thicknesses beneath the seabed.	500 Hz to 15 kHz	0.5 - 1.0 ms	205 - 215 dB.	Crocker & Fratantonio 2016
Sub-bottom Profiler (SBP) - Parametric	Identify different geological layers encountered in the shallow sediments and sediment thicknesses beneath the seabed.	4 to 15 kHz, 85 to 115 kHz	0.2 - 30 ms	238 - 247 dB. 200 - 206 dB.	Hartley Anderson 2020
Ultra-Short Base Line (USBL)	Subsea positioning.	20 kHz to 50 kHz	5 - 10 ms	194 - 207 dB.	Kongsberg
Magnetometer	Identify ferrous anomalies for metal obstructions, shipwrecks, etc. on and under the seabed.	Passive	N/A	Passive	N/A
Survey Vessels	Carry out the survey and deploy the equipment.	50 Hz to 300 Hz	N/A	160 - 190 dB.	DECC 2011

Table 6. Marine Site Investigation Activities (Source: MDM)

Equipment Type	Purpose	Number of locations within Licence Application Area (up to)	Frequency Range	Maximum Source Pressure Level (re 1µPa at 1 m)	Reference
Cone Penetration Test (CPT)	Determine geotechnical engineering properties of seabed sediments.	15	28 Hz	118 - 145 dB.	BOEM 2012, EIRGRID 2014
Gravity Corer	Retrieve a seabed sediment sample by penetrating seabed with a steel core barrel under self-weight	12	N/A	N/A	N/A
Vibrocorer	Retrieve a seabed sediment sample by penetrating seabed with a vibrating steel core barrel	12	30 Hz	187.4 dB.	LGL 2010
Grab Samples	Collect small sediment samples from seabed surface with clamshell mechanism	11	N/A	N/A	N/A

Table 7. Estimated Time and Duration of Survey Activities (Source: MDM)

Activity	Typical Time Period Required for Activity	Total Number of SI Locations	Total Time for SI	Foot Print Affected per SI	Foot Print Affected per SI (ha)	Total Foot Print (ha)	Area Directly Affected as % of Licence Application Area
Inshore Geophysical Survey	3 to 4 days (weather and sea state dependent)	400 - 500 m cable route corridor	3 to 4 days (weather and sea state dependent)	N/A	N/A	560 ha	18.66667%
Offshore Geophysical Survey	8 to 10 days (weather and sea state dependent)	500 m cable route corridor	10 to 12 days (weather and sea state dependent)	N/A	N/A	2441 ha	81.3667%
CPT	30 minutes - 2 hours in any one location	15	30 hours within total 8 days of Site Investigations campaign (weather and sea state dependent)	8m ²	0.0008 ha	0.012 ha	<1%
Gravity Corer	30 minutes - 2 hours in any one location	12	24 hours within total 8 days of Site Investigations campaign (weather and sea state dependent)	1m ²	0.0001 ha	0.0012 ha	<1%
Vibro Corer	30 minutes - 2 hours in any one location	12	24 hours within total 8 days of Site Investigations campaign (weather and sea state dependent)	8m ²	0.0008 ha	0.0096 ha	<1%
Grab Samples	20 minutes - 45 minutes in any one location	11	9 hours within total 8 days of Site Investigations campaign (weather and sea state dependent)	0.5m ²	0.00005 ha	0.0006 ha	<1%

4.3 Zone of Influence

As outlined in the Office of the Planning Regulator (2021) *“The zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site. This should be established on a case-by-case basis using the Source-Pathway-Receptor framework and not by arbitrary distances (such as 15 km).”*

IEEM (2006) defined the zone of influence as *“the areas/resources that may be affected by the biophysical changes caused by activities associated with a project”*. To define the extent of the study area for assessment, all elements of the project were assessed and reviewed in order to identify the spatial scale at which ecological features could be impacted. Due to the limited temporal and geographical scale of the project and the use of Best Available Techniques (BAT), and the slow speed of the survey vessel (4kn), it is considered that the potential impacts of the proposed works could only extend beyond 500 m of the subtidal elements of the project due to noise generation and potential disturbance of sediment. However, as outlined in IEEM (2010) *“in the marine environment it is more difficult to define the geographical framework precisely and to accommodate all factors that should influence the definition of value, e.g. size or conservation status of populations or the quality of habitats.”* As a result, *“it is very unlikely that the impacts on integrity can be evaluated without considering functions and processes acting outside the site’s formal boundary.”* It is important to note that unlike other maritime operations, the research vessel speed will be very slow (4 knots). However, the project has the potential to introduce noise into the marine environment particularly through the use of Ultra-Short Baseline (USBL), Multibeam Echosounder (MBES), and Side-scan Sonar (SSS) equipment, which may extend the effects of the project beyond 2km. In the interest of carrying out a thorough assessment in line with both the Habitats Directive, and the precautionary principle, the ZOI was expanded for this assessment to include designated sites within 15km of the proposed survey site, and sites beyond 15km that have the potential to be impacted by the proposed survey works based on the Source-Pathway-Receptor model. This was done in the interest of ensuring that any potential impacts, however indirect or remote, were taken into account.

4.3.1 Marine Mammals

4.3.1.1 Seals and Cetaceans

As outlined in NPWS² *“Cetaceans account for 48% of all the native species of mammals, both marine and terrestrial, recorded in Ireland and Irish waters are thought to contain important habitats for cetaceans within the northeast Atlantic. To date, 24 species of cetacean, or 28% of species described worldwide, have been recorded in Ireland. Irish cetaceans include six species of baleen whale and eighteen species of toothed whale, including five species of beaked whale. Twenty-two of these have been reported stranded ashore and 20 species observed at sea. Two species (Pygmy sperm whale and Gervais’ beaked whale) are only known from stranded individuals and two species (Northern right whale and White whale/beluga) have only been recorded historically, with neither species occurring in the stranding record so far.*

Ireland also has two species of seals, the Common Seal (or Harbour Seal) and the Grey Seal. Whilst both species haul out on land for key stages of their life history, the majority of their time is spent in the marine environment.

In Ireland, the 1992 EC Habitats Directive as transposed by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) requires that both seal species and all cetaceans occurring in Ireland are maintained at favourable conservation status. Under Article 12 of the Directive, all cetaceans should receive strict protection within the Exclusive Economic Zone. Under Article 4 of the Directive, Special Areas of Conservation (SACs) must be proposed for the following species:”

- Bottlenose Dolphin
- Harbour Porpoise
- Common Seal
- Grey Seal

The protection afforded to marine mammals in Ireland is summarised below:

² <https://www.npws.ie/marine-species/cetaceans>

- Harbour Porpoise Annex II of EC Habitats Directive/Annex IV of EC Habitats Directive/Protected species of Wildlife (Amendment) Act/OSPAR List of Threatened and Declining Species and Habitats
- Bottlenose Dolphin Annex II of EC Habitats Directive/Annex IV of EC Habitats Directive/Protected species of Wildlife (Amendment) Act
- All Cetacea Annex IV of EC Habitats Directive/Protected species of Wildlife (Amendment) Act
- Grey Seal/Harbour Seal Annex II of EC Habitats Directive/Protected species of Wildlife (Amendment) Act

Recent research suggests that the foraging range for grey seals is 448km (Carter et al., 2022). Further, the foraging range for harbour seal is estimated at 273 km (Carter et al., 2022). Further, there are a number of SACs designated for cetaceans (harbour porpoise and common dolphin) in Ireland. As these species are a highly mobile species, and are designated as qualifying interests of Natura 2000 sites outside the Irish EEZ, specific Management Units (MU) are utilised to assess the potential impacts of a proposed project on these species, based on the JNCC Review of Management Unit boundaries for cetaceans in UK waters (2023) methodology³. The proposed project is located within the Celtic and Irish Seas MU for harbour porpoise, and the Irish Sea MU for bottlenose dolphin (IAMMWG, 2015). The ZoI of the proposed project has been extended to include the potential for significant effects on grey seal, harbour seal, harbour porpoise and common bottlenose dolphin as there is potential for these mobile marine mammals to enter the ZoI from within the Celtic and Irish Seas MU.

4.3.1.2 Otter

Otters are a semi-aquatic species that use the marine environment for foraging and are protected under Annex II and Annex IV of the Habitats Directive. As detailed by Reid et al. (2013), female otters have territories of 7.5 ± 1.5 km in length along a riverine environment and 6.5 ± 1.0 km in coastal environments, while male otter territory along rivers is approximately 13.2 ± 5.3 km in length with a high degree of variability. Out of an abundance of caution, the ZoI of the proposed project has been extended to include the potential for significant effects on otters that may enter the proposed area of works.

4.3.2 Migratory Fish

In relation to Atlantic salmon, it has been found that salmon populations from southeast Ireland appear to migrate towards the shelf edge before crossing the Atlantic towards Greenland for feeding (Rikardsen et al., 2021). The recorded areas of salmon migration are demonstrated in Figure A.1 in Appendix I.

Twaite Shad is a rare red-listed (vulnerable) species that has an affinity for coastal habitats (Maitland & Hatton-Ellis, 2003), with recent studies recording movement of this species up to 950km from the River Severn with one individual detected in the Blackwater Estuary (Davies *et al.*, 2020). However, based on King et al. (2011), the twaite shad is restricted to the lower reaches of a handful of rivers in the south, with evidence of recruitment only from the Barrow, Suir and Munster Blackwater. The primary conservation objectives for Natura 2000 sites along the south coast of Ireland for which Twaite Shad are a designated Qualifying Interest (Slaney River Valley SAC [000781]; River Barrow and River Nore SAC [002162]; Lower River Suir SAC [002137]; Blackwater River (Cork/Waterford) SAC [002170]) relate to the restoration of freshwater habitats for this species. The proposed survey works are located within areas of existing vessel activity within Dublin Bay. In the unlikely event that Twaite Shad may be present along the proposed Baily Offshore Cable Survey Route, vessel speeds will be slow (4 knots) and operations are on a continual basis, therefore, the vessel and equipment would be easily avoided by this species if encountered. The proposed survey works will be isolated to the route corridor and will not impact on spawning grounds or migratory routes of this species.

Similarly, no likely significant effects on lamprey species are foreseen as a result of the proposed project. As outlined in King et al. 2011 '*juvenile river/brook lamprey (the two species are indistinguishable at juvenile stage) are widely distributed in catchments where suitable habitat is available and, on this basis, both river and brook lamprey have now been classified as of 'least concern'. The same survey programmes have also demonstrated that sea lamprey can be found in many of our larger river systems. However, these surveys have shown that sea lampreys are normally scarce, with low densities of juveniles where they do occur and a tendency for migrating adult fish to be concentrated downstream of major weirs in rivers. This species is now listed as Near Threatened.*' At sea, sea lamprey are widely

³ <https://data.jncc.gov.uk/data/b48b8332-349f-4358-b080-b4506384f4f7/jncc-report-734.pdf>

dispersed and their movements are largely dictated by their host fish (Igoe et al, 2004). Within the marine environment, river lamprey inhabit estuarine and coastal waters (Igoe et al, 2004).

Given the spatial and temporal nature of the proposed survey works, and given the minimum distance to Natura 2000 sites designated for sea and river lamprey (33.8 km to River Boyne and River Blackwater SAC), no likely significant effects on sea lamprey distribution or spawning habitats are foreseen as a result of the proposed project.

4.3.3 Birds

The marine waters off the coast of County Dublin constitute an important resource for marine birds. The estuaries and bays that open into it along with connecting coastal stretches of intertidal and shallow subtidal habitats, provide safe feeding and roosting habitats for waterbirds throughout the winter and migration periods. These areas, along with more pelagic marine waters further offshore, provide additional supporting habitats (for foraging and other maintenance behaviours) for those seabirds that breed at colonies on islands and coastal headlands. These marine areas are also important for seabirds outside the breeding period (NPWS, 2023). The proposed survey works are located within the intertidal at Velvet Strand, Portmarnock and offshore subtidal (up to EEZ Boundary), within Co. Dublin's coastal waters and North-West Irish Sea SPA. Given the location of the proposed works to these valuable waters, and given the potential for seabirds to utilise offshore waters within the proposed works corridor for transiting / feeding, the ZOI has been extended to include Natura 2000 Sites designated for seabirds which utilise this area; namely, Malahide Estuary SPA and North-West Irish Sea SPA.

4.4 Identification of Relevant Natura 2000 Sites

4.4.1 Management of the Site

The proposed works are not directly connected with, or necessary to, the management of Natura 2000 sites.

4.4.2 Relevant Natura 2000 Sites to the Proposed Project

A key factor in the consideration as to whether or not a particular European site is likely to be affected by the proposed survey works is its distance from the works location. It is generally, but not necessarily, the case that the greater the distance from the plan or project the smaller the likelihood of impacts. In this case, the proposed survey works are located within the Malahide Estuary SAC, Rockabill to Dalkey Island SAC, and North-West Irish Sea SPA.

Given that the proposed survey route is located within the Malahide Estuary SAC, Rockabill to Dalkey Island SAC, and North-West Irish Sea SPA, out of an abundance of caution, in the absence of mitigation, during the survey works there is the potential for significant effects on the qualifying interests of these European Sites through disturbance, pollution and physical impact on habitats and species. Further information is required to assess the potential effects of the proposed works on European Sites.

In relation to marine mammals, given that the proposed survey route is located within Rockabill to Dalkey Island SAC, there is potential for marine mammals from Rockabill to Dalkey Islands SAC (*Phocoena phocoena* (harbour porpoise)) to be in the vicinity of the proposed survey works. Although Lambay Island SAC is located 2km from the proposed cable survey corridor, the qualifying interests of this SAC (harbour seal and grey seal) are mobile species and there is the potential for these species to be in the vicinity of the proposed survey works. Further, following an examination of relevant MU's for harbour porpoise / common bottlenose dolphin and foraging areas for grey seal and harbour seal, the following Natura 2000 sites have been screened IN due to the potential movements of harbour porpoise, common bottlenose dolphin, harbour seals, and grey seals (qualifying interests of these SAC):

- Slaney River Valley SAC (IE)
- Saltee Islands SAC (IE)
- Roaring Water Bay and Islands SAC (IE)
- Blasket Islands SAC (IE)
- Ballysadare Bay SAC (IE)
- Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC (IE)
- Donegal Bay (Murvagh) SAC (IE)
- Galway Bay Complex SAC (IE)
- West of Ardara/Maas Road SAC (IE)
- Slieve Tooley/Tormore Island/Loughros Beg Bay SAC (IE)
- Killala Bay/Moy Estuary SAC (IE)
- Rutland Island and Sound SAC (IE)
- Kilkieran Bay and Islands SAC (IE)
- Clew Bay Complex SAC (IE)
- Inishbofin and Inishshark SAC (IE)
- Horn Head and Rinclevan SAC (IE)
- Slyne Head Islands SAC (IE)
- Duvillaun Islands SAC (IE)
- Inishkea Islands SAC (IE)
- North Anglesey Marine/Gogledd Môn Forol (UK)
- West Wales Marine / Gorllewin Cymru Forol (UK)
- Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau (UK)
- Murlough (UK)
- North Channel (UK)
- Strangford Lough (UK)
- Cardigan Bay / Bae Ceredigion (UK)
- Pembrokeshire Marine / Sir Benfro Forol (UK)
- The Maidens SAC (UK)
- Bristol Channel Approaches/Dynesfeydd Môr Hafren (UK)

- South-East Islay Skerries (UK)
- Lundy (UK)
- Isles of Scilly Complex (UK)
- Nord Bretagne DH (FR)
- Récifs et landes de la Hague (FR)
- Anse de Vauville (FR)
- Mers Celtiques – Talus du golfe de Gascogne (FR)
- Banc et récifs de Surtainville (FR)
- Côte de Granit rose-Sept-Iles (FR)
- Trégor – Goëlo (FR)
- Baie de Morlaix (FR)
- Abers – Côtes des legends (FR)
- Rivière Leguer, forêts de Beffou, Coat an Noz et Coat an Hay (FR)
- Cap d’Erquy-Cap Fréhel (FR)
- Ouessant-Molène (FR)
- Chausey (FR)
- Baie de Saint-Brieuc – Est (FR)
- Côtes de Crozon (FR)
- Baie du Mont Saint-Michel (FR)
- Baie de Lanceloux, Baie de l’Arguenon, Archipel de Saint Malo et Dinard (FR)
- Estuaire de la Rance (FR)
- Chaussée de Sein (FR)
- Récifs du talus du golfe de Gascogne (FR)

Further information is required to assess the potential effects of the proposed works on these European Sites.

All Natura 2000 sites within 15km, and beyond 15km with the potential for significant effects on Natura 2000 sites (including Irish, French, and UK sites), are listed in Tables 8-10. The qualifying interests, and the potential impact of the development on each European site and qualifying interest, are screened in/out in Table 11.

The proposed Survey Route Corridor and Works (including landfall onto Velvet Strand, Portmarnock) are demonstrated in Figures 17-19. Waterbodies located proximate to the Survey Route Corridor are demonstrated in Figure 20. SACs and SPAs (incl. Marine SPAs) within / proximate to the proposed Survey Route Corridor are demonstrated in Figures 21-23. SACs and SPAs within 10km of the proposed Survey Route Corridor are demonstrated in Figures 24 - 26. SACs and SPAs within 15 km of the proposed Survey Route Corridor are seen in Figures 27 - 29. The proposed fibre optic survey route in relation to the 12 nm limit, Designated Irish Continental Shelf and Offshore SAC’s (no offshore SAC’s in the area) is demonstrated in Figure 30. IE, FR, & UK SACs designated for Grey Seals (*Halichoerus grypus*) within 448km of the Proposed Survey Route Corridor are demonstrated in Figure 31. IE, FR, & UK SACs designated for Harbour Seals (*Phoca vitulina*) within 273km of the Proposed Survey Route Corridor are demonstrated in Figure 32. IE, FR, & UK SACs located within the Management Units (MU) for Bottlenose dolphin (*Tursiops truncatus*) and Harbour Porpoise (*Phocoena phocoena*) are demonstrated in Figures 33 & 34.

Table 8. Proximity to designated sites of conservation importance (IE)

Designation	European Site	Distance
SAC	Malahide Estuary SAC	Within
SAC	Rockabill to Dalkey Island SAC	Within
SAC	Baldoyle Bay SAC	1.2 km
SAC	Lambay Island SAC	2 km
SAC	Ireland's Eye SAC	3.5 km
SAC	North Dublin Bay SAC	4.5 km
SAC	Rogerstown Estuary SAC	5.4 km
SAC	Howth Head SAC	5.7 km
SAC	South Dublin Bay SAC	10.3 km
SAC	Slaney River Valley SAC	53.9 km
SAC	Saltee Islands SAC	140.7 km
SAC	Ballysadare Bay SAC	179.4 km
SAC	Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	180.6 km
SAC	Donegal Bay (Murvagh) SAC	184.6 km
SAC	Galway Bay Complex SAC	185.7 km
SAC	West of Ardara/Maas Road SAC	201.5 km
SAC	Slieve Tooley/Tormore Island/Loughros Beg Bay SAC	210.3 km
SAC	Killala Bay/Moy Estuary SAC	213 km
SAC	Rutland Island and Sound SAC	223.5 km
SAC	Kilkieran Bay and Islands SAC	227.8 km
SAC	Clew Bay Complex SAC	230 km
SAC	Inishbofin and Inishshark SAC	265.2 km
SAC	Horn Head and Rinclevan SAC	266.5 km
SAC	Slyne Head Islands SAC	266.6 km
SAC	Duvillaun Islands SAC	273.8 km
SAC	Inishkea Islands SAC	277.2 km
SAC	Roaring Water Bay and Islands SAC	304.9 km
SAC	Blasket Islands SAC	325.9 km
SPA	North-West Irish Sea SPA	Within
SPA	Malahide Estuary SPA	500m
SPA	Baldoyle Bay SPA	1.2 km
SPA	Lambay Island SPA	1.7 km
SPA	Ireland's Eye SPA	3 km
SPA	North Bull Island SPA	4.5 km
SPA	Rogerstown Estuary SPA	4.9 km
SPA	Howth Head Coast SPA	5.7 km
SPA	Rockabill SPA	7.7 km
SPA	South Dublin Bay and River Tolka Estuary SPA	8.6 km
SPA	Skerries Islands SPA	12.5 km

Table 9. Proximity to designated sites of conservation importance (UK)

Designation	European Site	Distance
SAC	North Anglesey Marine/Gogledd Môn Forol	Borders the Survey Area (Within MU for Harbour Porpoise)
SAC	Murlough	65.8 km
SAC	North Channel	68.4 km (Within MU for Harbour Porpoise)
SAC	West Wales Marine / Gorllewin Cymru Forol	76.4 km (Within MU for Harbour Porpoise)
SAC	Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau	78.5 km (Within MU for Bottlenose Dolphin)
SAC	Strangford Lough	82.8 km
SAC	Cardigan Bay / Bae Ceredigion	139.8 km (Within MU for Bottlenose Dolphin)
SAC	The Maidens SAC	146.4 km
SAC	Pembrokeshire Marine / Sir Benfro Forol	170.5 km
SAC	Bristol Channel Approaches/Dynesfeydd Môr Hafren	207 km (Within MU for Harbour Porpoise)
SAC	South-East Islay Skerries	233 km
SAC	Lundy	263 km
SAC	Isles of Scilly Complex	381.7 km

Table 10. Proximity to designated sites of conservation importance (FR)

Designation	European Site	Distance
SAC	Nord Bretagne DH	452 km (Within MU for Harbour Porpoise)
SAC	Récifs et landes de la Hague	480.4 km (Within MU for Harbour Porpoise)
SAC	Mers Celtiques – Talus du golfe de Gascogne	480.8 km (Within MU for Harbour Porpoise)
SAC	Anse de Vauville	488.7 km (Within MU for Harbour Porpoise)
SAC	Banc et récifs de Surtainville	507 km (Within MU for Harbour Porpoise)
SAC	Côte de Granit rose-Sept-Iles	514.1 km (Within MU for Harbour Porpoise)
SAC	Trégor – Goëlo	519.1 km (Within MU for Harbour Porpoise)
SAC	Baie de Morlaix	538 km (Within MU for Harbour Porpoise)
SAC	Abers – Côtes des légendes	539.5 km (Within MU for Harbour Porpoise)
SAC	Rivière Leguer, forêts de Beffou, Coat an Noz et Coat an Hay	546.6 km (Within MU for Harbour Porpoise)
SAC	Ouessant-Molène	550.5 km (Within MU for Harbour Porpoise)
SAC	Cap d'Erquy-Cap Fréhel	555.5 km (Within MU for Harbour Porpoise)
SAC	Chausey	557.1 km (Within MU for Harbour Porpoise)
SAC	Baie de Saint-Brieuc - Est	574.1 km (Within MU for Harbour Porpoise)
SAC	Côtes de Crozon	582.8 km (Within MU for Harbour Porpoise)
SAC	Baie du Mont Saint-Michel	585 km (Within MU for Harbour Porpoise)
SAC	Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard	586.6 km (Within MU for Harbour Porpoise)
SAC	Estuaire de la Rance	594.7 km (Within MU for Harbour Porpoise)
SAC	Chaussée de Sein	600.3 km (Within MU for Harbour Porpoise)
SAC	Récifs du talus du golfe de Gascogne	605 km (Within MU for Harbour Porpoise)

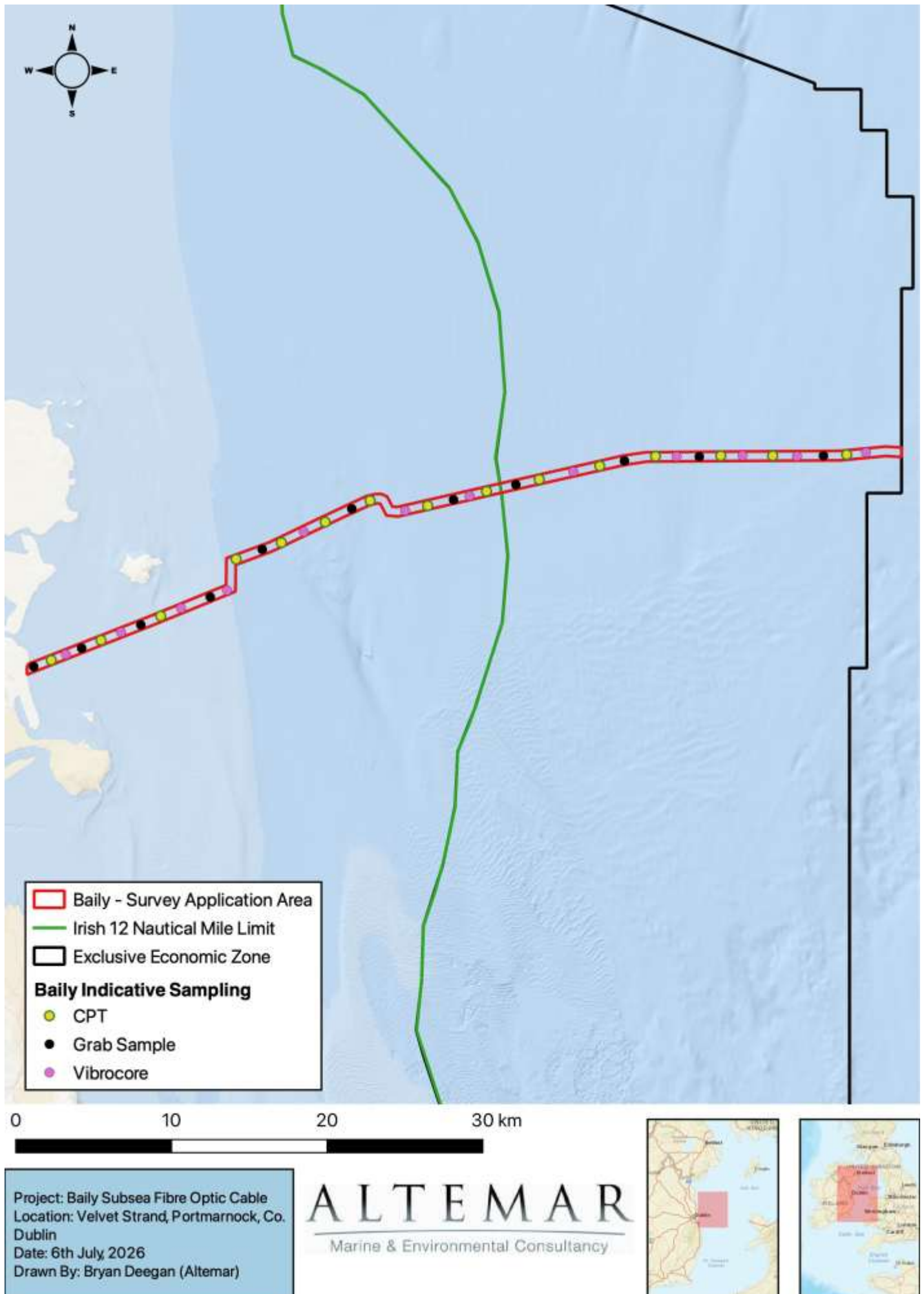


Figure 17: Proposed Survey Route Corridor and Works (to Irish Exclusive Economic Zone).

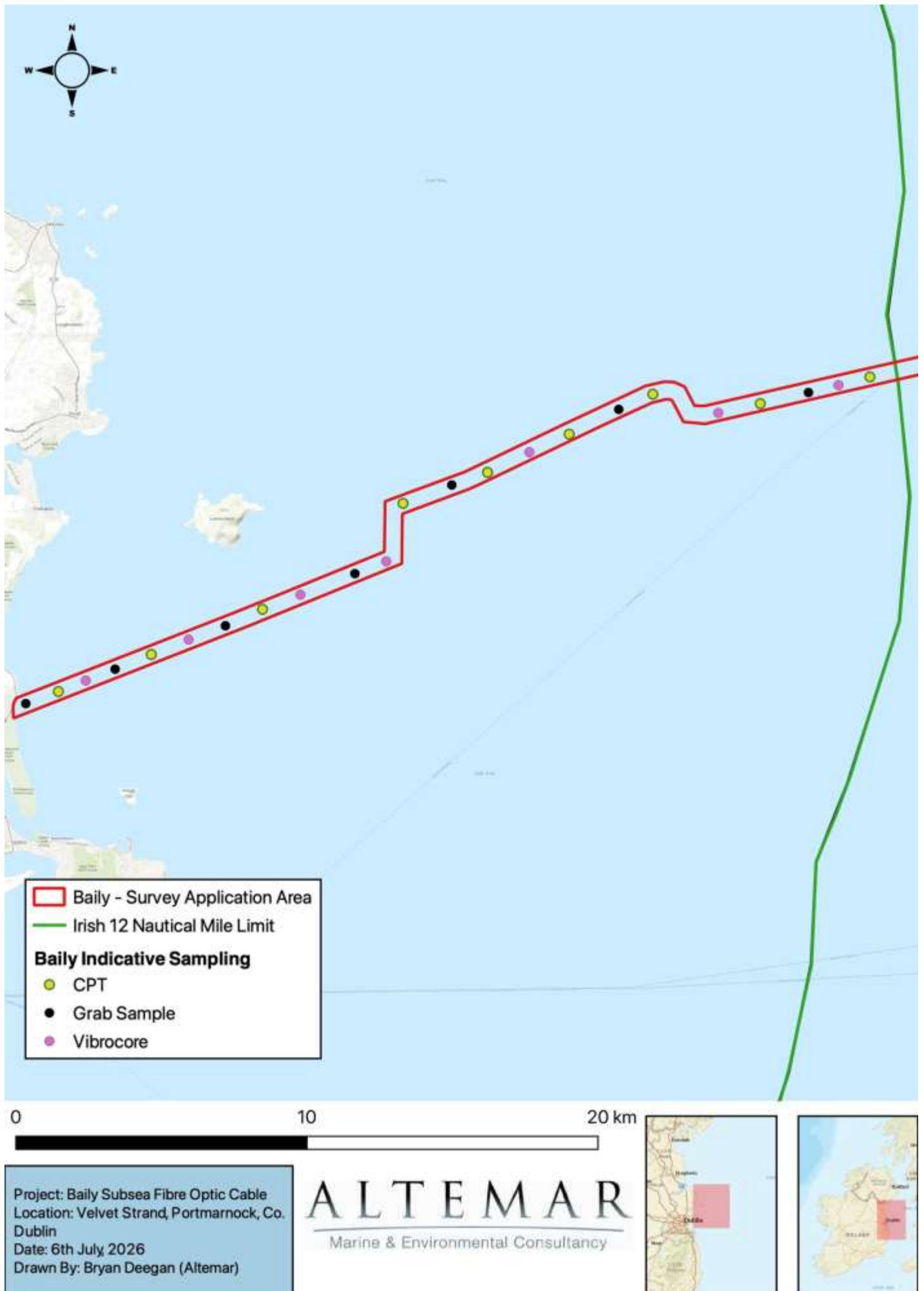


Figure 18: Proposed Survey Route Corridor and Works (to Irish 12 Nautical Mile Limit).



Figure 19. Proposed Survey Route Corridor within Portmarnock Beach

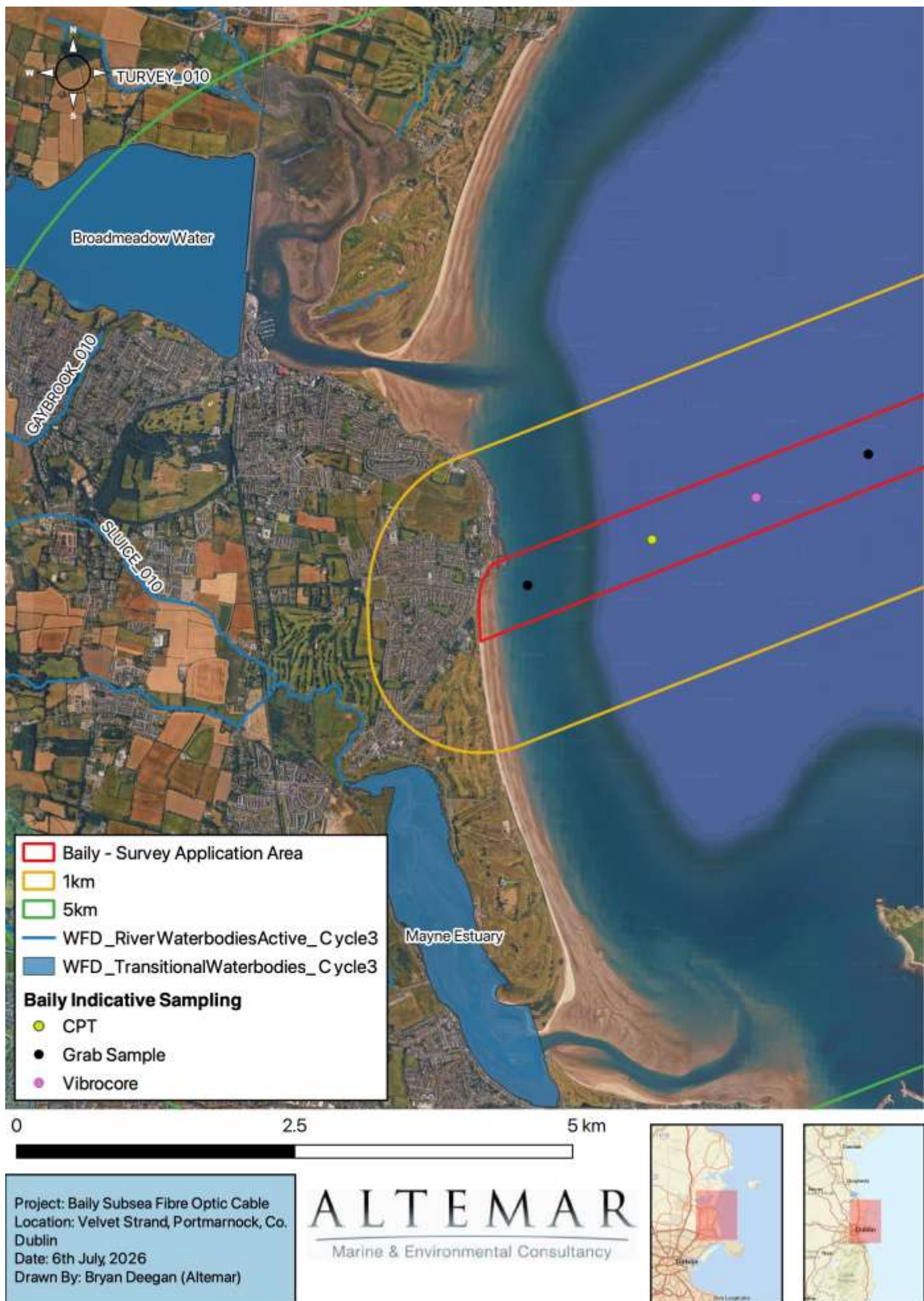


Figure 20. Waterbodies proximate to the proposed Survey Route Corridor.

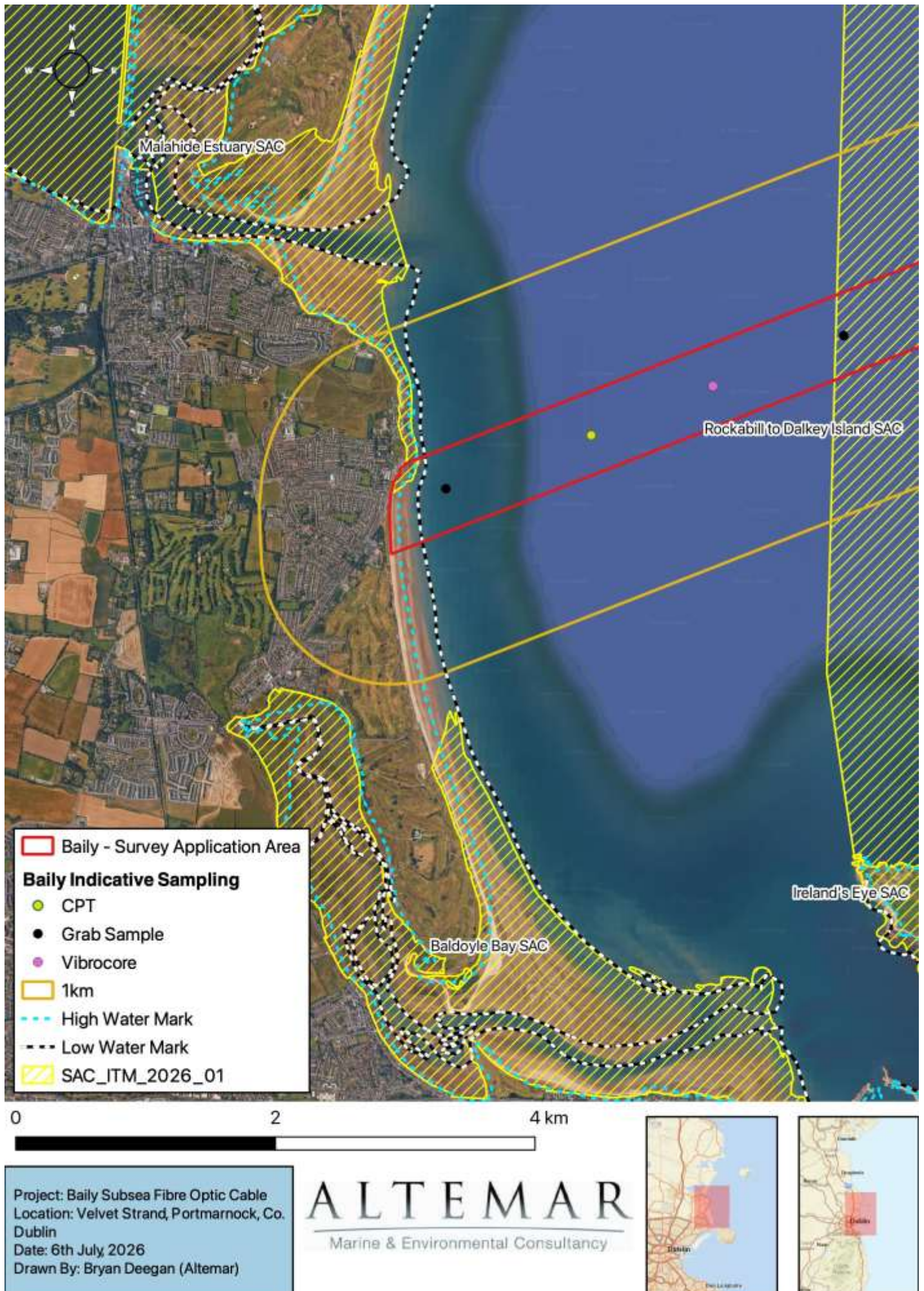


Figure 21: Special Areas of Conservation proximate to the proposed Survey Route Corridor Landfall.

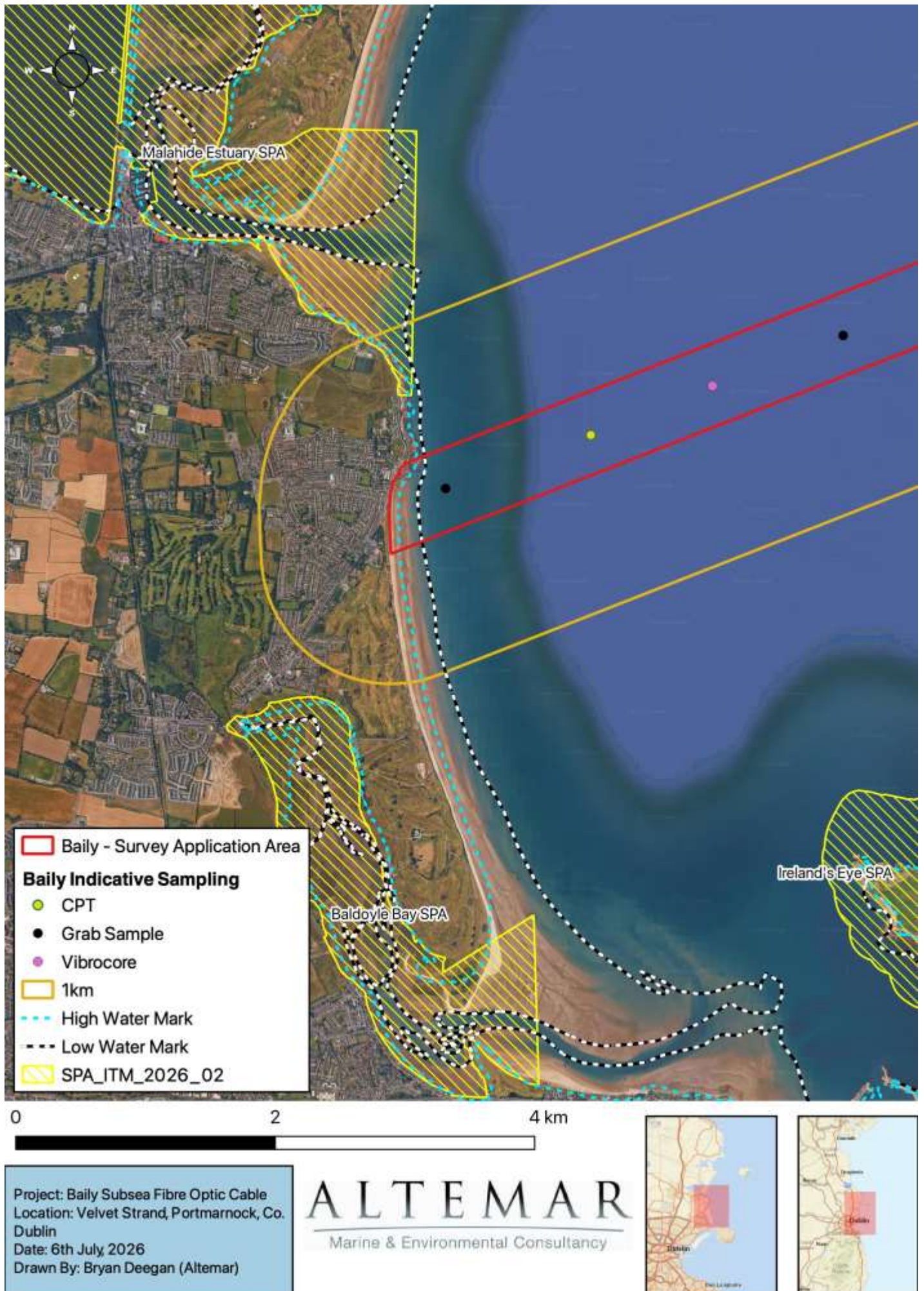


Figure 22: Special Protection Areas proximate to the proposed Survey Route Corridor Landfall.

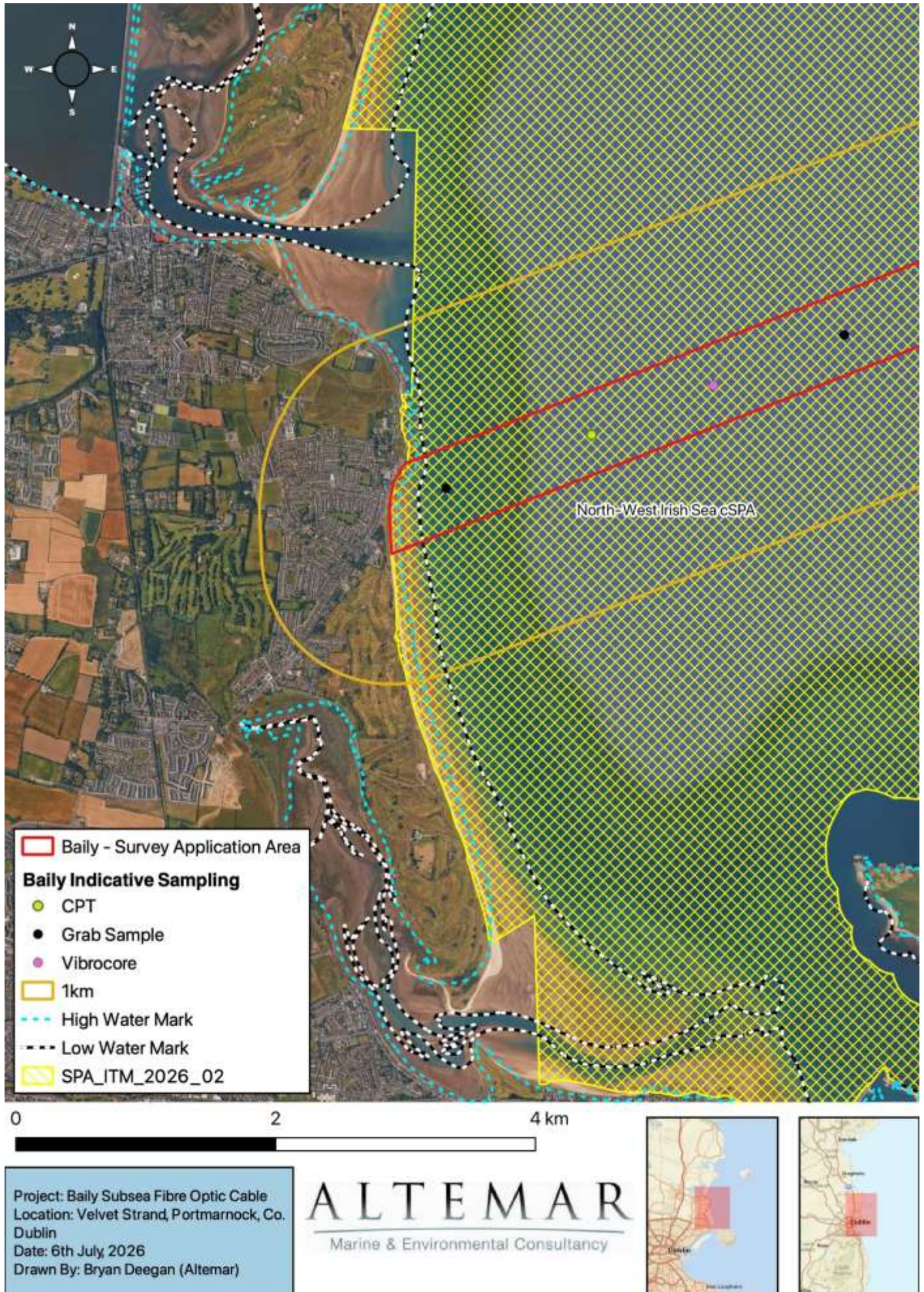
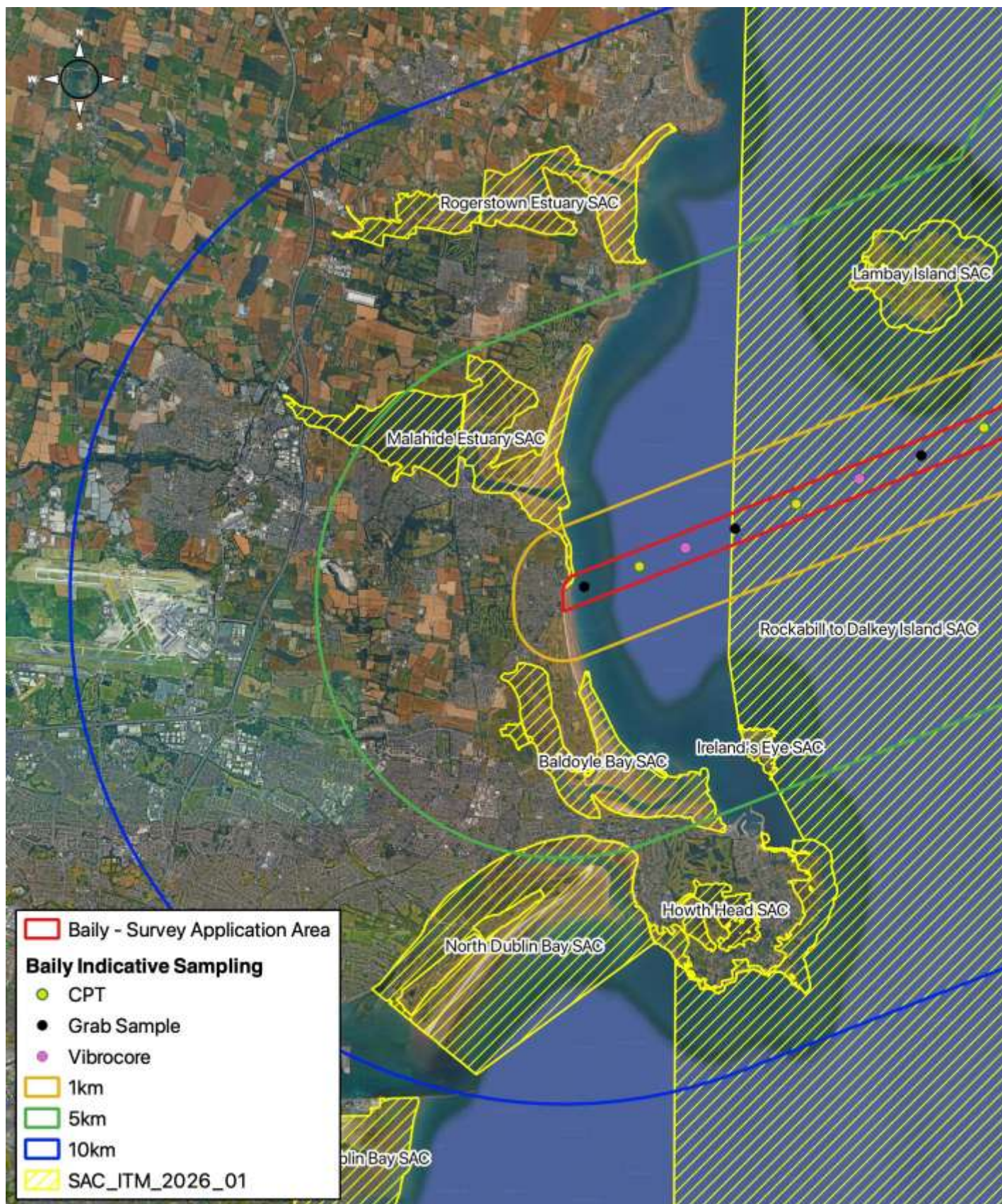


Figure 23: Marine SPAs proximate to the proposed Survey Route Corridor Landfall.



0 5 10 km

Project: Baily Subsea Fibre Optic Cable
 Location: Velvet Strand, Portmarnock, Co. Dublin
 Date: 6th July, 2026
 Drawn By: Bryan Deegan (Altamar)

ALTEMAR
 Marine & Environmental Consultancy



Figure 24: Special Areas of Conservation within 10km of the proposed Survey Route Corridor

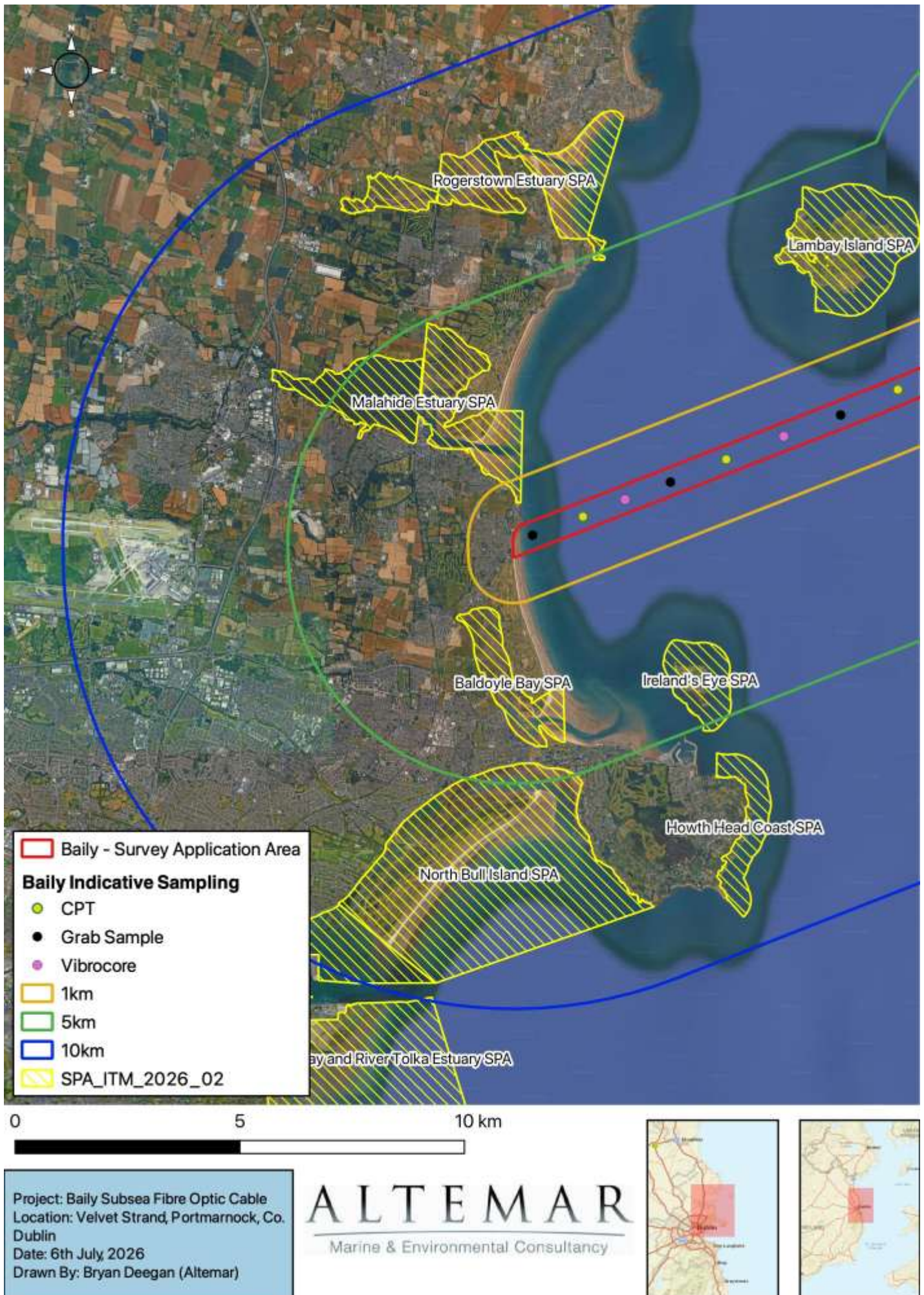


Figure 25: Special Protection Areas within 10km of the proposed Survey Route Corridor .



Figure 26: Marine SPAs within 10km of the proposed Survey Route Corridor

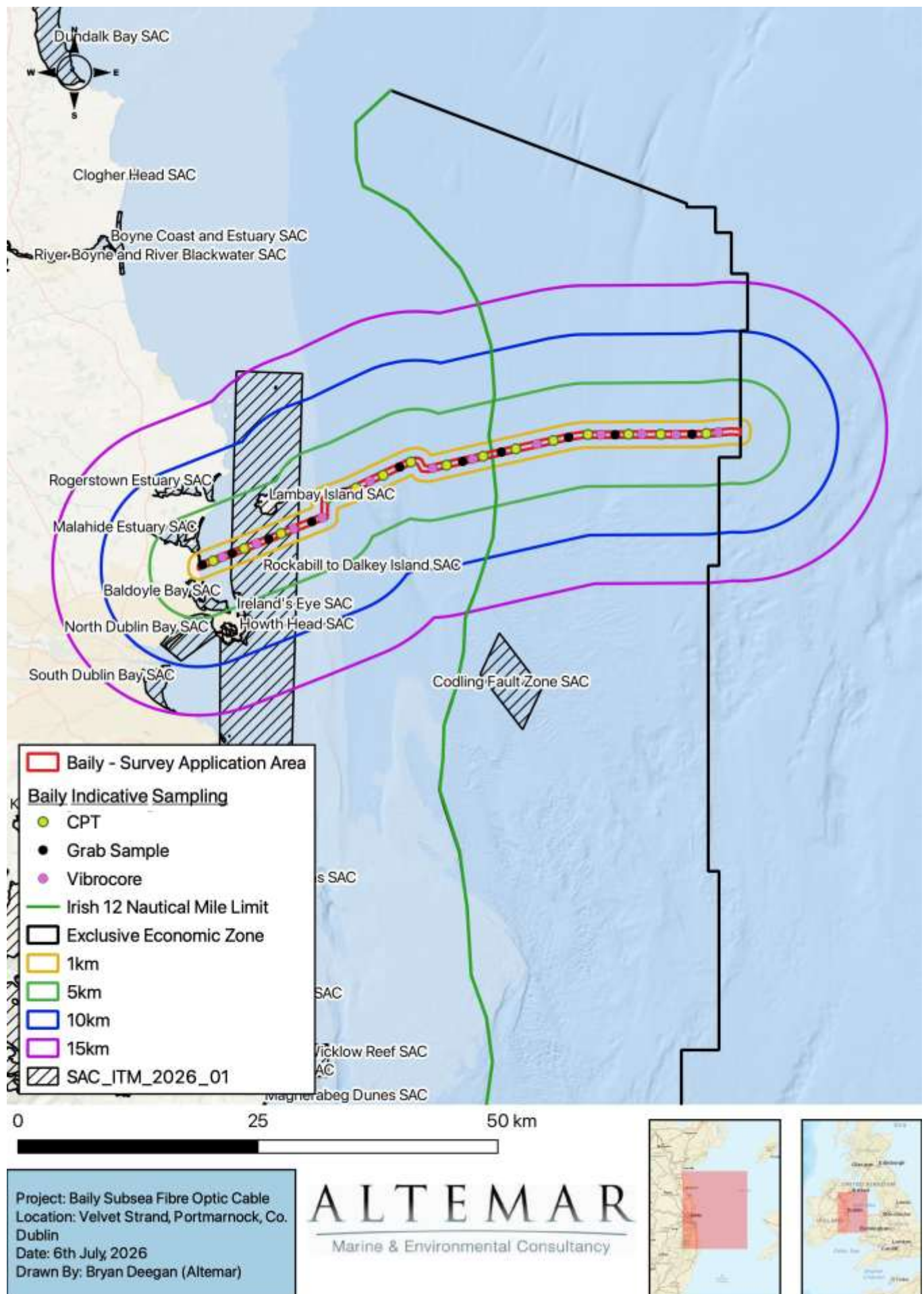


Figure 27: Special Areas of Conservation within 15 km of the proposed Survey Route Corridor.

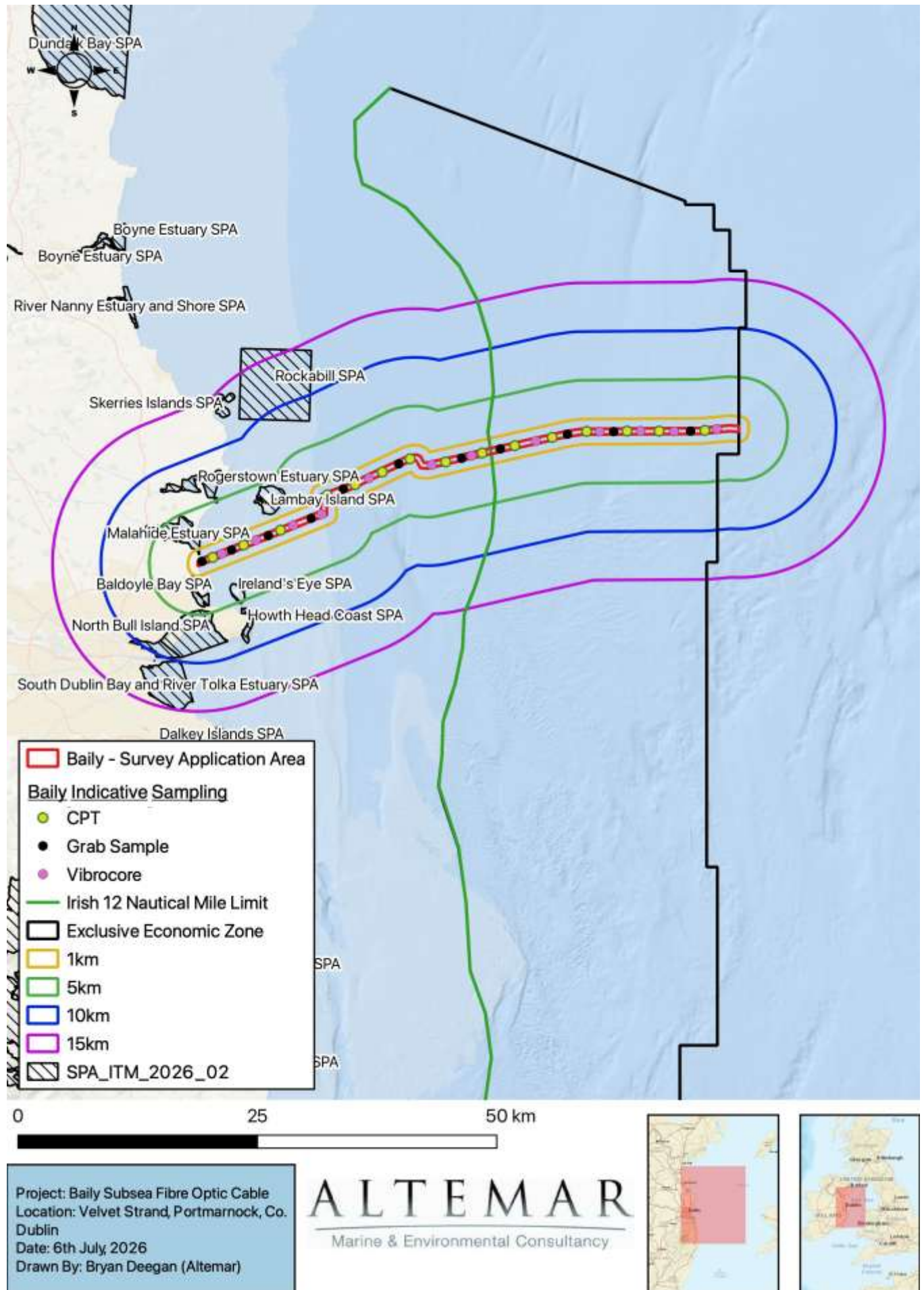


Figure 28: Special Protection Areas within 15 km of the proposed Survey Route Corridor.

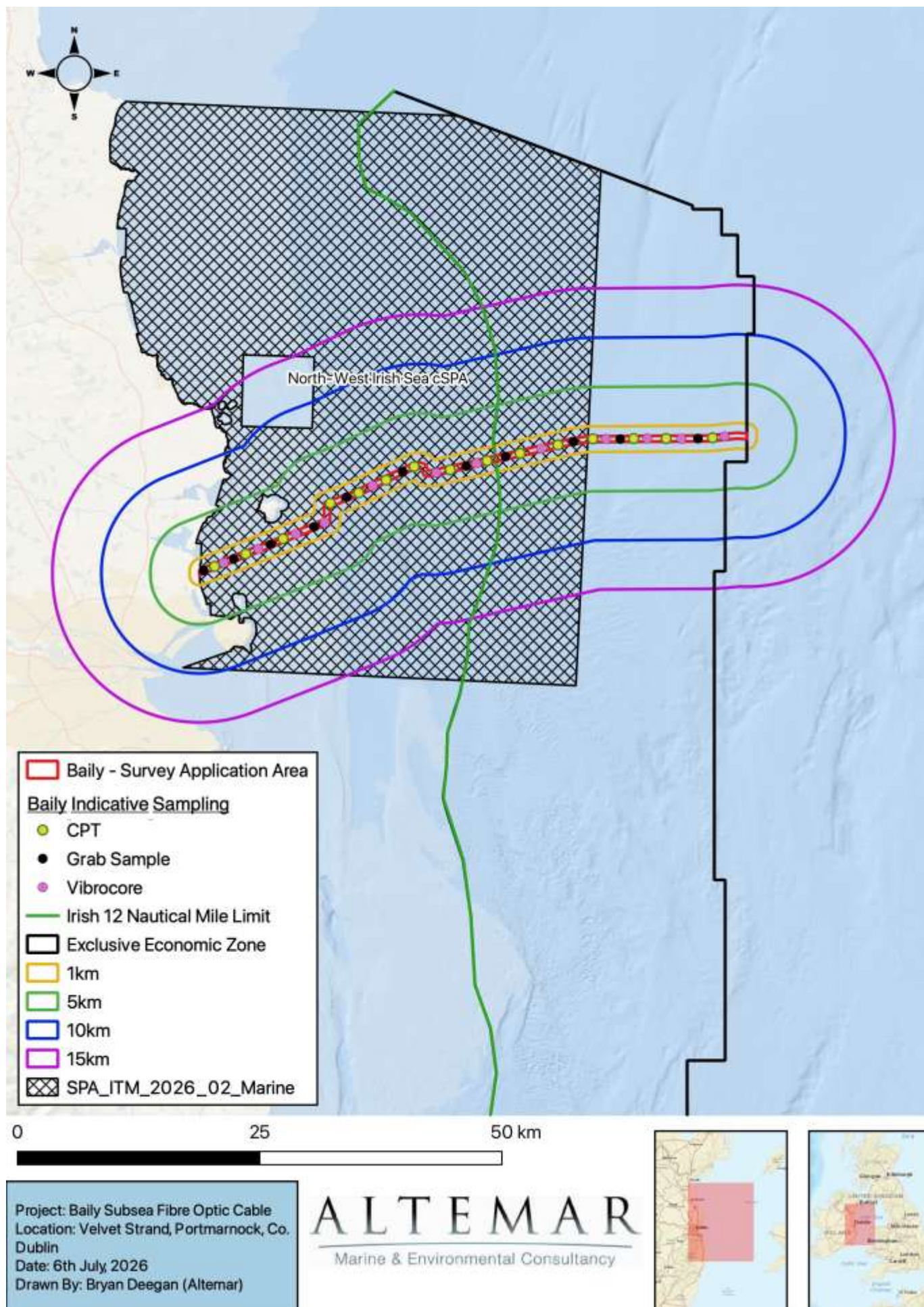


Figure 29: Marine SPAs within 15 km of the proposed Survey Route Corridor.

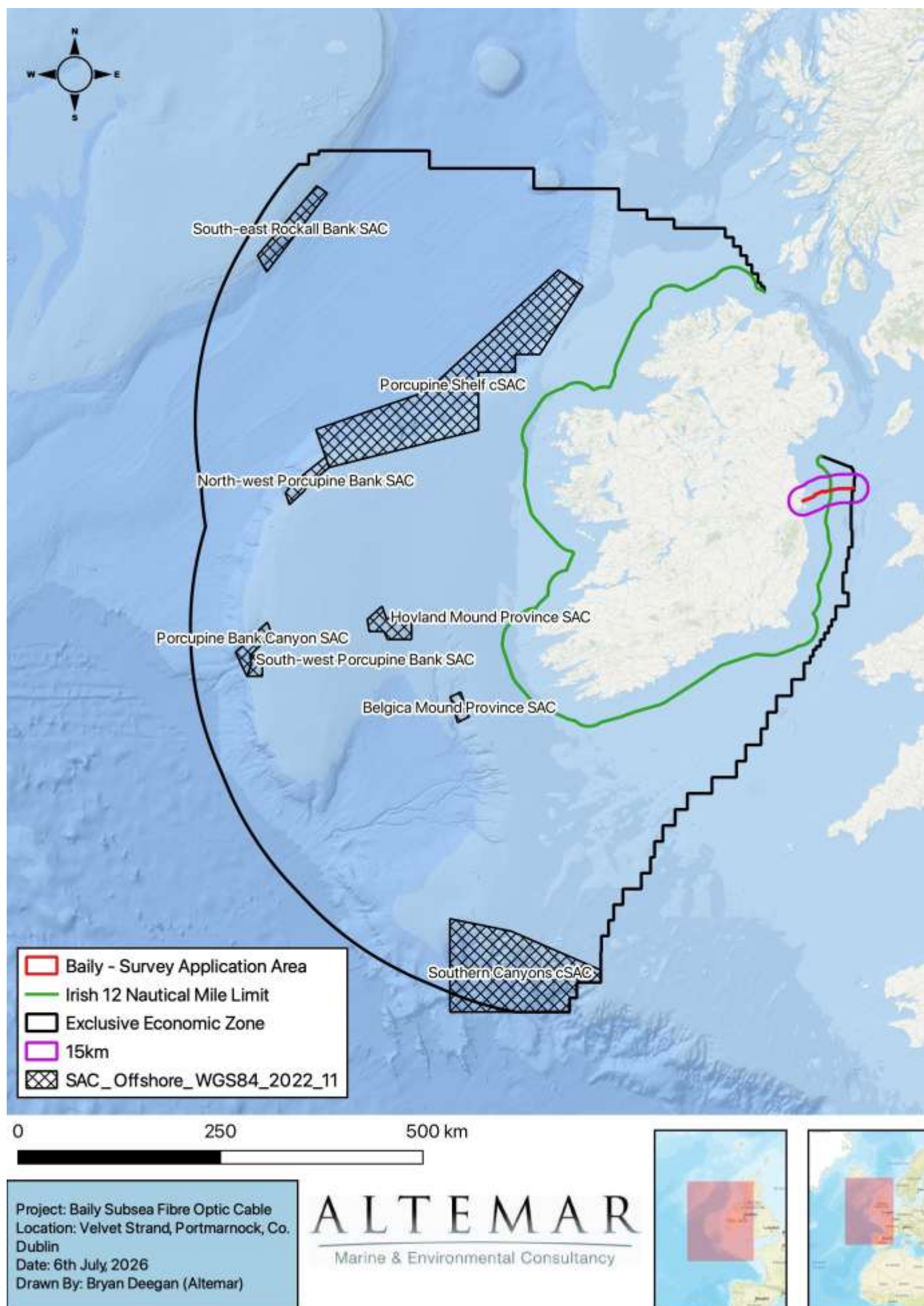


Figure 30: Fibre optic survey route in relation to the 12 nm limit, Designated Irish Continental shelf and Offshore SAC's (no offshore SAC's in the area).

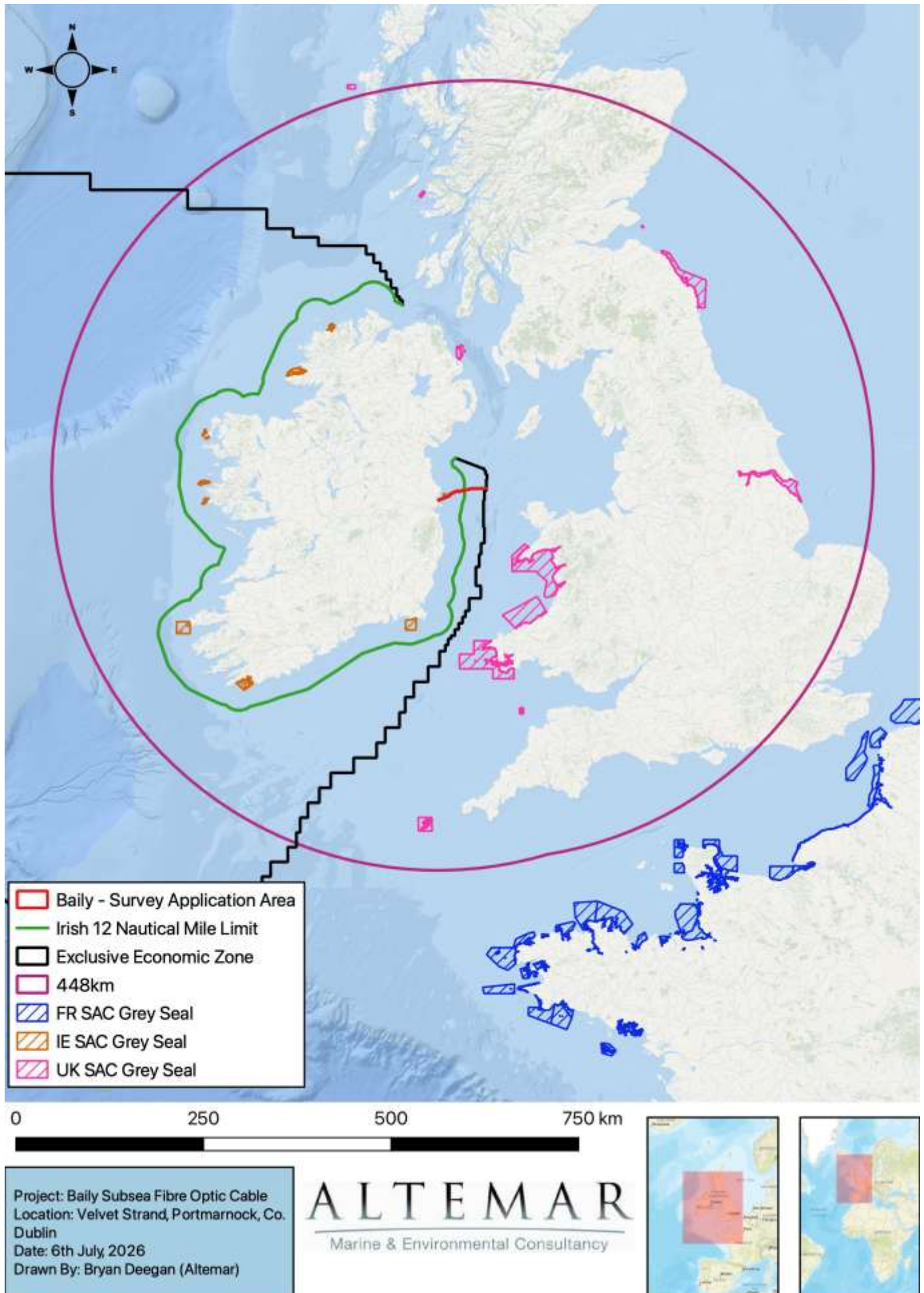


Figure 31: IE, FR, & UK SACs designated for Grey Seals (*Halichoerus grypus*) within 448km of the Proposed Survey Route Corridor.

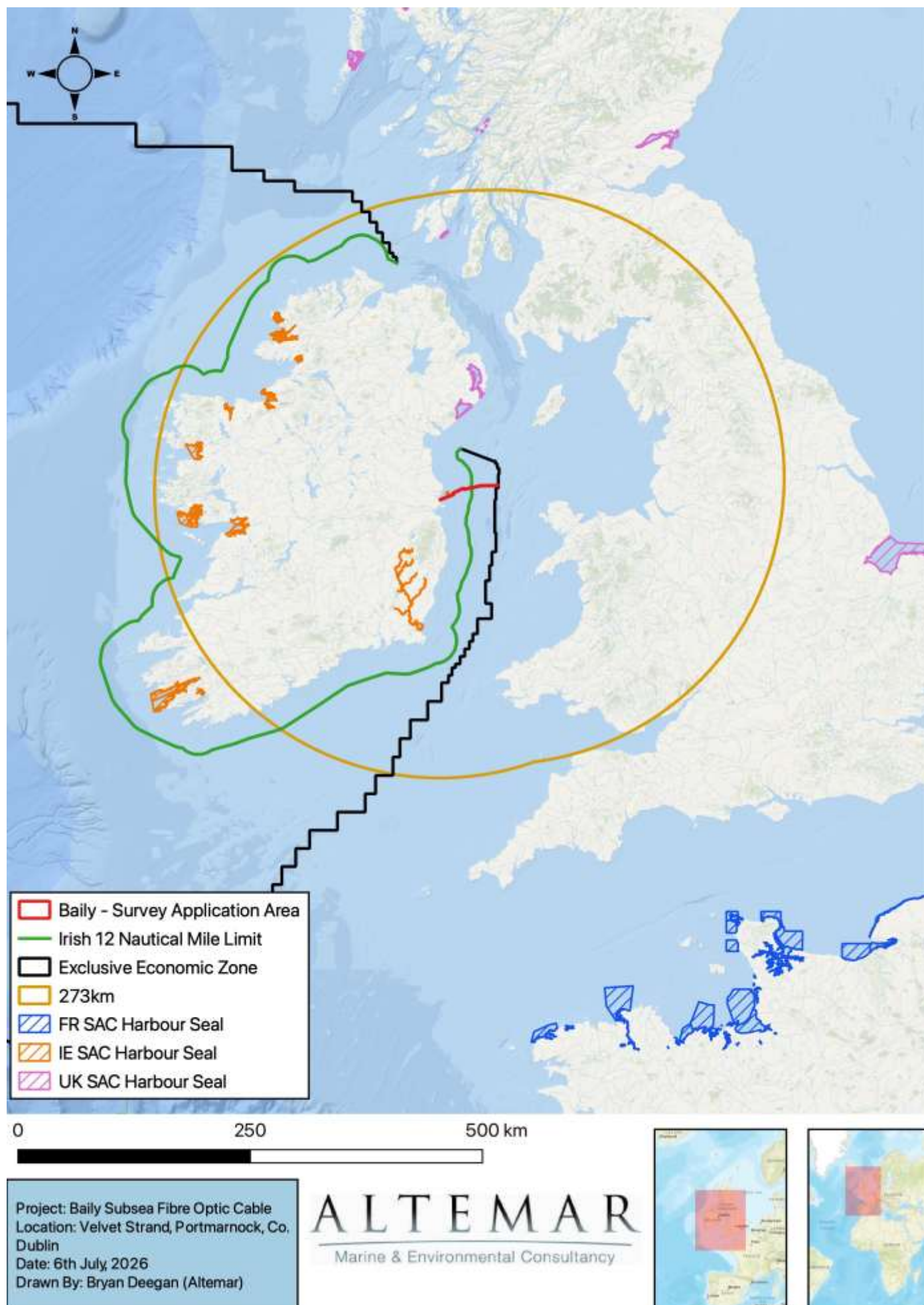


Figure 32: IE, FR, & UK SACs designated for Harbour Seals (*Phoca vitulina*) within 273km of the Proposed Survey Route Corridor

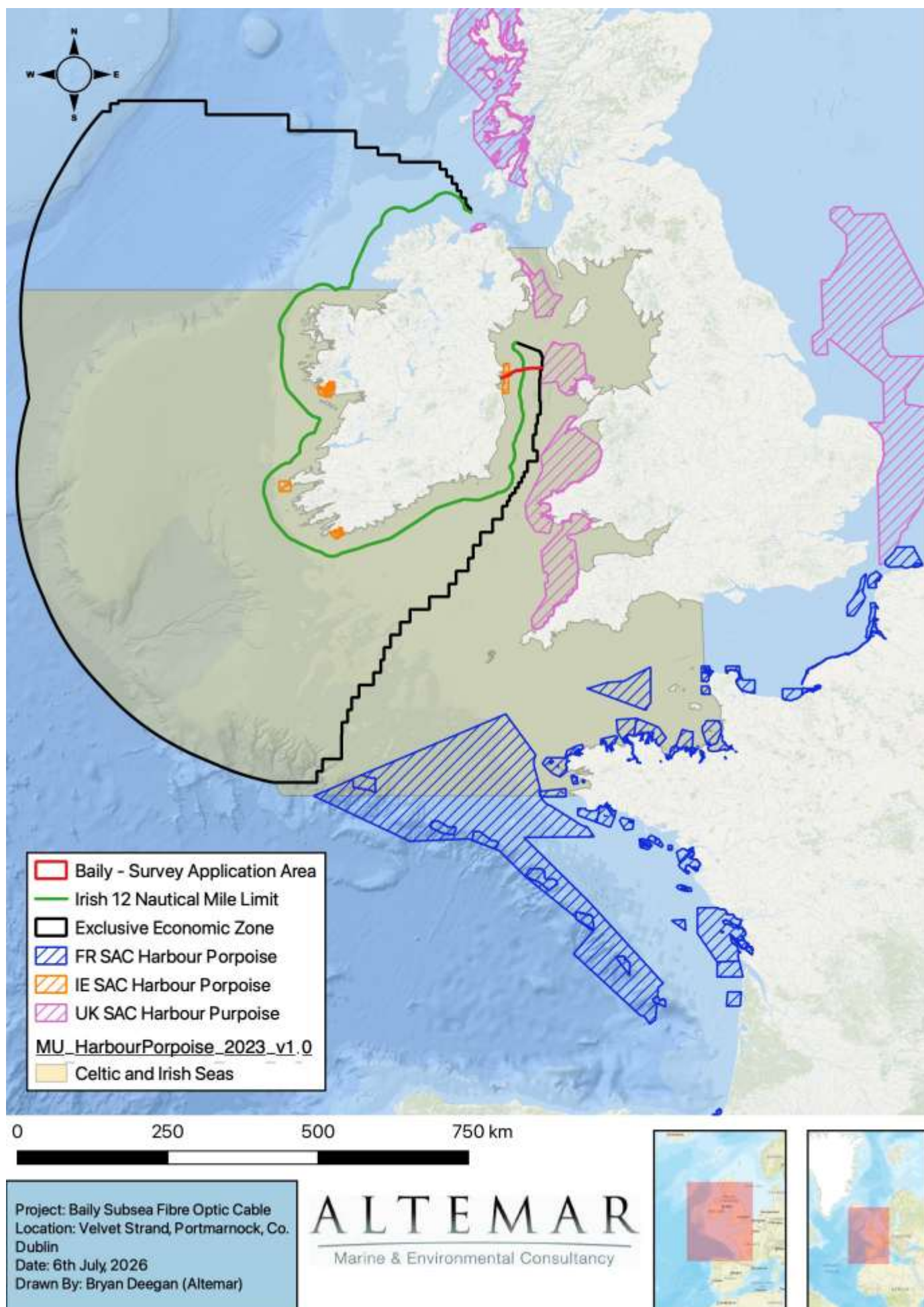


Figure 33: IE, FR, & UK SACs designated for Harbour Porpoise (*Phocoena phocoena*) within the Celtic and Irish Seas MU for Harbour Porpoise

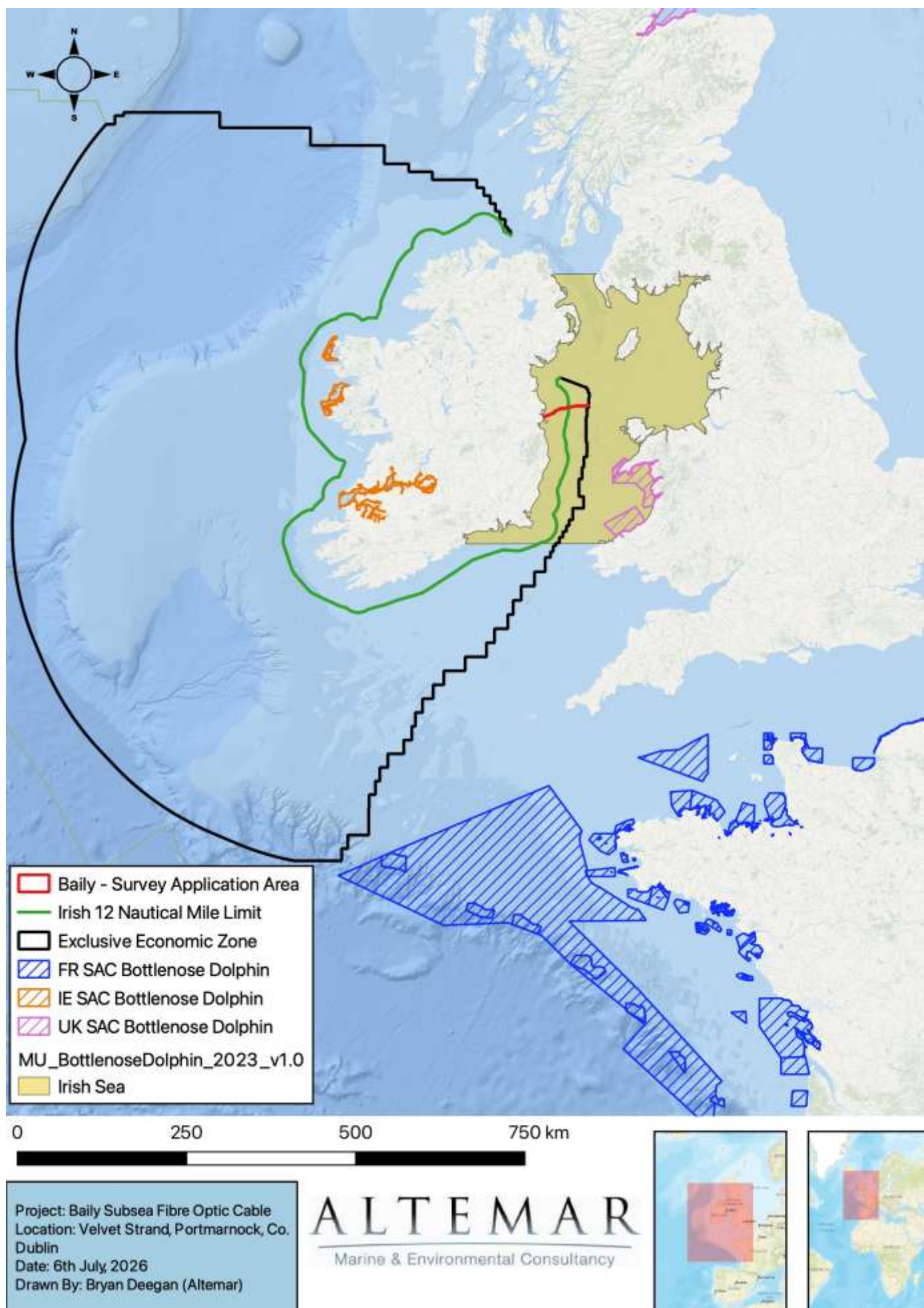


Figure 34: IE, FR, & UK SACs designated for Bottlenose Dolphin (*Tursiops truncatus*) within the Celtic and Irish Seas MU for Bottlenose Dolphin

Table 11. Initial screening of Natura 2000 sites within the potential ZOI of the proposed survey route.

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
Special Protection Areas			
IE000205	Malahide Estuary SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Potential Impact The proposed intertidal works are within, and cable survey route passes through, this SAC. The proposed survey works will be within an area of existing vessel traffic proximate to the Malahide Marina and Howth Harbour. The intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing human and dog walking activity. However, initial assessment identifies that, in the absence of mitigation measures, there may be potential for impacts on the qualifying interests of this SAC through physical impact on the intertidal and subtidal sediments and physical disturbance which could impact the qualifying interests of this SAC. Mitigation measures are required to protect the SAC from significant effects. Natura Impact Statement Required
IE003000	Rockabill to Dalkey Island SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Reefs [1170] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351] Potential Impact The proposed subtidal cable survey route passes through this SAC. The proposed survey works will be within an area of existing vessel traffic proximate to the Malahide Marina and Howth Harbour. However, initial assessment identifies that, in the absence of mitigation measures, there may be potential for

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			impact on harbour porpoise [1351] of this SAC through underwater noise and pollution and physical disturbance which could impact reefs protected as a qualifying interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. Natura Impact Statement Required
IE000199	Baldoyle Bay SAC	OUT	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Potential Impact This SAC is 1.2 km from the proposed cable survey area. The qualifying interests are intertidal and terrestrial habitats. No mobile marine species are associated with this SAC. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SAC, in the absence of mitigation, there will be no significant effects on this SAC from the proposed survey works. No significant impact likely.
IE000204	Lambay Island SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] <i>Halichoerus grypus</i> (Grey Seal) [1364] <i>Phoca vitulina</i> (Harbour Seal) [1365] Potential Impact The proposed cable survey area is located 2km from this SAC. Initial assessment identifies that, in the absence of mitigation measures, there may be potential for disturbance (noise) impacts on grey seals and harbour seals protected as QIs of this SAC. Due to short term scale of the project, the distance from the works to the SAC, and the low level of impact, there is no possibility of significant effects on the other QIs of this SAC. Mitigation measures are required for grey seals and harbour seals. Further information is required to determine the potential for adverse effects on this SAC. Natura Impact Statement Required.

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
IE002193	Ireland's Eye SAC	OUT	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Potential Impact This SAC is 3.5 km from the proposed cable survey area. The qualifying interests are intertidal or terrestrial habitats. No mobile marine species are associated with this SAC. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SAC, in the absence of mitigation, there will be no significant effects on the qualifying interests of this SAC from the proposed survey works. No significant impact likely.
IE000206	North Dublin Bay SAC	OUT	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190] <i>Petalophyllum ralfsii</i> (Petalwort) [1395] Potential Impact This SAC is 4.5km from the proposed cable survey area. The qualifying interests are intertidal or terrestrial habitats. No mobile marine species are associated with this SAC. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SAC, in the absence of mitigation, there will be no significant effects on the qualifying interests of this SAC from the proposed survey works. No significant impact likely.
IE000208	Rogerstown Estuary SAC	OUT	Conservation Objective

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Potential Impact This SAC is 5.4 km from the proposed cable survey area. The qualifying interests are intertidal or terrestrial habitats. No mobile marine species are associated with this SAC. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SAC, in the absence of mitigation, there will be no significant effects on the qualifying interests of this SAC from the proposed survey works. No significant impact likely.
IE000202	Howth Head SAC	OUT	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030] Potential Impact This SAC is 5.7 km from the proposed cable survey area. The qualifying interests are intertidal or terrestrial habitats. No mobile marine species are associated with this SAC. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SAC, in the absence of mitigation, there will be no significant effects on the qualifying interests of this SAC from the proposed survey works. No significant impact likely.
IE000210	South Dublin Bay SAC	OUT	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Salicornia and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110] Potential Impact This SAC is 10.3 km from the proposed cable survey area. The qualifying interests are intertidal or terrestrial habitats. No mobile marine species are associated with this SAC. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SAC, in the absence of mitigation, there will be no significant effects on the qualifying interests of this SAC from the proposed survey works. No significant impact likely.
IE000781	Slaney River Valley SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] <i>Petromyzon marinus</i> (Sea Lamprey) [1095] <i>Lampetra planeri</i> (Brook Lamprey) [1096] <i>Lampetra fluviatilis</i> (River Lamprey) [1099] <i>Alosa fallax fallax</i> (Twaite Shad) [1103] <i>Salmo salar</i> (Salmon) [1106] <i>Lutra lutra</i> (Otter) [1355] <i>Phoca vitulina</i> (Harbour Seal) [1365] Potential Impact This SAC is 53.9 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022).

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on harbour seal (qualifying interest of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required to protect harbour seal from significant effects. The survey area is located 53.9 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on designated habitats, Lamprey species (Sea, Brook, and River), or Freshwater pearl mussel protected as a qualifying interest of this SAC are foreseen from the proposed works associated with this survey license application. In relation to Atlantic salmon, it has been found that salmon from southeast Ireland tend to move out to the shelf edge before crossing the Atlantic towards Greenland (Rikardsen et al., 2021). Given that the proposed project is located within Dublin Bay (outside of the recorded areas of salmon migration – see Appendix I), and the temporal nature of the proposed works, no significant impacts on salmon are foreseen as a result of the proposed project in the absence of mitigation. In relation to Twaite Shad, given the spatial and temporal nature of the proposed works, and the distance to this SAC, the proposed project is considered too far for any significant interaction to occur. Further, no significant impacts on otter are foreseen. As detailed by Reid et al. (2013), female otters have territories of $7.5 \pm 1.5\text{km}$ in length along a riverine environment and $6.5 \pm 1.0\text{km}$ in coastal environments, while male otter territory along rivers is approximately $13.2 \pm 5.3\text{km}$ in length with a high degree of variability. Given the nature of the proposed works and the significant distance between the proposed survey area and this SAC (53.9 km), in the absence of mitigation, no significant effects on otter species are likely as a result of the proposed project. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
IE000707	Saltee Islands SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160]

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Submerged or partially submerged sea caves [8330] <i>Halichoerus grypus</i> (Grey Seal) [1364] Potential Impact This SAC is located 140.7 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on grey seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 140.7 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect grey seals. Natura Impact Statement Required
IE000622	Ballysadare Bay SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190] <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] <i>Phoca vitulina</i> (Harbour Seal) [1365] Potential Impact This SAC is 179.4 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on harbour seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required.

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			The survey area is located 179.4 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
IE000627	Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220] <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] <i>Petromyzon marinus</i> (Sea Lamprey) [1095] <i>Lampetra fluviatilis</i> (River Lamprey) [1099] <i>Phoca vitulina</i> (Harbour Seal) [1365] Potential Impact This SAC is 180.6 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on harbour seal (Feature of Interest of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 180.6 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on designated habitats, Lamprey species (Sea and River) protected as a qualifying interest of this SAC are foreseen

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			from the proposed works associated with this survey license application. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
IE000133	Donegal Bay (Murvagh) SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) [2170] Humid dune slacks [2190] <i>Phoca vitulina</i> (Harbour Seal) [1365] Potential Impact This SAC is 184.6 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on harbour seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 184.6 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
IE000268	Galway Bay Complex SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150] Large shallow inlets and bays [1160]

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			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 (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Turloughs [3180] <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] Alkaline fens [7230] Limestone pavements [8240] <i>Lutra lutra</i> (Otter) [1355] <i>Phoca vitulina</i> (Harbour Seal) [1365] Potential Impact This SAC is 185.7 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on harbour seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 185.7 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats protected as a qualifying interest of this SAC are foreseen from the proposed survey works. Further, no significant impacts on otter are foreseen. As detailed by Reid et al. (2013), female otters have territories of 7.5 ± 1.5km in length along a riverine environment and 6.5 ± 1.0km in coastal environments, while male otter territory along rivers is approximately 13.2 ± 5.3km in length with a high degree of variability. Given the nature of the proposed works and the significant distance between the proposed survey area and this SAC (185.7 km), in the absence of mitigation, no significant effects on otter species are likely as a result of the proposed project. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
IE000197	West of Ardara/Maas Road SAC	IN	Conservation Objective

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] Annual vegetation of drift lines [1210] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Decalcified fixed dunes with <i>Empetrum nigrum</i> [2140] Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150] Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) [2170] Humid dune slacks [2190] Machairs (* in Ireland) [21A0] Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] European dry heaths [4030] Alpine and Boreal heaths [4060] <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410] Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) [6510] Blanket bogs (* if active bog) [7130] Depressions on peat substrates of the <i>Rhynchosporion</i> [7150] Alkaline fens [7230] <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013] <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] <i>Euphydryas aurinia</i> (Marsh Fritillary) [1065] <i>Salmo salar</i> (Salmon) [1106] <i>Lutra lutra</i> (Otter) [1355] <i>Phoca vitulina</i> (Harbour Seal) [1365] <i>Petalophyllum ralfsii</i> (Petalwort) [1395] <i>Najas flexilis</i> (Slender Naiad) [1833] Potential Impact

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			This SAC is 201.5 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on harbour seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 201.5 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. In relation to Atlantic salmon, it has been found that salmon from southeast Ireland tend to move out to the shelf edge before crossing the Atlantic towards Greenland (Rikardsen et al., 2021). Given that the proposed project is located within Dublin Bay (outside of the recorded areas of salmon migration – see Appendix I), and the temporal nature of the proposed works, no significant impacts on salmon are foreseen as a result of the proposed project in the absence of mitigation. Further, no significant impacts on otter are foreseen. As detailed by Reid et al. (2013), female otters have territories of $7.5 \pm 1.5\text{km}$ in length along a riverine environment and $6.5 \pm 1.0\text{km}$ in coastal environments, while male otter territory along rivers is approximately $13.2 \pm 5.3\text{km}$ in length with a high degree of variability. Given the nature of the proposed works and the significant distance between the proposed survey area and this SAC (201.5 km), in the absence of mitigation, no significant effects on otter species are likely as a result of the proposed project. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
IE000190	Slieve Tooley/Tormore Island/Loughros Beg Bay SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Decalcified fixed dunes with <i>Empetrum nigrum</i> [2140] Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150] Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) [2170] Humid dune slacks [2190] Alpine and Boreal heaths [4060] Blanket bogs (* if active bog) [7130] <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] <i>Lutra lutra</i> (Otter) [1355] <i>Halichoerus grypus</i> (Grey Seal) [1364] Potential Impact This SAC is located 210.3 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on grey seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 210.3 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed works associated with this survey license application. Further, no significant impacts on otter are foreseen. As detailed by Reid et al. (2013), female otters have territories of 7.5 ± 1.5 km in length along a riverine environment and 6.5 ± 1.0 km in coastal environments, while male otter territory along rivers is approximately 13.2 ± 5.3 km in length with a high degree of variability. Given the nature of the proposed works and the significant distance between the proposed survey area and this SAC (210.3 km), in the absence of mitigation, no significant effects on otter species are likely as a result of the proposed project. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect grey seals. Natura Impact Statement Required
IE000458	Killala Bay/Moy Estuary SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Estuaries [1130]

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190] <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] <i>Petromyzon marinus</i> (Sea Lamprey) [1095] <i>Phoca vitulina</i> (Harbour Seal) [1365] Potential Impact This SAC is 213 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on harbour seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 213 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
IE002283	Rutland Island and Sound SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Annual vegetation of drift lines [1210] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			Humid dune slacks [2190] <i>Phoca vitulina</i> (Harbour Seal) [1365] Potential Impact This SAC is 223.5 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on harbour seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 223.5 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
IE002111	Kilkieran Bay and Islands SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Machairs (* in Ireland) [21A0] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) [6510] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351] <i>Lutra lutra</i> (Otter) [1355] <i>Phoca vitulina</i> (Harbour Seal) [1365] <i>Najas flexilis</i> (Slender Naiad) [1833] Potential Impact This SAC is 227.8 km from the proposed cable survey area. The proposed cable survey area is located within the Celtic and Irish Seas MU for Harbour Porpoise (JNCC, 2023) and is

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on harbour seal and harbour porpoise (QIs of this SAC) through underwater noise and physical disturbance which could impact the Features of Interest of this SAC should this species enter the Zone of Influence. Mitigation measures are required to protect the SAC from significant effects. Further, no significant impacts on otter are foreseen. As detailed by Reid et al. (2013), female otters have territories of 7.5 ± 1.5 km in length along a riverine environment and 6.5 ± 1.0 km in coastal environments, while male otter territory along rivers is approximately 13.2 ± 5.3 km in length with a high degree of variability. Given the nature of the proposed works and the significant distance between the proposed survey area and this SAC (227.8 km), in the absence of mitigation, no significant effects on otter species are likely as a result of the proposed project. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
IE001482	Clew Bay Complex SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150] Large shallow inlets and bays [1160] Annual vegetation of drift lines [1210] Perennial vegetation of stony banks [1220] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Machairs (* in Ireland) [21A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] <i>Lutra lutra</i> (Otter) [1355] <i>Phoca vitulina</i> (Harbour Seal) [1365] Potential Impact This SAC is 230 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022).

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on harbour seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 230 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. Further, no significant impacts on otter are foreseen. As detailed by Reid et al. (2013), female otters have territories of 7.5 ± 1.5 km in length along a riverine environment and 6.5 ± 1.0 km in coastal environments, while male otter territory along rivers is approximately 13.2 ± 5.3 km in length with a high degree of variability. Given the nature of the proposed works and the significant distance between the proposed survey area and this SAC (230 km), in the absence of mitigation, no significant effects on otter species are likely as a result of the proposed project. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
IE000278	Inishbofin and Inishshark SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Coastal lagoons [1150] Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110] Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] European dry heaths [4030] <i>Halichoerus grypus</i> (Grey Seal) [1364] Potential Impact This SAC is located 265.2 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on grey seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 265.2 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect grey seals. Natura Impact Statement Required
IE000147	Horn Head and Rinclevan SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) [2170] Humid dune slacks [2190] Machairs (* in Ireland) [21A0] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013] <i>Halichoerus grypus</i> (Grey Seal) [1364] <i>Petalophyllum ralfsii</i> (Petalwort) [1395] <i>Najas flexilis</i> (Slender Naiad) [1833] Potential Impact This SAC is located 266.5 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on grey seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 266.5 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect grey seals. Natura Impact Statement Required
IE000328	Slyne head Islands SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Reefs [1170] <i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] <i>Halichoerus grypus</i> (Grey Seal) [1364] Potential Impact This SAC is located 266.6 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). The proposed cable survey area is not located within the West Coast of Ireland MU for bottlenose dolphin which encapsulates this SAC. Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on grey seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 266.6 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect grey seals. Natura Impact Statement Required
IE000495	Duvillaun Islands SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests <i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] <i>Halichoerus grypus</i> (Grey Seal) [1364] Potential Impact This SAC is located 273.8 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). The proposed cable survey area is not located within the West Coast of Ireland MU for bottlenose dolphin which encapsulates this SAC. Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on grey seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required.

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			The survey area is located 273.8 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect grey seals. Natura Impact Statement Required
IE000507	Inishkea Islands SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Machairs (* in Ireland) [21A0] <i>Halichoerus grypus</i> (Grey Seal) [1364] <i>Petalophyllum ralfsii</i> (Petalwort) [1395] Potential Impact This SAC is located 277.2 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on grey seal (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 277.2 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect grey seals. Natura Impact Statement Required
IE000101	Roaringwater Bay and Islands SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests 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]

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			<i>Phocoena phocoena</i> (Harbour Porpoise) [1351] <i>Lutra lutra</i> (Otter) [1355] <i>Halichoerus grypus</i> (Grey Seal) [1364] Potential Impact This SAC is 304.9 km from the proposed cable survey area. The proposed cable survey area is located within the Celtic and Irish Seas MU for Harbour Porpoise (JNCC, 2023) and is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on grey seal and harbour porpoise (QIs of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 304.9 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. Further, no significant impacts on otter are foreseen. As detailed by Reid et al. (2013), female otters have territories of 7.5 ± 1.5 km in length along a riverine environment and 6.5 ± 1.0 km in coastal environments, while male otter territory along rivers is approximately 13.2 ± 5.3 km in length with a high degree of variability. Given the nature of the proposed works and the significant distance between the proposed survey area and this SAC (304.9 km), in the absence of mitigation, no significant effects on otter species are likely as a result of the proposed project. The proposed project has the potential to introduce noise, pollution, and physical disturbance into the marine environment and mitigation measures are required to protect harbour porpoise and grey seals. Natura Impact Statement Required
IE002172	Blasket Islands SAC	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030] Submerged or partially submerged sea caves [8330] <i>Phocoena phocoena</i> (Harbour Porpoise) [1351] <i>Halichoerus grypus</i> (Grey Seal) [1364]

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			Potential Impact This SAC is 325.9 km from the proposed cable survey area. The proposed cable survey area is located within the Celtic and Irish Seas MU for Harbour Porpoise (JNCC, 2023) and is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on grey seal and harbour porpoise (QI of this SAC) through underwater noise and physical disturbance should this species enter the Zone of Influence. Mitigation measures are required. The survey area is located 325.9 km from this conservation site. Given the nature of the proposed works, and the significant distance to this SAC across a marine environment, in the absence of mitigation measures, no significant impacts on habitats or other species protected as a qualifying interest of this SAC are foreseen from the proposed survey works. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour porpoise and grey seals. Natura Impact Statement Required
Special Protection Areas			
IE004236	North-West Irish Sea SPA	IN	Conservation Objectives The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Special Conservation Interests Red-throated Diver (<i>Gavia stellata</i>) [A001] Great Northern Diver (<i>Gavia immer</i>) [A003] Fulmar (<i>Fulmarus glacialis</i>) [A009] Manx Shearwater (<i>Puffinus puffinus</i>) [A013] Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Phalacrocorax aristotelis</i>) [A018] Common Scoter (<i>Melanitta nigra</i>) [A065] Little Gull (<i>Larus minutus</i>) [A177] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Common Gull (<i>Larus canus</i>) [A182] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] Herring Gull (<i>Larus argentatus</i>) [A184] Great Black-backed Gull (<i>Larus marinus</i>) [A187] Kittiwake (<i>Rissa tridactyla</i>) [A188] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194] Little Tern (<i>Sterna albifrons</i>) [A195] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200] Puffin (<i>Fratercula arctica</i>) [A204]

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			Potential Impact This SPA is located within the proposed intertidal and subtidal cable survey area. The proposed survey route is located in an area that currently experiences a high level of vessel activity. Waters within this SPA constitutes an important resource for marine birds. The estuaries and bays that open into it along with connecting coastal stretches of intertidal and shallow subtidal habitats, provide safe feeding and roosting habitats for waterbirds throughout the winter and migration periods. These areas, along with more pelagic marine waters further offshore, provide additional supporting habitats (for foraging and other maintenance behaviours) for those seabirds that breed at colonies on the north-west Irish Sea's islands and coastal headlands^d. Given the minimal nature of the proposed survey works, no significant impacts on water quality are foreseen. However, out of an abundance of caution, despite the limited temporal and geographic scale of the proposed project, it is considered that there is the potential for visual and acoustic disturbance (via the works vessel and intertidal works) impacts on seabirds protected as SCIs of this SPA which may be foraging / resting in intertidal / subtidal waters along the proposed survey corridor in the absence of mitigation. Mitigation measures are required to protect the SPA from significant effects Natura Impact Statement Required.
IE004025	Malahide Estuary SPA	IN	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Special Conservation Interests Great Crested Grebe (<i>Podiceps cristatus</i>) [A005] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Pintail (<i>Anas acuta</i>) [A054] Goldeneye (<i>Bucephala clangula</i>) [A067] Red-breasted Merganser (<i>Mergus serrator</i>) [A069] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162] Wetland and Waterbirds [A999] Potential Impact

^d <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004236.pdf>

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			The proposed cable survey route is located 500m from this SPA. The survey is in the marine intertidal of Portmarnock Beach and subtidal environment of waters off Co. Dublin. The proposed survey works will be within an area of existing vessel traffic in proximate to the Malahide Marina and Howth Harbour, and the intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing human and dog walking activity. However, given the proximity from the survey area to this SPA (500m), initial assessment identifies that, in the absence of mitigation measures, there may be potential for noise and visual disturbance impacts on SCIs of this SPA. Mitigation measures are required to protect the SPA from significant effects. Natura Impact Statement Required.
IE004016	Baldoyle Bay SPA	OUT	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Special Conservation Interests Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Wetland and Waterbirds [A999] Potential Impact This SPA is located 1.2 km from the proposed cable survey area. The survey is in the marine intertidal and subtidal element of Portmarnock Beach. The marine survey is proximate to an area of existing vessel activity (Malahide Marina & Howth Harbour). The proposed survey works will be within an area of existing vessel traffic in proximate to the Malahide Marina and Howth Harbour, and the intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing human and dog walking activity. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SPA, no significant disturbance impacts on this SPA are foreseen. The presence of a vessel offshore (travelling at a slow speed of 4 knots), in an area of existing vessel activity and at such a distance from this SPA (1.2 km), would not be deemed to have an impact on the conservation objectives of this SPA. In the absence of mitigation, there will be no significant effects on the SCIs from the proposed works associated with this survey. No significant impact likely.
IE004069	Lambay Island SPA	OUT	Conservation Objective

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. Special Conservation Interests Fulmar (<i>Fulmarus glacialis</i>) [A009] Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Phalacrocorax aristotelis</i>) [A018] Greylag Goose (<i>Anser anser</i>) [A043] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200] Puffin (<i>Fratercula arctica</i>) [A204] Potential Impact This SPA is located 1.7 km from the proposed cable survey area. The survey is in the marine intertidal and subtidal element of Portmarnock Beach. The marine survey is proximate to an area of existing vessel activity (Malahide Marina & Howth Harbour). The proposed survey works will be within an area of existing vessel traffic in proximate to the Malahide Marina and Howth Harbour, and the intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing human and dog walking activity. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SPA, no significant disturbance impacts on this SPA are foreseen. The presence of a vessel offshore (travelling at a slow speed of 4 knots), in an area of existing vessel activity and at such a distance from this SPA (1.7 km), would not be deemed to have an impact on the conservation objectives of this SPA. In the absence of mitigation, there will be no significant effects on the SCIs from the proposed works associated with this survey. No significant impact likely.
IE004117	Ireland's Eye SPA	OUT	Conservation Objective To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. Special Conservation Interests Cormorant (<i>Phalacrocorax carbo</i>) [A017] Herring Gull (<i>Larus argentatus</i>) [A184] Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199] Razorbill (<i>Alca torda</i>) [A200] Potential Impact This SPA is located 3 km from the proposed cable survey area. The survey is in the marine intertidal and subtidal element of Portmarnock Beach. The marine survey is proximate to an

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			area of existing vessel activity (Malahide Marina & Howth Harbour). The proposed survey works will be within an area of existing vessel traffic in proximate to the Malahide Marina and Howth Harbour, and the intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing human and dog walking activity. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SPA, no significant disturbance impacts on this SPA are foreseen. The presence of a vessel offshore (travelling at a slow speed of 4 knots), in an area of existing vessel activity and at such a distance from this SPA (3 km), would not be deemed to have an impact on the conservation objectives of this SPA. In the absence of mitigation, there will be no significant effects on the SCIs from the proposed works associated with this survey. No significant impact likely.
IE004006	North Bull Island SPA	OUT	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Special Conservation Interests Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Teal (<i>Anas crecca</i>) [A052] Pintail (<i>Anas acuta</i>) [A054] Shoveler (<i>Anas clypeata</i>) [A056] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa totanus</i>) [A162] Turnstone (<i>Arenaria interpres</i>) [A169] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Wetland and Waterbirds [A999] Potential Impact This SPA is located 4.5 km from the proposed cable survey area. The survey is in the marine intertidal and subtidal element of Portmarnock Beach. The marine survey is proximate to an area of existing vessel activity (Malahide Marina & Howth Harbour). The proposed survey works will be within an area of existing vessel traffic in proximate to the Malahide Marina and Howth Harbour, and the intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			human and dog walking activity. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SPA, no significant disturbance impacts on this SPA are foreseen. The presence of a vessel offshore (travelling at a slow speed of 4 knots), in an area of existing vessel activity and at such a distance from this SPA (4.5 km), would not be deemed to have an impact on the conservation objectives of this SPA. In the absence of mitigation, there will be no significant effects on the SCIs from the proposed works associated with this survey. No significant impact likely.
IE004015	Rogerstown Estuary SPA	OUT	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Special Conservation Interests Greylag Goose (<i>Anser anser</i>) [A043] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Shoveler (<i>Anas clypeata</i>) [A056] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Redshank (<i>Tringa totanus</i>) [A162] Wetland and Waterbirds [A999] Potential Impact This SPA is located 4.9 km from the proposed cable survey area. The survey is in the marine intertidal and subtidal element of Portmarnock Beach. The marine survey is proximate to an area of existing vessel activity (Malahide Marina & Howth Harbour). The proposed survey works will be within an area of existing vessel traffic in proximate to the Malahide Marina and Howth Harbour, and the intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing human and dog walking activity. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SPA, no significant disturbance impacts on this SPA are foreseen. The presence of a vessel offshore (travelling at a slow speed of 4 knots), in an area of existing vessel activity and at such a distance from this SPA (4.9 km), would not be deemed to have an impact on the conservation objectives of this SPA. In the absence of mitigation, there will be no significant effects on the SCIs from the proposed works associated with this survey. No significant impact likely.
IE004113	Howth Head Coast SPA	OUT	Conservation Objective

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. Special Conservation Interest Kittiwake (<i>Rissa tridactyla</i>) [A188] Potential Impact This SPA is located 5.7 km from the proposed cable survey area. The survey is in the marine intertidal and subtidal element of Portmarnock Beach. The marine survey is proximate to an area of existing vessel activity (Malahide Marina & Howth Harbour). The proposed survey works will be within an area of existing vessel traffic in proximate to the Malahide Marina and Howth Harbour, and the intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing human and dog walking activity. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SPA, no significant disturbance impacts on this SPA are foreseen. The presence of a vessel offshore (travelling at a slow speed of 4 knots), in an area of existing vessel activity and at such a distance from this SPA (5.7 km), would not be deemed to have an impact on the conservation objectives of this SPA. In the absence of mitigation, there will be no significant effects on the SCIs from the proposed works associated with this survey. No significant impact likely.
IE004014	Rockabill SPA	OUT	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Special Conservation Interests Purple Sandpiper (<i>Calidris maritima</i>) [A148] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194] Potential Impact This SPA is located 7.7 km from the proposed cable survey area. The survey is in the marine intertidal and subtidal element of Portmarnock Beach. The marine survey is proximate to an area of existing vessel activity (Malahide Marina & Howth Harbour). The proposed survey works will be within an area of existing vessel traffic in proximate to the Malahide Marina and Howth Harbour, and the intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing human and dog walking activity. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SPA, no significant disturbance impacts on this SPA are foreseen. The presence of a vessel offshore

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			(travelling at a slow speed of 4 knots), in an area of existing vessel activity and at such a distance from this SPA (7.7 km), would not be deemed to have an impact on the conservation objectives of this SPA. In the absence of mitigation, there will be no significant effects on the SCIs from the proposed works associated with this survey. No significant impact likely.
IE004024	South Dublin Bay and River Tolka Estuary SPA	OUT	Conservation Objective The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Special Conservation Interests Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194] Wetland and Waterbirds [A999] Potential Impact This SPA is located 8.6 km from the proposed cable survey area. The survey is in the marine intertidal and subtidal element of Portmarnock Beach. The marine survey is proximate to an area of existing vessel activity (Malahide Marina & Howth Harbour). The proposed survey works will be within an area of existing vessel traffic in proximate to the Malahide Marina and Howth Harbour, and the intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing human and dog walking activity. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SPA, no significant disturbance impacts on this SPA are foreseen. The presence of a vessel offshore (travelling at a slow speed of 4 knots), in an area of existing vessel activity and at such a distance from this SPA (8.6 km), would not be deemed to have an impact on the conservation objectives of this SPA. In the absence of mitigation, there will be no significant effects on the SCIs from the proposed works associated with this survey. No significant impact likely.
IE004122	Skerries Islands SPA	OUT	Conservation Objective

NATURA Site Code	NAME	Screened In/Out	SSCO's/Reason
			To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. Special Conservation Interests Cormorant (<i>Phalacrocorax carbo</i>) [A017] Shag (<i>Phalacrocorax aristotelis</i>) [A018] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Purple Sandpiper (<i>Calidris maritima</i>) [A148] Turnstone (<i>Arenaria interpres</i>) [A169] Herring Gull (<i>Larus argentatus</i>) [A184] Potential Impact This SPA is located 12.5 km from the proposed cable survey area. The survey is in the marine intertidal and subtidal element of Portmarnock Beach. The marine survey is proximate to an area of existing vessel activity (Malahide Marina & Howth Harbour). The proposed survey works will be within an area of existing vessel traffic in proximate to the Malahide Marina and Howth Harbour, and the intertidal element is on a popular beach (Velvet Strand, Portmarnock) with car parks and existing human and dog walking activity. Due to the small scale of the proposed survey works, and the distance from the proposed survey area to this SPA, no significant disturbance impacts on this SPA are foreseen. The presence of a vessel offshore (travelling at a slow speed of 4 knots), in an area of existing vessel activity and at such a distance from this SPA (12.5 km), would not be deemed to have an impact on the conservation objectives of this SPA. In the absence of mitigation, there will be no significant effects on the SCIs from the proposed works associated with this survey. No significant impact likely.

NATURA Site Code	NAME	Screened In/Out	Conservation Objectives/ Features of interest/ Potential impact on Natura 2000 site.
Special Areas of Conservation (UK)			
UK0030398	North Anglesey Marine/Gogledd Môn Forol	IN	Conservation Objective Maintain site integrity by ensuring: 1. Harbour porpoise are a viable component of the site. 2. There is no significant disturbance of the species. 3. The condition of supporting habitats and processes, and the availability of prey is maintained. Relevant Qualifying Interest Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] Potential Impact

NATURA Site Code	NAME	Screened In/Out	Conservation Objectives/ Features of interest/ Potential impact on Natura 2000 site.
			This SAC borders the proposed cable survey area within the Irish EEZ. The proposed cable survey area is located within the Celtic and Irish Seas MU for Harbour Porpoise (JNCC, 2023). Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on harbour porpoise (qualifying interest of this SAC) through underwater noise, pollution, and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour porpoise. Natura Impact Statement Required
UK0016612	Murlough	IN	Conservation Objective To maintain (or restore where appropriate) the qualifying interests to favourable condition. Relevant Qualifying Interest Harbour Seal (<i>Phoca vitulina</i>) [1365] Potential Impact This SAC is 65.8 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on harbour seals (qualifying interests of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
UK0030399	North Channel	IN	Conservation Objective Maintain site integrity by ensuring: 1. Harbour porpoise are a viable component of the site. 2. There is no significant disturbance of the species. 3. The condition of supporting habitats and processes, and the availability of prey is maintained. Relevant Qualifying Interest Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] Potential Impact This SAC is 68.4 km from the proposed cable survey area. The proposed cable survey area is located within the Celtic and Irish Seas MU for Harbour Porpoise (JNCC, 2023).

NATURA Site Code	NAME	Screened In/Out	Conservation Objectives/ Features of interest/ Potential impact on Natura 2000 site.
			Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on harbour porpoise (qualifying interest of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour porpoise. Natura Impact Statement Required
UK0030397	West Wales Marine / Gorllewin Cymru Forol	IN	Conservation Objective Maintain site integrity by ensuring: 1. Harbour porpoise are a viable component of the site. 2. There is no significant disturbance of the species. 3. The condition of supporting habitats and processes, and the availability of prey is maintained. Relevant Qualifying Interest Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] Potential Impact This SAC is 76.4 km from the proposed cable survey area. The proposed cable survey area is located within the Celtic and Irish Seas MU for Harbour Porpoise (JNCC, 2023). Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on harbour porpoise (qualifying interest of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour porpoise. Natura Impact Statement Required
UK0013117	Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau	IN	Conservation Objective To achieve favourable conservation status all the following, subject to natural processes, need to be fulfilled and maintained in the long-term. If these objectives are not met restoration measures will be needed to achieve favourable conservation status. Relevant Qualifying Interest <i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] <i>Halichoerus grypus</i> (Grey Seal) [1364] Potential Impact This SAC is 78.5 km from the proposed cable survey area. The proposed cable survey area is located within the Irish Sea MU for Bottlenose Dolphin (JNCC, 2023) and is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, there may be potential for impact on grey seal and

NATURA Site Code	NAME	Screened In/Out	Conservation Objectives/ Features of interest/ Potential impact on Natura 2000 site.
			bottlenose dolphin (features of interest of this SAC) through underwater noise and physical disturbance which could impact the Features of Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on bottlenose dolphins and grey seals (qualifying interests of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect bottlenose dolphins and grey seals. Natura Impact Statement Required
UK0016618	Strangford Lough	IN	Conservation Objective To maintain (or restore where appropriate) the qualifying interests to favourable condition. Relevant Qualifying Interest Harbour (Common) Seal (<i>Phoca vitulina</i>) [1351] Potential Impact This SAC is 82.8 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on harbour seals (qualifying interests of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
UK0012712	Cardigan Bay / Bae Ceredigion	IN	Conservation Objective To maintain (or restore where appropriate) the qualifying interests to favourable condition. Relevant Qualifying Interest Bottlenose dolphin (<i>Tursiops truncatus</i>) [1349] Potential Impact This SAC is 139.8 km from the proposed cable survey area. The proposed cable survey area is located within the Irish Sea MU for Bottlenose dolphin (JNCC, 2023).

NATURA Site Code	NAME	Screened In/Out	Conservation Objectives/ Features of interest/ Potential impact on Natura 2000 site.
			Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on bottlenose dolphin (qualifying interest of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect bottlenose dolphin. Natura Impact Statement Required
UK0030384	The Maidens	IN	Conservation Objective To maintain (or restore where appropriate) the qualifying interests to favourable condition. Relevant Qualifying Interest Grey Seal (<i>Halichoerus grypus</i>) [1364] Potential Impact This SAC is 146.4 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on grey seal (qualifying interests of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect grey seals. Natura Impact Statement Required
UK0013116	Pembrokeshire Marine / Sir Benfro Forol	IN	Conservation Objective To maintain (or restore where appropriate) the qualifying interests to favourable condition. Relevant Qualifying Interest Grey Seal (<i>Halichoerus grypus</i>) [1364] Potential Impact This SAC is 170.5 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on grey seal (qualifying interest of this SAC) through underwater noise and physical disturbance which could

NATURA Site Code	NAME	Screened In/Out	Conservation Objectives/ Features of interest/ Potential impact on Natura 2000 site.
			impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals. Natura Impact Statement Required
UK0030396	Bristol Channel Approaches/Dynesfeydd Môr Hafren	IN	Conservation Objective To maintain (or restore where appropriate) the qualifying interests to favourable condition. Relevant Qualifying Interest Harbour porpoise (<i>Phocoena phocoena</i>) [1351] Potential Impact This SAC is 207 km from the proposed cable survey area. The proposed cable survey area is located within the Celtic and Irish Seas MU for harbour porpoise (JNCC, 2023). Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on harbour porpoise (qualifying interest of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour porpoise. Natura Impact Statement Required
UK0030067	South-East Islay Skerries	IN	Conservation Objective To maintain (or restore where appropriate) the qualifying interests to favourable condition. Relevant Qualifying Interest Harbour (Common) Seal (<i>Phoca vitulina</i>) [1351] Potential Impact This SAC is 233 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of harbour seal (273 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on harbour seals (qualifying interests of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour seals.

NATURA Site Code	NAME	Screened In/Out	Conservation Objectives/ Features of interest/ Potential impact on Natura 2000 site.
			Natura Impact Statement Required
UK0013114	Lundy	IN	Conservation Objective To maintain (or restore where appropriate) the qualifying interests to favourable condition. Relevant Qualifying Interest Grey Seal (<i>Halichoerus grypus</i>) [1364] Potential Impact This SAC is 263 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on grey seal (qualifying interest of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect grey seals. Natura Impact Statement Required
UK0013694	Isles of Scilly Complex	IN	Conservation Objective To maintain (or restore where appropriate) the qualifying interests to favourable condition. Relevant Qualifying Interest Grey Seal (<i>Halichoerus grypus</i>) [1364] Potential Impact This SAC is 381.7 km from the proposed cable survey area. The proposed cable survey area is located within the foraging range of grey seal (448 km) (Carter et al., 2022). Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on grey seal (qualifying interest of this SAC) through underwater noise and physical disturbance which could impact the Qualifying Interest of this SAC. Mitigation measures are required to protect the SAC from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect grey seals. Natura Impact Statement Required

Name	Screened In/Out	Conservation Objectives, Features of Interest and potential for significant effects.
Nord Bretagne DH Mers Celtiques – Talus du golfe de Gascogne Côte de Granit rose-Sept-Iles Abers – Côtes des légendes Trégor – Goëlo Baie de Morlaix Ouessant-Molène Récifs et landes de la Hague Rivière Leguer, forêts de Beffou, Coat an Noz et Coat an Hay Anse de Vauville Banc et récifs de Surtainville Côtes de Crozon Chaussée de Sein Cap d’Erquy-Cap Fréhel Baie de Saint-Brieuc – Est Récifs du talus du golfe de Gascogne Chausey Baie de Lancieux, Baie de l’Arguenon, Archipel de Saint Malo et Dinard Estuaire de la Rance Baie du Mont Saint-Michel	IN	Conservation Objective To maintain (or restore where appropriate) the qualifying interests to favourable condition. Relevant Qualifying Interest <i>Phocoena phocoena</i> (Harbour Porpoise) [1351] Potential Impact The proposed cable survey area is located within the Celtic and Irish Seas MU for Harbour Porpoise (JNCC, 2023). The Harbour Porpoise [1351] is a Qualifying Interest of the following French SACs located within the Celtic and Irish Seas MU: • Nord Bretagne DH • Mers Celtiques – Talus du golfe de Gascogne • Côte de Granit rose-Sept-Iles • Abers – Côtes des légendes • Trégor – Goëlo • Baie de Morlaix • Ouessant-Molène • Récifs et landes de la Hague • Rivière Leguer, forêts de Beffou, Coat an Noz et Coat an Hay • Anse de Vauville • Banc et récifs de Surtainville • Côtes de Crozon • Chaussée de Sein • Cap d’Erquy-Cap Fréhel • Baie de Saint-Brieuc – Est • Récifs du talus du golfe de Gascogne • Chausey • Baie de Lancieux, Baie de l’Arguenon, Archipel de Saint Malo et Dinard • Estuaire de la Rance • Baie du Mont Saint-Michel Initial assessment identifies that, in the absence of mitigation measures, and out of an abundance of caution, there may be potential for impact on Harbour Porpoise (qualifying interests of the identified French SACs) through underwater noise and physical disturbance which could impact the Qualifying Interests of these SACs. Mitigation measures are required to protect these SACs from significant effects. The proposed project has the potential to introduce noise into the marine environment and mitigation measures are required to protect harbour porpoise. Natura Impact Statement Required

4.5 In Combination Effects

As outlined by (OSPAR, 2012) “Cumulative effects, the combined effect of more than one activity, may reinforce the impacts of a single activity due to temporal and/or spatial overlaps”. The potential for in-combination effects within the ZOI that may occur as a result of the proposed project, during and post works has been assessed. The following cumulative impact assessment has been guided by the EC 2021 AA guidance document^e, with particular reference to “Table 2. Cumulative impact assessment”.

4.5.1 Geographic Boundaries and the Timeline for Assessment

The proposed project is primarily located within the intertidal and subtidal elements of Portmarnock Beach (Velvet Strand) and within the Irish EEZ. The potential ZOI for in-combination effects for this assessment has been deemed to be projects located proximate to the landfall and intertidal elements of the survey works, in addition to subtidal elements relating to underwater noise. Terrestrial planning applications have been examined for the potential for in-combination effects. Given that the proposed survey works extend to the offshore subtidal in the Irish Sea, the geographic boundaries of assessment were expanded to include coastal and offshore marine projects located within the Irish Sea.

MARA licensing in Ireland relates to licence applications out to the Irish EEZ limit. In order to assess the potential transboundary effects, details of designated sites within UK waters were investigated. The survey works within UK waters are subject to this UK permitting process, and the potential impacts on designated sites are subject to a separate application process assessed by UK authorities. For the UK element of the proposed survey works to proceed, it has to be approved by UK authorities, and the reporting concludes that, following the implementation of appropriate mitigation, the proposed project would not adversely affect the integrity of UK designated sites, alone or in combination with other projects.

In relation to the timeline for assessment, given the short temporal nature of the proposed survey works and the fact that the proposed works will be isolated to the survey corridor extents with potential for noise to extend beyond the survey area, the most recent projects located in the vicinity of the proposed survey works area have been examined for potential in-combination effects.

4.5.2 Identification of Plans/Projects that could act In-Combination

Fingal County Council planning permissions, Foreshore Applications, Maritime Area Consent (MAC) Applications, Maritime Usage Licence (MUL) Applications, EIA portal, and An Coimisiún Pleanála (ACP) Applications were examined for projects in proximity to the proposed Baily survey works route. Projects within the potential ZOI of the proposed survey works are outlined in Tables 12-16.

Table 12. Fingal County Council Planning Permissions.

Ref. No.	Address	Proposal
F24A/0082	Martello Tower, Portmarnock, Co. Dublin	(Protected Structure Ref. 476) Mary Nagle intends to apply for Planning Permission for the following :- a) To repair the fabric of the building and to replace existing windows, b) To raise the parapet wall to the ground floor extension, c) To extend by approx. 8 sq.m. the single storey part of the building, d) To infill the space at the eastern end of the existing sheds located close to the main building by way of a 2.6m ² corner extension, e) To provide a new steel spiral staircase from the ground floor to the second floor, f) To extend the area of the existing sheds located close to the main building by a total of 20.12m ² including the infill corner as above,

^e [Official Journal C 437/2021 \(europa.eu\)](https://eur-lex.europa.eu/eli/oj/2021/0004/20210127/001/eng)

		g) To convert the existing four apartments and extension into a single four bed residence (220.1m²), h) To open a new vehicular entrance to the site and close up the existing one, i) To repair the existing boundary walls and erect a small railing on top, j) To include a landscape plan for the site including all siteworks necessary to complete the development, all at the Martello Tower, Portmarnock Co. Dublin.
F24A/0894	Sea Scape, 4b Strand Road, Portmarnock, Co Dublin	Planning Permission is sought for i) 2-storey extension to the rear, and additional 2-storey extension to the front elevation ii) framed structure forming patio area to the North elevation iii) internal alterations, together with all engineering works necessary to facilitate the development.
F24A/0131	57 Portmarnock Crescent, Portmarnock, County Dublin	The development will consist of (a) Demolition of existing single storey conservatory and existing boiler house/garden shed at rear. (b) Construction of two storey extension at rear (South East Elevation) containing new kitchen/lounge area at ground level and 1 no. bedroom at first floor level with feature corner window (South East and North East Facing), (c) Construction of first floor extension over existing single storey structure at side (South West Elevation) containing new bathroom with 1 no. opaque window at front (North West Elevation) and new pitched roof over to match existing house. (d) Removal of existing external door at first floor landing area and build-up of opening to form 1 no. opaque window at side (South West Facing Elevation). (e) New replacement flat roof with parapet finish to existing single storey structure at front and side, including new smooth sand and cement painted plaster finish at front (North West Elevation). Together with internal alterations and associated site works.
F24A/1127E	37, Strand Road, Portmarnock, Dublin, D13 HK58	To make alterations and extensions to existing house to include demolition of existing back kitchen return with all associated and ancillary site works, drainage and landscaping works.
F25A/1042E	Portmarnock Hotel and Golf Links, Strand Road, Portmarnock, Co. Dublin, D13V2X7	The Development will consist of the construction of an outdoor freshwater swimming pool, plant room, changing rooms, showers, sauna and steam room, a new door from the existing spa within the hotel, a new pedestrian access path from hotel to the pool area, a new wall separating the pool and changing rooms from the adjacent car park, and all associated landscaping and site works.
F23A/0215	Portmarnock Golf Club, Golf Links Road, Portmarnock, Co. Dublin, D13 KD96	The proposed development will consist of: i) Maintenance and repair of the existing rock armour revetment (c. 490 metres in length) north of Hole 15, ii) Provision of a temporary access approximately 20 metres in length to facilitate transport of materials to the repair works area, within a planning application area of c. 0.2 hectares. The proposed works will take place over 5 to 10 working days (Monday to Friday only) within a time window from mid-September to end October each year, for up to 5 years. The works will necessitate the transport of machinery and materials along a section of Portmarnock Beach on a daily basis for the duration of the works. A Natura Impact Statement (NIS) will be submitted with the application.
F24A/0935E	Portmarnock Golf Club, Golf Links Road, Portmarnock, D13KD96	Permission is sought for The proposed development that will consist of: i) Maintenance and repair of the existing rock armour revetment (c. 560 metres in length) south of Hole 15, ii) Provision of a temporary access approximately 20 metres in length to facilitate transport of materials to the repair works area (as already permitted for maintenance and repair works under Plan. Ref. F23A/0215),

		within a planning application area of c. 0.34 hectares. The proposed works will take place over 5 to 10 working days (Monday to Friday only) within a time window from mid-September to end October each year, for up to 5 years. The works will necessitate the transport of machinery and materials along a section of Portmarnock Beach on a daily basis for the duration of the works.
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Table 13. Foreshore/Marine licence applications proximate to the proposed survey corridor

Reference	Applicant	Year	Location	Activity	Status
FS006984	Rush Sailing Club	2022	Rush Sailing Club, Rogerstown, Rush, Co. Dublin, K56 RH52	Foreshore lease application for the construction of a new disability access landing pontoon to include new floating pontoon, access gangway, landing area, and alterations to existing boundary sea wall, boundary wall, and footpath to accommodate same, and associated site works.	Consultation
FS007546	Codling Wind Park Limited	2022	Off County Wicklow and County Dublin.	The main aims and objectives of the proposed activities are to: • Provide up to date detailed bathymetric mapping of the seabed; • Provide further information on the soil stability and morphology of the seabed; • Provide detailed information on ground conditions and geology; • Obtain up to date wind resource and metocean data for the site; and • To generate environmental and ecological data to inform the EIA and AA for the Codling Wind Park project.	Determination
FS006909	Fingal County Council	2021	Malahide Demesne to Newbridge Demesne	Fingal County Council proposes to develop the Broadmeadow Way, a new greenway (shared footpath and cycleway) between Malahide Demesne and Newbridge Demesne via the railway causeway across the Malahide Estuary. The proposed greenway would be c. 6km in length. Much of the the proposed greenway follows existing pathways and roads.	Determination
FS007358	North Irish Sea Array (NISA) Windfarm Limited, which is a fully owned subsidiary of Statkraft Ireland Ltd.	2021	Off the coast of County Louth, County Meath, County Dublin.	This Foreshore Licence application is for site investigation surveys necessary to determine the seabed and sub-sea conditions to establish the optimum location for and design of the export cable(s) to shore, and to establish the most appropriate route corridor and landfall location for the export cable(s) from the proposed North Irish Sea Array (NISA) offshore wind farm,	Determination

Reference	Applicant	Year	Location	Activity	Status
				located off the coasts of Dublin, Meath and Louth. The application includes for geophysical surveys (mutli-beam echo sounder, sub bottom profiling, side-scan sonar and magnetometer), geotechnical surveys (cone penetration tests and vibrocores along the potential routes and boreholes at the landfalls) and ecological surveys (fisheries surveys, benthic grab samples, intertidal benthic sampling).	
FS007383	Oriel Windfarm Limited	2021	Off the coast of County Louth, to the east of Dundalk Bay.	Oriel Windfarm Limited (Oriel) is an Irish renewable energy company developing the proposed Oriel offshore wind farm located in the North-West Irish Sea, 22km off the coast of Dundalk, County Louth. The proposed Oriel offshore wind farm will include wind turbines mounted onto a foundation installed into the seabed, an offshore substation and interlinking cabling between the turbines and the substation and an export cable between the substation and the shore. Oriel has applied for a Foreshore Licence to undertake detailed geotechnical and geophysical investigations, ecological surveys and metocean surveys. The purpose of the geotechnical investigation is to investigate the stability of the soil for the design of foundations and the detailed routing of the inter array and export cables. The purpose of the geophysical survey is to characterise the layers of sediment/rock underneath the seafloor and to achieve a detailed seabed morphology and seafloor mapping. Further ecological surveys and measurements of the wind, wave and currents (metocean) will also be undertaken. This Foreshore Licence application is for permission to undertake these survey works on the proposed development site. Oriel proposes to apply for a licence for a duration of 36 months.	Determination
FS007359	Drogheda Port Company	2021	River Boyne, Co. Louth	Foreshore temporary licence application for maintenance dredging of the commercial	Determination

Reference	Applicant	Year	Location	Activity	Status
				estuary and seaward approaches to the River Boyne	
FS007290	Dun Laoghaire Rathdown County Council	2021	Dun Laoghaire, Co. Dublin	Foreshore application in respect of the replacement of the existing fendering system at Carlisle Pier.	Determination
FS007188	RWE Renewables Ireland Ltd.	2021	Off the coast of County Dublin & County Wicklow.	Foreshore Licence to undertake geotechnical and geophysical site investigations and ecological, wind, wave and current monitoring to provide further data to refine wind farm design, cable routing, landfall design and associated installation methodologies for the proposed Dublin Array offshore wind farm.	Determination
FS007164	Dublin Port Company	2021	Dublin Port	Foreshore application in respect of Capital Dredging at various locations around Dublin Port	Determination
FS007406	Islandbridge Bellevue Developments Limited (In Receivership)	2021	Bellevue, Islandbridge, Dublin 8	Foreshore licence application for emergency remedial works to the river wall at Bellevue, Islandbridge, Dublin 8	Determination
FS007223	Sean O'Hanlon (O'Hanlon and Sons Ltd)	2021	Dundalk Port, Dundalk, Co. Louth	Foreshore licence application for Maintenance dredging	Determination
FS007132	Dublin Port Company	2021	Dublin Port, Dublin	Foreshore application in respect of maintenance dredging at various locations in Dublin Port for the years 2022 to 2029.	Determination

Table 14. Maritime Area Consent (MAC) applications proximate to the proposed survey works within the Irish EEZ

Reference	Applicant	Year	Location	Activity	Status
MAC20240007 Site Ref: A-D	Fingal County Council	2024	Burrow Road, Marsh Lane and Portrane Beach, Fingal, Dublin	Coastal Protection including Flood Embankment, Flood Wall and other works	Consented
2022-MAC-005 Site Ref: A-B	North Irish Sea Array Windfarm Limited	2022	Off Dublin and Louth coast	Offshore Windfarm	Consented
MAC20230034 Site Ref: A-E	National Transport Authority	2024	Ringsend to City Centre	Proposed road development as part of Ringsend to City Centre Core Bus Corridor Scheme	Consented
MAC240028	Dublin City Council	2024	River Liffey, Dublin	Outfall at Sir John Rogerson's Quay as part of the Grand Canal Docks Storm Water Outfall Extension project	Consented
MAC240014 Site Ref: A-C	Dublin City Council	2024	Tom Clarke Bridge, Dublin City	Construction of a pedestrian and cyclist bridge (Point Bridge) to the west of Tom Clarke Bridge, widening of Tom Clarke Bridge, dismantling of existing and construction of a new control room building, dismantling of existing vessel collision structures and construction of new vessel collision structures to the west of the proposed Point Bridge.	Consented
2022-MAC-006 Site Ref: A-C	Codling Wind Park, c/o Cooney	2022	Off Wicklow coast	Offshore Windfarm	Consented

Reference	Applicant	Year	Location	Activity	Status
	Carey Consulting Limited				
MAC240013	Electricity Supply Board (ESB)	2024	North Wall to Poolbeg	Replacement of high voltage underground cables.	Consented
2022-MAC-003 and 004 Site Ref: A - C	Bray Offshore Wind Limited and Kish Offshore Wind Limited	2022	Off Dublin and Wicklow coast	Offshore Windfarm	Consented
MAC20230009	Iarnród Éireann (IÉ)	2025	Merrion Gates to Seapoint Beach	Coastal Protection	Consented
MAC250050 Site Ref: A-D	Dun Laoghaire Rathdown County Council	2026	Dun Laoghaire Harbour	The installation of slipways, a pontoon and the creation of areas of reclaimed land within designated zones.	Consented
MAC20230015	DunLaoghaire Rathdown County Council	2024	DunLaoghaire Harbour	Inflatable Waterpark	Consented
MAC250061-A	Dun Laoghaire Rathdown County Council	2026	Dun Laoghaire Harbour	Extension of the MAC area granted under MAC250061 and the installation of a multi-user pontoon alongside the Old Quay at Dun Laoghaire Rathdown, Co. Dublin.	Consented
MAC250056	Dun Laoghaire Rathdown County Council	2025	Dun Laoghaire Harbour	Regularisation of two existing areas of reclaimed foreshore, currently used as car park.	Consented
MAC250050	Dun Laoghaire Rathdown County Council	2026	Dun Laoghaire Harbour	The installation of slipways, a pontoon and the creation of areas of reclaimed land within designated zones.	Consented
MAC240020	Dun Laoghaire Rathdown County Council; Kish Offshore Wind Limited; Bray Offshore Wind Limited, Dublin	2024	Dun Loghaire Harbour, Dublin	Removal of existing Roll-on Roll off structure and provision of an Operations and Maintenance Facility for Dublin Array Offshore Wind Farm	Consented

Table 15. Maritime Usage Licence (MUL) applications proximate to the proposed survey works within the Irish EEZ

Reference	Applicant	Year	Location	Activity	Status
LIC230018	Microsoft Ireland Operations Ltd	2023	Portmarnock, Dublin	Geophysical survey and site investigations for a proposed subsea fibre optic cable having a landfall in Portmarnock, County Dublin to evaluate options for the route traversing the Irish Sea to Abergele, Wales	Licensed
LIC230001	North Irish Sea Array Windfarm Limited	2023	Off the coasts of counties Dublin, Meath and Louth	Site investigation activities to inform the development of the North Irish Sea Array (NISA) offshore windfarm (OWF) and export cable, off the coasts of counties Dublin, Meath and Louth	Licensed
MUL240008	MaresConnect Ltd	2024	Portmarnock to Ardgillan, Dublin	The proposed maritime usage involves conducting site investigation surveys to assess various factors, including seabed suitability and stability for routing cables and other electrical infrastructure associated with the interconnector	Licensed

Reference	Applicant	Year	Location	Activity	Status
				project from the 12 nautical mile (nm) limit to the EEZ	
MUL250013 Site Ref: A-B	Uisce Eireann	2025	Baldoyle Bay and the Irish Sea	Site investigation to inform detailed engineering design for the Greater Dublin Drainage Project.	Licensed
LIC230016	Microsoft Ireland Operations Ltd	2023	Dublin Port	Geophysical survey and site investigations for a proposed subsea fibre optic cable having a landfall in Dublin Port, County Dublin and to evaluate options for the route traversing Dublin Bay, across the Irish Sea to Anglesey, Wales	Licensed
LIC230007	Dublin City Council	2024	Point Bridge and Tom Clarke	Environmental survey and ground investigation works in order to inform the design of proposed Point Bridge and Tom Clarke Widening Project	Licensed
MUL230034 Site Ref: B	Codling Wind Park Limited (CWPL)	2024	East Coast of Ireland	CWPL intends to undertake survey mobilisations at the proposed Licence Area to inform the location and detailed design of the proposed CWP OWF, export cable route, potential operations and maintenance base, potential land reclamation area at the potential onshore substation location, and additional buffer zones	Licensed
MUL240010	EirGrid PLC	2024	Dublin Bay from Blackrock Park to Shellybanks	Site investigation works to inform the engineering design and environmental assessments of a proposed electrical cable circuit crossing Dublin Bay.	Licensed
MUL230034	Codling Wind Park Limited (CWPL)	2024	East Coast of Ireland	CWPL intends to undertake survey mobilisations at the proposed Licence Area to inform the location and detailed design of the proposed CWP OWF, export cable route, potential operations and maintenance base, potential land reclamation area at the potential onshore substation location, and additional buffer zones	Licensed
MUL250003	Dun Laoghaire Rathdown County Council	2025	Dún Laoghaire Harbour	Schedule 7 (3): Marine environmental surveys for the purposes of site investigation – to undertake a suite of marine site investigation activities to assess the feasibility of potential future dredging within the harbour.	Licensed

Table 16. Developments identified on the EIA Portal – Directive 2014/52/EU proximate to the proposed survey works

Reference	Applicant	Year	Location	Activity	Status
2025125	Portmarnock Real Estate Developments Limited	2025	At lands in the townland of Maynetown, Portmarnock, County Dublin, and partially in the townland of Stapolin, Baldoyle, Co. Dublin.	LRD proposal comprising 296no. residential units, public open space, vehicular access and assoc. works, new temporary rising main of c. 1.7km.	Consented

Table 17. Developments identified on the An Coimisiún Pleanála Portal proximate to the proposed survey works

Reference	Applicant	Year	Location	Activity	Status
312131	Irish Water	2025	Townlands of Clonshagh, Dubber and Newtown, County Fingal and Dublin City	Greater Dublin Drainage Project consisting of a new wastewater treatment plant, sludge hub centre, orbital sewer, outfall pipeline and regional biosolids storage facility	Grant Perm. w/ Conditions

In relation to **Planning Ref No. F23A/0215**, an NIS was prepared for the development by SLR Consulting Ireland, which concludes the following: *‘Based on the available scientific information and project details, we submit that the competent authority has sufficient information to allow it to determine that the proposed activities and rock armour revetment maintenance and repair works, individually or in combination with other plans or projects, will not have an adverse effect on the integrity of or pose a risk of likely significant effects on Baldoyle Bay SAC or Baldoyle Bay SPA, or any other European (Natura 2000) sites.’*

In relation to EIA **Ref No. 2025125 (Planning Ref No. LRD0058/S3E)**, an NIS was prepared for the development by Brady Shipman Martin, which concludes the following: *‘This report concludes on the best scientific evidence that it can be clearly demonstrated that no elements of the project will result in any impact on the integrity or Qualifying Interests/Special Conservation Interests of any relevant European site, either on their own or in-combination with other plans or projects, in light of their conservation objectives.’*

In relation to The Greater Dublin Drainage Project (**ACP Ref No. 312131**), an NIS was prepared by RPS. The NIS concludes the following: *‘It is therefore concluded, beyond reasonable scientific doubt, that the proposed project with the implementation of the prescribed mitigation measures will not give rise to significant impacts, either individually or in combination with other plans and projects, in a manner which adversely affects the integrity of any designated site within the Natura 2000 network.’*

In addition to the above projects, the following plans and policies were reviewed and considered for possible in-combination effects with the Proposed Development:

- The South Coast Designated Maritime Area Plan for Offshore Renewable Energy (SC-DMAP)
- Project Ireland 2040: National Marine Planning Framework
- Project Ireland 2040: National Planning Framework

4.5.3 Pathway Identification

The proposed cable survey route is in an area that experiences existing vessel activity (due to proximity to Malahide Marina and Howth Harbour). Given that intertidal elements of the proposed survey works are located within the intertidal of Portmarnock Beach (Velvet Strand), there is a potential hydrological pathway from the research vessel to designated conservation sites located within Malahide Estuary. These conservation sites are located downstream of a number of terrestrial planning applications outlined in Table 12. In the marine offshore subtidal of Malahide Estuary and the Irish Sea, there is a potential hydrological pathway from the research vessel to marine-based conservation sites within the Irish Sea. No Foreshore applications are within the corridor of the proposed survey works. The survey corridor partially overlaps with the approved **MUL240008 & LIC230018**, and is proximate to the approved **MUL250013**.

There are no other projects, identified within the Foreshore Licence applications, EIA portal, ACP or MARA planning records, that have been granted planning or currently under construction, located within the ZOI of the proposed survey works.

4.5.4 Impact Identification

The potential impacts of the proposed survey works are Temporary (i.e. Effects lasting less than a year) and primarily to occur during the brief survey period (with the presence of boats, machinery and personnel in the vicinity of the works) as sediments redistribute over sampling areas. Impacts on infauna would be deemed to be temporary (i.e. Effects lasting less than a year). No maintenance or decommissioning works are associated with the proposed survey works.

It is noted that there is the remote potential for proposed plans and projects within the offshore subtidal waters off Co. Dublin to have cumulative disturbance impacts on marine mammals and seabirds. However, the core strategy, policies and objectives of relevant Planning Frameworks have been developed to anticipate and avoid the need for developments that would be likely to significantly affect the integrity of any European site. Furthermore, such developments are required to conform to the relevant regulatory provisions and implement mitigation for the prevention of pollution, nuisance or other environmental effects likely to significantly affect the integrity of European sites. In addition, sustainable development is inherent in the objectives of all development plans within Irish waters in addition to compliance within the Habitats and Birds Directives. As a result, there are no projects identified within Fingal County Council, Foreshore Licence applications records, or MARA planning records that have been granted planning permission or are currently under construction, proximate to the proposed survey works, that could potentially cause significant in-combination effects on European sites.

4.5.5 Prediction

The survey works would not be seen to have a significant impact on the water quality of the area, including affecting the water quality status. Given the scale and the temporal nature of the proposed survey works, no significant in-combination effects with other identified plans or projects are foreseen. Any potential impacts from a pathway that the research vessel may share with projects identified in Tables 12 - 17 are considered to be minimal, and no significant in-combination effects on designated conservation sites are foreseen.

4.5.6 Assessment

The projects outlined above are either completed or are currently going through planning stages and are not expected to be carried out concurrently, or are not at a scale or location, where significant in-combination effects are foreseen with the proposed project. This report pertains to survey works for the proposed route for a marine fibre optic cable in subtidal and intertidal habitats. As can be seen from the use of the Best Available Techniques and mitigation measures during survey works, considerable effort has gone into minimising the potential environmental impact of the project. *“Generally all mitigation measures applied for individual cables also contribute to reduction of cumulative impacts”* (OSPAR, 2012).

No likely in-combination effects are foreseen from the project in conjunction with other projects.

4.6 Appropriate Assessment Screening Conclusions

An initial screening of the proposed works, using the precautionary principle (without the use of any mitigation measures) and Natura 2000 sites with the potential to result in significant effects on the conservation objectives and features of interest of the Natura 2000 sites, was carried out in Table 11. Based on best scientific knowledge and objective information and assessment, the possibility of significant effects caused by the proposed project was excluded for the following Natura 2000 sites:

Special Protection Areas

Baldoyle Bay SPA
Irelands' Eye SPA
Lambay Island SPA
Rogerstown Estuary SPA
North Bull Island SPA
Howth Head Coast SPA
South Dublin Bay and River Tolka Estuary SPA
Rockabill SPA
Skerries Islands SPA

Special Areas of Conservation

Baldoyle Bay SAC
Ireland's Eye SAC
North Dublin Bay SAC
Rogerstown Estuary SAC
Howth Head SAC
South Dublin Bay SAC

The project is limited in scale and extent, and the potential zone of influence is restricted to the immediate vicinity of the survey route, with the exception of underwater noise that may extend beyond the survey corridor. The proposed intertidal survey is within Malahide Estuary SAC, and North West Irish Sea SPA. Subtidal elements of the project are located within the boundaries of Malahide Estuary SAC, Rockabill to Dalkey Island SAC, and North-West Irish Sea SPA. Further, it should be noted that the following Natura 2000 sites have been screened IN due to the potential movements of harbour porpoise, common bottlenose dolphin, harbour seals, and grey seals (qualifying interests of these SAC):

- Slaney River Valley SAC (IE)
- Saltee Islands SAC (IE)
- Roaring Water Bay and Islands SAC (IE)
- Blasket Islands SAC (IE)
- Ballysadare Bay SAC (IE)
- Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC (IE)
- Donegal Bay (Murvagh) SAC (IE)
- Galway Bay Complex SAC (IE)
- West of Ardara/Maas Road SAC (IE)
- Slieve Tooley/Tormore Island/Loughros Beg Bay SAC (IE)
- Killala Bay/Moy Estuary SAC (IE)
- Rutland Island and Sound SAC (IE)
- Kilkieran Bay and Islands SAC (IE)
- Clew Bay Complex SAC (IE)
- Inishbofin and Inishshark SAC (IE)
- Horn Head and Rinclevan SAC (IE)
- Slyne Head Islands SAC (IE)
- Duvillaun Islands SAC (IE)

- Inishkea Islands SAC (IE)
- North Anglesey Marine/Gogledd Môn Forol (UK)
- West Wales Marine / Gorllewin Cymru Forol (UK)
- Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau (UK)
- Murlough (UK)
- North Channel (UK)
- Strangford Lough (UK)
- Cardigan Bay / Bae Ceredigion (UK)
- Pembrokeshire Marine / Sir Benfro Forol (UK)
- The Maidens SAC (UK)
- Bristol Channel Approaches/Dynesfeydd Môr Hafren (UK)
- South-East Islay Skerries (UK)
- Lundy (UK)
- Isles of Scilly Complex (UK)
- Nord Bretagne DH (FR)
- Récifs et landes de la Hague (FR)
- Anse de Vauville (FR)
- Mers Celtiques – Talus du golfe de Gascogne (FR)
- Banc et récifs de Surtainville (FR)
- Côte de Granit rose-Sept-Iles (FR)
- Trégor – Goëlo (FR)
- Baie de Morlaix (FR)
- Abers – Côtes des legends (FR)
- Rivière Leguer, forêts de Beffou, Coat an Noz et Coat an Hay (FR)
- Cap d'Erquy-Cap Fréhel (FR)
- Ouessant-Molène (FR)
- Chausey (FR)
- Baie de Saint-Brieuc – Est (FR)
- Côtes de Crozon (FR)
- Baie du Mont Saint-Michel (FR)
- Baie de Lancier, Baie de l'Arguenon, Archipel de Saint Malo et Dinard (FR)
- Estuaire de la Rance (FR)
- Chaussée de Sein (FR)
- Récifs du talus du golfe de Gascogne (FR)

The distribution of these species may bring them within the proximity of the subtidal survey works. Standard marine mammal mitigation measures will be in place (in compliance with NPWS guidance), and as a result, it is required to go to NIS for these SACs.

Acting on a strictly precautionary basis, NIS is required in respect of the effects of the project on the Natura 2000 sites screened IN for NIS (potential habitat and disturbance effects in the absence of mitigation) because it cannot be excluded on the basis of best objective scientific information following screening, in the absence of control or mitigation measures that the plan or project, individually and/or in combination with other plans or projects, will have a significant effect on the named European Site/s.

An NIS or Stage 2 Appropriate Assessment is not required for the effects of the project on all other Natura sites because it can be excluded on the basis of the best objective scientific information following screening that the plan or project, individually and/or in combination with other plans or projects, will have a significant effect on the European Site/s.

A Stage 2 AA is required for the proposed project.

4.7 Data Used for AA Screening

NPWS site synopses and Conservation objectives of sites within 15km were assessed. The most recent SAC and SPA boundary shapefiles were downloaded and overlaid on Bing road maps and satellite imagery.

4.8 References

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Appendix I

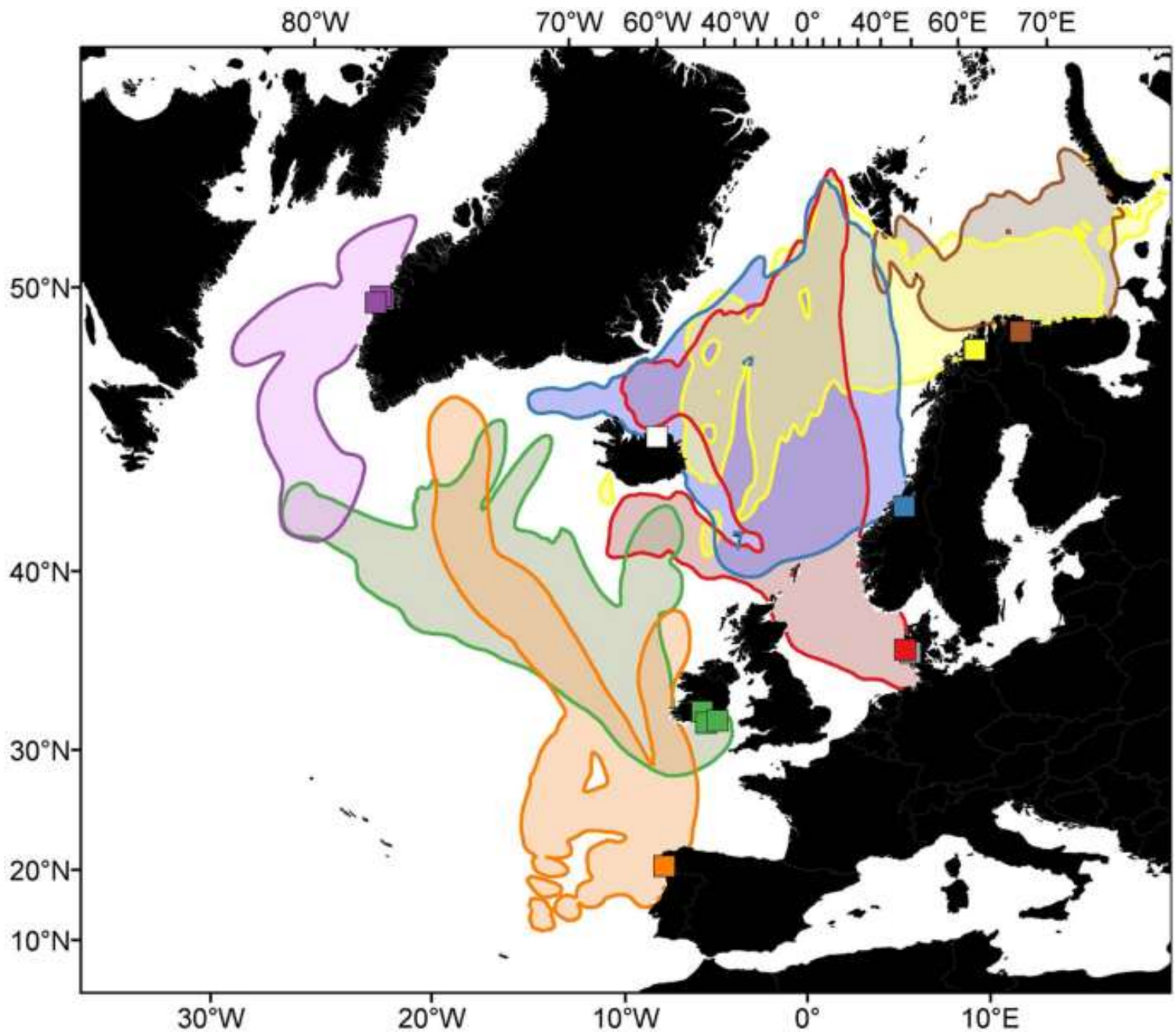


Figure A.1. Area use during the ocean migration of tagged Atlantic salmon (Ireland = Green) (Source: Rikardsen et al., 2021).