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Valentia Island Energy Ltd

VI Energy

SUPPORTING INFORMATION FOR SCREENING FOR APPROPRIATE ASSESSMENT

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1. INTRODUCTION

Valentia Island Energy Ltd ("the Applicant") intend to undertake a project for an offshore wind energy production site off the Southwest coast of Ireland, off the coast of Valentia Island in county Kerry. This report accompanies the foreshore licence application, with the purpose of providing the information required to enable the Competent Authority (the Marine Planning and Foreshore Section of the Department of Housing, Planning and Local Government) to undertake their Appropriate Assessment screening in accordance with the requirements as set out in the Habitats Directive (92/42/EEC).

1.1 PURPOSE OF THE DOCUMENT

In line with the Department of Environment, Heritage and Local Government (DEHLG), Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities (DEHLG, 2010), the following stages and steps are undertaken during Screening for AA:

- **Stage 1:** AA Screening [Considered in this document]
  - **Step 1:** establish the locations of the relevant Natura 2000 sites (*Section 5.1*)
  - **Step 2:** compile information on the Qualifying Interests (QIs)/Special Conservation Interests (SCIs) (*Section 5.2*)
  - **Step 3:** assessment of likely significant effects (*Section 5.3*)
  - **Step 4:** consideration of 'in combination effects' (*Section 5.4*)
  - **Step 5:** draw conclusion as to whether or not the project (either alone or in combination with other plans or projects) is likely to give rise to significant effects (*Section 5.5*)

It should be noted that although the Foreshore Licence Application only relates to those activities occurring within the 12 nm limit, the AA screening contained within this report covers all work within and outside the 12 nm limit to ensure all potential effects on the Natura 2000 Network are identified and assessed.

1.2 STRUCTURE OF THIS REPORT

The following chapters include information relating to the receiving environment, potential impacts, Special Areas of Conservation (SAC), Special Protection Areas (SPA), Qualifying Interests (QI) and other environmental receptors as well as the appropriate assessment process. More specifically it contains the following:

- Chapter 1: Introduction
- Chapter 2: Habitats Directive
- Chapter 3: Receiving Environment
- Chapter 4: Potential Environmental Impacts
- Chapter 5: Appropriate Assessment Stage 1 (Screening)
- Chapter 6: Conclusion

1.3 Foreshore Licence Investigation Area

This application (Valentia Island Energy project) seeks consent to conduct surveys to establish the potential for an offshore windfarm located off the Southwest coast of Ireland, specifically off Valentia Island in county Kerry *(Figure 1.1).*

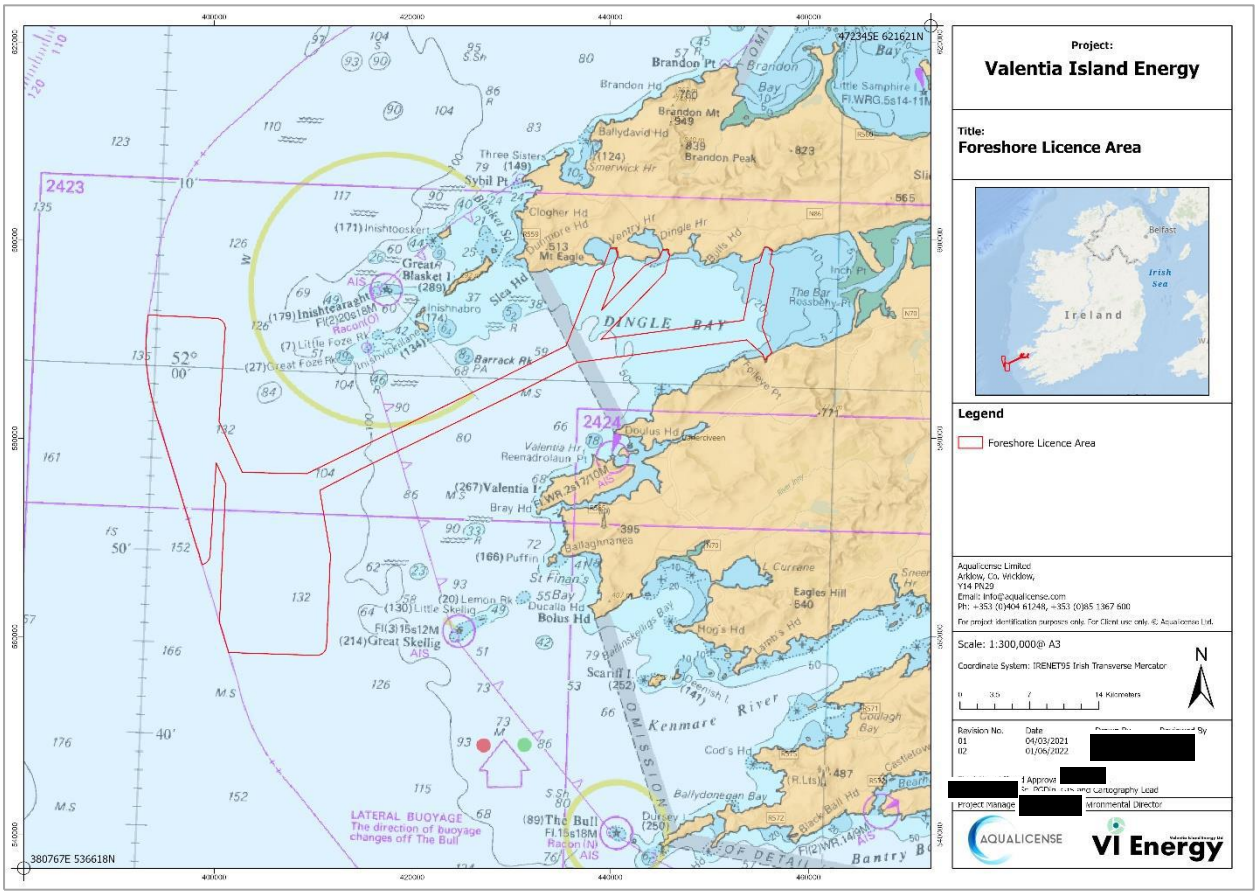

Figure 1.1: Valentia Island Energy – Foreshore Licence Application Area, located off the Southwest coast of Ireland.

1.4 Marine Surveys

The objective of the site investigation work is to understand site conditions including benthic characteristics, bathymetry, underlying geology, existing tidal conditions, and environmental characteristics. The proposed programme of surveys is summarised in *Table 1.1.*

Table 1.1: Summary of proposed survey methodologies and timings associated with Valentia Island Energy Investigatory Foreshore Licence Application Area. See separate Schedule of Works report for detail on the survey equipment.

	Survey	Purpose	Samples / area	Timing
Geophysical	**Multibeam Echosounder (MBES)**	Water depth and seabed topography.	**Array sites** Over entirety of array area within 12 nautical mile limit. **Cable routes** Along each route with a 500m track size.	4-6 months per survey with additional time for interpretation and analysis. Note: many survey types can be run concurrently.
	Side Scan Sonar (SSS)	Map seabed features and / or obstructions.		
	Magnetometer	Map any metallic obstacles or hazards, including UXO.		
	Sub-Bottom Profiling (SBP)	Identify character of the shallow geology.		
Geotechnical	**Boreholes**	Deep subsurface sampling – required at the centre of each floating mooring system.	**Array sites** 1 borehole (or CPT) per turbine (at centre of mooring arrangement) = 92 samples **Cable routes** None	4-6 months per campaign, with additional time for lab analysis.
	Cone Penetrometer Tests (CPTs)	Strength profiles of seabed substrate.	**Array sites** 1 borehole (or CPT) per turbine (at centre of mooring arrangement) = 92 samples **Cable routes** Every 1km along route up to MHWS	
	Vibrocore / Gravity Sampler	Subsurface sampling typically to 6 - 12m depth.	**Array sites** None **Cable routes** Every 1km along route up to MHWS	

	Grab Samples	Description of uppermost seabed, ground truthing of geophysical interpretation.	To be determined following geophysical surveys and dependent on the quality of the shallow substrate sample collection from other survey types.	1 month additional to overall schedule if grab samples are required.
Environmental	**Benthic Survey – Grab Samples, Possible Video Deployment**	Habitat characterisation.	**Array sites** 39 samples **Cable routes** Approx. 1 every 2 km along each cable route.	2 -3 weeks depending on site layout / cable length.
	Echolocation Click Detectors (POD's)	Marine mammal surveying.	**Array sites** 4 PODs An additional 4 PODs are located outside of the array site	Up to 12 months pre-construction and/or baseline
Metocean	**Floating Lidar**	Wind speed characteristics (plus range of metocean measurements).	**Array site** 2 floating Lidars	12 – 36 months total deployment.
	Wave Buoys	Wave height and spread.	**Array site** 4 wave buoys	
	Acoustic Doppler Current Profilers (ADCP's). Sentinel V (300kHz) (or similar). Ping rate up to 4Hz.	Subsurface wave and current measurements up to 150m.	**Array site** 2 ADCPs Indicative locations (refer to *Schedule of Works* report accompanied with this document).	

2. HABITATS DIRECTIVE (92/43/EEC)

The purpose of this report is to inform the Appropriate Assessment process as required under the Habitats Directive (92/43/EEC). The Appropriate Assessment Screening contained in Section 5 of this report will determine whether the proposed surveys, both alone and in combination with other planned activities under the remit of this project and others, are likely to have a significant effect on any Natura 2000 site or its qualifying interests. This document includes Stage 1 (Screening) of the Appropriate Assessment process.

This report has been prepared in accordance with the following guidance:

- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2010 revision).
- Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPWS 1/10 and PSSP 2/10.
- Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodical Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission Environment Directorate General, 2001).
- Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC (European Commission, 2007).
- Guidance to Manage the Risk to Marine Mammals from Manmade Sound Sources in Irish Waters. Prepared by National Parks and Wildlife Service, DAHG (2014).
- Guidelines for Good Practice: Appropriate Assessment of Plans under Article 6(3) Habitats Directive (International Workshop on Assessment of Plans under the Habitats Directive, 2011).
- Managing Natura 2000 Sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC (EC, 2000).
- Marine Natura Impact Statements in Irish Special Areas of Conservation: A working document. Prepared by National Parks and Wildlife Service, DAHG (2012).
- Managing Natura 2000 Sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission - 21 November 2018).
- Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects (DCCAE, 2016).
- Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for ORE Projects, Part 2 (DCCAE, 2018).

2.1 Legislative Context

The AA process is based on the requirements of European Union Habitats Directive and Birds Directive and the Regulations that implement their requirements in national law.

The Habitats Directive, (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna) which was adopted in 1992 and transposed into Irish Law in 1997, aims to promote the maintenance of biodiversity, taking account of economic, social, cultural, and regional requirements. It provides a framework for the legal protection to safeguard the conservation of a wide range of rare, threatened, or endemic animal and plant species throughout the European Union. The Birds Directive (Conservation of Wild Birds Directive (79/409/EEC) aims to protect all the 500 wild bird species naturally occurring within the European Union.

The Habitats Directive, along with the Birds Directive forms the cornerstone of the European Union's nature conservation policy. Together they form a coherent network of protected areas (Special Areas of Conservation and Special Protection Areas), called Natura 2000, safeguarded against potentially damaging developments.

The requirement for "Appropriate Assessment" is set out in Articles 6(3) and 6(4) of the Habitats Directive (92/43/EEC). If a project is likely to have a significant effect on a European (Natura) site, either alone or in combination with other plans or projects, it must undergo an Appropriate Assessment (AA).

Article 6(3) of the Habitats Directive states the following:

"Any plan or project not directly connected with or necessary to the management of the site (Natura 2000 site) but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives"

In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only having ascertained that it will not adversely affect the integrity of the site concerned and if appropriate, after having obtained the opinion of the general public.

Article 6(4) of the Habitats Directive states the following:

"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for environment or, further to an opinion from the Commission to other imperative reasons of overriding public interest."

2.2 Appropriate Assessment Process

The European Commission's methodological guidance (European Commission, 2002) promotes a four-stage process to complete the AA and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required. The four stages are summarised diagrammatically below, and the steps and procedures involved in completing each stage follows. Stages 1-2 deal with the main requirements for assessment under Article 6(3). Stage 3 may be part of Article 6(3) or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of **Article 6(4).**

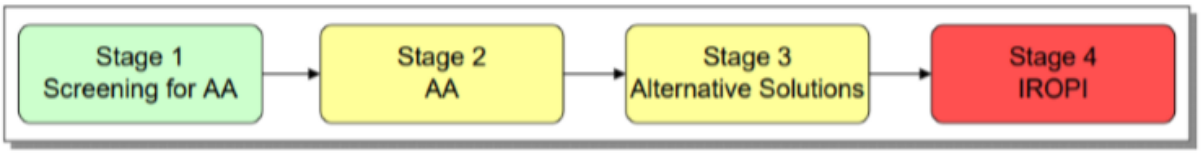

Figure 2.1: Stages in the AA process (Source: (DEHLG, 2010)).

Stage 1 – Screening

Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3):

i. whether a plan or project is directly connected to or necessary for the management of the site, and
ii. whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). Screening should be undertaken without the inclusion of mitigation, unless potential impacts clearly can be avoided through the modification or redesign of the plan or project, in which case the screening process is repeated on the altered plan. The greatest level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no impact.

Stage 2 – Appropriate Assessment.

This stage considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. The proponent of the plan or project will be required to submit a Natura Impact Statement, i.e., the report of a targeted professional scientific examination of the plan or project and the relevant Natura 2000 sites, to identify and characterise any possible implications for the site in view of the site's conservation objectives, taking account of in combination effects.

This should provide information to enable the competent authority to carry out the appropriate assessment. If the assessment is negative, i.e., adverse effects on the integrity of a site cannot be excluded, then the process must proceed to Stage 4, or the plan or project should be abandoned. The AA is carried out by the competent authority and is supported by the NIS.

Stage 3 – Consideration of Alternatives.

This stage examines any alternative solutions or options that could enable the plan or project to proceed without adverse effects on the integrity of a Natura 2000 site. The process must return to Stage 2 as alternatives will require appropriate assessment to proceed. Demonstrating that all reasonable alternatives have been considered and assessed, and that the least damaging option has been selected, is necessary to progress to Stage 4. Stage 4. Imperative Reasons of Overriding Public Interest (IROPI)/Derogation Stage 4 is the main derogation process of Article 6(4) which examines whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a Natura 2000 site to proceed in cases where it has been established that no less damaging alternative solution exists.

Stage 4 – Assessment of Imperative Reasons of Overriding Public Interest.

Stage 4 is the main derogation process of Article 6(4) which examines whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a Natura 2000 site to proceed in cases where it has been established that no less damaging alternative solution exists. The extra protection measures for Annex I priority habitats come into effect when making the IROPI case 18. Compensatory measures must be proposed and assessed. The Commission must be informed of the compensatory measures. Compensatory measures must be practical, implementable, likely to succeed, proportionate and enforceable, and they must be approved by the Minister for Housing, Planning and Local Government.

3. Receiving Environment

The proposed investigation area is in the Atlantic Ocean off the coast of county Kerry (*Figure* 3.1). The project consists of potential development areas inside and outside of 12NM. The Investigation Area reflects the area being applied for under the Foreshore Licence Application. This measures c. 474 km², or 47,407.80 ha, and all marine surveys will be confined to this Investigation Area which is within the foreshore 12 nautical mile limit (*Figure* 3.1).

A brief description of the proposed surveys is given in the document – Valentia Island Energy Project: Foreshore Licence Application for Site Investigation Works – "Schedule of Works" - accompanying the licence application. A more detailed explanation of the survey works is found in the accompanying 'Methods Statement and Programme of Works' document.

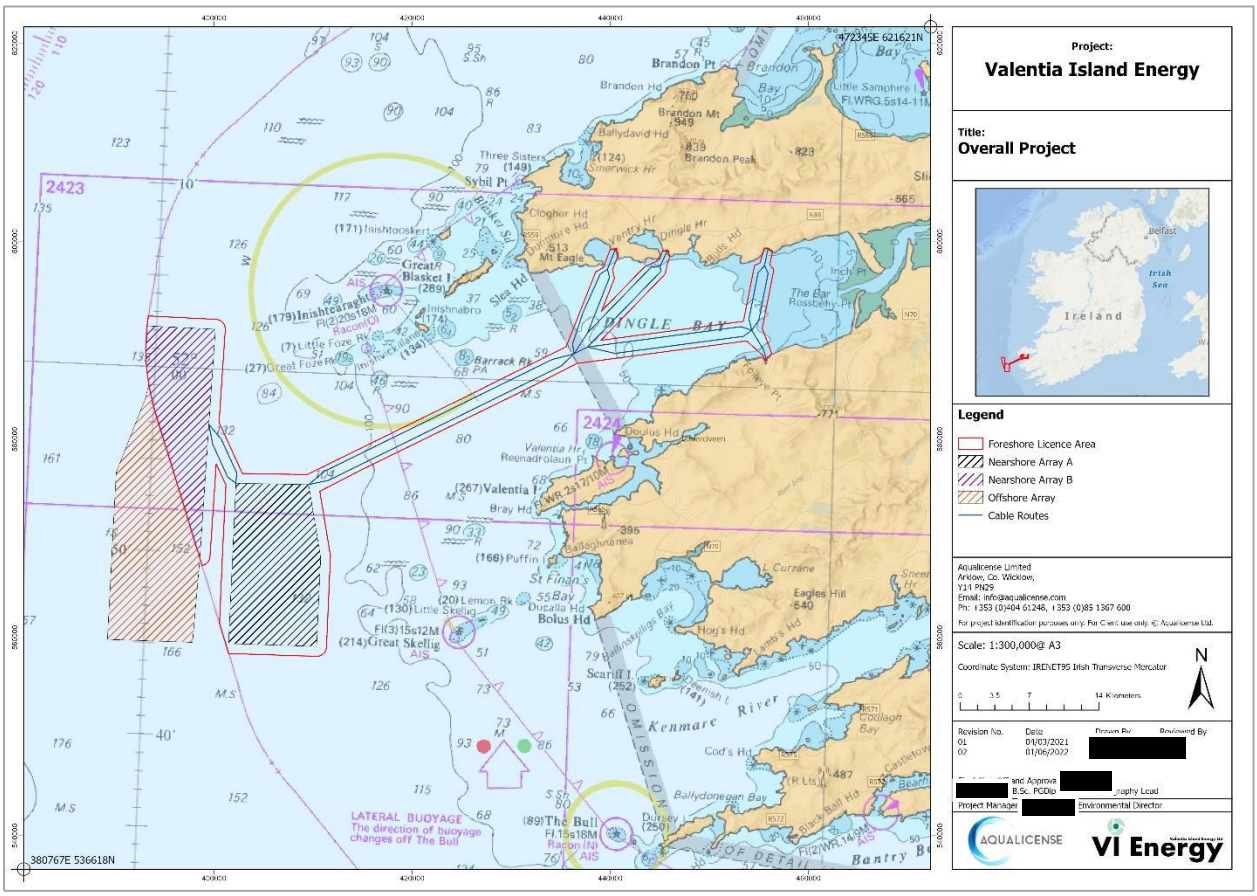

Figure 3.1: Overall Project Area including investigation area (red outline).

To understand the potential environmental impacts on the area it is important to outline the present state of the environmental baseline data of the area. In this section, susceptible environmental areas are outlined, highlighting environmental receptors which could potentially be affected by the proposed survey. *Figure 3.2* and *Figure 3.3* below illustrate the indicative locations of where survey works will interact with the seafloor i.e., CPT/Boreholes, Vibrocore and Grab Sampling.

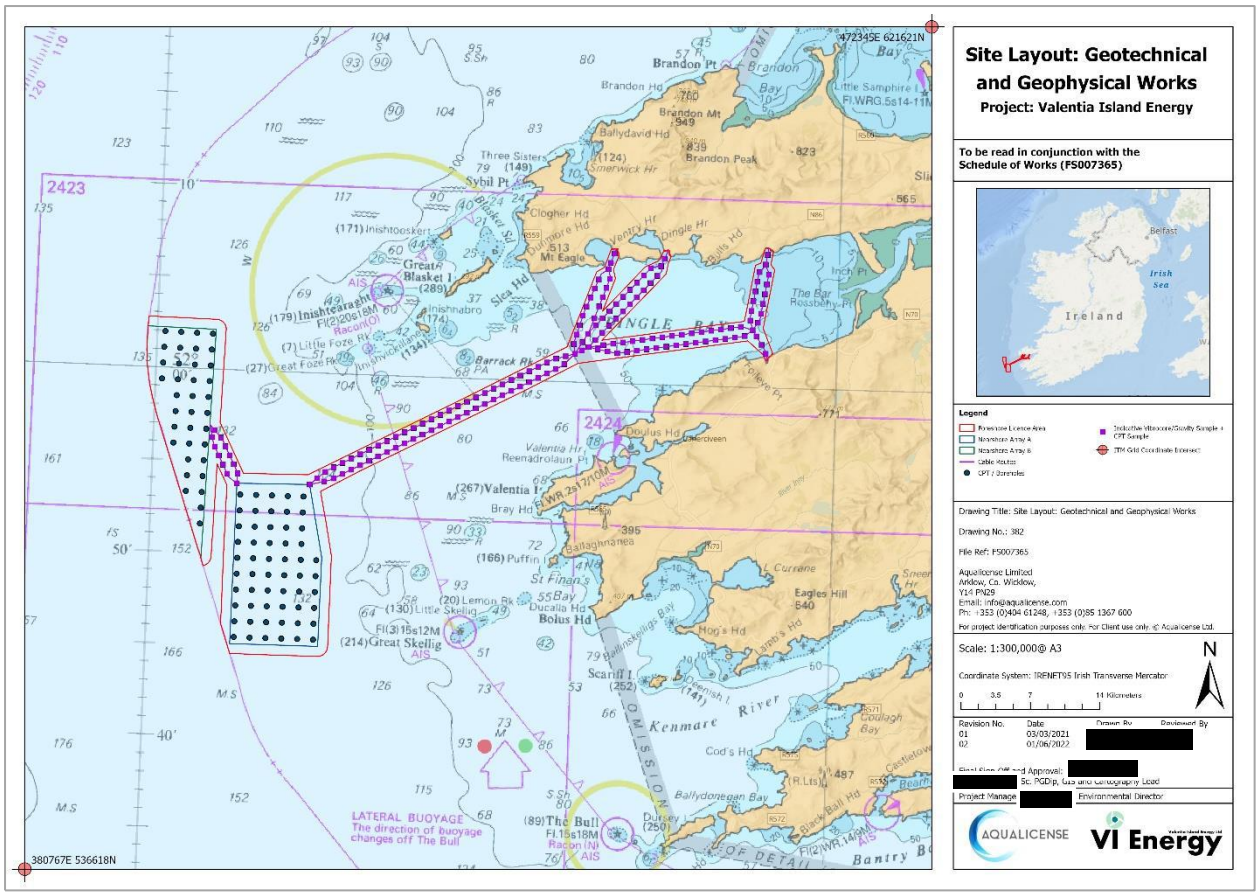

Figure 3.2: Provisional location of the CPT/Borehole and Vibrocore sampling sites within the Investigation Area.

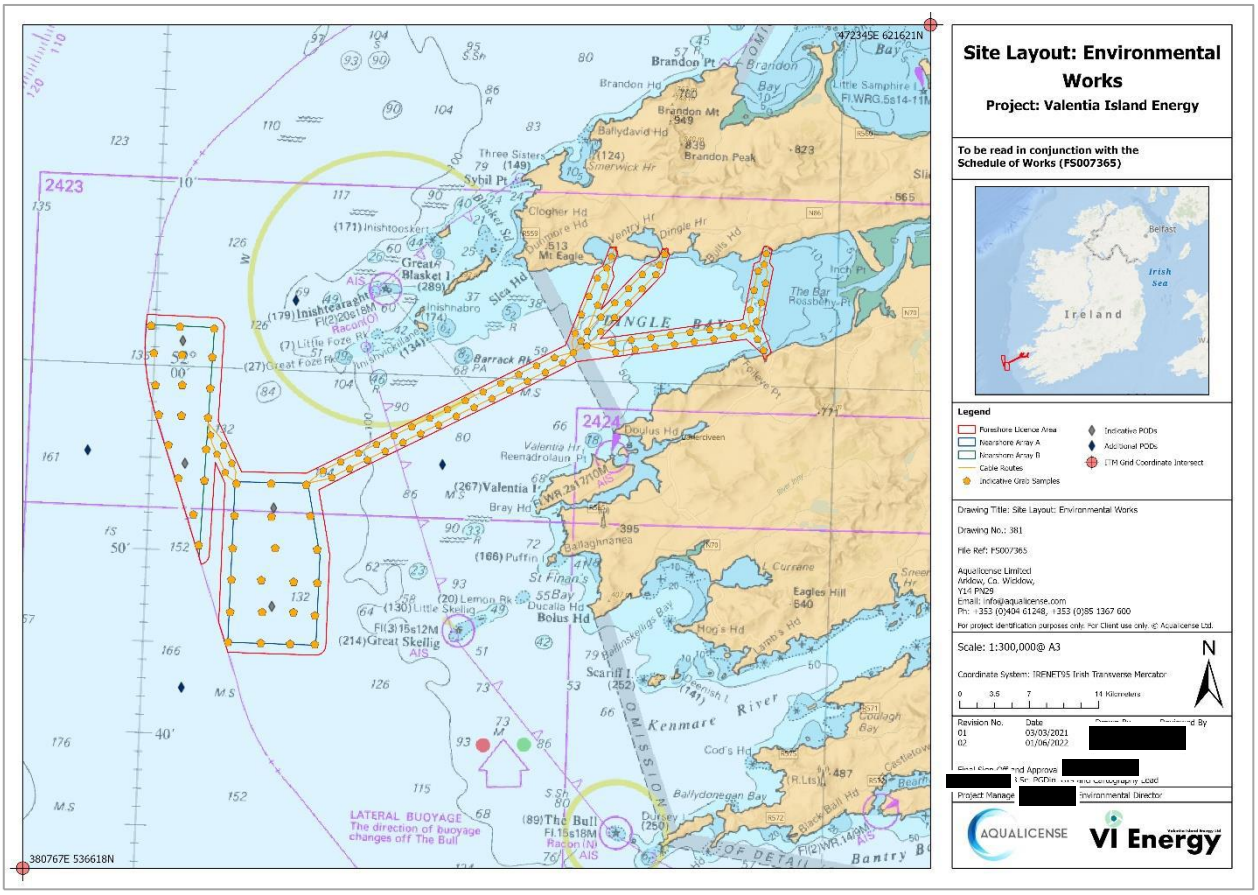

Figure 3.3: Provisional location of the grab sampling sites and POD location within the Investigation Area.

3.1 Marine Habitats

The habitats of the Investigation Area are shown in *Figure 3.4.* The habitats of the middle reaches of the estuary are comprised of large expanses of coarse sediment. Sand dominates in the outer estuary with large expanses of rock to the south, the rock has small areas of mixed sediment interspersed.

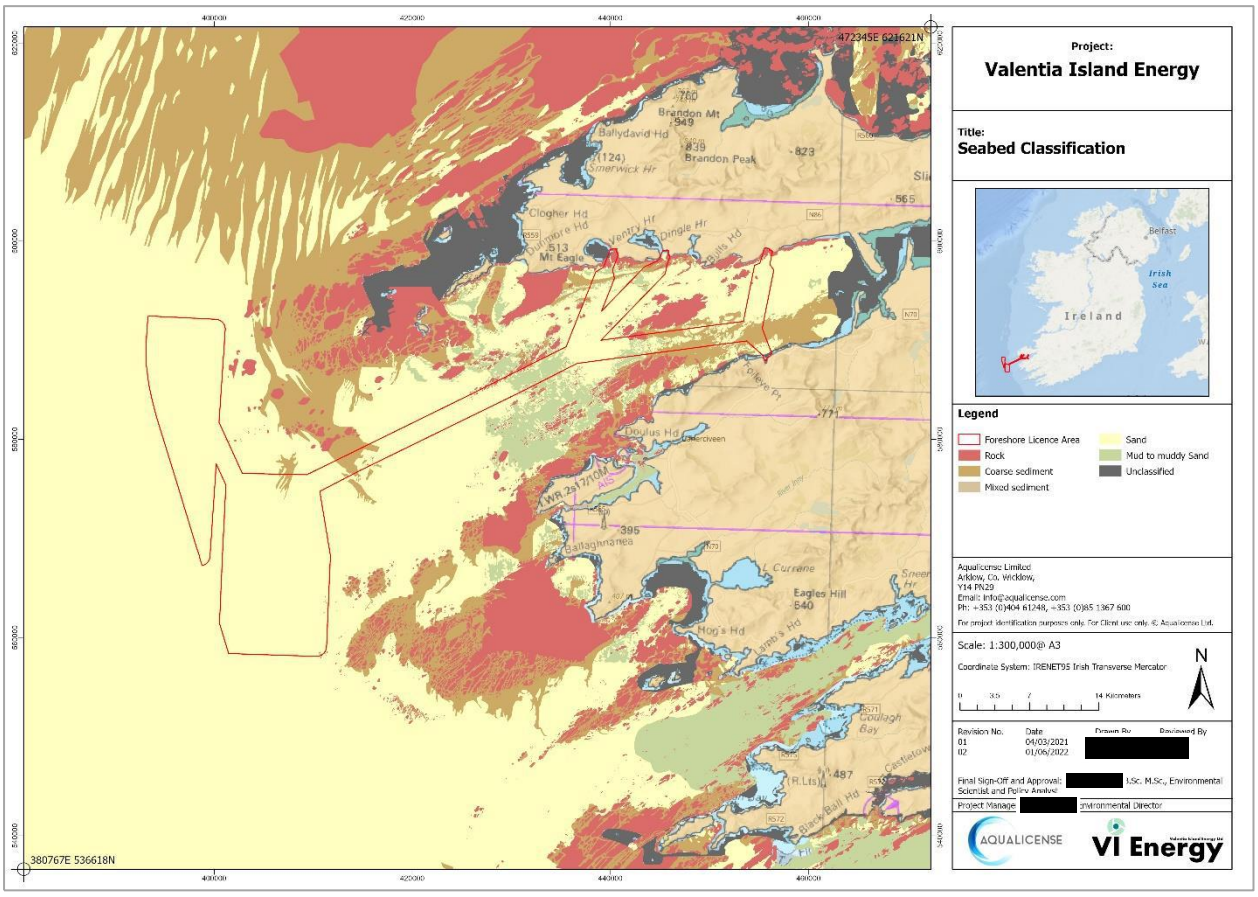

Figure 3.4: Predominant habitat type within the Investigation Area (EMODnet Central Portal, 2021a).

3.2 Natura 2000 Sites

3.1.1 Special Protection Areas (SPA) (Birds)

Ireland's natural landscape is home to several nationally and internationally important bird species. As Ireland is situated along the east Atlantic flyway for waterbirds that breed in more northerly latitudes, our wetlands are an important resource for over three-quarters of a million of these waterbirds each year. A number of these species are migratory and are present only during migration periods in spring and autumn. Additionally, other bird species come to Ireland to breed or to spend the winter, while some are resident throughout the full year. The following survey recordings were reported in the NPWS (2021a) found over 50 species of waterbird migrate here either on passage to more southerly resorts or to spend the entire winter here. In some cases, significant proportions of the biogeographic populations of waterbirds overwinter here (e.g., Light-bellied Brent Goose, Black-tailed Godwit, Whooper Swan, Greenland White-fronted Goose and Ringed Plover). Coastal habitats provide important breeding sites for many species of seabirds. Every summer seabirds seek out suitable breeding habitats, principally on mainland cliffs and on marine islands (National Parks and Wildlife Services, 2021a). Approximately 45 species of seabird (including divers and grebes) have been recorded during at-sea surveys in Irish waters. Of this, 23 species frequently breed around Ireland (Mackey, et al., 2004). Furthermore, another 59 species of waterfowl and wader frequently occur at Irish coastal sites such as estuaries. Consequently, many of these areas have been designated as Special Protection Areas (SPA) under the E.U. Birds Directive.

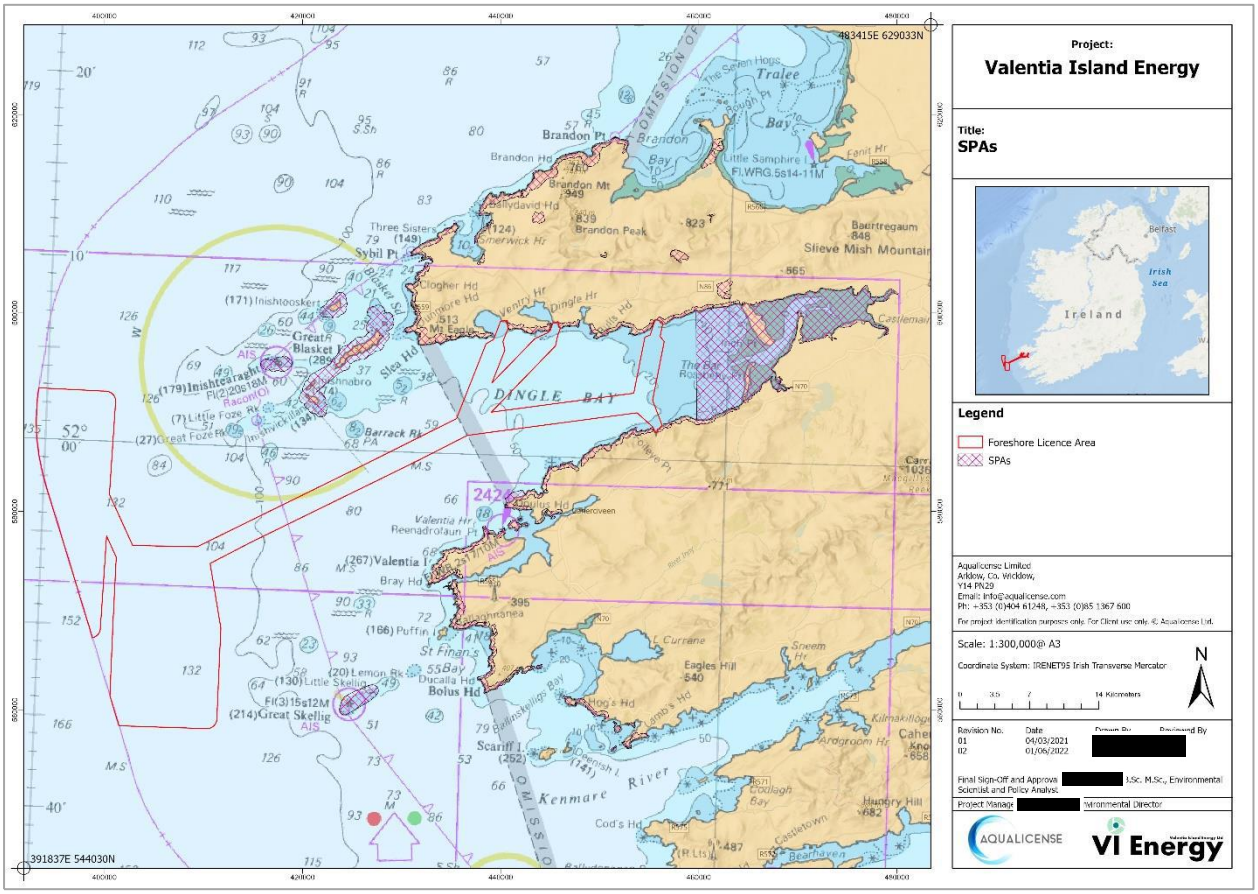

Figure 3.5: Special Protection Areas (SPA), designated under the Birds and Habitats Directives, located within the ZoI of the proposed Investigation area. (Data Source: (National Parks and Wildlife Services, 2021a).

Several Special Protection Areas (SPA) occur along the coasts of Clare and Kerry (*Figure 3.5*) Summaries of the proximity and importance of these special protection areas is given below, based on information gleaned from NPWS literature which is referenced accordingly.

3.1.2 Dingle Peninsula SPA (IE 004153) (NPWS, 2014) (NPWS, 2022)

The Dingle Peninsula SPA, a large site situated on the west coast of Co. Kerry, encompasses the high coast and sea cliff south of Brandon Point in the north, to Slea Head, and as far east as Inch in the south. The site lies adjacent to the Investigation Area (*Figure 3.5*). This Natura 2000 site designated as a SPA under the E.U. Birds Directive is of special conservation interest for the Fulmar, Peregrine, and Chough. The site is of national and ornithological importance as it supports some of the highest densities of breeding Chough in Ireland. Other breeding seabirds recorded at the site include Razorbill, Herring Gull, Lesser Black-backed Gull, Shag, Great Black-backed Gull and Black Guillemot. The Dingle Peninsula is of particular significance as it forms as a part of a Statutory Nature Reserve.

3.1.3 Iveragh Peninsula SPA (IE 004154) (NPWS, 2015) (NPWS, 2022a)

The Iveragh Peninsula SPA is a large site situated on the west coast of Co. Kerry. The site encompasses the high coast and sea cliff sections of the peninsula from just west of Rossbehy in the north, around to the end of the peninsula at ValentiaValentia Island and Bolus Head, and as far east as Lamb's Head in the south. The site includes the sea cliffs, the land adjacent to the cliff edge and also areas of sand dunes at Derrynane and Beginish. The site lies adjacent to the Investigation Area (*Figure 3.5*). This Natura 2000 site designated as a SPA under the E.U. Birds Directive is of special conservation interest for the Chough, Peregrine, Guillemot, Fulmar, and Kittiwake.

3.1.4 Castlemaine Harbour SPA (IE 004029) (NPWS, 2014a) (NPWS, 2011)

Castlemaine Harbour SPA is a large coastal site occupying the innermost part of Dingle Bay. It extends from the lower tidal reaches of the River Maine and River Laune to west of the Inch and Rosbehy peninsulas (c. 16 km from east to west). The average width of the estuary is 4-5 km, although it is c. 11 km wide at the outer limit. The site lies 3.24 km northeast of the Investigation Area (*Figure 3.5*). This Natura 2000 site designated as a SPA under the E.U. Birds Directive is of special conservation interest for the Red-throated Diver, Cormorant, Light-bellied Brent Goose, Wigeon, Mallard, Pintail, Scaup, Common Scoter, Oystercatcher, Ringed Plover, Sanderling, Bar-tailed Godwit, Redshank, Greenshank, Turnstone and Chough. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

3.1.5 Blasket Islands SPA (IE 004008) (NPWS, 2015a) (NPWS, 2022b)

The Blasket Islands SPA are situated at the end of the Dingle peninsula in Co. Kerry. The site comprises all of the main islands in the group, as well as the various islets and rocks, and also the seas which surround the islands to a distance of 500 m. There are six main islands, plus some smaller islands, islets and sea stacks. The largest island, Great Blasket, is separated from the mainland by the Blasket Sound, a distance of some 2 km. The smallest island, Beginish, lies close to Great Blasket, while the other islands (Inishtooskert, Inishnabro, Inishvickillane, Tearaght Island) are between about 7 km and 12 km from the mainland. The site lies 6.19 km north of the Investigation Area (*Figure 3.5*). This Natura 2000

site designated as a SPA under the E.U. Birds Directive is of special conservation interest for the Fulmar, Manx Shearwater, Storm Petrel, Shag, Lesser Black-backed Gull, Herring Gull, Kittiwake, Arctic Tern, Razorbill, Puffin and Chough. The site is also of special conservation interest for holding an assemblage of over 20,000 breeding seabirds.

3.1.6 Skelligs SPA (IE 004007) (NPWS, 2015b) (NPWS, 2022c)

Skelligs SPA comprises Great Skellig and Little Skellig islands. These highly exposed and isolated islands, which are separated by a distance of 3 km, are located in the Atlantic some 14 km and 11 km (respectively) off the County Kerry mainland. The site lies 12.32 km southeast of the Investigation Area (*Figure 3.5*). This Natura 2000 site designated as a SPA under the E.U. Birds Directive is of special conservation interest for the Fulmar, Manx Shearwater, Storm Petrel, Gannet, Kittiwake, Guillemot and Puffin. It is also of special conservation interest for holding an assemblage of over 20,000 breeding seabirds.

Table 3.1: Special Protection Areas located within the ZoI of the proposed Investigation area. SPA sites located within the Investigation area are listed as 0 km.

Special Protection Areas	Distance (km) from Investigation Area
Dingle Peninsula SPA (IE 004153)	0.00
Iveragh Peninsula SPA (IE 004154)	0.00
Castlemaine Harbour SPA (IE 004029)	3.24
Blasket Islands SPA (IE 004008)	6.19
Skelligs SPA (IE 004007)	12.32

3.3 Special Areas of Conservation (SAC) (Habitats, Species)

Many Special Areas of Conservation (SAC) occur along the coasts of Clare and Kerry (*Figure 3.6*). Summaries of the proximity and importance of these sites are given below. These summaries are based on information gleaned from NPWS literature and are referenced accordingly. These sites are selected for the presence of Annex I habitats and Annex II species listed on the E.U Habitats Directive; for more detail please refer to the following NPWS documentation for a detailed description of the conservation objectives: Blasket Islands SAC (IE 002172) (NPWS, 2014b), Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE 000365) (NPWS, 2017), Castlemaine Harbour SAC (IE 000343) (NPWS, 2011a), and Valentia Harbour/Portmagee Channel SAC (IE 002262) (NPWS, 2012). Priority habitats are denoted by an *. SAC sites selected for the presence of Annex II mobile species within the Management Unit boundaries of the Offshore Waters (OW), West Coast of Ireland (WCI) and the Celtic and Irish Seas (CIS) are shown in *Figure 3.7*. The summaries presented below are based on information provided by JNCC and are referenced accordingly. For more site detail, please refer to the following JNCC documentation: Lower River Shannon SAC (IE 002165) (NPWS, 2012a), Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK 0030396) (JNCC, 2015b), North Anglesey Marine / Gogledd Môn Forol SAC (UK 003398) (JNCC, 2015c), North Channel SAC (UK 0030399) (JNCC, 2015d), and West Wales Marine / Gorllewin Cymru Forol SAC (UK 0030397) (JNCC, 2015e).

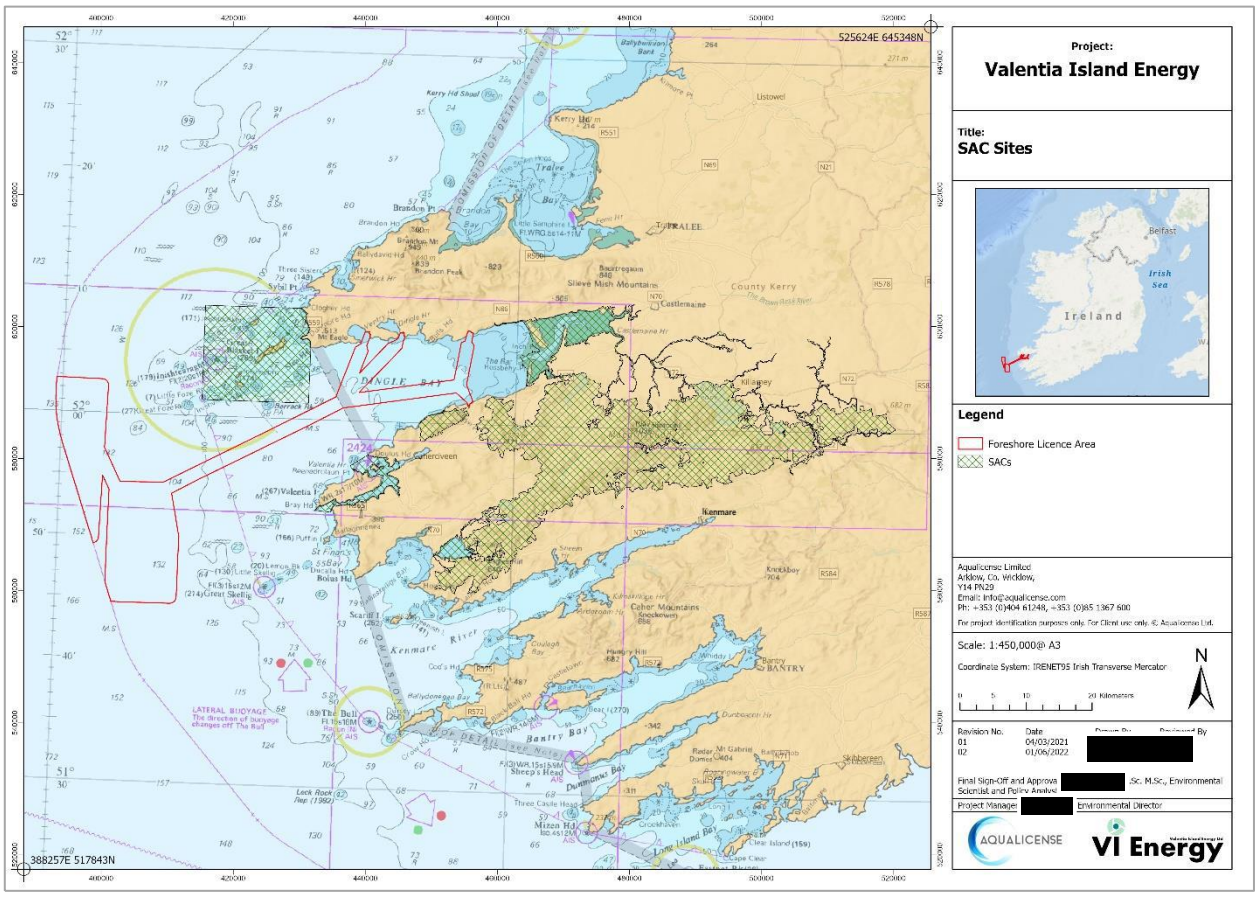

Figure 3.6: Special Areas of Conservation, designated under the Habitats Directives, located within the ZoI of the proposed Investigation area. (Data Source: (NPWS, 2021a)).

3.1.7 BLASKET ISLANDS SAC (IE 002172) (NPWS, 2013) (NPWS, 2014B)

The Blasket Islands SAC is situated at the end of the Dingle peninsula in Co. Kerry. The site includes all of the islands in the group as well as a substantial area of the surrounding seas. There are six main islands, plus some rocky islets and sea stacks. Great Blasket Island, separated from the mainland by the Blasket Sound, is by far the largest of the islands (459 ha) and rises to 292 m above sea level. Inishtooskert (99 ha, 162 m), Inishnabro (51 ha, 175 m), Inishvickillane (81 ha, 138 m) and Tearaght Island (27 ha, 184 m) are located between approximately 7 km and 12 km from the mainland and, like Great Blasket, rise steeply from the sea. In contrast, Beginish is a small, low lying island (15 ha, 14 m) and lies within 2 km of the mainland. The site lies 0.97 km north of the Investigation Area (*Figure 3.6*).

The site is a Special Area of Conservation (SAC) selected for the following habitats listed in Annex I and Annex II of the EU Habitats Directive: [1170] Reefs [1230] Vegetated Sea Cliffs [4030] Dry Heath [8330] Sea Caves [1351] Harbour Porpoise (*Phocoena phocoena*) [1364] Grey Seal (*Halichoerus grypus*).

The site has a large Grey Seal population (648-833 breeding in 2005; one-off moult count of 989 seals in 2007) (NPWS, 2013). This is one of the largest populations in the country and represents about one-third of the Irish population. The seals breed on boulder beaches and caves on several of the islands. The seals on these islands are sometimes perceived as competitors for local fish stocks. This

occasionally leads to threats to their welfare; the most recent occurred in November 2004 when a large number of adults and pups were shot and clubbed. The site is also of importance for Harbour Porpoise, a species which has a regular presence in the Blaskets. A population estimate in 2008 gave a figure of 267-477 individuals. Other cetaceans (whales and dolphins) regularly observed in the site include Common Dolphin, Bottle-nosed Dolphin, Risso's Dolphin, Killer Whale and Minke Whale. Few other mammal species occur on the islands, though Inishvickillane has an introduced population of native Red Deer.

3.1.8 Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE 000365) (NPWS, 2013a) (NPWS, 2017)

Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment is a very large site which encompasses the mountains, rivers and lakes of the Iveragh Peninsula, and the Paps Mountains which stretch eastward from Killarney towards Millstreet. The majority of the site is in Co. Kerry, with a small portion in Co. Cork. The site lies 2.32 km northeast of the Investigation Area (*Figure 3.6*).

The site is a Special Area of Conservation (SAC) selected for the following habitats land animals listed in Annex I and Annex II of the EU Habitats Directive: [3110] Oligotrophic Waters containing very few minerals [3130] Oligotrophic to Mesotrophic Standing Waters [3260] Floating River Vegetation [4010] Wet Heath [4030] Dry Heath [4060] Alpine and Subalpine Heaths [5130] Juniper Scrub [6130] Calaminarian Grassland [6410] *Molinia* Meadows [7130] Blanket Bogs (Active)* [7150] Rhynchosporion Vegetation [91A0] Old Oak Woodlands [91E0] Alluvial Forests* [91J0] Yew Woodlands* [1024] Kerry Slug (*Geomalacus maculosus*) [1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*) [1065] Marsh Fritillary (*Euphydryas aurinia*) [1095] Sea Lamprey (*Petromyzon marinus*) [1096] Brook Lamprey (*Lampetra planeri*) [1099] River Lamprey (*Lampetra fluviatilis*) [1103] Twaite Shad (*Alosa fallax*) [1106] Atlantic Salmon (*Salmo salar*) [1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*) [1355] Otter (*Lutra lutra*) [1421] Killarney Fern (*Trichomanes speciosum*) and [1833] Slender Naiad (*Najas flexilis*).

The site is valuable for its rare fish species, five of which are listed on Annex II of the E.U. Habitats Directive: Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Sea Lamprey (*Petromyzon marinus*), Atlantic Salmon (*Salmo salar*) and Killarney Shad (*Alosa fallax killarnensis*). The Killarney Shad is a unique land-locked subspecies confined to the Killarney lakes. Also of note is the glacial relict, Arctic Char (*Salvelinus alpinus*), a Red Data Book species, a unique form of which is found in Lough Coomasaharn.

3.1.9 Castlemaine Harbour SAC (IE 000343) (NPWS, 2015c) (NPWS, 2011a)

Castlemaine Harbour SAC is a large site located on the south-east corner of the Dingle Peninsula, Co. Kerry. It consists of the whole inner section of Dingle Bay, i.e. Castlemaine Harbour, the spits of Inch and White Strand/Rosbehy and a small stretch of the coastline to the west. The site lies 3.46 km northeast of the Investigation Area (*Figure 3.6*).

The site is a Special Area of Conservation (SAC) selected for the following habitats and animals listed in Annex I and Annex II of the EU Habitats Directive: [1130] Estuaries [1140] Tidal Mudflats and Sandflats [1210] Annual Vegetation of Drift Lines [1220] Perennial Vegetation of Stony Banks [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts [1310] *Salicornia* Mud [1330] Atlantic Salt Meadows [1410] Mediterranean Salt Meadows [2110] Embryonic Shifting Dunes [2120] Marram

Dunes (White Dunes) [2130] Fixed Dunes (Grey Dunes)* [2170] Dunes with Creeping Willow [2190] Humid Dune Slacks [91E0] Alluvial Forests* [1095] Sea Lamprey (*Petromyzon marinus*) [1099] River Lamprey (*Lampetra fluviatilis*) [1106] Atlantic Salmon (*Salmo salar*) [1355] Otter (*Lutra lutra*) [1395] Petalwort (*Petalophyllum ralfsii*).

Castlemaine Harbour is of major ecological importance. It contains a range of coastal habitats of excellent quality, including many that are listed on Annex I of the E.U. Habitats Directive, and two which are listed with priority status (fixed dunes and alluvial forests). It also includes long stretches of river and stream which are excellent habitats for Salmon, Lamprey and Otter. Inch dunes are recognised as among the finest in the country, with particularly well-developed dune slacks. The Version date: 10.12.2015 4 of 4 000343_Rev15.Docx site supports internationally important waterfowl populations, rare plant species, the rare Natterjack Toad, as well as populations of several animal species that are listed on Annex II of the E.U. Habitats Directive. Part of the site is designated a Special Protection Area (SPA) and is listed as a site under the Ramsar Convention. Part of Castlemaine Harbour is a Statutory Nature Reserve, while Inch and Rosbehy are Wildfowl Sanctuaries.

3.1.10 Valentia Harbour/Portmagee Channel SAC (IE 002262) (NPWS, 2014c) (NPWS, 2012)

Valentia Harbour/Portmagee Channel SAC is located at the tip of the Iveragh peninsula in Co. Kerry, separate Valentia Island from the mainland. The channel, which is approximately 1 km wide, and Valentia Harbour and Doulus Bay to the east of the island, contain important examples of three habitats in particular reefs, large shallow inlets and tidal mudflats. The site lies 7.48 km southeast of the Investigation Area (*Figure 3.6*).

The site is a Special Area of Conservation (SAC) selected for the following habitats and animals listed in Annex I and Annex II of the EU Habitats Directive: [1140] Tidal Mudflats and Sandflats [1160] Large Shallow Inlets and Bays [1170] Reefs.

Table 3.2: Special Areas of Conservation located within the vicinity of the proposed survey area. Distances to the Investigation area are listed. SAC located within the survey area are listed as 0 km.

Special Areas of Conservation	Distance (km) from Investigation Area
Blasket Islands SAC (IE 002172)	0.97
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE 000365)	2.32
Castlemaine Harbour SAC (IE 000343)	3.46
Valentia Harbour/Portmagee Channel SAC (IE 002262)	7.48

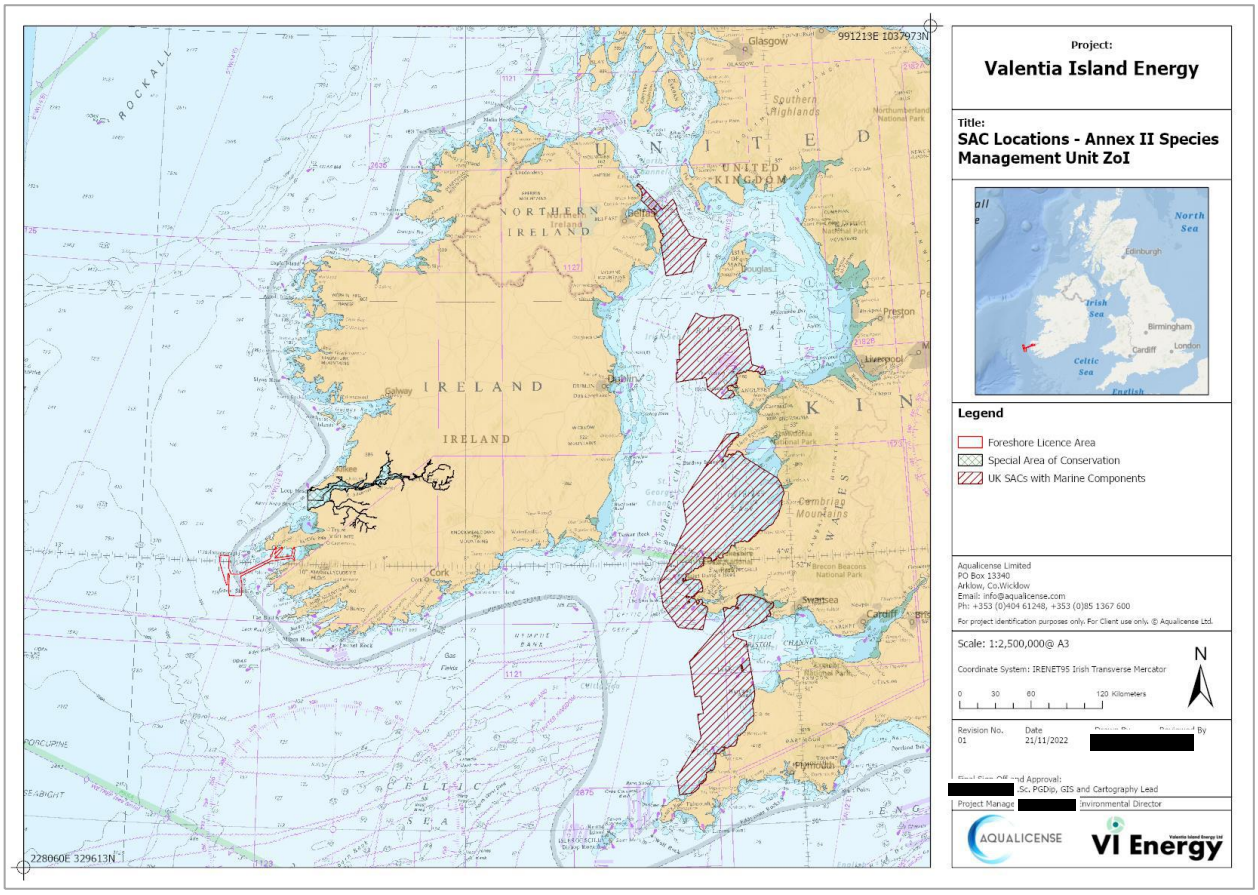

Figure 3.7: Identification of SAC sites, within the relevant Management Unit of the proposed Investigation Area

<u>Lower River Shannon SAC (IE 002165)</u> (NPWS, 2012a)

Lower River Shannon SAC (68,300 ha) is located off the Shannon Estuary in county Kerry, Ireland. This site lies within the West Irish Coast (WCI) Management Unit and was selected for the presence of the following Annex II mobile species: Bottlenose dolphin [1349].

<u>Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK0030396)</u> (JNCC, 2015b)

The Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (584,994 ha) spans the Bristol Channel between the northern coast of Cornwall into Carmarthen Bay in Wales. This site lies within Celtic and Irish Sea (CIS) Management Unit and was selected for the presence of the following Annex II mobile species: Harbour Porpoise [1351].

<u>North Anglesey Marine / Gogledd Môn Forol (UK0030398)</u> (JNCC, 2015c)

The North Anglesey Marine / Gogledd Môn Forol SAC (324,949 ha) is located North of the Isle of Anglesey, Wales, UK. This site lies within Celtic and Irish Sea (CIS) Management and Unit was selected for the presence of the following Annex II mobile species: Harbour Porpoise [1351].

North Channel (UK0030399) (JNCC, 2015d)

The North Channel SAC (160,367 ha) is located in the North Channel between NE Northern Ireland and SW Scotland. This site lies within Celtic and Irish Sea (CIS) Management Unit and was selected for the presence of the following Annex II mobile species: Harbour Porpoise [1351].

West Wales Marine / Gorllewin Cymru Forol (UK0030397) (JNCC, 2015e)

The West Wales Marine / Gorllewin Cymru Forol SAC (737,600 ha) is located off the coast of Wales, UK From the Llŷn peninsula in the north, to Pembrokeshire in the south-west. This site lies within Celtic and Irish Sea (CIS) Management Unit and was selected for the presence of the following Annex II mobile species: Harbour Porpoise [1351].

Special Areas of Conservation	SAC Area (ha)
Lower River Shannon SAC (IE 002165)	68,300
Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK0030396)	584,994
North Anglesey Marine / Gogledd Môn Forol (UK0030398)	324,949
North Channel (UK0030399)	160,367
West Wales Marine / Gorllewin Cymru Forol (UK0030397)	737,600

3.4 Subsea Infrastructure and Shipwrecks

For a detailed a description and all relevant maps relating to subsea infrastructure and shipwrecks please refer to Section 7 of the document – Valentia Island Energy: Foreshore Licence Application for Site Investigation Works – Other Marine Users - accompanying the licence application.

3.5 Fisheries

For a detailed a description and all relevant maps relating to fisheries please refer to Section 4 of the document – Valentia Island Energy: Foreshore Licence Application for Site Investigation Works – Other Marine Users - accompanying the licence application.

3.6 Aquaculture Installations

For a detailed a description and all relevant maps relating to Aquaculture installations please refer to Section 4 of the document – Valentia Island Energy: Foreshore Licence Application for Site Investigation Works – Other Marine Users - accompanying the licence application.

3.7 Marine Traffic

For a detailed a description and all relevant maps relating to marine traffic please refer to Section 6 of the document – Valentia Island Energy: Foreshore Licence Application for Site Investigation Works – Other Marine Users - accompanying the licence application.

3.8 Other Proposed Projects

A review of the Department of Housing, Planning and Local Government's Foreshore Application and Determinations shows potential proposed activity close to/within the site area (*Figure 3.8*).

There is one (1) proposed developments proximate to the proposed Foreshore Licence Area that has been submitted to the Department. This is:

1. Mainstream Tralee Windfarm, Foreshore Application reference number FS007375.

Mainstream Tralee Windfarm is located c. 33 km from the proposed Foreshore Licence Area, occupying a total area of c. 2,201 km² or c. 220,120 ha. This Foreshore License Application was submitted on the 3rd of June 2021. and is currently at the application applied phase of the approval process.

The proposed development area will not be interacted with during the planned surveys that are to be carried out, however, their presence in proximity to the area is documented here. The location of the proposed development in relation to the Foreshore Licence Area is illustrated in *Figure 3.8*.

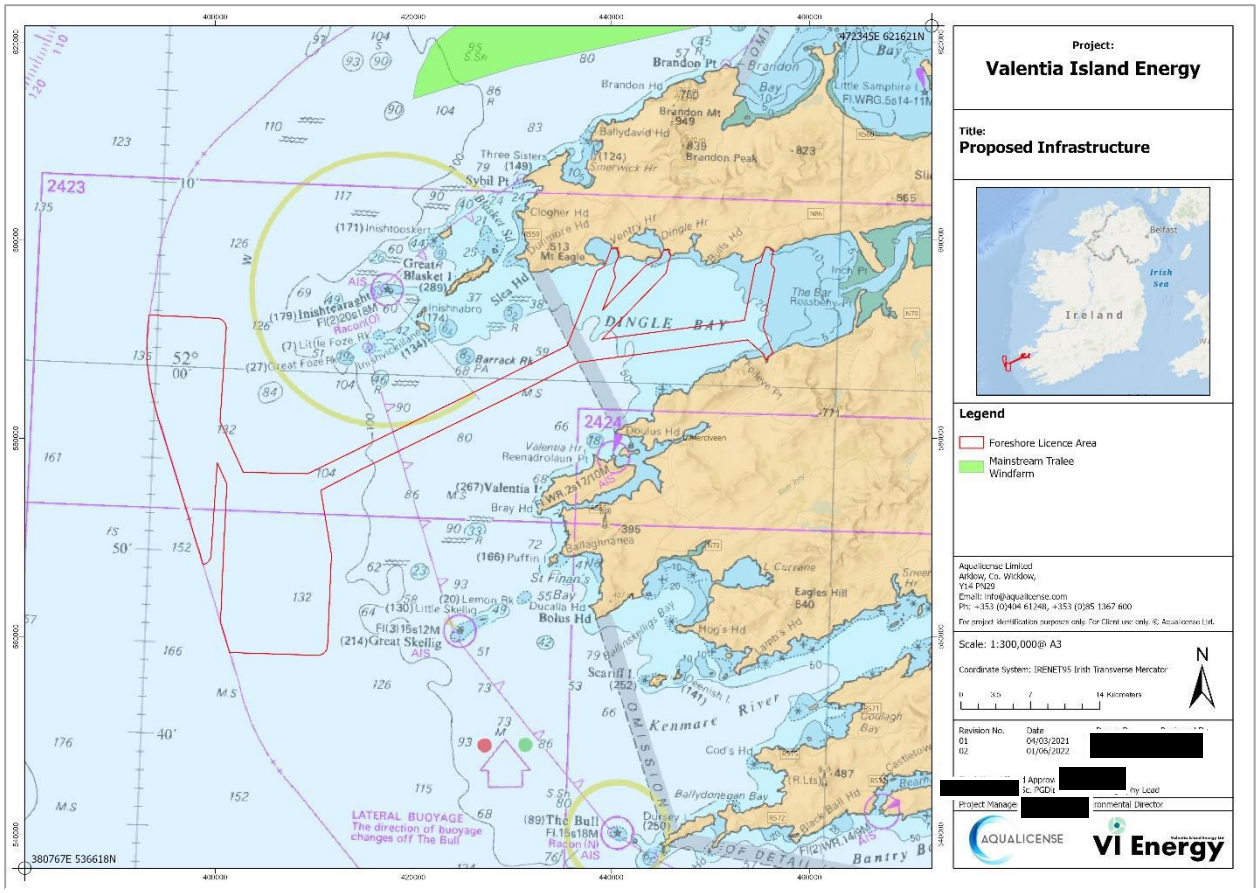

Figure 3.8: Other potential proposed activity located within/surrounding the vicinity of the proposed Investigation Area.

4. Potential Environmental Impacts

- Physical disturbance to marine benthic habitats and communities
- Disturbance from vibration and underwater noise associated with surveys
- Injury due to collision (survey vessels/sampling equipment)
- Pollution event
- Visual and noise disturbance

4.1 Physical Disturbance to Marine Benthic Communities

Benthic communities will be unaffected by geophysical survey works as there is no contact with the seabed. However, the environmental and geotechnical sampling surveys may result in small, confined areas of the seabed being temporarily disturbed.

The benthic survey will involve the extraction of 0.5m^3 of material directly from the seabed using a grab sampler. As grab sampling by its nature can only be carried out in soft sediments (muds, sands, gravels) once the sampling device is retrieved, any disturbance to the sediment will be recover naturally.

Borehole locations will involve the penetration of a drill pipe to a scheduled depth of between 20m and 80m below the seafloor. Most of the boreholes will be circa 20m deep. This will cause disturbance to the area of the drill pipe penetration itself and the area directly surrounding the penetration due to the mound created by drill risings. An estimated 1-2m^2 area of the seafloor will be affected by the footprint of the mound created by drill cuttings. Immediately following the removal of the cores, the void in the seabed will fill naturally leaving only a minor impression on the seafloor.

Core penetration testing (CPT) does not involve the removal of any material and the hole created by the penetration of the core (approx. 5cm diameter), will infill almost instantly upon extraction of the rods. The CPT unit has a footprint of approximately 8m^2 which will sit on the sea floor for the duration of the test which is typically 2-3 hours.

Benthic communities in the footprint of sampling equipment may be impacted through minor disturbance around the drill site and a very small volume of substratum loss, direct displacement or smothering during sampling. Any smothering will be a thin layer due to small volumes of sediment displaced during the sampling. Softer sediments (such as sand and mud) are highly recoverable to disturbance and typical species can quickly recolonise the area. Benthic fauna in the area is infaunal, therefore species will be able to burrow away from areas of disturbance.

The geotechnical sampling methods proposed are likely to cause a small amount of sediment to become suspended. The resulting sediment suspension will be dispersed and deposited on the sea floor at a location subject to wave action and tidal stream. As a result, the deposition levels of this material will be very insignificant, likely within the storm background levels of sediment migration in the Investigation Area.

Benthic fauna does not have any auditory structures and therefore will not be impacted by any noise inducing activities. They will however react to vibrations (Roberts, et al., 2016), often retracting into the seabed to avoid a potential hazard. Therefore, sensitivities and responses to vibration must be

considered within the context of coastal marine developments and offshore activities. Seismic operations do not generate any vibration effects on sediments; however, vibrocoring will produce vibration effects on the seabed and may disturb some benthic fauna. The vibrations caused by vibrocoring cause infaunal tube dwelling species to retract, temporarily, into their respective burrows or tubes.

Sampling and testing locations will be an appropriate distance apart to minimise the impact. No material will be disturbed or removed during geophysical survey activities.

As the proposed survey will not cause any physical obstructions there will not be any potential for likely significant effects to alter the natural circulation of sediment and organic matter, or cause changes to the existing sediment transport processes of any Natura 2000 site. Therefore, no likely significant effects associated with habitat loss or alteration are anticipated and such effects can be excluded at the screening stage in the absence of mitigation measures.

4.2 Distance from vibration and underwater noise associated with surveys

Geophysical surveys in the marine environment are a potential source of anthropogenic sound and therefore may have an impact on the marine environment. The level of environmental impact associated with this acoustic activity is variable depending on several factors including the type of equipment being used, its sound signal and propagation characteristics, and the depth in which it is operating (DAHG, 2014).

Both cetaceans and pinnipeds have evolved to use sound as an important aid in navigation, communication, and hunting (Richardson, et al., 1995). It is widely accepted that the main environmental concern relating to marine mammals is the potential effects of anthropogenic underwater noise/sound. Such exposure can induce a range of effects on marine mammals. Physical effects may produce a reduction in hearing sensitivity temporarily (Temporary Threshold Shift-TTS) which is reversible or following intense noise exposure, and permanent (Permanent Threshold Shift-PTS). Other impacts include masking of biologically important noises by anthropogenic noise (perceptual impacts), behavioural changes such as displacement from feeding, resting, or breeding grounds; and stress (DAHG, 2014). Masking effects can interfere with communication in marine mammals which can be crucial in social learning (particularly for odontocete cetaceans), and it can disrupt return echoes which are used to locate mobile prey and discern environmental structure (Erbe, 2002).

Acoustic instruments and equipment used in targeted marine geophysical investigations have been reported to produce sound at frequencies within the range of marine mammals. To evaluate the potential of the proposed survey equipment to cause harm to marine mammals, an assessment has been conducted using the (JNCC, 2015b) approach. In (Southall, et al., 2019) marine mammals are separated into groups based on their functional hearing, namely low-frequency cetaceans, high frequency cetaceans, very high frequency cetaceans, pinnipeds in water and pinnipeds in air. For each of these groups the proposed noise levels that would result in injury (PTS or TTS of hearing ability) for individuals exposed to single, multiple and non-pulsed sources are detailed (*Table 4.1*) below.

Table 4.1: Sound Pressure Level (SPL) injury criteria proposed by Southall et al. (2019), for individual marine mammals exposed to discrete noise events.

Marine Mammal group	Injury Criteria	
	TTS	PTS
Low-Frequency Cetaceans (Baleen whales)	213dB re: 1µPa (peak)	219dB re: 1µPa (peak)
High-Frequency Cetaceans (including Bottlenose dolphins)	224dB re: 1µPa (peak)	230dB re: 1µPa (peak)
Very high Frequency Cetaceans (including harbour porpoise)	196dB re: 1µPa (peak)	202dB re: 1µPa (peak)
Pinnipeds (in water)	212dB re: 1µPa (peak)	218 dB re: 1µPa (peak)

The (DAHG, 2014) report 'Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters' is based on the noise exposure criteria and frequency categorisation presented in the Southall *et al.* (2019) publication. This data addresses several key potential sources of anthropogenic sound that may impact detrimentally upon marine mammals in Irish waters. It incorporates a re-examination of the Code of Practice for acoustic surveys and thereby provides replacement guidance and protective measures in this respect.

The following auditory band widths for marine mammals which may be present in the vicinity of the proposed Investigation Area are extracted from the DAHG (2014) guidelines and are shown in *Table 4.2*.

Table 4.2: Marine mammal auditory band width; Source: (DAHG, 2014).

Frequency	Marine Mammal/Species	Estimated Auditory Band Width (Hz)
Low Frequency Cetaceans	Baleen whales (Minke whale, Humpback whale)	7-22 000
Mid Frequency Cetaceans	Most toothed whales and dolphins (including Common & Risso's Dolphin)	150-160 000
High Frequency Cetaceans	Certain toothed whales and porpoises (including Harbour porpoise)	200-180 000
Low Frequency Pinnipeds in water	Grey seal & harbour seal	75-75 000

Noise characteristics of the various surveys are detailed in *Table 4.3* below; for more detailed information please refer to the document – Valentia Island Energy: Foreshore Licence Application for Site Investigation Works – Schedule of Works - accompanying the licence application.

Table 4.3: Acoustic equipment frequency data.

Noise Source	Frequency (Hz)	Sound Pressure Level (dB re 1mPa @ 1m)
Shipping Noise	50 - 300	160-175
Multibeam echosounder (MBES)	400,000-700,000	200-228
Side scan sonar (SSS)	300,000-900,000	228
Pinger or Chirp/Sparker system (SBP)	2,000 – 16,000	200
Boomer system (SBP)	2,500	208 - 211
Ultra-High-Resolution Sound source seismic (UHRS)	300 – 1,200	226
Geotechnical drilling (Rotary Boreholes)	2 – 50,000	190

Comparing the data on Marine mammal auditory band width (*see Table 4.2*) and the noise characteristics of the surveys (*see Table 4.3*) it is deemed that the following will be audible to marine mammals:

- Shipping noise
- Sub-Bottom Profiler (SBP)
- Ultra-high resolution seismic (UHRS)
- Drilling

Cone penetration testing (CPT), Magnetometer (MM) and Vibrocore are deemed not audible to marine mammals. Multibeam and side scan sonar surveys are typically at such high frequency and low power that they are deemed outside the audible threshold of marine mammals.

The relevant surveys which are within the audible band width for marine mammals are presented in *Table 4.4.*

Table 4.4: Marine Mammal Auditory Band Width and relevant surveys, marine mammals known in the area are also listed.

Frequency	Marine mammal/Species	Estimated Auditory Band Width (Hz)	Audible Survey
Low Frequency Cetaceans	Baleen whales (Minke Whale, Humpback Whale)	7-22,000	Shipping, SBP, UHRS, Drilling
Mid Frequency Cetaceans	Most toothed whales and dolphins (Common & Risso's Dolphin)	150-160,000	Shipping, SBP, UHRS, Drilling
High Frequency Cetaceans	Certain toothed whales, porpoises (Harbour porpoise)	200-180,000	Shipping, SBP, UHRS, Drilling
Low Frequency Pinnipeds in water	Grey Seal Harbour Seal	75-75,000	Shipping, SBP, UHRS, Drilling

Other species that may be impacted by underwater noise include the Annex II species, salmon, shad, lamprey. Several studies have demonstrated that fish can be "classified" as hearing specialists or hearing non-specialists (or generalists) (Popper, et al., 2003). Hearing non-specialists may detect sounds of 250–1500Hz depending on the species, whereas hearing specialists are able to detect sounds of 3000Hz or above, again depending on the specific species (Popper, et al., 2004). All hearing specialists generally have better sensitivity (lower thresholds) than non-specialists.

Atlantic salmon (*Salmo salar*) have a swim bladder but do not have a connection from the ear and are, therefore, classed as hearing generalists. Atlantic salmon do not hear above 380Hz (Hawkins & Johnstone, 1978). Therefore, deemed not sensitive to noise generated by geophysical surveys. Salmon may be able to hear borehole drilling; however, given the short duration of the activity and its limited spatial impact, disturbance will be minimal. Shipping (50-300 Hz) noise would be audible to the species however the low number of vessels involved would not significantly impact on the salmon passing through the Investigation Area.

Lampreys are also considered as hearing generalists with a maximum hearing range of no more than several hundred hertz (Hz) (Popper, et al., 2004). Studies by (Mickle, et al., 2018) carried out on auditory responses in the Sea Lamprey showed the species detected tones of 50–300 Hz with equal sensitivity but did not detect sounds above 300Hz. Based on these findings the Lamprey are deemed not sensitive to noise generated by geophysical surveys. But may be able to hear borehole drilling however, given the short duration of the proposed activities and their limited spatial impact, disturbance will be minimal. Shipping (50-300 Hz) noise would be audible to the species however the low number of vessels involved would not significantly impact on the lamprey.

4.3 Injury due to collision (survey vessels/sampling equipment)

There is a risk of collision between marine mammals and survey vessels. However, it is largely recognised worldwide that the key factor contributing to collision between marine mammals and vessels is speed. Ships travelling at 14 knots or faster are most likely to cause lethal or serious injuries (Scottish Exectutive, 2007) . Vessels involved in these surveys are likely to be either stationary or travelling considerably slower (5 knots) than this, and thus any animals in the area would have enough time to avoid any collisions. Cetacean and pinnipeds in the area are exposed to vessels of all sizes on a regular basis as this is a relatively busy area for fishing and pleasure craft. As a result, they are likely to maintain a distance from all survey vessels for the short time of survey works before returning to the area once survey work has finished. Therefore, the collision risk posed by the proposed survey is likely to be significantly lower than that posed by commercial shipping activity.

4.4 Visual and noise disturbance

The physical presence of the survey vessels may result in temporary disturbance to birds present in the vicinity of the survey area. There is also the potential for disturbance due to human activity and survey equipment noise i.e., drilling. Such disturbance may result in birds being temporarily displaced from their chosen feeding/resting location; however, they are likely to willingly move to another nearby location. As there is existing shipping activity in the region, birds are already accustomed to physical disturbance from marine traffic, the introduction of additional vessel(s) is unlikely to cause significant disturbance. However, during the breeding season nesting birds are very vulnerable to

disturbance. Therefore, the presence of the survey vessels in the immediate vicinity of nesting birds could influence the success rate of the breeding population. The zone of influence of disturbance on nesting birds has been assessed as up to 2 km from the Investigation Area (JNCC, 2017).

To allow for the mobility of bird species which could forage into the zone of influence, all sites designated for bird species within 15 km have been screened. The designating species have then been studied to determine the potential for interaction with the proposed survey works.

4.5 Pollution Event

The proposed site investigations will result in a temporary increase in vessels using the area which would therefore theoretically increase the risk of accidents and resultant fuel spills. Given the nature and size of the vessels it is unlikely that any spillage would be significant. However, in the event of an accidental spillage/pollution event, any pollutant would immediately be diluted and mixed within the water column due to tidal currents, wind, and wave action.

All vessels used shall, as required by law, be MARPOL compliant and fully certified by the Maritime Safety Office. Therefore, it is considered not likely that there would be any occurrence of a pollution event that could directly or indirectly affect any Natura 2000 site.

5. Appropriate Assessment Stage 1 Screening

Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3):

i. Whether a plan or project is directly connected to or necessary for the management of the site, and

ii. Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

As the proposed survey investigations are not directly connected with or necessary to the management of a Natura 2000 site Stage 1 screening is therefore required to assess whether the said project is likely to have a significant effect on any Natura 2000 site.

Screening involves the 'source-pathway-receptor' model to identify potential environmental impacts resulting from the proposed investigations.

The parameters of the model are defined as follows:

- Source – the origin of a potential effect (noting that one source may have several pathways and receptors).
- Pathway – how the effect of the activity could impact a receptor.
- Receptor – the element of the receiving environment that is impacted.

A European site will only be at risk from likely significant effects where the Source-Pathway-Receptor link exists between the proposed survey works and the European site (OPR, 2021). Where there is no pathway, or the pathway is so distant that the effect from the source has dissipated to a negligible level before reaching the receptor, there is justification for the screening out of that receptor. Similarly, if the Qualifying Interests of the European site are not vulnerable (either directly or indirectly) to any impact resulting from the proposed development, then a likely significant effect can also be ruled out through the screening process.

5.1 Identification of Natura 2000 Sites within the Zone of Influence (ZoI)

The Zone of Influence (ZoI) is the area(s) over which ecological features may be affected by the biophysical changes caused by the proposed project and associated activities (CIEEM, 2018). The identification of European sites within a 15km zone has become common practice in screening projects for AA. However, according to OPR (2021) *"this approach is not based on the S-P-R model and should not be used for projects",* as few projects have a zone of influence this large while more complex projects may require a greater zone of investigation. Instead, the latter report recommends "*the zone of influence of a project should be considered using the Source-Pathway-Receptor mode*".

Taking this recent guidance into consideration, the zone of influence of this project is based on the Source-Pathway Receptor mode and is evaluated on a *case-by-case basis*. The appropriate assessment screening process should include all Natura 2000 sites that meet the following criteria:

<u>Selection Criteria:</u>

- Any SAC site within or adjacent to the plan or project area.
- Any SAC site where the Source-Pathway-Receptor link exists between it and the proposed development and is within a 15km ZoI.
- A 15km ZoI for SAC sites in accordance with any SAC site where the Source-Pathway-Receptor link exists between the proposed development and the European site ***AND*** where the Qualifying Interests of such European sites are vulnerable (either directly or indirectly) to any impact resulting from the proposed development, i.e., a European site that contains mobile receptors that have the potential to occur within the investigation area and be impacted by the survey activities (e.g. migrating fish species (with a marine element), seals, porpoises, and dolphins). An additional upper limit of 50 km distance was also selected for these SAC sites as a conservative approach for the safeguard of the vulnerable migrating species listed.
- Management Unit (MU) boundary areas for mobile Annex II cetacean species as defined in the JNCC 2015 report: 'Management Units for cetaceans in UK water' (JNCC, 2015).
- 15km ZoI for SPA sites.
- For SPA sites, a 2km standard displacement buffer for most species, 4km for sensitive species (e.g., divers and seaducks) with the exception of red-throated diver which has a recommended displacement buffer of 10km (see Joint SNCB Interim Advice On The Treatment Of Displacement For Red-Throated Diver (JNCC, 2022).

As the proposed project is entirely marine based, with all survey activity located in the marine environment, there is no possible Source-Pathway-Receptor link to terrestrial or freshwater SACs that have no coastal habitat and/or no mobile species with a marine element - therefore such sites are not included.

5.2 Identification of Natura 2000 sites included in screening

European sites considered for the AA screening are listed in *Table 5.1*. Qualifying Interests and Special Conservation Interests listed in *Table 5.1* are based on the most up to date data available and sourced from NPWS. Sites screened out for Appropriate Assessment require no further assessment at this stage and are not assessed further, if sites are ***screened in*** the AA will proceed to a Natura Impact Statement. In total, 15 Natura 2000 sites (10 SAC and 5 SPA) were deemed relevant for Appropriate Assessment:

- Blasket Islands SAC (IE 002172)
- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE 000365)
- Castlemaine Harbour SAC (IE 000343)
- Valentia Harbour/Portmagee Channel SAC (IE 002262)
- Kenmare River SAC (IE 002158)
- Lower River Shannon SAC (IE 002165)

- Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK 0030396)
- North Anglesey Marine / Gogledd Môn Forol SAC (UK 0030398)
- North Channel SAC (UK 0030399)
- West Wales Marine / Gorllewin Cymru Forol SAC (UK 0030397)
- Dingle Peninsula SPA (IE 004153)
- Iveragh Peninsula SPA (IE 004154)
- Castlemaine Harbour SPA (IE 004029)
- Blasket Islands SPA (IE 004008)
- Skelligs SPA (IE 004007)

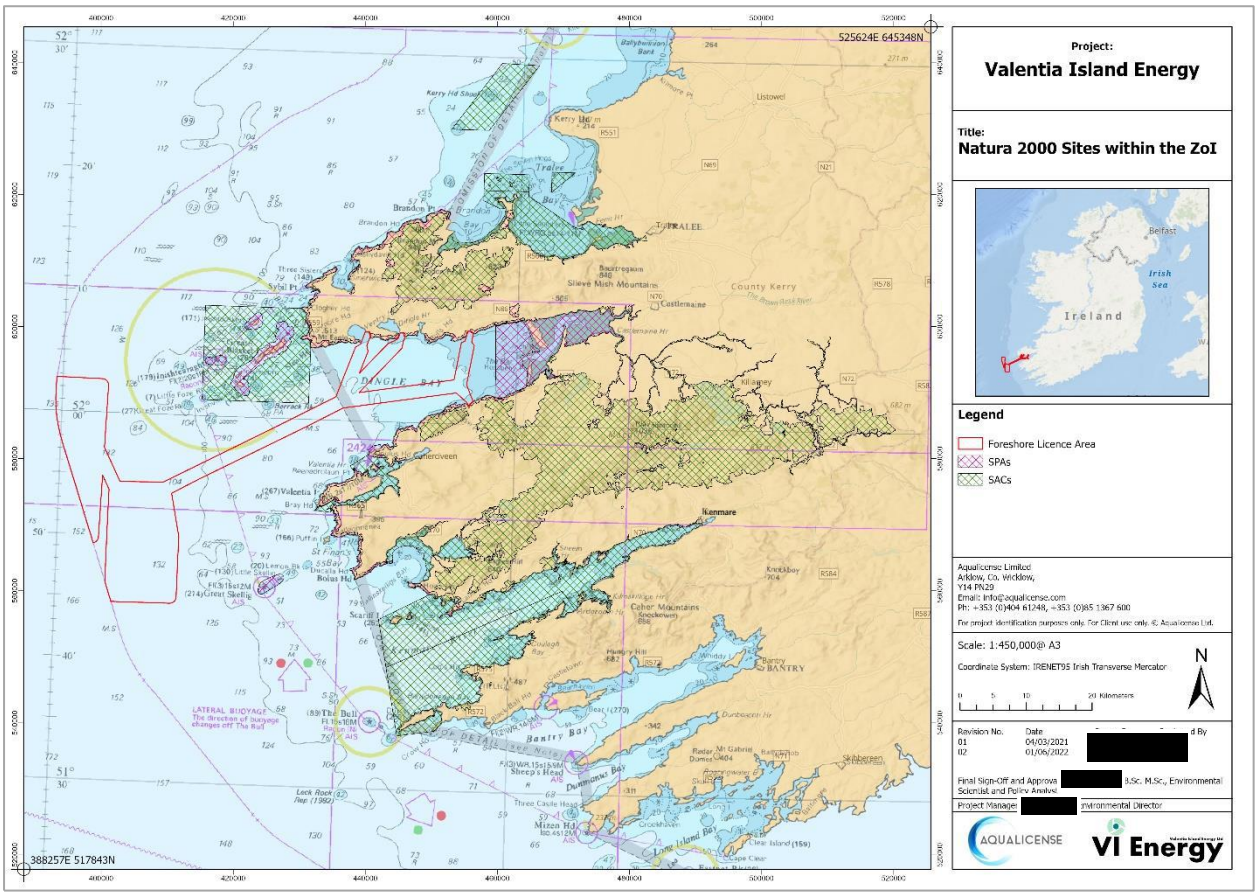

Figure 5.1: Identification of relevant Natura 2000 sites, sites within the vicinity of the proposed Investigation Area.

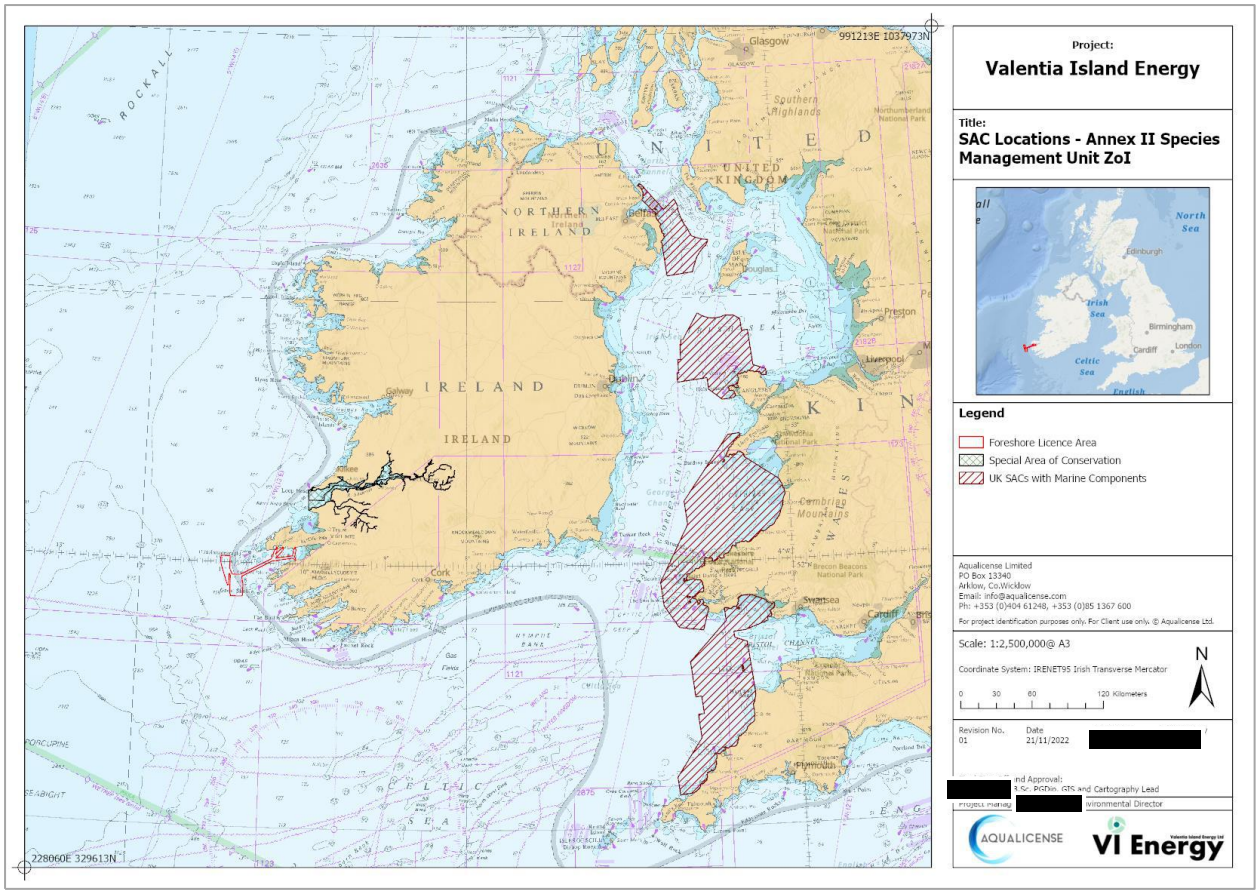

Figure 5.2: Identification of SAC sites, sites within the relevant Management Unit of the proposed Investigation Area

*Table 5.1: Identification of relevant Natura 2000 sites, sites within the vicinity of the proposed Investigation Area and relevant Management Unit. Priority Qualifying Interests are denoted by *. All those screened in for AA are highlighted in red. Distances listed are the closest distance to the Investigative area via the pathway (i.e., Water).*

European Site (Code)	List of Qualifying Interest/Special Conservation Interest	Distance to, or size of, the Designated Area (km)	Potential Impacts	Connections (Source- Pathway-Receptor)	Considered further in screening Yes/No
Blasket Islands SAC (IE 002172)	[1170] Reefs [1230] Vegetated Sea Cliffs [4030] Dry Heath [8330] Sea Caves [1351] Harbour Porpoise (*Phocoena phocoena*) [1364] Grey Seal (*Halichoerus grypus*) *ConservationObjectives(npws.ie)*	0.97	Physical disturbance to marine benthic habitats and communities Pollution event Disturbance from vibration and underwater noise associated with surveys	No No survey works within these (*refer Figure 3.2)*. No spatial overlap between this site and the geotechnical survey. Yes Pollution will be controlled through pollution mechanisms such as onboard safety guidance and MARPOL legislation (*refer 5.3.3 below*). Yes Vibration and underwater noise caused by the Geophysical survey activities could disturb marine mammals and fish species (*refer section 4.2 above*).	**Yes**
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE 000365)	[3110] Oligotrophic Waters containing very few minerals [3130] Oligotrophic to Mesotrophic Standing Waters [3260] Floating River Vegetation [4010] Wet Heath [4030] Dry Heath [4060] Alpine and Subalpine Heaths [5130] Juniper Scrub [6130] Calaminarian Grassland [6410] *Molinia* Meadows	2.32	Physical disturbance to marine benthic habitats and communities Pollution event	No No survey works within these (*refer Figure 3.2)*. No spatial overlap between this site and the geotechnical survey. Yes Pollution will be controlled through pollution mechanisms such as onboard safety guidance and MARPOL legislation (*refer 5.3.3 below*).	**Yes**

European Site (code)	List of Qualifying Interest/Special Conservation Interest	Distance to, or size of, the Designated Area (km)	Potential Impacts	Connections (Source- Pathway-Receptor)	Considered further in screening Yes/No
	[7130] Blanket Bogs (Active)* [7150] Rhynchosporion Vegetation [91A0] Old Oak Woodlands [91E0] Alluvial Forests* [91J0] Yew Woodlands* [1024] Kerry Slug (*Geomalacus maculosus*) [1029] Freshwater Pearl Mussel (*Margaritifera margaritifera)* [1065] Marsh Fritillary (*Euphydryas aurinia*) [1095] Sea Lamprey (*Petromyzon marinus*) [1096] Brook Lamprey (*Lampetra planeri*) [1099] River Lamprey (*Lampetra fluviatilis*) [1103] Twaite Shad (*Alosa fallax*) [1106] Atlantic Salmon (*Salmo salar*) [1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*) [1355] Otter (*Lutra lutra*) [1421] Killarney Fern (*Trichomanes speciosum*) [1833] Slender Naiad (*Najas flexilis*) *Conservation Objectives(npws.ie)*		Visual and noise disturbance (otter) Disturbance from vibration and underwater noise associated with surveys	No Otter is a mobile species, but as it is crepuscular in nature and remains close to the coast it will not be impacted. Yes Vibration and underwater noise caused by the Geophysical survey activities could disturb marine mammals and fish species (*refer section 4.2 above*).	
Castlemaine Harbour SAC (IE 000343)	[1130] Estuaries [1140] Tidal Mudflats and Sandflats [1210] Annual Vegetation of Drift Lines [1220] Perennial Vegetation of Stony Banks [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts	3.46	Physical disturbance to marine benthic habitats and communities Pollution event	No No survey works within these (*refer Figure 3.2)*. No spatial overlap between this site and the geotechnical survey. Yes	**Yes**

European Site (code)	List of Qualifying Interest/Special Conservation Interest	Distance to, or size of, the Designated Area (km)	Potential Impacts	Connections (Source- Pathway-Receptor)	Considered further in screening Yes/No
	[1310] *Salicornia* Mud [1330] Atlantic Salt Meadows [1410] Mediterranean Salt Meadows [2110] Embryonic Shifting Dunes [2120] Marram Dunes (White Dunes) [2130] Fixed Dunes (Grey Dunes)* [2170] Dunes with Creeping Willow [2190] Humid Dune Slacks [91E0] Alluvial Forests* [1095] Sea Lamprey (*Petromyzon marinus)* [1099] River Lamprey (*Lampetra fluviatilis)* [1106] Atlantic Salmon (*Salmo salar*) [1355] Otter (*Lutra lutra*) [1395] Petalwort (*Petalophyllum ralfsii)* *ConservationObjectives(npws.ie)*		Visual and noise disturbance (otter) Disturbance from vibration and underwater noise associated with surveys	Pollution will be controlled through pollution mechanisms such as onboard safety guidance and MARPOL legislation (*refer 5.3.3 below*). No Otter is a mobile species, but as it is crepuscular in nature and remains close to the coast it will not be impacted. Yes Vibration and underwater noise caused by the Geophysical survey activities could disturb marine mammals and fish species (*refer section 4.2 above*).	
Valentia Harbour/Portmagee Channel SAC (IE 002262)	[1140] Tidal Mudflats and Sandflats [1160] Large Shallow Inlets and Bays [1170] Reefs *ConservationObjectives(npws.ie)*	7.48	Physical disturbance to marine benthic habitats and communities Pollution Event	No No survey works within these (*refer Figure 3.2)*. No spatial overlap between this site and the geotechnical survey. Yes Pollution will be controlled through pollution mechanisms such as onboard safety guidance and MARPOL legislation (*refer 5.3.3 below*).	**No**
Kenmare River SAC (IE 002158)	[1160] Large Shallow Inlets and Bays [1170] Reefs	30.90	Physical disturbance to marine benthic	No	**Yes**

European Site (code)	List of Qualifying Interest/Special Conservation Interest	Distance to, or size of, the Designated Area (km)	Potential Impacts	Connections (Source- Pathway-Receptor)	Considered further in screening Yes/No
	[1220] Perennial Vegetation of Stony Banks [1230] Vegetated Sea Cliffs [1330] Atlantic Salt Meadows [1410] Mediterranean Salt Meadows [2120] Marram Dunes (White Dunes) [2130] Fixed Dunes (Grey Dunes)* [4030] Dry Heath [5130] Juniper Scrub [6130] Calaminarian Grassland [8330] Sea Caves [1014] Narrow-mouthed Whorl Snail (*Vertigo angustior*) [1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*) [1355] Otter (*Lutra lutra*) [1365] Common (Harbour) Seal (*Phoca vitulina*) *ConservationObjectives(npws.ie)*		habitats and communities Pollution event Visual and noise disturbance (otter) Disturbance from vibration and underwater noise associated with surveys	No survey works within these (*refer Figure 3.2)*. No spatial overlap between this site and the geotechnical survey. Yes Pollution will be controlled through pollution mechanisms such as onboard safety guidance and MARPOL legislation (*refer 5.3.3 below*). No Otter is a mobile species, but as it is crepuscular in nature and remains close to the coast it will not be impacted. Yes Vibration and underwater noise caused by the Geophysical survey activities could disturb marine mammals and fish species (*refer section 4.2 above*).	
Lower River Shannon SAC (IE 002165)	[1349] Bottle-nosed Dolphin (*Tursiops truncatus*) ConservationObjectives(npws.ie)	West Coast of Ireland Management Unit Area (km2) = 27,758	Physical disturbance to marine benthic habitats and communities Pollution event	No No survey works within these (*refer Figure 3.2)*. No spatial overlap between this site and the geotechnical survey. Yes Pollution will be controlled through pollution mechanisms such as onboard safety guidance and MARPOL legislation (*refer 5.3.3 below*). Yes	**Yes**

European Site (code)	List of Qualifying Interest/Special Conservation Interest	Distance to, or size of, the Designated Area (km)	Potential Impacts	Connections (Source- Pathway-Receptor)	Considered further in screening Yes/No
			Disturbance from vibration and underwater noise associated with surveys	Vibration and underwater noise caused by the Geophysical survey activities could disturb marine mammals and fish species (*refer section 4.2 above*).	
Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK 0030396)	[1351] Harbour porpoise *(Phocoena phocoena)* *Annex II selection reason (jncc.gov.uk)*	Celtic and Irish Sea Management Unit Area (km^2) = 516,893	Physical disturbance to marine benthic habitats and communities Pollution event Disturbance from vibration and underwater noise associated with surveys	No No survey works within these (*refer Figure 3.2)*. No spatial overlap between this site and the geotechnical survey. Yes Pollution will be controlled through pollution mechanisms such as onboard safety guidance and MARPOL legislation (*refer 5.3.3 below*). Yes Vibration and underwater noise caused by the Geophysical survey activities could disturb marine mammals and fish species (*refer section 4.2 above*).	**Yes**
North Anglesey Marine / Gogledd Môn Forol SAC (UK 0030398)	[1351] Harbour porpoise *(Phocoena phocoena)* *Annex II selection reason (jncc.gov.uk)*	Celtic and Irish Sea Management Unit Area (km^2) = 516,893	Physical disturbance to marine benthic habitats and communities Pollution event	No No survey works within these (*refer Figure 3.2)*. No spatial overlap between this site and the geotechnical survey. Yes Pollution will be controlled through pollution mechanisms such as onboard safety	**Yes**

European Site (code)	List of Qualifying Interest/Special Conservation Interest	Distance to, or size of, the Designated Area (km)	Potential Impacts	Connections (Source- Pathway-Receptor)	Considered further in screening Yes/No
				guidance and MARPOL legislation (*refer 5.3.3 below*). Yes Vibration and underwater noise caused by the Geophysical survey activities could disturb marine mammals and fish species (*refer section 4.2 above*).	
			Disturbance from vibration and underwater noise associated with surveys		
North Channel SAC (UK 0030399)	[1351] Harbour porpoise *(Phocoena phocoena)* *Annex II selection reason (jncc.gov.uk)*	Celtic and Irish Sea Management Unit Area (km^2) = 516,893	Physical disturbance to marine benthic habitats and communities	No No survey works within these (*refer Figure 3.2)*. No spatial overlap between this site and the geotechnical survey.	**Yes**
			Pollution event	Yes Pollution will be controlled through pollution mechanisms such as onboard safety guidance and MARPOL legislation (*refer 5.3.3 below*).	
			Disturbance from vibration and underwater noise associated with surveys	Yes Vibration and underwater noise caused by the Geophysical survey activities could disturb marine mammals and fish species (*refer section 4.2 above*).	
West Wales Marine / Gorllewin Cymru Forol SAC (UK 0030397) (JNCC, 2015h).	[1351] Harbour porpoise *(Phocoena phocoena)* *Annex II selection reason (jncc.gov.uk)*	Celtic and Irish Sea Management Unit Area (km^2) = 516,893	Physical disturbance to marine benthic habitats and communities	No No survey works within these (*refer Figure 3.2)*. No spatial overlap between this site and the geotechnical survey.	**Yes**
			Pollution event	Yes	

European Site (code)	List of Qualifying Interest/Special Conservation Interest	Distance to, or size of, the Designated Area (km)	Potential Impacts	Connections (Source- Pathway-Receptor)	Considered further in screening Yes/No
			Disturbance from vibration and underwater noise associated with surveys	Pollution will be controlled through pollution mechanisms such as onboard safety guidance and MARPOL legislation (*refer 5.3.3 below*). Yes Vibration and underwater noise caused by the Geophysical survey activities could disturb marine mammals and fish species (*refer section 4.2 above*).	
Dingle Peninsula SPA (IE 004153)	[A009] Fulmar (*Fulmarus glacialis*) [A103] Peregrine (*Falco peregrinus*) [A346] Chough (*Pyrrhocorax pyrrhocorax*) *ConservationObjectives(npws.ie)*	0.00	Visual and noise disturbance	Yes Within the 2km ZoI - possible that survey activities could disturb breeding and nesting birds.	**Yes**
Iveragh Peninsula SPA (IE 004154)	[A009] Fulmar (*Fulmarus glacialis*) [A103] Peregrine (*Falco peregrinus*) [A188] Kittiwake (*Rissa tridactyla*) [A199] Guillemot (*Uria aalge*) [A346] Chough (*Pyrrhocorax pyrrhocorax*) *ConservationObjectives(npws.ie)*	0.00	Visual and noise disturbance	Yes Within the 2km ZoI - possible that survey activities could disturb breeding and nesting birds.	**Yes**
Castlemaine Harbour SPA (IE 004029)	[A001] Red-throated Diver (*Gavia stellata*) [A017] Cormorant (*Phalacrocorax carbo)* [A046] Light-bellied Brent Goose (*Branta bernicla hrota*) [A050] Wigeon (*Anas penelope*) [A053] Mallard (*Anas platyrhynchos*) [A054] Pintail (*Anas acuta*) [A062] Scaup (*Aythya marila*) [A065] Common Scoter (*Melanitta nigra*)	3.24	Visual and noise disturbance	Yes Within the 4km ZoI for sensitive species (e.g., divers and seaducks) with the exception of red-throated diver which has a recommended displacement buffer of 10km (see Joint SNCB Interim Advice On The Treatment Of Displacement For Red-Throated Diver (JNCC, 2022).	**Yes**

European Site (code)	List of Qualifying Interest/Special Conservation Interest	Distance to, or size of, the Designated Area (km)	Potential Impacts	Connections (Source- Pathway-Receptor)	Considered further in screening Yes/No
	[A130] Oystercatcher (*Haematopus ostralegus)* [A137] Ringed Plover (*Charadrius hiaticula*) [A144] Sanderling (*Calidris alba*) [A157] Bar-tailed Godwit (*Limosa lapponica*) [A162] Redshank (*Tringa totanus*) [A164] Greenshank (*Tringa nebularia)* [A169] Turnstone (*Arenaria interpres*) [A346] Chough (*Pyrrhocorax pyrrhocorax)* [A999] Wetland and Waterbirds *ConservationObjectives(npws.ie)*				
Blasket Islands SPA (IE 004008)	[A009] Fulmar (*Fulmarus glacialis*) [A013] Manx Shearwater (*Puffinus puffinus*) [A014] Storm Petrel (*Hydrobates pelagicus*) [A018] Shag (*Phalacrocorax aristotelis*) [A183] Lesser Black-backed Gull (*Larus fuscus*) [A184] Herring Gull (*Larus argentatus*) [A188] Kittiwake (*Rissa tridactyla*) [A194] Arctic Tern (*Sterna paradisaea*) [A200] Razorbill (*Alca torda*) [A204] Puffin (*Fratercula arctica*) [A346] Chough (*Pyrrhocorax pyrrhocorax*) *ConservationObjectives(npws.ie)*	6.19	Visual and noise disturbance	No Beyond 2km ZoI – no likely significant effect that survey activities could disturb breeding, nesting, or feeding birds	**No**

European Site (code)	List of Qualifying Interest/Special Conservation Interest	Distance to, or size of, the Designated Area (km)	Potential Impacts	Connections (Source- Pathway-Receptor)	Considered further in screening Yes/No
Skelligs SPA (IE 004007)	[A009] Fulmar (*Fulmarus glacialis*) [A013] Manx Shearwater (*Puffinus puffinus*) [A014] Storm Petrel (*Hydrobates pelagicus)* [A016] Gannet (*Morus bassanus*) [A188] Kittiwake (*Rissa tridactyla*) [A199] Guillemot (*Uria aalge*) [A204] Puffin (*Fratercula arctica*) *ConservationObjectives(npws.ie)*	12.32	Visual and noise disturbance	No Beyond 2km ZoI – no likely significant effect that survey activities could disturb breeding, nesting, or feeding birds	**No**

5.3 Screening Assessment of Likely Significant Effects (LSE)

5.3.1 Direct Effects - Physical disturbance to marine benthic habitat communities

As there is no spatial overlap between the proposed survey and the Annex I habitats of any Natura 2000 site, likely significant effects upon the conservation objectives of Annex I habitats of the following European sites can be excluded, and they can be screened out for Stage 2 Appropriate Assessment (AA):

- Valentia Harbour/Portmagee Channel SAC (IE 002262)

On this basis, the Annex I habitats of the following sites have also been excluded from further assessment; however, these sites have not been screened out of the AA as they have designated mobile species that may enter the Investigation Area;

- Blasket Islands SAC (IE 002172)
- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE 000365)
- Castlemaine Harbour SAC (IE 000343)
- Kenmare River SAC (IE 002158)
- Lower River Shannon SAC (IE 002165)
- Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK 0030396)
- North Anglesey Marine / Gogledd Môn Forol (UK 0030398)
- North Channel (UK 0030399)
- West Wales Marine / Gorllewin Cymru Forol (UK 0030397)

Screening Conclusion: No likely significant effects on Benthic Habitats.

5.3.2 Disturbance from vibration and underwater noise associated with survey activity.

The screening exercise (*Table 5.1*) has identified that there is potential for likely significant effects due to disturbance from vibration and underwater noise associated with surveys on the Annex II qualifying interests of 10 sites below. This section describes the possible pressures and their potential effects and assesses the likely significant effect of the proposed survey on the conservation objectives of each site.

Blasket Islands SAC (IE 002172)

This This site was selected for inclusion based on criteria 1 which states (*refer Section 5.1*):

- Any Natura 2000 sites within or adjacent to the plan or project area.

Blasket Islands SAC (IE 002172) has two Annex II qualifying interests, marine mammal species that have the potential to be in the survey area at various times of the year:

- [1351] Harbour Porpoise (*Phocoena phocoena*)
- [1364] Grey Seal (*Halichoerus grypus*)

There is the potential for effects on both species due to their sensitivity to underwater noise generated by geophysical surveys. Therefore, the Blasket Islands SAC (IE 002172) cannot be screened out at this stage and must proceed to Stage 2 Appropriate Assessment.

Screening Conclusion: Potential for likely significant effects on Grey Seal and Harbour Porpoise.

Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE 000365)

This site was selected for inclusion based on criteria 2 which states (*refer Section 5.1*):

- Any Natura 2000 sites where the Source-Pathway-Receptor link exists between the proposed development and the European site ***AND*** where the Qualifying Interests of such European sites are vulnerable (either directly or indirectly) to any impact resulting from the proposed development, i.e. a European site that contains mobile receptors that have the potential to occur within the Investigation Area and be impacted by the survey activities (e.g. migrating fish species, seals, porpoises, and dolphins). An upper limit of 50 km distance was selected for these sites.

Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE 000365) has several Annex II qualifying interests of fish species that have the potential to be in the survey area at various times of the year. The migratory fish species as well as the likely periods that they could be found within the site are:

- [1095] Sea Lamprey (*Petromyzon marinus*)– late April to early June
- [1099] River Lamprey (*Lampetra fluviatilis*) - September to June
- [1106] Atlantic Salmon (*Salmo salar*) - May to June and autumn months.

These Annex II species may be impacted by underwater noise associated with surveys. However, three of these species (*Petromyzon marinus*, *Lampetra fluviatilis* and *Salmo salar*) can be screened out as they are deemed not sensitive to noise generated by geophysical surveys and although shipping noise would be audible to these species the low number of vessels involved would not significantly impact upon them. Therefore, the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE 000365) can be screened out at this stage.

Screening Conclusion: No likely significant effects on Sea Lamprey, River Lamprey, and Atlantic Salmon.

Castlemaine Harbour SAC (IE 000343)

This site was selected for inclusion based on criteria 2 which states (*refer Section 5.1*):

- Any Natura 2000 sites where the Source-Pathway-Receptor link exists between the proposed development and the European site ***AND*** where the Qualifying Interests of such European sites are vulnerable (either directly or indirectly) to any impact resulting from the proposed development, i.e. a European site that contains mobile receptors that have the potential to occur within the Investigation Area and be impacted by the survey activities (e.g. migrating fish species, seals, porpoises, and dolphins). An upper limit of 50 km distance was selected for these sites.

Castlemaine Harbour SAC (IE 000343) has several Annex II qualifying interests of fish species that have the potential to be in the survey area at various times of the year. The migratory fish species as well as the likely periods that they could be found within the site are:

- [1095] Sea Lamprey (*Petromyzon marinus*)– late April to early June
- [1099] River Lamprey (*Lampetra fluviatilis*) - September to June
- [1106] Atlantic Salmon (*Salmo salar*) - May to June and autumn months.

These Annex II species may be impacted by underwater noise associated with surveys. However, three of these species (*Petromyzon marinus*, *Lampetra fluviatilis,* and *Salmo salar*) can be screened out as they are deemed not sensitive to noise generated by geophysical surveys and although shipping noise would be audible to these species the low number of vessels involved would not significantly impact upon them. Therefore, Castlemaine Harbour SAC (IE 000343) can be screened out at this stage.

Screening Conclusion: No likely significant effects on Sea Lamprey, River Lamprey, and Atlantic Salmon.

Kenmare River SAC (IE 002158)

This site was selected for inclusion based on criteria 2 which states (*refer Section 5.1*):

- Any Natura 2000 sites where the Source-Pathway-Receptor link exists between the proposed development and the European site ***AND*** where the Qualifying Interests of such European sites are vulnerable (either directly or indirectly) to any impact resulting from the proposed development, i.e. a European site that contains mobile receptors that have the potential to occur within the Investigation Area and be impacted by the survey activities (e.g. migrating fish species, seals, porpoises, and dolphins). An upper limit of 50 km distance was selected for these sites.

Kenmare River SAC (IE 002158) has one Annex II qualifying interests, marine mammal species that have the potential to be in the Investigation Area at various times of the year:

- [1365] Harbour Seal (*Phoca vitulina*)

This Annex II species may be impacted by underwater noise associated with surveys. There is the potential for effects on the Harbour Seal due to their sensitivity to underwater noise generated by

geophysical surveys. Therefore, Kenmare River SAC (IE 002158) cannot be screened out at this stage and must proceed to Stage 2 Appropriate Assessment.

Screening Conclusion: Potential for likely significant effects on Harbour Seal.

Lower River Shannon SAC (IE 002165)

This site was selected for inclusion based on criteria 4 which states (*refer Section 5.1*):

- Management Unit (MU) boundary areas for mobile Annex II cetacean species as defined in the JNCC 2015 report: 'Management Units for cetaceans in UK water' (JNCC, 2015).

Lower River Shannon SAC (IE 002165) has several Annex II qualifying interests: marine mammals and fish species that have the potential to be in the survey area at various times of the year. The marine mammals and migratory fish species as well as the likely periods that they could be found within the site are:

- [1349] Bottlenose Dolphin (*Tursiops truncatus*)

There is the potential for effects on the [1349] Bottlenose Dolphin (*Tursiops truncatus*) due to its sensitivity to underwater noise generated by geophysical surveys. Therefore, Lower River Shannon SAC (IE 002165) cannot be screened out at this stage and must proceed to Stage 2 Appropriate Assessment.

Screening Conclusion: Potential for likely significant effects on Bottlenose Dolphin.

Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK 0030396)

This site was selected for inclusion based on criteria 4 which states (*refer Section 5.1*):

- Management Unit (MU) boundary areas for mobile Annex II cetacean species as defined in the JNCC 2015 report: 'Management Units for cetaceans in UK water' (JNCC, 2015).

Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK 0030396) has one Annex II qualifying interest that has the potential to be in the survey area at various times of the year.

- [1351] Harbour Porpoise (*Phocoena phocoena*)

There is the potential for effects on this species due to their sensitivity to underwater noise generated by geophysical surveys. Therefore, Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK 0030396) cannot be screened out at this stage and must proceed to Stage 2 Appropriate Assessment.

Screening Conclusion: Potential for likely significant effects on Harbour Porpoise.

North Anglesey Marine / Gogledd Môn Forol (UK 0030398)

This site was selected for inclusion based on criteria 4 which states (*refer Section 5.1*):

- Management Unit (MU) boundary areas for mobile Annex II cetacean species as defined in the JNCC 2015 report: 'Management Units for cetaceans in UK water' (JNCC, 2015).

North Anglesey Marine / Gogledd Môn Forol SAC (UK 0030398) has one Annex II qualifying interest that has the potential to be in the survey area at various times of the year.

- [1351] Harbour Porpoise (*Phocoena phocoena*)

There is the potential for effects on this species due to their sensitivity to underwater noise generated by geophysical surveys. Therefore, North Anglesey Marine / Gogledd Môn Forol SAC (UK 0030398) cannot be screened out at this stage and must proceed to Stage 2 Appropriate Assessment.

Screening Conclusion: Potential for likely significant effects on Harbour Porpoise.

North Channel (UK 0030399)

This site was selected for inclusion based on criteria 4 which states (*refer Section 5.1*):

- Management Unit (MU) boundary areas for mobile Annex II cetacean species as defined in the JNCC 2015 report: 'Management Units for cetaceans in UK water' (JNCC, 2015).

North Channel SAC (UK 0030399) has one Annex II qualifying interest that has the potential to be in the survey area at various times of the year.

- [1351] Harbour Porpoise (*Phocoena phocoena*)

There is the potential for effects on this species due to their sensitivity to underwater noise generated by geophysical surveys. Therefore, North Channel SAC (UK 0030399) cannot be screened out at this stage and must proceed to Stage 2 Appropriate Assessment.

Screening Conclusion: Potential for likely significant effects on Harbour Porpoise.

West Wales Marine / Gorllewin Cymru Forol (UK 0030397)

This site was selected for inclusion based on criteria 4 which states (*refer Section 5.1*):

- Management Unit (MU) boundary areas for mobile Annex II cetacean species as defined in the JNCC 2015 report: 'Management Units for cetaceans in UK water' (JNCC, 2015).

West Wales Marine / Gorllewin Cymru Forol SAC (UK 0030397) has one Annex II qualifying interest that has the potential to be in the survey area at various times of the year.

- [1351] Harbour Porpoise (*Phocoena phocoena*)

There is the potential for effects on this species due to their sensitivity to underwater noise generated by geophysical surveys. Therefore, West Wales Marine / Gorllewin Cymru Forol SAC (UK 0030397) cannot be screened out at this stage and must proceed to Stage 2 Appropriate Assessment.

Screening Conclusion: Potential for likely significant effects on Harbour Porpoise.

5.3.3 POLLUTION EVENT

The International Convention for the Prevention of Pollution from Ships is one of the most important international marine environmental conventions. It aims to prevent both operational and accidental discharge into the marine from sea going vessels. Ireland ratified the various elements of the MARPOL Convention through several Sea Pollution Acts and amendments (1991, 1999, 2006). These Acts place a legal obligation upon operators of vessels to implement measures to prevent both operational and accidental discharges from ships of substances, which may damage the marine environment as well as human health. In light, of these legal obligations, an incidence of pollution, whether from operational activities or from an accidental occurrence is considered not likely. All vessels employed during the proposed surveys shall, as required by law, be MARPOL compliant and fully certified by the Maritime Safety Office. Therefore, it is considered not likely that there would be any occurrence of a pollution event that could directly or indirectly affect the site or its qualifying interests.

Natura 2000 sites were all screened out in relation to accidental pollution events. Due to the nature and size of the vessels that would be used to facilitate the proposed investigations, together with their pollution control mechanisms and MARPOL and other Irish marine pollution legislation, it is unlikely that any event that may occur would be significant, see *Section 4.5* for further details. Therefore, the risk to these European sites is significantly reduced and they can be screened out for AA.

Screening Conclusion: No likely significant effects - from pollution events concerning an incidence of pollution, whether from operational activities or from an accidental occurrence.

5.3.4 VISUAL AND NOISE DISTURBANCE

All The physical presence of the survey vessel/vessels may cause some temporary disturbance to birds in the locality of the survey. This may result in birds being temporarily displaced from their chosen feeding/resting location; however, they are likely to move to another nearby location. The presence of 1-2 extra vessels in the area is not deemed a significant increase in vessel activity given the typical baseline levels of activity in the area (*refer Section 3*). Also, as the effect of the surveys will be much localised, temporary in nature and will have an indiscernible effect within the vicinity of each survey location, it is considered not likely that the following Conservation Objectives of any SPA will be affected by the proposed survey works.

- Breeding population abundance
- Productivity rate
- Distribution
- Prey biomass available
- Barriers to connectivity
- Population trend

However, three SPA sites (Dingle Peninsula SPA (IE 004153), Iveragh Peninsula SPA (IE 004154), and Castlemaine Harbour SPA (IE 004029) is within the zone of influence for SPA sites, with a 2km standard displacement buffer for most species, 4km for sensitive species (e.g., divers and seaducks) with the exception of red-throated diver which has a recommended displacement buffer of 10km

(see Joint SNCB Interim Advice On The Treatment Of Displacement For Red-Throated Diver (JNCC, 2022).

Dingle Peninsula SPA (IE 004153)

This site was selected for inclusion based on criteria 5 which states (*refer Section 5.1*):

- A 2km ZoI for SPAs, as highlighted within the SNCB (2017) Advice Note.

Although also within the zone of influence for nesting and overwintering birds (<2 km), conservation objectives of Dingle Peninsula SPA (IE 004153) as listed below are also considered not likely to be affected by the proposed survey works.

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

Any likely disturbance due to the proposed surveys will be of a low impact as the number of sampling locations that are within 2km of this SPA is very limited. Also, due to the rugged nature of the site i.e., Sea Cliffs and due to the nature of the sampling survey, no sites will be near such habitats.

As land-based birds, the Chough's sensitivity to disturbance has not been categorised in the Joint SNCB Interim Displacement Advice Note (2017) (SNCBs, 2017). Fulmars generally forage in offshore waters and have a large foraging range. The maximum recorded range is 664 km, with a mean foraging range of 69 km. Fulmar is known to have 'little response' and low vulnerability to vessel movements (Garthe & Hüppop, 2004).

The coastal areas of county Kerry have multiple vessels operating within these waters for fishing and shipping activities which are considered as part of the baseline. The addition of survey vessels and vessel movements associated with these surveys within the investigation area will not alter the baseline significantly nor will the surveys be likely to cause a significant effect on the SPA.

It has been determined there would be no LSE alone on Dingle Peninsula SPA (IE 004153) and, as such, no further consideration of effects is undertaken for this site.

Iveragh Peninsula SPA (IE 004154)

This site was selected for inclusion based on Criteria 5 states (*refer Section 5.1)*:

- A 2km ZoI for SPA sites with breeding birds, as highlighted within the SNCB (2017) Advice Note.

Conservation objectives:

The favourable conservation status of these species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and

- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis

It is possible that temporary disturbance from survey works (presence of survey vessels and drilling of boreholes) could disturb birds present at this site. This may result in birds being temporarily displaced from their chosen feeding/resting location; however, they are likely to move to another nearby location. The presence of 1-2 extra vessels in the area is not deemed a significant increase in vessel activity given the typical baseline levels of activity in the area. However, any disturbance will be localised and temporary in nature; therefore, it is considered not likely that any Conservation Objectives of this site will be affected by the proposed survey works.

It has been determined there would be no LSE alone on Iveragh Peninsula SPA (IE 004154) and, as such, no further consideration of effects is undertaken for this site.

Castlemaine Harbour SPA (IE 004029)

This site was selected for inclusion based on Criteria 6 which states (*refer Section 5.1*):

- For SPA sites, a 2km standard displacement buffer for most species, 4km for sensitive species (e.g., divers and seaducks) with the exception of red-throated diver which has a recommended displacement buffer of 10km (see Joint SNCB Interim Advice On The Treatment Of Displacement For Red-Throated Diver (JNCC, 2022).

The QI's for this site that may be impacted by the proposed survey are the Criteria 6 species Red-Throated Diver

Conservation objectives:

The favourable conservation status of these species is achieved when:

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

It is possible that temporary disturbance from survey works (presence of survey vessels and drilling of boreholes) could disturb birds present at this site. This may result in birds being temporarily displaced from their chosen feeding/resting location; however, they are likely to move to another nearby location. The presence of 1-2 extra vessels in the area is not deemed a significant increase in vessel activity given the typical baseline levels of activity in the area. However, any disturbance will be localised and temporary in nature; therefore, it is considered not likely that any Conservation Objectives of this site will be affected by the proposed survey works.

It has been determined there would be no LSE alone on Iveragh Peninsula SPA (IE 004154) and, as such, no further consideration of effects is undertaken for this site.

In conclusion due to the nature of the surveys and as they are localised and temporary, it is deemed that the proposed surveys will not impact on bird species either directly or indirectly. Therefore, it is considered not likely that there will be any likely significant effects either directly or indirectly to the Special Protection Areas or their Qualifying Interests/Special Conservation Interests examined. Therefore, the following SPA sites are screened out for Stage 2 Appropriate Assessment (AA):

- Dingle Peninsula SPA (IE 004153)
- Iveragh Peninsula SPA (IE 004154)
- Castlemaine Harbour SPA (IE 004029)
- Blasket Islands SPA (IE 004008)
- Skelligs SPA (IE 004007)

Screening Conclusion: No likely significant effects due to visual and noise disturbance

5.4 Cumulative Impacts

5.4.1 Assessment of in-combination effects from other plans and projects

As part of this Appropriate Assessment report a review of all nearby projects and plans was undertaken to understand any potential cumulative impacts. A review of the DHPLG's online application database shows that three recent applications are observed to overlap with the application area *(refer Figure 5.3).*

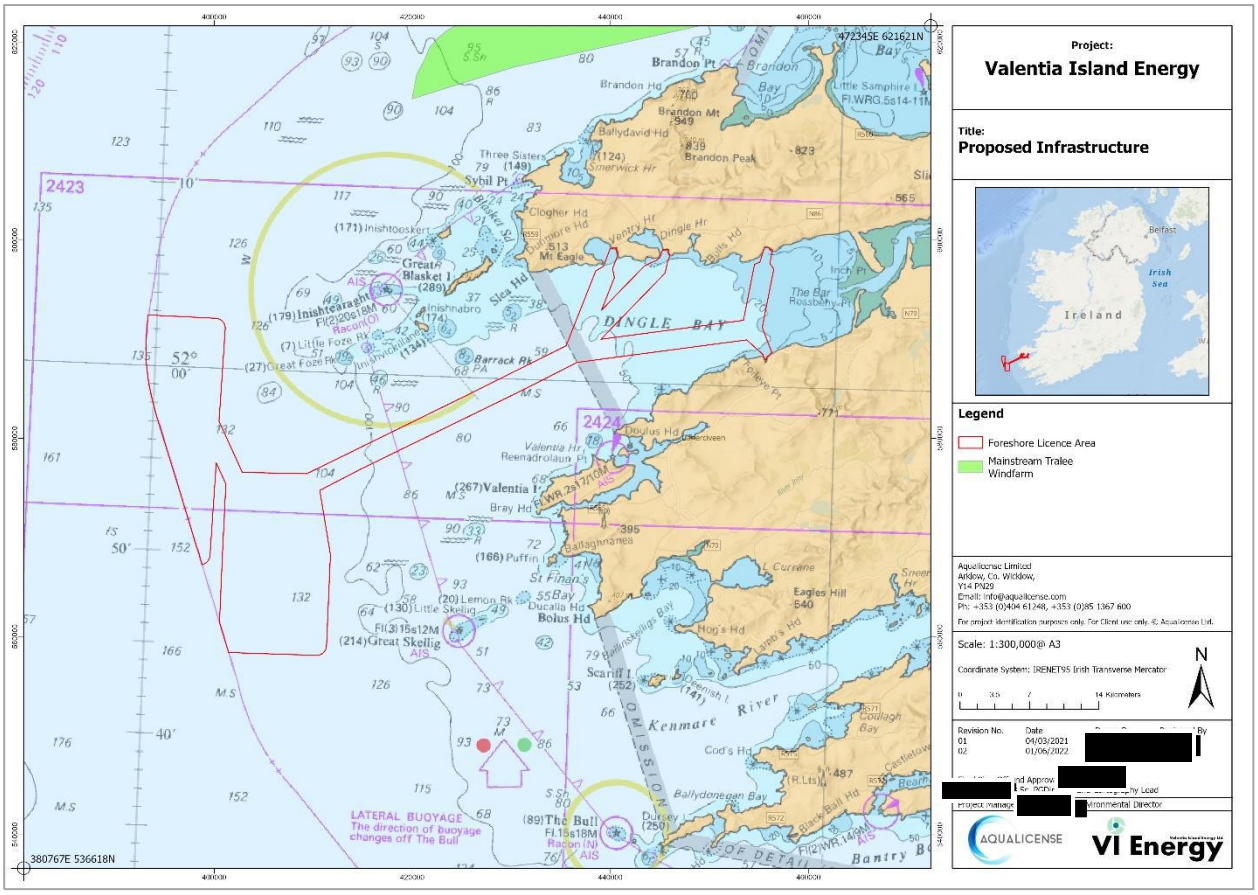

Figure 5.3: Other potential proposed activity located in the vicinity of the proposed Investigation Area.

As stated in *Section 3.8,* one proposed development proximate to the proposed Investigation Area of Valentia Island Energy have been submitted to the Department (*Figure 3.8*). Furthermore, there is one development located close to the Investigation Area of Valentia Island Energy, that being developments proposed by the following: 1) Mainstream Tralee Windfarm (Foreshore Application reference number FS007375). The proposed development area will not be interacted with during the planned surveys that are to be carried out, however, their presence in proximity to the area is documented here. In the case of potential for overlap between the above project and the project proposed, it is envisioned that consultation will be carried out between the parties to identify any overlap in survey schedules. Due to the difference in application timing, it is envisioned that no temporal survey overlap would occur. However, if such temporal overlaps are identified an attempt to minimise/avoid such will be made. In the very unlikely event that these surveys would commence in the same timeframe any cumulative effects would solely be due to the potential impacts of the geotechnical survey and these effects are not likely significant.

As stated in Section 4 such impacts i.e., Physical disturbance to marine benthic communities would be localised and temporary in nature. Compliance with DAHG (2014) best practise guidelines will ensure that any impact due to disturbance from vibration and underwater noise associated with surveys is unlikely to produce a significant effect.

Having examined the possible likely in-combination effects of the proposed works with the projects described above on any of the Natura 2000 sites is considered not likely due to the:

- Timing and phased nature of proposed works,

- Temporary nature of proposed works,
- Localised and indiscernible effects of proposed works,
- The implementation of the DAHG (2014) best practice guidelines

5.5 Screening Statement

The possible effects on the Special Areas of Conservation, Special Protection Areas and their relevant Qualifying Interests/Species of Community Interest have been assessed in the Appropriate Assessment Screening Stage 1 Report.

Likely significant effects (LSEs) have been screened out for the following European sites:

- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE 000365)
- Castlemaine Harbour SAC (IE 000343)
- Valentia Harbour/Portmagee Channel SAC (IE 002262)
- Dingle Peninsula SPA (IE 004153)
- Iveragh Peninsula SPA (IE 004154)
- Castlemaine Harbour SPA (IE 004029)
- Blasket Islands SPA (IE 004008)

However, as adverse effects on Annex II qualifying interests cannot be ruled out from all impacts of the proposed surveys, (i.e., disturbance from vibration and underwater noise associated) Stage 2 appropriate assessment is, therefore, required for the following European sites:

Blasket Islands SAC (IE 002172)

[1351] Harbour Porpoise (*Phocoena phocoena*)

[1364] Grey Seal (*Halichoerus grypus*)

Kenmare River SAC (IE 002158)

[1365] Harbour Seal (*Phoca vitulina*)

Lower River Shannon SAC (IE 002165)

[1349] Bottlenose Dolphin (*Tursiops truncatus*)

Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK 0030396)

[1351] Harbour Porpoise (*Phocoena phocoena)*

North Anglesey Marine / Gogledd Môn Forol (UK 0030398)

[1351] Harbour Porpoise (*Phocoena phocoena)*

North Channel (UK 0030399)

[1351] Harbour Porpoise (*Phocoena phocoena)*

West Wales Marine / Gorllewin Cymru Forol (UK 0030397)

[1351] Harbour Porpoise (*Phocoena phocoena)*

6. CONCLUSION

The results of the Stage 1 Screening for Appropriate Assessment as presented in this report and which employed the 'source-pathway-receptor' model, identified likely significant impacts that may affect Natura 2000 sites such as disturbance from vibration and underwater noise associated with survey work. Two (2) Natura sites and their relevant qualifying interests listed above in *Section 5.5* were screened in. Five (5) additional SACs within Management Unit area Celtic and Irish Sea (CIS) (relevant mobile Annex II qualifying interest Harbour Porpoise) and West Coast of Ireland (WCI) (relevant mobile Annex II qualifying interest Bottlenose Dolphin) were also screened in. As a result of this, a stage two appropriate assessment to assess impacts and mitigation measures of these affected Natura 2000 sites and Management Unit SACs is required for the Valentia Island Energy.

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APPENDIX 1 A3 MAPS

Map A: Investigatory Foreshore Licence Area

Map B: Overall Project Area including investigation area

Map C: Proposed Locations of Environmental Works

Map D: Proposed Locations of Geophysical and Geotechnical Works

Map E: Predominant Habitat Type within the Investigation (EMODNET central portal, 2021A)

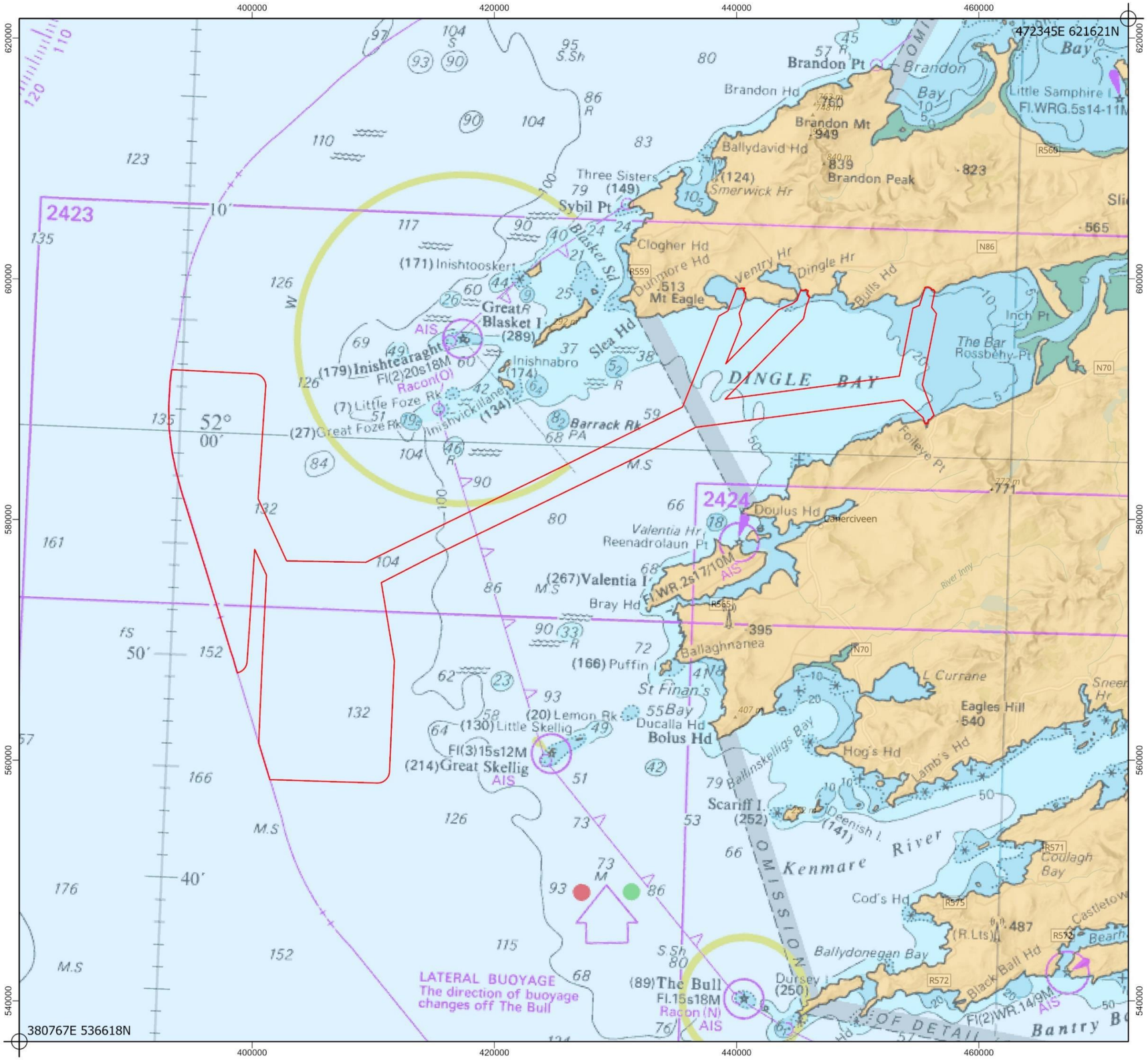
Map F: Special Protection Areas (SPA), designated under the birds and habitats directives, located within the ZoI of the proposed Investigation Area. (Data Source: (national parks and wildlife services, 2021A)

Map G: Special Areas of Conservation, (SAC's), designated under the habitat's directives, located within the ZoI of the proposed Investigation Area. (Data source: (national parks and wildlife services, 2021A)

Map H: Other Potential Proposed Activity located within/surrounding the vicinity of the Investigation Area

Map I: Identification of relevant Natura 2000 sites, sites within the vicinity of the proposed Investigation Area.

Map J: Identification of SAC sites, within the relevant Management Unit of the proposed Investigation Area



Project:

Valentia Island Energy

Title:

Foreshore Licence Area

Legend

Foreshore Licence Area

Aqualicense Limited
Arklow, Co. Wicklow,
Y14 PN29
Email: info@aqualicense.com
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Scale: 1:300,000@ A3

Coordinate System: IRENET95 Irish Transverse Mercator

0 3.5 7 14 Kilometers

N

Revision No.	Date	Drawn By	Reviewed By
01	04/03/2021	[redacted]	
02	01/06/2022		

Final Sign-Off and Approva [redacted]

[redacted] B.Sc. PGDip, GIS and Cartography Lead

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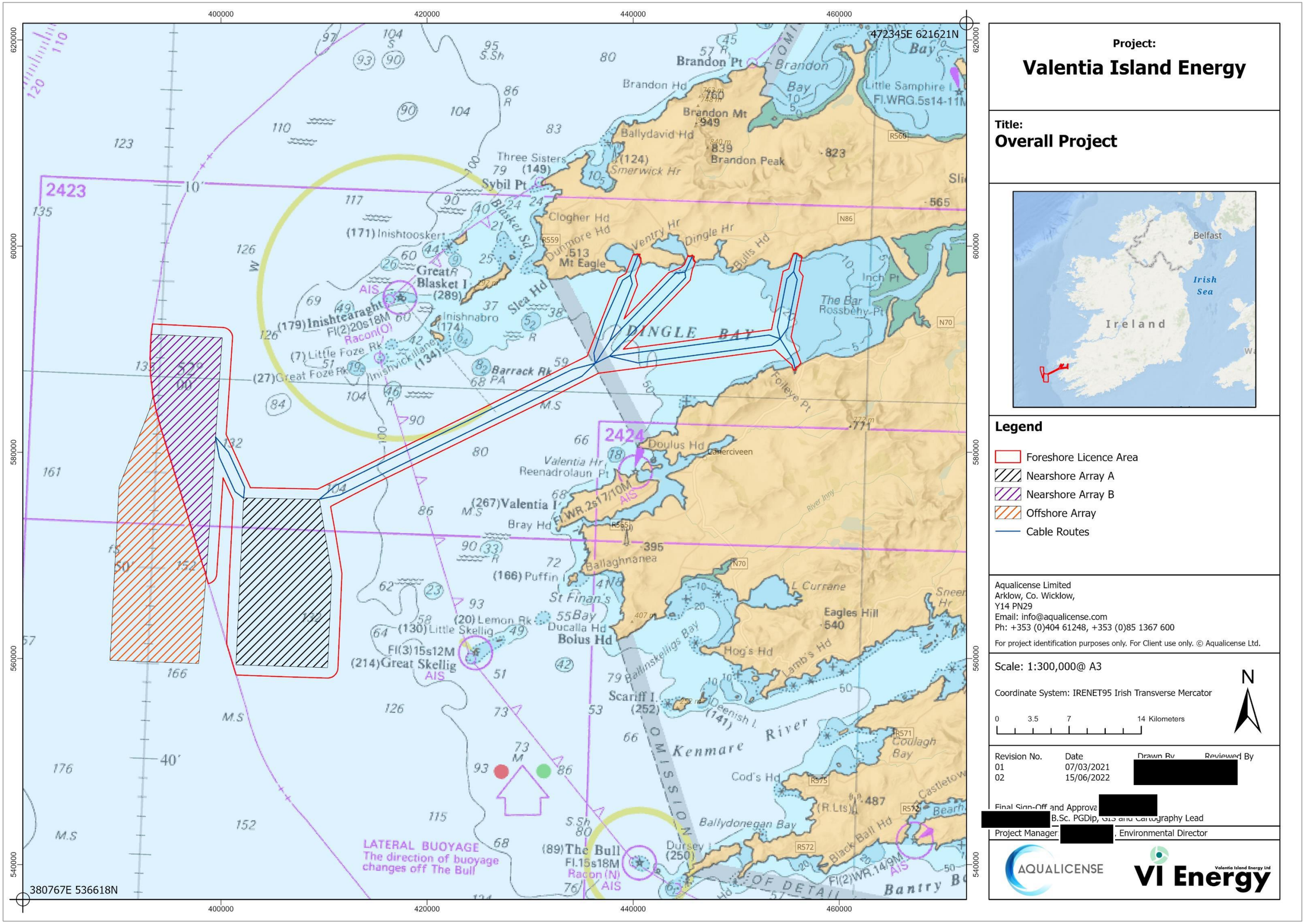
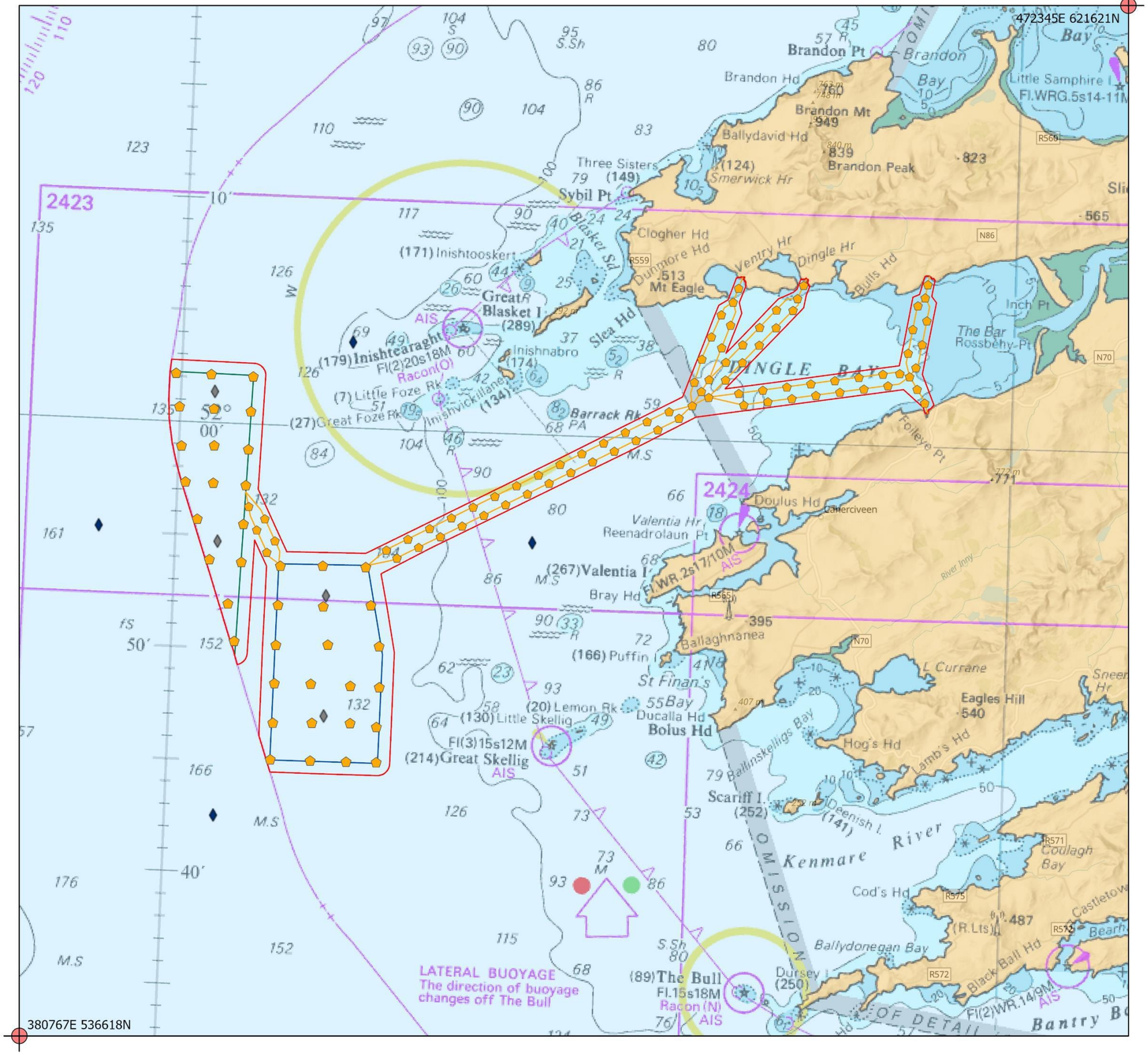
Map A: Investigatory Foreshore Licence Area



Map B: Overall Project Area including investigation area (red outline).



Site Layout: Environmental Works

Project: Valentia Island Energy

To be read in conjunction with the Schedule of Works (FS007365)

Legend

- Foreshore Licence Area
- Nearshore Array A
- Nearshore Array B
- Cable Routes
- Indicative Grab Samples
- Indicative PODs
- Additional PODs
- ITM Grid Coordinate Intersect

Drawing Title: Site Layout: Environmental Works

Drawing No.: 381

File Ref: FS007365

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Scale: 1:300,000@ A3

Coordinate System: IRENET95 Irish Transverse Mercator

0 3.5 7 14 Kilometers

N

Revision No.	Date	Drawn By	Reviewed By
01	03/03/2021	[redacted]	
02	01/06/2022		

Final Sign-Off and Approval: [redacted]
[redacted] B.Sc. PGDip, GIS and Cartography Lead

Project Manager [redacted] Environmental Director

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Map C: Proposed Locations of Environmental Works

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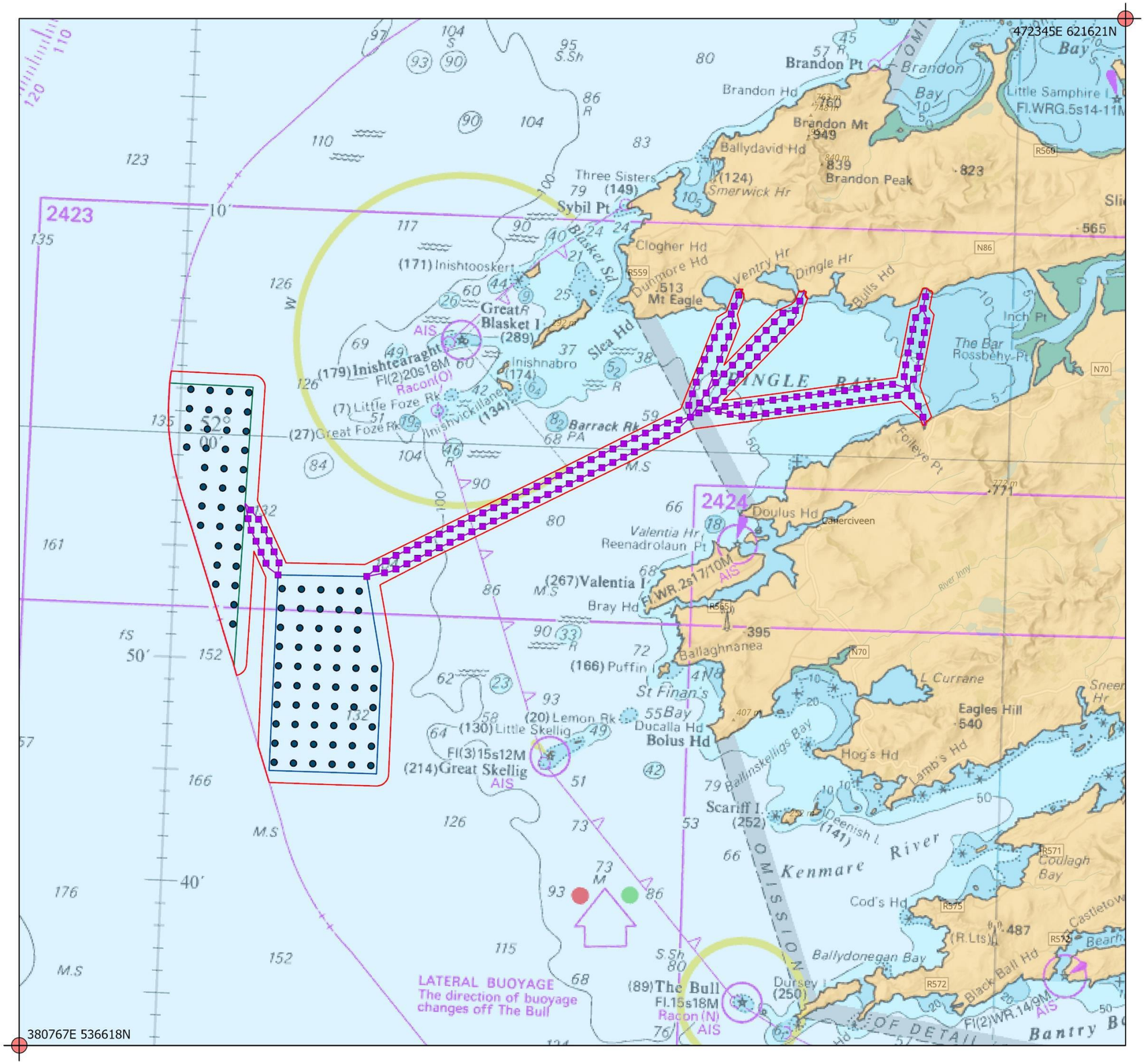

Site Layout: Geotechnical and Geophysical Works

Project: Valentia Island Energy

To be read in conjunction with the Schedule of Works (FS007365)

Legend

- Foreshore Licence Area
- Nearshore Array A
- Nearshore Array B
- Cable Routes
- CPT / Boreholes
- Indicative Vibrocore/Gravity Sample + CPT Sample
- ITM Grid Coordinate Intersect

Drawing Title: Site Layout: Geotechnical and Geophysical Works

Drawing No.: 382

File Ref: FS007365

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Revision No.	Date	Drawn By	Reviewed By
01	03/03/2021	[redacted]	
02	01/06/2022		

Final Sign-Off and Approval: [redacted]
[redacted] Sc. PGDip, G[redacted]aphy Lead

Project Manager [redacted] Environmental Director

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Map D: Proposed Locations of Geophysical and Geotechnical Works

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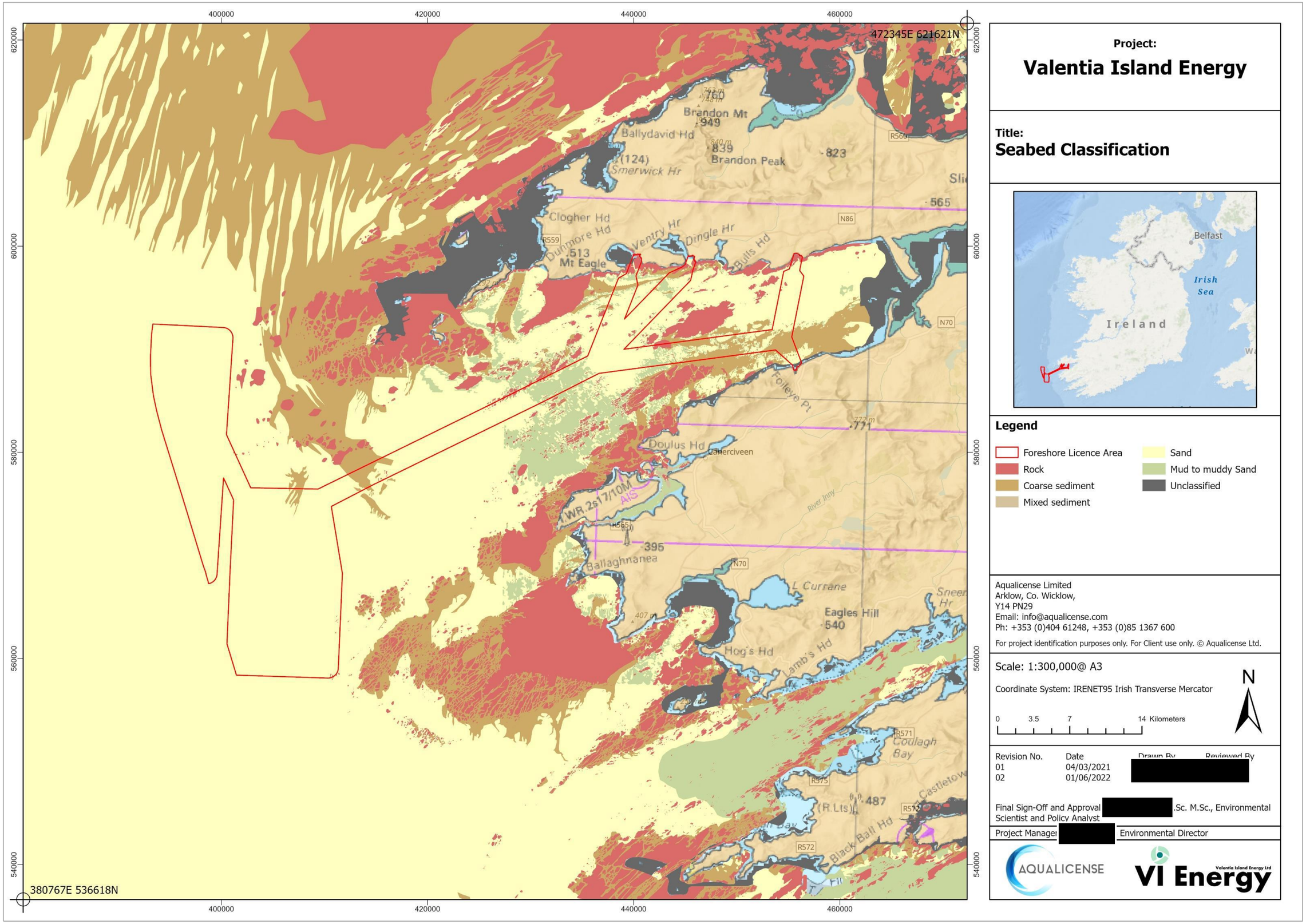
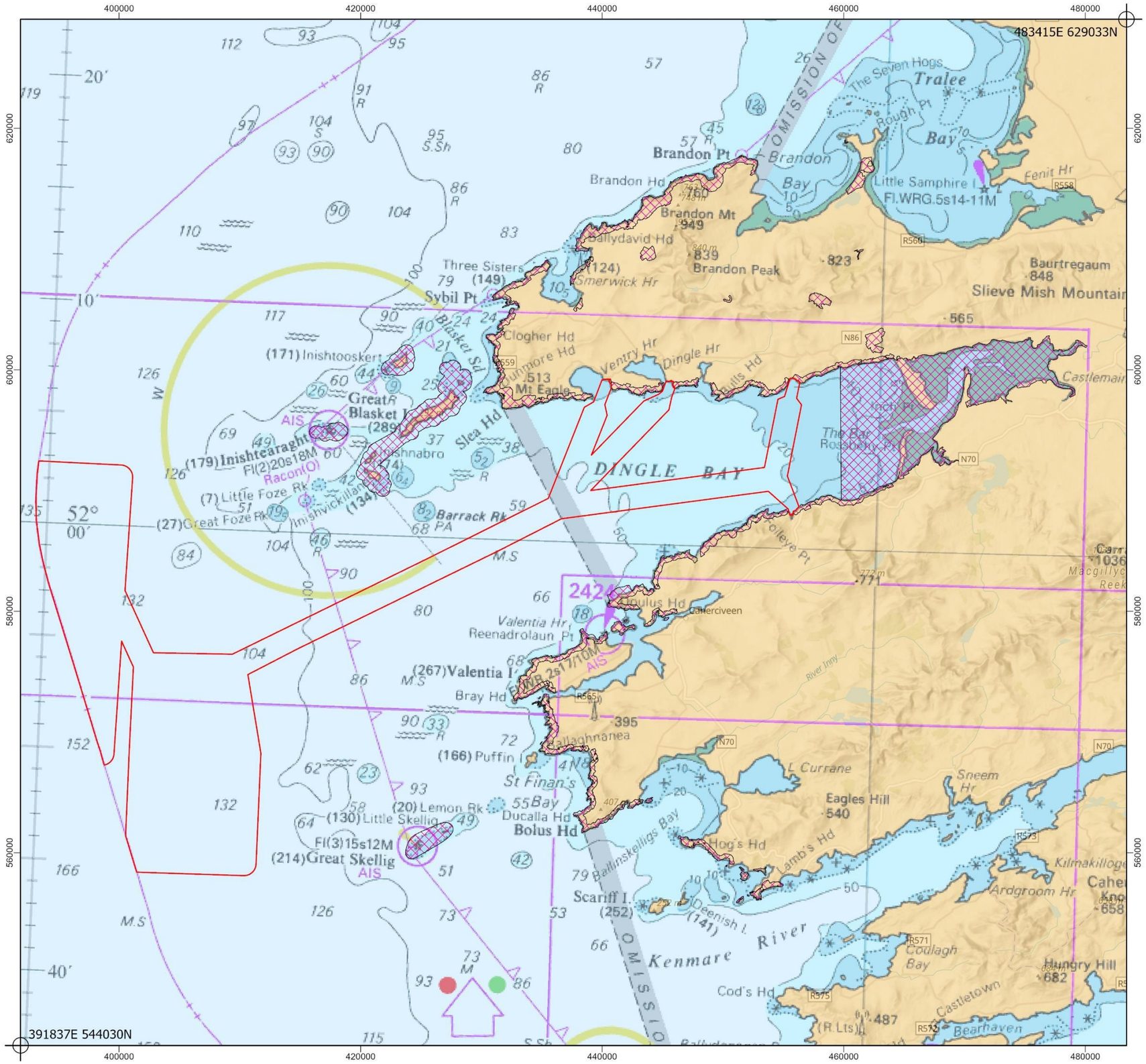


Map E: Predominant Habitat Type within the Investigation (EMODNET central portal, 2021A)



Project:

Valentia Island Energy

Title:

SPAs

Legend

- Foreshore Licence Area
- SPAs

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0 3.5 7 14 Kilometers

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01	04/03/2021	[redacted]	
02	01/06/2022		

Final Sign-Off and Approval: [redacted].Sc. M.Sc., Environmental Scientist and Policy Analyst

Project Manager: [redacted] Environmental Director

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Map F: Special Protection Areas (SPA), designated under the birds and habitats directives, located within the ZoI of the proposed Investigation Area. (Data Source: (national parks and wildlife services, 2021A)

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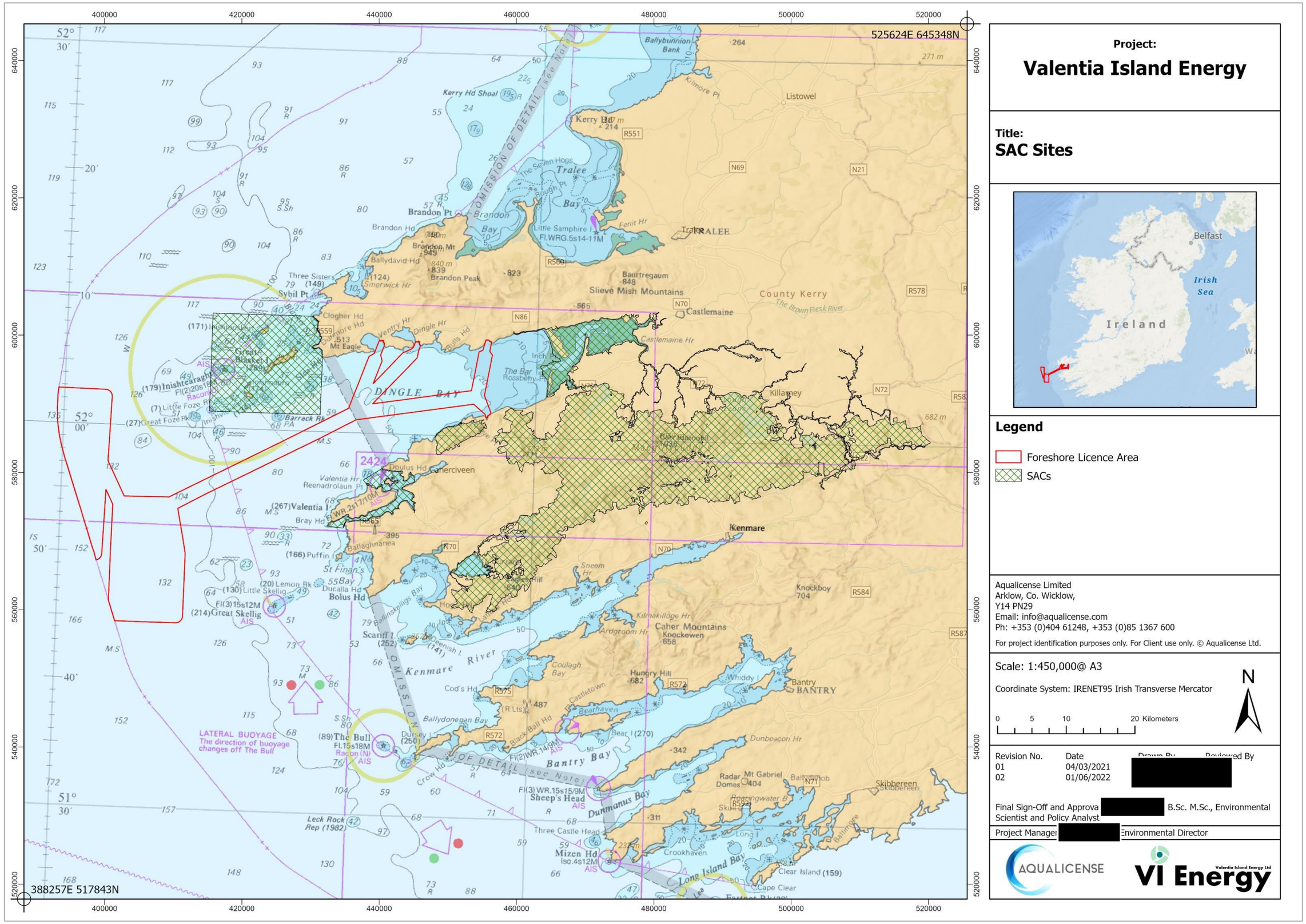

Map G: Special Areas of Conservation, (SAC's), designated under the habitat's directives, located within the ZoI of the proposed Investigation Area. (Data source: (national parks and wildlife services, 2021A)

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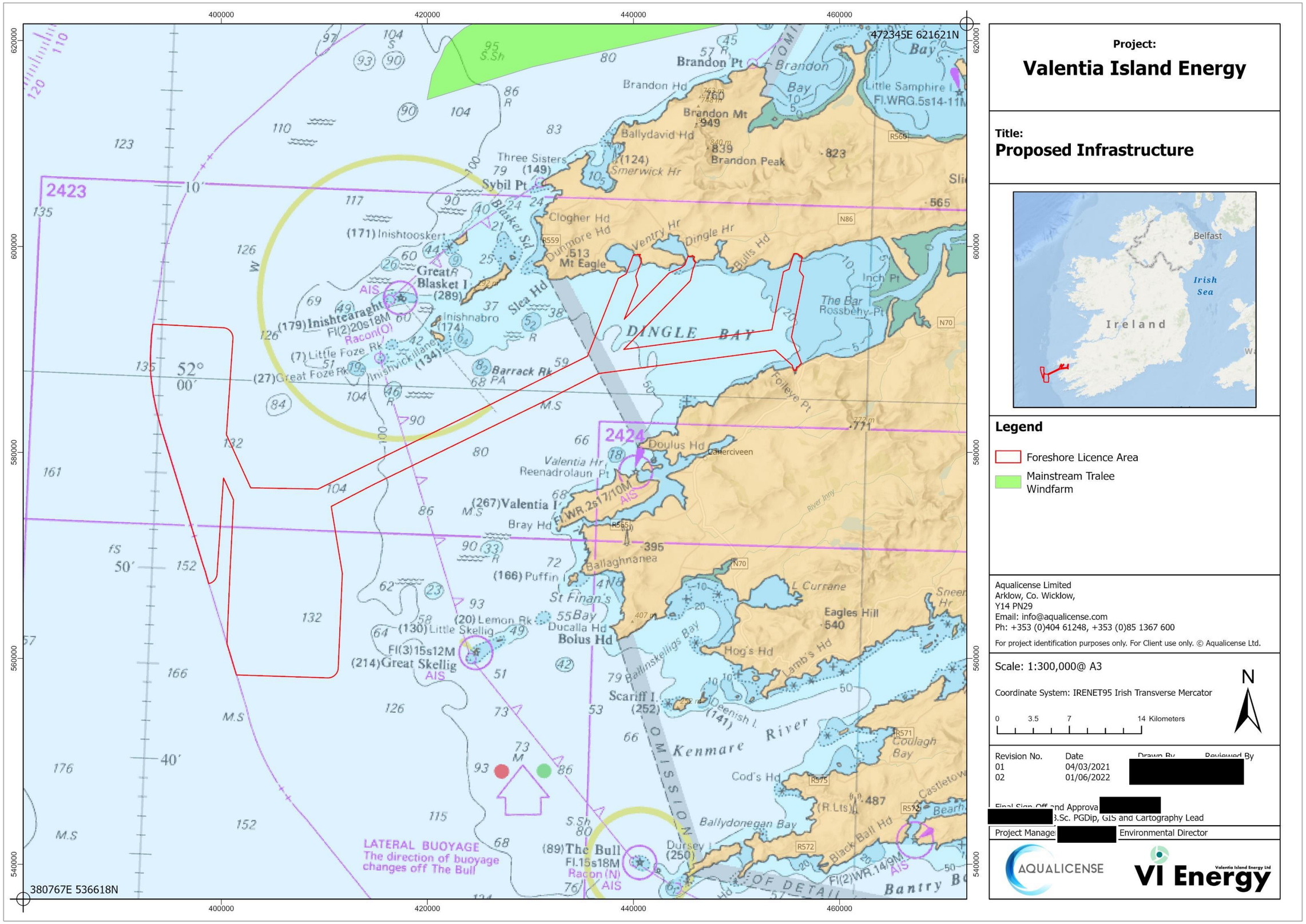
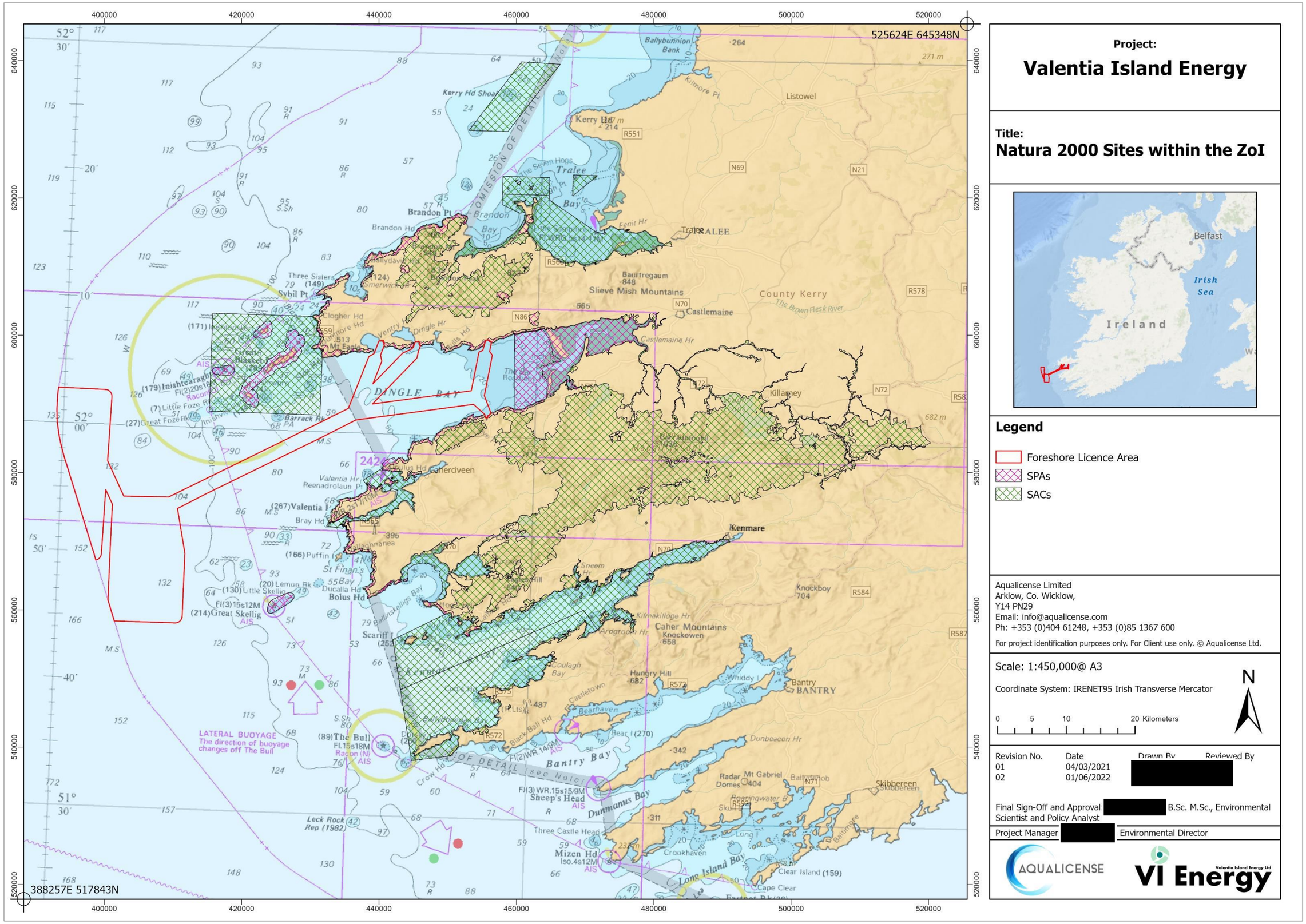
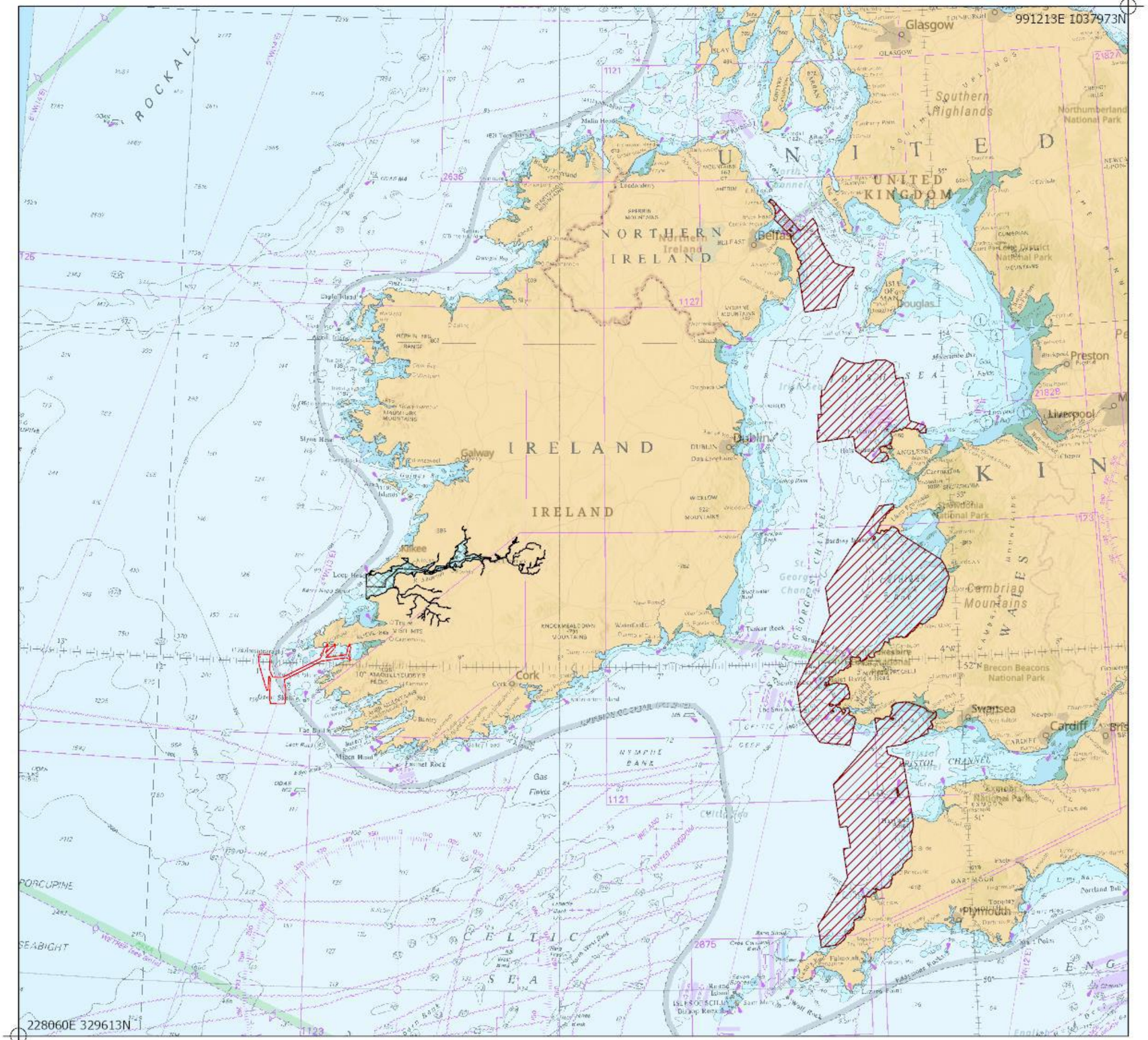


Map H: Other Potential Proposed Activity located within/surrounding the vicinity of the Investigation Area



Map I: Identification of relevant Natura 2000 sites, sites within the vicinity of the proposed Investigation Area.



Project:

Valentia Island Energy

Title:

SAC Locations - Annex II Species Management Unit ZoI

Legend

- Foreshore Licence Area
- Special Area of Conservation
- UK SACs with Marine Components

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0 30 60 120 Kilometers

N

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01	21/11/2022	[redacted]	

Final Sign Off and Approval:

[redacted] B.Sc. PGDip, GIS and Cartography Lead

Project Manage[redacted] Environmental Director

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Map J: Identification of SAC sites, within the relevant Management Unit of the proposed Investigation Area

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