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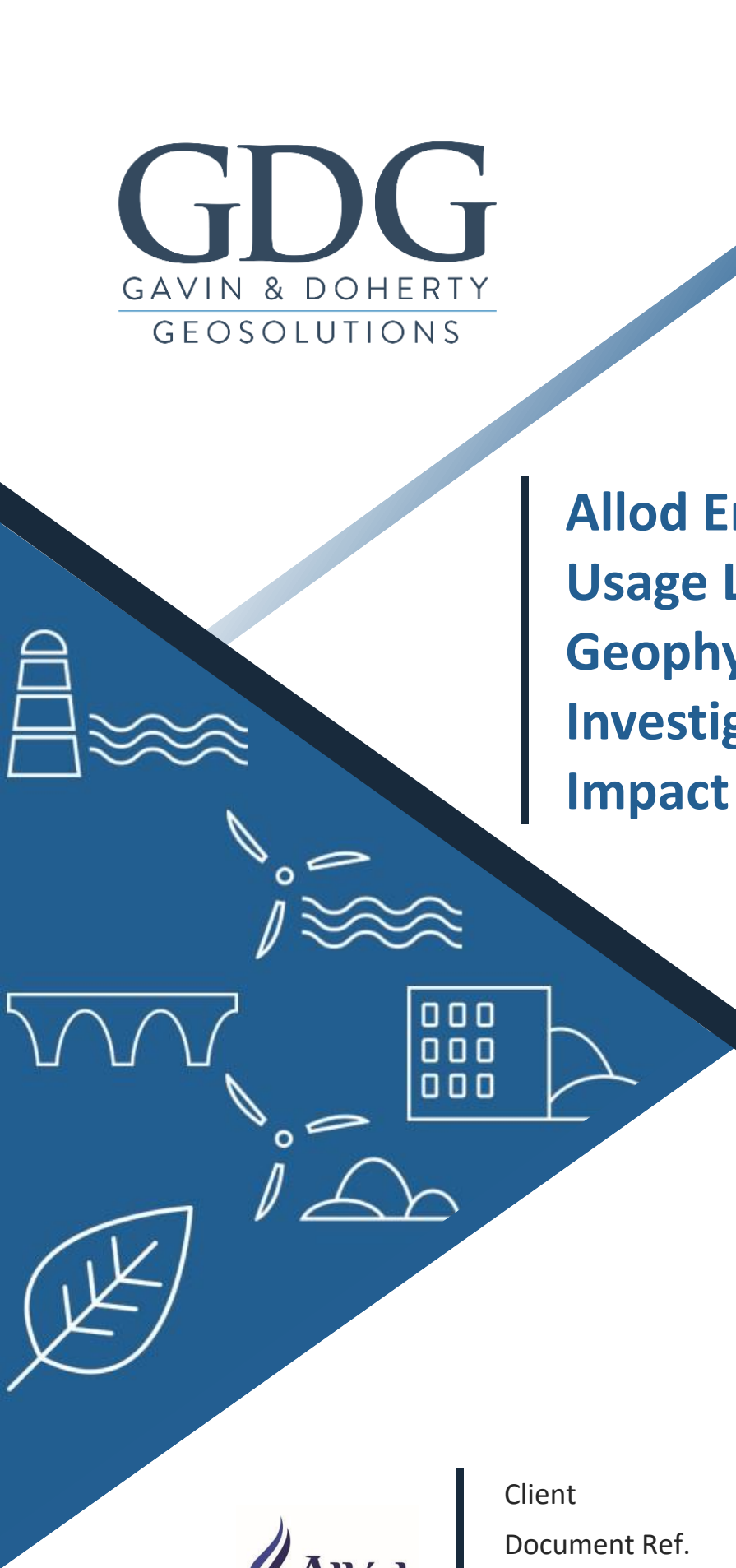
Allod Energy Ltd Maritime Usage Licence Application for Geophysical Marine Site Investigation Activities Natura Impact Statement



Allód
HYDROGEN
STORAGE

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List of Abbreviations

AA	Appropriate Assessment
AIMU	Assessment of Impact on the Maritime Usage
CESS	Cumulative Effects Spatial Scope
CETC	Cumulative Effect Temporal Scope
DAHG	Department of Arts, Heritage and the Gaeltacht
DEHLG	Department of Environment, Heritage and Local Government
DHLGH	Department of Housing, Local Government and Heritage
EC	European Commission
EPS	European Protected Species
EU	European Union
FCS	Favourable Conservation Status
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
MI	Marine Institute
MAP	Maritime Area Planning
MARA	Maritime Area Regulatory Authority
MUL	Maritime Usage Licence
MU	Management Unit
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Service
NRW	Natural Resources Wales
OWF	Offshore Wind Farm
QI	Qualifying Interests
SAC	Special Areas of Conservation
SCI	Special Conservation Interest
SISAA	Supporting Information for Screening for Appropriate Assessment
SPA	Special Protection Areas
cSPA	Candidate Special Protection Area

Glossary of Terms

Appropriate Assessment (AA)	An Appropriate Assessment (AA) is an assessment of the potential adverse effects of a plan or project (in combination with other plans or projects) on Special Areas of Conservation and Special Protection Areas. These Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are protected by both National and European Law.
Ecology	Ecology is a branch of biology concerning the spatial and temporal patterns of the distribution and abundance of organisms, including the causes and consequences.
Environmental Receptors	Environmental receptors are any organism, habitat or natural resource which could be adversely affected by an activity.
Favourable Conservation Status	The EU Habitats Directive requires EU Member States to achieve FCS of natural habitats and species, defined with respect to species by Article 1 (i) of the Directive as below: "conservation status will be taken as 'favourable' when: population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable 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."
Geophysical Surveys	Geophysical surveys are physical sensing techniques that produce a detail image or map of an area.
Maritime Usage Licence Area	Within this report: The areas within the outer limit of the State's continental shelf and high water mark for which a Maritime Usage Licence Application is submitted to MARA for a licence under the Maritime Area Planning Act 2021.
Natura Impact Statement	A Natura Impact Statement (NIS) is the statement prepared following Appropriate Assessment (AA) of Natura 2000 sites as required under the EU Habitats Directive which presents information on the assessment and the process of collating data on a project and its potential significant impacts on Natura 2000 site(s).
Receiving Environment	The receiving environment is the environment upon which a proposed activity might have effects.
Special Areas of Conservation (SAC)	These are prime wildlife conservation areas considered to be important on a European as well as national level. The EU Habitats Directive lists certain habitats and species that must be protected within SACs.
Special Protection Areas (SPA)	Ireland is required under the terms of the EU Birds Directive (2009/147/EC) to designate Special Protection Areas (SPAs) for the protection of: Listed rare and vulnerable species; regularly occurring migratory species and wetlands, especially those of international importance.

1 INTRODUCTION

1.1 AIM OF THIS REPORT

This report is part of the Maritime Usage Licence (MUL) Application to the Maritime Area Regulatory Authority (MARA) and constitutes the Natura Impact Statement (NIS) which forms part of the Appropriate Assessment (AA) process as required under the Habitats Directive (92/43/EEC).

This report aims to support the application process and provide the necessary information to the competent authorities to assist them in making an informed decision on the likely significant effect of this project on the receiving environment including on Special Protection Areas (SPAs) and Special Areas of Conservation (SACs).

1.2 STRUCTURE OF THE REPORT

This report is structured into the following chapters to include information relating to the receiving environment, SACs, SPAs, Qualifying Interests (QIs), the potential impacts and AA process and other environmental receptors. Specifically, the chapters of this report are as follows:

- Chapter 1: Introduction (this chapter)
- Chapter 2: Habitats Directive (92/43/EEC) (outlines key aspects of the process)
- Chapter 3: Supporting Information for a Stage 2 Appropriate Assessment (Natura Impact Statement)
- Chapter 4: Impact Assessment
- Chapter 5: Appropriate Assessment Conclusion

1.3 LICENCE AREA

This document has been prepared in support of a MUL Application, which seeks the consent to conduct geophysical marine site investigations to assess the suitability of the Celtic Sea for potential hydrogen storage. The investigations look to define the extent and internal character of halite rock beneath the seafloor in an effort to assess and de-risk potential suitability for hydrogen storage development in halite.

The Licence Area covers a total area of 1,481 km^2 and is comprised of the proposed Indicative Survey Area, which considers the length and width of streamers which may be used, and the turning circle of the vessels which are expected to be used (Figure 1-1).

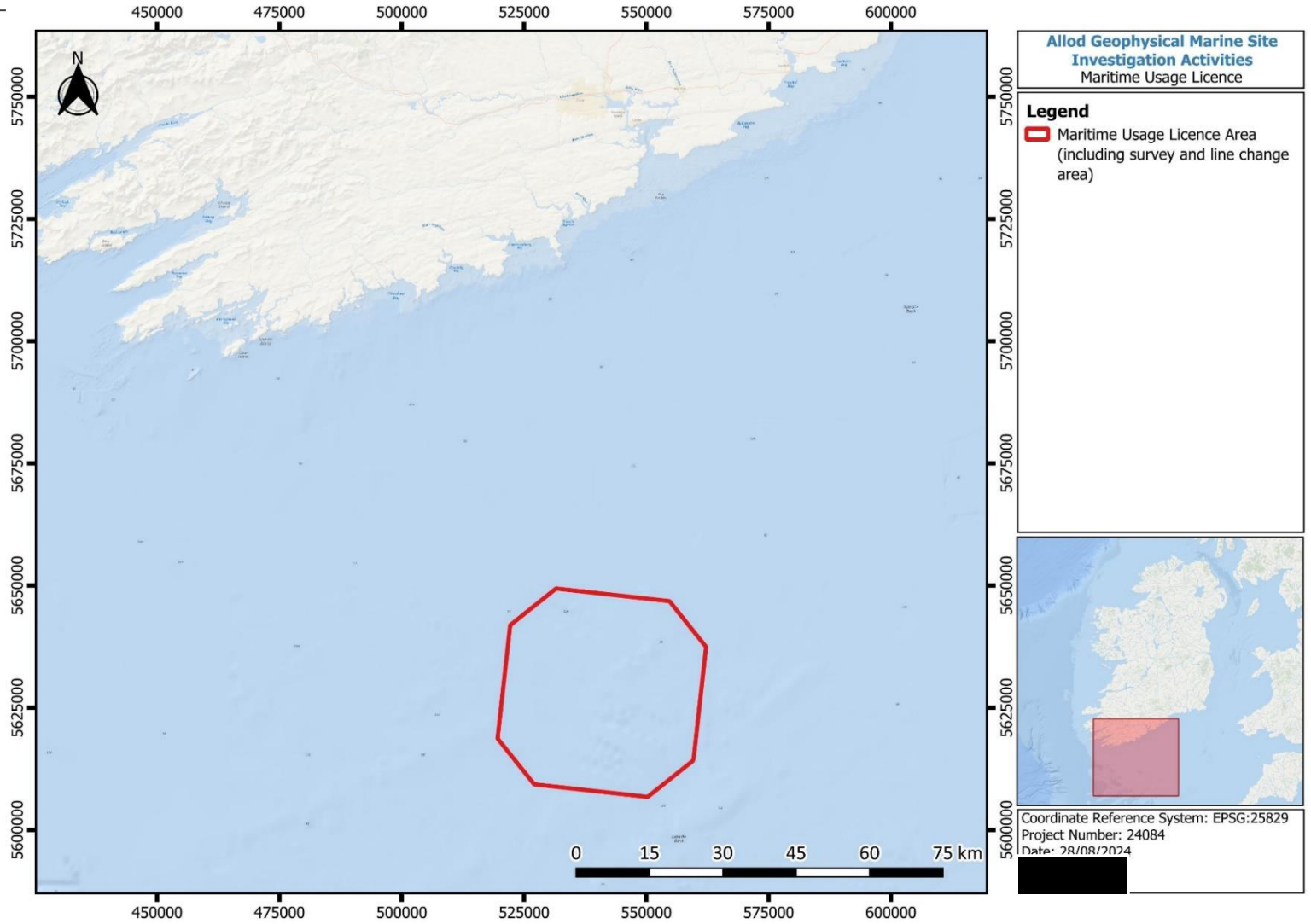

Figure 1-1 Allod Maritime Usage Licence Area (solid red boundary)

1.4 GEOPHYSICAL MARINE SITE INVESTIGATION ACTIVITIES

The objective of the proposed Allód geophysical marine site investigation activities is to determine environmental conditions, and the seafloor and subsurface geological characteristics within the Licence Area. It is proposed to undertake 2D geophysical and 3D seismic geophysical investigation activities to assess an area in the Celtic Sea for potential hydrogen storage. 2D geophysical surveys provide a broad, cross-sectional view of the subsurface that is useful for detailed assessment of the shallow subsurface, while 3D seismic surveys offer a detailed, volumetric image of the geological formations at depth, including the shape and size of the subsurface features that is critical for accurate resource assessment and development planning. The investigations will look to identify any masses of halite rock beneath the seafloor in an effort to de-risk any future hydrogen storage development as well as determine environmental conditions, and the seafloor and subsurface geological characteristics within the Licence Area.

The proposed programme of site investigations to be undertaken within the MUL area is described in detail in the Programme of Works section of the Assessment of Impacts on the Maritime Usage (AIMU report number 24084-REP-001-00) document accompanying this Application, which can also be found in Appendix A of the AIMU report (24084-REP-001-01). The exact technical specifications of the equipment to be used will not be known until the survey contracts have been awarded. However, a description of typical equipment and expected survey parameters is provided in the Programme of Works section of the AIMU.

The proposed site investigations will involve the imaging of halite rock in the indicative survey area by means of 3D seismic geophysical surveying. All site investigation activities will be undertaken within the Licence Area co-ordinates shown in Table 2-1 of the AIMU document. Where applicable, survey recommendations outlined in the Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014) will be followed.

The proposed surveys will involve the using various geophysical equipment in order to collect data about seabed and subseafloor features. The proposed surveys will involve a 15m x 15m array of up to 40 small airguns with a combined volumetric capacity of c. 4500 cu.in. The airgun array will emit air bubbles which make sound when they pop, thus generating sound suitable for collecting data about the seabed and seafloor features. The sound returned from the seabed and subseafloor is recorded by a series of hydrophones encased within steamers which are towed behind the airgun array. The survey is anticipated to utilise 10 steamers, each 8 km in length, with a 100m spacing between each streamer, giving a total width of 1 km and total length of 8 km, totalling over 10,000 hydrophones which continuously record sound.

In addition to these streamers, a potential complementary site investigation activity could be remote sensing activities, whereby there may be up to 500 ocean bottom nodes (OBNs) on the seabed to receive the seismic energy transmitted to the seafloor from the rocks below. If deployed, the OBN's will be placed on the seafloor at predetermined locations using an ROV and will remain on the seabed whilst the source vessel sails a predetermined survey pattern shooting the sound source which in this case will be the airguns. The OBN's are advanced hydrophones that record the sound returned from

the subseafloor. They are beneficial to use as they isolate the receiver from sea surface noise (weather) and allow the measurement of shear waves.

This MUL application is for consent to conduct site investigation activities and should not be confused with a Maritime Area Consent (MAC) application, which will be subject to the Maritime Area Planning Act 2021 (MAPA) and the Planning and Development Act, 2000-2021. This is not a MAC application for a development.

1.5 SURVEY SCHEDULE

The intention is to begin survey activities as soon as practicable following licence award, allowing for a tender process, vessel availability and anticipated suitable weather conditions (April to September) survey activities are anticipated to take 20 days, excluding any operational downtime. It is the intent to acquire all data within a single survey campaign, which is planned to last for a short period of approximately 3 weeks; however, weather or vessel and equipment availability may dictate a staged programme of surveying over the licence duration. The approximate durations of each of the survey activities are provided in Table 2-3 in Section 2.2 of the AIMU (report number 24084-REP-001-01) document accompanying this application and included as Table 1-1 below for completeness. The exact mobilisation dates for the survey will not be known until the process of procuring survey contractors is complete, these investigations will be subject to vessel and contractor availability and in anticipation of delays with some of these elements, Allod are requesting a 7-year survey licence to allow for some of these unpredictable delays.

Timing of the site investigation activities is dependent on many factors including weather, availability of vessels and the grant of a licence but is anticipated to be within the months of April to September. The granting of a licence will have a direct effect on the timing of site investigation activities; therefore, two theoretical survey schedules (see Table 1-1) are presented to support the MUL Application.

Table 1-1 Proposed survey schedules (ideal and licence timing/weather impacted scenarios) to carry out geophysical marine site investigations in the Celtic Sea

Schedule 1 – Ideal Scenario	
November 2024	MUL granted
December 2024	Tender process
January 2025	Contractor Award
May 2025	Vessel mobilised
June 2025	Vessel demobilised; data acquisition complete

June 2026	3D data processing complete, ready for evaluation
August 2026	Commencement of desktop data evaluation
August 2027	Assessment/Desk studies complete
Survey Schedule 2 – Licence Timing/Weather Impacted Scenario	
January 2025	MUL granted
February 2025	Judicial Review required
February 2025	Judicial Review finalised, MUL upheld
February 2026	Tender process
February 2026	Contractor Award
March 2026	Vessel mobilised (in the event of no availability in 2026)
May 2027	Vessel demobilised; data incomplete due to bad weather conditions
June 2027	Vessel re-mobilised for survey completion
May 2028	Vessel demobilised; data acquisition complete
June 2028	3D data processing complete
June 2029	Commencement of desktop data evaluation
August 2029	Unexpected hazards/anomalies/environmental constraints identified requiring further surveying
December 2029	Smaller survey targeting potential hazards/environmental assessments
May 2030	Additional data processing complete
December 2030	Assessment/Desk studies complete

2 HABITATS DIRECTIVE (92/43/ECC)

2.1 LEGISLATIVE BACKGROUND

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, transposed into Irish Law in 1997 and subsequently amended and consolidated, aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. It provides a framework for legal protection to ensure 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 of the 500 wild bird species naturally occurring in the European Union. The Habitats Directive and Birds Directive form the cornerstone of Europe's nature conservation policy. Together they form a coherent network of protected areas (SACs and SPAs), 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 Natura 2000 site, either alone or in combination with other plans or projects, it must undergo an Appropriate Assessment (AA). According to Article 6(3) of the Habitats Directive:

“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) states: “If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of 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 THE APPROPRIATE ASSESSMENT PROCESS

The European Commission's methodological guidance (EC, 2021) promotes a three-stage process to complete an 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 steps and procedures involved in completing each stage, as described in the guidance, are shown below (Figure 2-1).

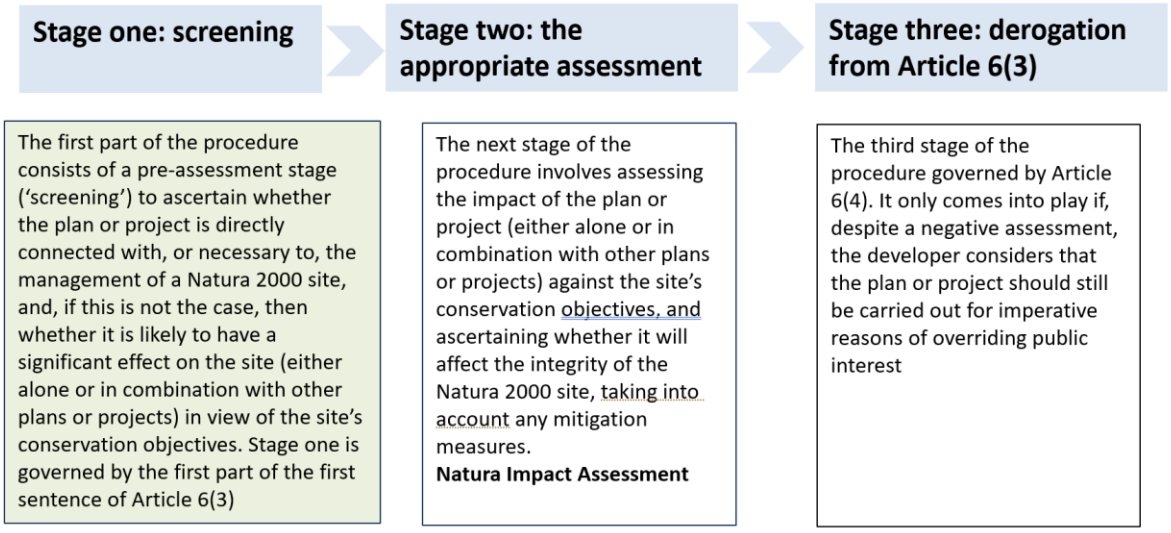

Figure 2-1: Stages in the AA process (Source: EC, 2021)

2.3 METHODOLOGY FOR THE PREPARATION OF THIS REPORT

This document forms part of a series of documents taken together to support Stages 1 and 2 (Screening and Natura Impact Statement) of the AA process, as detailed in section 2.2 above, and has been prepared in accordance with the guidance numbered 1 to 7 in the first paragraphs of this section.

As the proposed works are not directly connected to or necessary for the management of a Natura 2000 site, this document focuses on assessing whether the works, alone or cumulatively with other plans and projects, are likely to have significant effects on any Natura 2000 site in view of its conservation objectives.

This report has been informed by a review of the publicly available datasets and the available literature that allowed the characterisation of the receiving environment and supported the identification and assessment of potential impacts and their significance. The sources of the information used are cited throughout the report and listed in the References section.

The examination, analysis and evaluation of the relevant information that supported AA process conducted and documented in this report followed the precautionary principle throughout.

The report methodology followed the steps below, corresponding to the chapters which constitute the structure of the report:

- Description of the proposed project (see chapter 1 and SISAA)
- Description of legislative background, of the Appropriate Assessment process and Methodology for the preparation of the report (this chapter)
- Identification and description of the potential direct and indirect effects on the Natura 2000 sites (see SISAA document)
- Identification of the relevant Natura 2000 sites and their Qualifying Interests (QIs), and their AA Screening (Stage 1) against the identified potential impacts (see SISAA document and chapter 4)
- Natura Impact Statement (Stage 2) including detailed characterisation of the sites or species screened in for Stage 2 of the AA Process (see chapter 5)

This report has been prepared by [redacted] (BSc. Earth Science, MSc. Coastal and Marine Environments: Physical Processes, Policy and Practice). [redacted] s an Environmental Scientist with experience in marine licence application preparation, Environmental Impact Assessment Scoping report preparation and has experience with environmental mapping.

This report has been checked and reviewed by [redacted] (BSc. Hons Geological Science, MSc. Geochemistry) and [redacted] (BSc. Hons Marine Science, MSc. Engineering in the Coastal Environment). [redacted] is a Senior Environmental Scientist with extensive experience as an environmental consultant, undertaking various multi-disciplinary projects within consulting engineering. [redacted] is a Marine Ecologist with coastal engineering expertise and extensive experience of offshore benthic survey and Marine Protected Area monitoring who has undertaken multiple environmental assessments under the Habitats Directive for GDG and as a statutory adviser to the UK government and its devolved administrations with the Joint Nature Conservation Committee.

3 SUPPORTING INFORMATION FOR A STAGE 2 APPROPRIATE ASSESSMENT (NATURA IMPACT STATEMENT)

3.1 OUTOME OF SCREENING FOR APPROPRIATE ASSESSMENT

A robust screening process has been undertaken to inform those Natura 2000 sites and their qualifying interests that have been screened in for further assessment under Stage 2 AA. This is described in full in the SISAA document which accompanies this application. Table 3-1 lists those Natura 2000 sites and their Qualifying Interests Screened in for further assessment, together with the impacts identified as relevant for each site and QI that may result in "Likely Significant Effects" to conservation objectives in the absence of mitigation measures.

Table 3-1 Summary of SACs and designated QIs screened in for Stage 2 Appropriate Assessment

SAC Site code	SAC Site name	By sea distance from MUL Area (km)	QIs
000101	Roaringwater Bay and Islands SAC	83.90	Grey Seal *(Halichoerus grypus*) [1364] Harbour Porpoise *(Phocoena phocoena*) [1351]
002158	Kenmare River SAC	131.42	Harbour Porpoise *(Phocoena phocoena*) [1351] Grey Seal *(Halichoerus grypus*) [1364]
000090	Glengarriff Harbour and Woodland SAC	144.21	Harbour Seal (*Phoca vitulina*) [1365]
000764	Hook Head SAC	154.52	Harbour Porpoise *(Phocoena phocoena*) [1351]
000707	Saltee Islands SAC	170.04	Grey Seal *(Halichoerus grypus*) [1364]
002172	Blasket Islands SAC	187.25	Harbour Porpoise *(Phocoena phocoena*) [1351] Grey Seal *(Halichoerus grypus*) [1364]
002269	Carnsore Point SAC	189.61	Harbour Porpoise *(Phocoena phocoena*) [1351]
002953	Blackwater Bank SAC	206.85	Harbour Porpoise *(Phocoena phocoena*) [1351]
000781	Slaney River Valley SAC	214.53	Harbour Seal (*Phoca vitulina*) [1365]
002327	Belgica Mound Province SAC	232.07	Harbour Porpoise *(Phocoena phocoena*) [1351]
003000	Rockabill to Dalkey Island SAC	318.22	Harbour Porpoise *(Phocoena phocoena*) [1351]
000213	Inishmore Island SAC	318.77	Harbour Porpoise *(Phocoena phocoena*) [1351]

SAC Site code	SAC Site name	By sea distance from MUL Area (km)	QIs
003015	Codling Fault Zone SAC	340.33	Harbour Porpoise *(Phocoena phocoena)* [1351]
000328	Slyne Head Islands SAC	340.82	Grey Seal *(Halichoerus grypus)* [1364]
000204	Lambay Island SAC	344.63	Grey Seal *(Halichoerus grypus)* [1364] Harbour Porpoise *(Phocoena phocoena)* [1351]
000278	Inishbofin and Inishark SAC	362.70	Grey Seal *(Halichoerus grypus)* [1364]
000495	Duvillaun Islands SAC	416.91	Grey Seal *(Halichoerus grypus)* [1364]
000507	Inishkea Islands SAC	418.73	Grey Seal *(Halichoerus grypus)* [1364]
002998	West Connacht Coast SAC	425.44	Harbour Porpoise *(Phocoena phocoena)* [1351]
000625	Bunduff Lough and Machair/Trawalua/Mullaghmore SAC	546.07	Harbour Porpoise *(Phocoena phocoena)* [1351]
001141	Gweedore Bay and Islands SAC	577.04	Harbour Porpoise *(Phocoena phocoena)* [1351]
UK0013694	Isles of Scilly Complex	145.721	Grey Seal *(Halichoerus grypus)* [1364]
UK0030396	Bristol Channel Approaches / Dynesfeydd Môr Hafren	192.343	Harbour Porpoise *(Phocoena phocoena)* [1351]
UK0013116	Pembrokeshire Marine/ Sir Benfro Forol	194.285	Grey Seal *(Halichoerus grypus)* [1364]
UK0013114	Lundy	245.941	Grey Seal *(Halichoerus grypus)* [1364]
UK0030397	West Wales Marine / Gorllewin Cymru Forol	262.742	Harbour Porpoise *(Phocoena phocoena)* [1351]
UK0030398	North Anglesey Marine / Gogledd Môn Forol	344.811	Harbour Porpoise *(Phocoena phocoena)* [1351]
UK0030399	North Channel	426.362	Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5302015	Mers Celtiques - Talus du golfe de Gascogne	223.11	Harbour Porpoise *(Phocoena phocoena)* [1351] Bottlenose Dolphin (*Tursiops truncatus*) [1349]
FR5302016	Récifs du talus du golfe de Gascogne	264.09	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR2502022	Nord Bretagne DH	324.15	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5300018	Ouessant-Molène	328.17	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5300017	Abers - Côte des légendes	340.56	Bottlenose Dolphin (*Tursiops truncatus*) [1349]

SAC Site code	SAC Site name	By sea distance from MUL Area (km)	QIs
			Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5302007	Chaussée de Sein	362.28	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5300015	Baie de Morlaix	367.57	Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5300009	Côte de Granit rose-Sept-Iles	369.35	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5302006	Côtes de Crozon	372.96	Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5300010	Tregor Goëlo	393.87	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR2500084	Récifs et landes de la Hague	459.83	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR2502019	Anse de Vauville	461.12	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5300011	Cap d'Erquy-Cap Fréhel	462.31	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5300066	Baie de Saint-Brieuc - Est	462.51	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR2502018	Banc et récifs de Surtainville	465.18	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR5300012	Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard	485.41	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR2500079	Chausey	487.00	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR2500085	Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire	495.63	Bottlenose Dolphin (*Tursiops truncatus*) [1349]

SAC Site code	SAC Site name	By sea distance from MUL Area (km)	QIs
FR5300061	Estuaire de la Rance	502.64	Harbour Porpoise *(Phocoena phocoena)* [1351]
FR2500077	Baie du Mont Saint-Michel	515.78	Bottlenose Dolphin (*Tursiops truncatus*) [1349] Harbour Porpoise *(Phocoena phocoena)* [1351]
FR2502020	Baie de Seine occidentale	524.30	Bottlenose Dolphin (*Tursiops truncatus*) [1349]
FR2502021	Baie de Seine orientale	586.03	Bottlenose Dolphin (*Tursiops truncatus*) [1349]
FR2300139	Littoral Cauchois	697.54	Bottlenose Dolphin (*Tursiops truncatus*) [1349]
FR2200346	Estuaires et littoral picards (baies de Somme et d'Authie)	700.41	Bottlenose Dolphin (*Tursiops truncatus*) [1349]
FR3100478	Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et Dunes de Wissant	720.19	Bottlenose Dolphin (*Tursiops truncatus*) [1349]

3.2 CONSERVATION OBJECTIVES FOR QUALIFYING INTERESTS

Conservation objectives for all sites screened in for Stage 2 AA (NIS) are set out in Appendix A of this report.

4 IMPACT ASSESSMENT

Disturbance from underwater noise associated with the proposed survey activities has been identified as a likely significant effect on mobile species QIs of SACs within the zone of influence of the proposed activities.

Species QI specific impacts, conservation objectives and mitigation measures for the species QIs of screened-in SACs which could be impacted by underwater noise are summarised in Sections 4.1 to 4.4 below.

4.1 GREY SEAL (*HALICHOERUS GRYPUS*) [1364]

The conservation objective for grey seal (*Halichoerus grypus*) at the SACs listed below is to maintain the grey seal QI of these SACs in favourable condition:

- Roaringwater Bay and Islands SAC 000101
- Kenmare River SAC 002158
- Saltee Islands SAC 000707
- Slyne Head Islands SAC 000328
- Lambay Island SAC 000204
- Inishbofin and Inishark SAC 000278
- Duvillaun Islands SAC 000495
- Inishkea Islands SAC 000507
- Isles of Scilly Complex UK0013694
- Pembrokeshire Marine/ Sir Benfro Forol UK0013116
- Lundy UK0013114

The measures identified to achieve the conservation objective are:

- Ensure access to suitable habitat is not restricted by artificial barriers.
- Ensure breeding, moulting and resting sites are conserved in a natural condition.
- Ensure the seal population contains adult, juvenile and pup cohorts annually.
- Ensure human activities do not occur at levels that adversely affect the grey seal population at the site.

The conservation objectives for the grey seal population at Lundy SAC, Pembrokeshire Marine SAC, Isles of Scilly Complex SAC in the UK are defined in different ways to the above SACs. The term “indicative condition assessment” is used for Pembrokeshire Marine and the parameters defined are population and range. Both parameters were assessed as favourable in 2005/2006 and 2017. For Cardigan Bay, the conservation objective for grey seal is that the population maintains itself on a long-term basis as a viable component of its natural habitat. Important elements supporting this include

population size, structure, production, and condition of the species within the site. Similar terms are used to describe the conservation objectives for Lundy SAC, Pembrokeshire Marine SAC, and Isles of Scilly. Further details of the conservation objectives are available in Appendix A.

The proposed survey will not affect any of these measures or the conservation objective for the grey seal at these SACs. However, the species may be affected by disturbance from underwater noise associated with the proposed works. Grey seals hear in the low frequency range (75-75,000 Hz) (Southall et al., 2007; 2019) and therefore, are susceptible to effects from noise generated by Side Scan Sonar, Sub Bottom Profiling (SBP) and the Airgun Array. These activities have the potential to be within the hearing threshold of grey seals.

Mitigation: The proposed activities will be short in duration and of a temporary nature. In line with best practice guidelines 'Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters' from DAHG (2014), which are now being incorporated into the standard operating procedures of all noise emitting surveys in Irish waters, the measures detailed below will be applied to, where possible, prevent and, if not, reduce, injury and disturbance to grey seals during all noise emitting site investigation activities.

- Mitigation will include visual observation during daylight hours and to complement this, Passive Acoustic Monitoring (PAM) will be utilised to monitor for the presence of vocalising marine mammals, and the use of 'soft-start' procedures. These measures, which are summarised in Appendix B, will ensure that any adverse effect due to disturbance caused by underwater noise will be mitigated for. The proposed site investigation activities will not restrict the species range in any way or effect the population size, range or habitat quality of the site.

Therefore, the conservation objectives for the grey seal population at the below sites will not be adversely affected and the integrity of these sites will be maintained.

4.2 COMMON SEAL (*PHOCA VITULINA*) [1365]

The conservation objective for the common/harbour seal (*Phoca vitulina*) at Glengarriff Harbour and Woodland SAC 000090 and Slaney River Valley SAC 000781 is to maintain the favourable conservation condition of this QI of these SACs. The measures identified to achieve the conservation objectives are:

- Ensure access to suitable habitat is not restricted by artificial barriers,
- Ensure breeding, moulting and resting sites are conserved in a natural condition,
- Ensure human activities do not occur at levels that adversely affect the common seal population at the site.

Further details of the conservation objectives are available in Appendix A.

The proposed survey will not affect any of these measures or the conservation objective for the common seal at these SACs. However, the species may be affected by disturbance from underwater noise associated with the proposed survey. Common seals hear in the low frequency range in water (75-75,000 Hz) (Southall et al., 2007) and therefore may be affected by noise generated by Side Scan

Sonar, Sub Bottom Profiling (SBP) and the Airgun Array. These activities have the potential to be within the hearing threshold of common seal.

Mitigation: The proposed activities will be short in duration and of a temporary nature. In line with best practice guidelines 'Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters' from DAHG (2014), which are now being incorporated into the standard operating procedures of all noise emitting surveys in Irish waters, the measures detailed below will be applied to where possible prevent and if not reduce injury and disturbance to common seals during all noise emitting site investigation activities.

> Mitigation will include visual observation during daylight hours and to complement this, Passive Acoustic Monitoring (PAM) will be utilised to monitor for the presence of vocalising marine mammals and the use of 'soft-start' procedures. These measures, which are summarised in Appendix B, will ensure that any adverse effect due to disturbance caused by underwater noise will be mitigated for. The proposed site investigation activities will not restrict the species range in any way or effect the population size, range or habitat quality of the site.

Therefore, the conservation objectives for the common seal population at Glengarriff Harbour and Woodland SAC 000090 and Slaney River Valley SAC 000781 will not be adversely affected and the integrity of these sites will be maintained.

4.3 BOTTLENOSE DOLPHIN (*TURSIOPS TRUNCATUS*) [1349]

The conservation objectives for the bottlenose dolphin (*Tursiops truncatus*) [1349] at SACs listed below is to maintain the common bottlenose dolphin QI of these SACs in favourable conditions (Appendix A):

- Mers Celtiques - Talus du golfe de Gascogne FR5302015
- Récifs du talus du golfe de Gascogne FR5302016
- Nord Bretagne DH FR2502022
- Ouessant-Molène FR5300018
- Abers - Côte des legends FR5300017
- Chaussée de Sein FR5302007
- Côte de Granit rose-Sept-Iles FR5300009
- Tregor Goëlo FR5300010
- Récifs et landes de la Hague FR2500084
- Anse de Vauville FR2502019
- Cap d'Erquy-Cap Fréhel FR5300011
- Baie de Saint-Brieuc – Est FR5300066
- Banc et récifs de Surtainville FR2502018
- Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard FR5300012

- Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire FR2500085
- Chausey FR2500079
- Baie du Mont Saint-Michel FR2500077
- Baie de Seine occidentale FR2502020
- Baie de Seine orientale FR2502021
- Littoral Cauchois FR2300139
- Estuaires et littoral picards (baies de Somme et d'Authie) FR2200346
- Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et Dunes de Wissant FR3100478

The measures identified to achieve the conservation objectives are:

- Ensure the population can maintain itself on a long-term basis as a viable component of the habitat.
- Ensure the natural range of the population is not reduced or likely to be reduced in the near future.
- Ensure the presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and population dynamics of the species within the site and population beyond the site is stable or increasing.

Further details of the conservation objectives are available in Appendix A.
The proposed site investigation activities will not affect any of the conservation objectives for the bottlenose dolphin, as listed in Appendix A and above. However, the species may be affected by disturbance from underwater noise associated with the proposed site investigation activities. Bottlenose dolphin hear in the mid frequency range (150 - 160,000 Hz) (DAHG, 2014). The greatest effect on this species from the proposed site investigation activities would be from Side Scan Sonar, Sub-Bottom Profilers and the Airgun Array. These survey methods have the potential to be within the hearing threshold of bottlenose dolphins depending on equipment used and survey parameters.

Mitigation: The proposed activities will be short in duration and of a temporary nature. In line with best practice guidelines 'Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters' from DAHG (2014), which are now being incorporated into the standard operating procedures of all noise emitting surveys in Irish waters, the measures detailed below will be applied to where possible prevent and if not reduce injury and disturbance to bottlenose dolphins during all noise emitting site investigation activities.

Mitigation will include visual observation during daylight hours to complement this, Passive Acoustic Monitoring (PAM) will be utilised to monitor for the presence of vocalising marine mammals, and the use of 'soft-start' procedures. These measures, which are summarised in Appendix B, will ensure that any adverse effect due to disturbance caused by underwater noise will be mitigated for. The proposed site investigation activities will not restrict the species range in any way or effect the population size, range or habitat quality of the site.

Therefore, the conservation objectives for the bottlenose dolphin population at at the SACs listed above will not be adversely affected and the integrity of these sites will be maintained.

4.4 HARBOUR PORPOISE (*PHOCOENA PHOCOENA*) [1351]

The conservation objective for harbour porpoise (*Phocoena phocoena*) in the following sites is to maintain the harbour porpoise QI of these SACs in favourable condition:

- Roaringwater Bay and Islands SAC 000101
- Kenmare River SAC 002158
- Hook Head SAC 000764
- Blasket Islands SAC 002172
- Carnsore Point SAC 002269
- Blackwater Bank SAC 002953
- Belgica Mound Province SAC 002327
- Rockabill to Dalkey Island SAC 003000
- Inishmore Island SAC 000213
- Codling Fault Zone SAC 003015
- West Connacht Coast SAC 002998
- Bunduff Lough and Machair/Trawalua/Mullaghmore SAC 000625
- Gweedore Bay and Islands SAC 001141
- Bristol Channel Approaches / Dynesfeydd Môr Hafren UK0030396
- West Wales Marine / Gorllewin Cymru Forol UK0030397
- North Anglesey Marine / Gogledd Môn Forol UK0030398
- North Channel UK0030399
- Mers Celtiques - Talus du golfe de Gascogne FR5302015
- Récifs du talus du golfe de Gascogne FR5302016
- Nord Bretagne DH FR2502022
- Ouessant-Molène FR5300018
- Abers - Côte des legends FR5300017
- Chaussée de Sein FR5302007
- Baie de Morlaix FR5300015
- Côte de Granit rose-Sept-Iles FR5300009
- Côtes de Crozon FR5302006
- Tregor Goëlo FR5300010
- Récifs et landes de la Hague FR2500084
- Anse de Vauville FR2502019
- Cap d'Erquy-Cap Fréhel FR5300011
- Baie de Saint-Brieuc – Est FR5300066
- Banc et récifs de Surtainville FR2502018
- Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard FR5300012
- Chausey FR2500079

- Estuaire de la Rance FR5300061
- Baie du Mont Saint-Michel FR2500077

The measures identified to achieve the conservation objectives are:

- Ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for harbour porpoise in UK waters
- Ensure the species is a viable component of the site
- Ensure there is no significant disturbance of the species
- Ensure the condition of supporting habitats and processes, and availability of prey is maintained

More detailed information about the species conservation objectives is provided in Appendix A. There are no site specific information as of yet for the Irish SACs that have Harbour Porpoise recently added as a QI. These sites include Lambay Island SAC, Codling Fault Zone SAC, Blackwater Bank SAC, Carnsore Point SAC, Hook Head SAC, Kenmare River SAC, Belgica Mound Province SAC, Inishmore Island SAC, Bundfuff Lough and Machair/Trawalua/Mullaghmore SAC, Gweedore Bay and Islands SAC and West Connacht Coast SAC.

The proposed site investigation activities will not effect any of the conservation objectives for the harbour porpoise, as listed above and in Appendix A. However, the species may be effected by disturbance from underwater noise associated with the proposed site investigation activities. Harbour porpoise (*Phocoena phocoena*) hear in the high frequency range (200-180,000Hz) (DAHG, 2014). The greatest potential effect on this species from the proposed site investigation activities would be from Airgun Array, and sub bottom profiling depending on the equipment and frequencies used. These activities have the potential to be within the hearing threshold of harbour porpoise.

Mitigation: The proposed activities will be short in duration and of a temporary nature. In line with best practice guidelines 'Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters' from DAHG (2014), which are now being incorporated into the standard operating procedures of all noise emitting surveys in Irish waters, the measures detailed below will be applied to where possible prevent and if not reduce injury and disturbance to harbour porpoise during all noise emitting site investigation activities.

Mitigation will include visual observation during daylight hours to complement this, Passive Acoustic Monitoring (PAM) will be utilised to monitor for the presence of vocalising marine mammals, and the use of 'soft-start' procedures. These measures, which are summarised in Appendix B, will ensure that any adverse effect due to disturbance caused by underwater noise will be mitigated for. The proposed site investigation activities will not restrict the species range in any way or effect the population size, range or habitat quality of the site.

4.5 IN-COMBINATION

4.5.1 ASSESSMENT OF IN-COMBINATION EFFECTS WITH OTHER PLANS AND PROJECTS

In-combination screening for cumulative effects has been undertaken following the approach outlined in the European commission Notice Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive (EC, 2021).

Plans from other projects were examined as part of the SISAA report which accompanies this application (see Section 4.4 – In Combination Screening for Cumulative Effects of document 24084-REP-02 MUL SISAA).

It was found that no proposed developments occurred within the CESS, as examined in the SISAA document that accompanies this report, as this is the case, it is believed that the potential for in-combination effects with other plans and projects is not likely to occur.

5 APPROPRIATE ASSESSMENT CONCLUSION

The SISAA document accompanying this Maritime Usage Licence Application identified that likely significant effects on 51 no. SACs and their QIs resulting from the proposed site investigation activities could not be screened out.

51 no. Natura 2000 sites were screened in for a Stage 2 AA (NIS). This NIS has examined and analysed, considering the best scientific knowledge available with respect to the sites screened in for a Stage 2 AA and the potential impact sources and pathways, how these activities could impact on the sites' Qualifying Interests (QIs) and whether the predicted impacts would adversely affect the integrity of these European sites. Implementing mitigation measures, as set out in Section 4, will ensure that any adverse effects on the conservation objectives of the sites assessed will be avoided during the activities proposed and that the integrity of the sites assessed will be maintained.

It is therefore concluded that the potential impacts from the proposed surveys are not likely to result in significant effects (alone or in-combination/cumulatively) on the Conservation Objectives of any Natura 2000 site and will not pose a risk of adversely affecting (either directly or indirectly) the integrity of any European site either alone or cumulatively with other plans or projects.

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APPENDIX A

SPECIFIC CONSERVATION OBJECTIVES FOR QUALIFYING INTERESTS

Ireland SACs

A.1 ROCKABILL TO DALKEY SAC (IE003000)

Conservation Objectives for: Rockabill to Dalkey Island SAC			
Harbour Porpoise (*Phocoena phocoena*) [1351]			
To maintain the favourable conservation condition of the harbour porpoise in Rockabill to Dalkey Island SAC, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use	See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour porpoise population at the site	See marine supporting document for further details.

A.2 LAMBAY ISLAND SAC (IE000204)

Conservation Objectives for: Lambay Island SAC (IE000204)			
Grey Seal (*Halichoerus grypus*) [1364]			
To maintain the favourable conservation condition of grey seal at Lambay Island SAC, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the SAC should not be restricted by barriers to site use.	See marine supporting document for further details.
Breeding behaviour	Breeding sites	Conserve the breeding sites in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, review of data from Summers (1983), Kiely et al. (2000), Lidgard et al. (2001), Lyons (2004), a comprehensive breeding survey in 2005 (Ó Cadhla et al., 2008) and unpublished NPWS records.
Moulting behaviour	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish populations research by Kiely et al.

Conservation Objectives for: Lambay Island SAC (IE000204)			
			2000), a national moult survey (Ó Cadhla and Strong, 2007) and unpublished NPWS records.
Resting behaviour	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition.	Attribute and target based on review data from Kielay et al. (2000), Lyons (2004), Cronin et al. (2004) and unpublished NPWS records. See marine supporting document for further details.
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the SAC	

A.3 HARBOUR PORPOISE – IRELAND SACS

Natura 2000 Sites have recently had some QIs updated to include Harbour Porpoise. However, there are no specific conservation objectives available currently for the following sites:		
Lambay Island SAC	Carnsore Point SAC	Belgica Mound Province SAC
Codling Fault Zone	Hook Head SAC	Inishmore Island SAC
Blackwater Bank SAC	Kenmare River SAC	West Connacht Coast SAC
Bundfuff Lough and Machair/Trawalua/Mullaghmore SAC	Gweedore Bay and Islands SAC	

A.4 ROARINGWATER BAY AND ISLANDS SAC (00101)

Conservation objectives for: Roaringwater Bay and Islands SAC (000101)			
1351 Harbour porpoise (Phocoena phocoena)			
To maintain the favourable conservation condition of Harbour Porpoise in Roaringwater Bay and Islands SAC, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be	

		restricted by artificial barriers to site use.	
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site	
Conservation Objectives for: Roaringwater Bay and Islands SAC (IE000707)			
Grey Seal (*Halichoerus grypus*) [1364]			
To maintain the favorable conservation condition of grey seal in **Roaring Bay and Islands SAC**, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	See marine supporting document for further details
Breeding behavior	Breeding sites	The breeding sites should be maintained in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, review of data from Kiely et al. (2000); Lidgard et al. (20001); Lyons (2004); a comprehensive breeding survey in 2005 (Ó Cadhla et al., 2007); unpublished National Parks and Wildlife Service records.
Moulting behavior	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish populations; research by Kiely et al. (2000); a national moult survey (Ó Cadhla and Strong, 2007); and unpublished National Parks and Wildlife Service records.
Resting behavior	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition.	Attribute and target based on review of data by Kiely (1998); Kiely et al (2000); Lyons (2004); Cronin et al. (2007); and unpublished National Parks and Wildlife Service records.
Population composition	Number of cohorts	The grey seal population occurring within this site should contain adult, juvenile and pup cohorts annually	Attribute and target based on review of data from Kiely (1998), Kiely et al. (2000), Lyons (2004), Ó Cadhla et al. (2007); Ó Cadhla and Strong (2007);
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the site.	See marine supporting document for further details

A.5 GLENGARRIFF HARBOUR AND WOODLAND SAC (IE000090)

Conservation Objectives for: Glengarriff Harbour and Woodland SAC (IE000090)			
Harbour Seal (*Phoca vitulina*) [1365]			
To maintain the favourable conservation condition of Harbour Seal in Glengarriff Harbour and Woodland SAC, which is defined by the following list of attributes and targets:			
To maintain the favorable conservation condition of common seal in the Glengarriff Harbour and Woodland SAC, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	See marine supporting document for further details.
Breeding behavior	Breeding sites	Conserve the breeding sites in a natural condition	Attribute and target based on background knowledge of Irish breeding populations, review of data summarised by Summers et al. (1980), Warner (1983), Harrington (1990), Lyons (2004), Heardman et al. (2006), Cronin (2007) and unpublished NPWS records. See marine supporting document for further details
Moulting behavior	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish populations, review of data from Lyons (2004), Cronin et al. (2004), Heardman et al. (2006), Cronin (2007), NPWS (2010, 2011, 2012), Duck & Morris (2013) and unpublished NPWS records. See marine supporting document for further details
Resting behavior	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish populations, review of data from Lyons (2004), Heardman et al. (2006), Cronin (2007), Cronin et al. (2008) and unpublished NPWS records. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour seal population at the SAC	See marine supporting document for further details

A.6 SALTEE ISLANDS SAC (IE000707)

Conservation Objectives for: Saltee Islands SAC (IE000707)			
Grey Seal (*Halichoerus grypus*) [1364]			
To maintain the favorable conservation condition of grey seal in **Saltee Islands SAC**, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	See marine supporting document for further details
Breeding behavior	Breeding sites	The breeding sites should be maintained in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, review of data from Kiely et al. (2000); Lidgard et al. (20001); Lyons (2004); a comprehensive breeding survey in 2005 (Ó Cadhla et al., 2007); unpublished National Parks and Wildlife Service records.
Moulting behavior	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish populations; research by Kiely et al. (2000); a national moult survey (Ó Cadhla and Strong, 2007); and unpublished National Parks and Wildlife Service records.
Resting behavior	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition.	Attribute and target based on review of data by Kiely (1998); Kiely et al (2000); Lyons (2004); Cronin et al. (2007); and unpublished National Parks and Wildlife Service records.
Population composition	Number of cohorts	The grey seal population occurring within this site should contain adult, juvenile and pup cohorts annually	Attribute and target based on review of data from Kiely (1998), Kiely et al. (2000), Lyons (2004), Ó Cadhla et al. (2007); Ó Cadhla and Strong (2007);
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the site	See marine supporting document for further details

A.7 BLASKET ISLANDS SAC (IE002172)

Conservation objectives for: BLASKET ISLANDS SAC (002172)
1351 Harbour porpoise (Phocoena phocoena)
To maintain the favourable conservation condition of Harbour Porpoise in Blasket Islands SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site	
Conservation Objectives for: BLASKET ISLANDS SAC (002172)			
Grey Seal (*Halichoerus grypus*) [1364]			
To maintain the favorable conservation condition of grey seal in **Blasket Islands SAC,** which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	See marine supporting document for further details
Breeding behavior	Breeding sites	The breeding sites should be maintained in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, comprehensive breeding surveys in 1996 (Kiely, 1998; Kiely and Myers, 1998), 2003 (Cronin and Ó Cadhla, 2004; Cronin et al., 2007), and 2005 (Ó Cadhla et al., 2008) and 2011 (Ó Cadhla et al., 2013) and unpublished NPWS records including those reported by Lyons (2004).
Moulting behavior	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish populations, on review of data from Kiely (1998) and Lyons (2004), a national moult survey (Ó Cadhla & Strong, 2007) and unpublished NPWS records.
Resting behavior	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition.	Attribute and target based on review data from Lyons (2004), Cronin et al. (2004), Duck and Morris (2013) and unpublished NPWS records.
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the site.	See marine supporting document for further details

A.8 SLANEY RIVER VALLEY SAC (IE000781)

Conservation Objectives for: Slaney River Valley SAC (IE000781)			
Harbour Seal (*Phoca vitulina*) [1365]			
To maintain the favourable conservation condition of Harbour Seal in Slaney River Valley SAC, which is defined by the following list of attributes and targets:			
To maintain the favorable conservation condition of common seal in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	See marine supporting document for further details.
Breeding behavior	Breeding sites	The breeding sites should be maintained in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, and review of data from unpublished National Parks & Wildlife Service records.
Moulting behavior	Moult haul-out sites	The moult haul-out sites should be maintained in a natural condition.	Attribute and target based on background knowledge of Irish populations, review of data from unpublished NPWS records
Resting behavior	Resting haul-out sites	The resting haul-out sites should be maintained in a natural condition.	Attribute and target based on background knowledge of Irish populations and unpublished NPWS records
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the common seal population at the site.	

A.9 SLYNE HEAD ISLANDS SAC (IE000328)

Conservation Objectives for: Slyne Head Islands SAC (000328)			
Grey Seal (*Halichoerus grypus*) [1364]			
To maintain the favorable conservation condition of grey seal in **Slyne Head Islands SAC,** which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	See marine supporting document for further details
Breeding behavior	Breeding sites	Conserve breeding sites in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, review of

Conservation Objectives for: Slyne Head Islands SAC (000328)			
Grey Seal (*Halichoerus grypus*) [1364]			
			data from Summers (1983), Lyons (2004), Ó Cadhla et al. (2005), a comprehensive breeding survey in 2005 (Ó Cadhla et al., 2008) and unpublished National Parks and Wildlife Service records. See marine supporting document for further details
Moulting behavior	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish populations, review of data from Ó Cadhla et al. (2006), a national moult survey (Ó Cadhla and Strong, 2007) and unpublished National Parks and Wildlife Service records. See marine supporting document for further details
Resting behavior	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition.	Attribute and target based on review of data from Lyons (2004), Cronin et al. (2004), Ó Cadhla et al. (2005) and unpublished National Parks and Wildlife Service records. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the site	See marine supporting document for further details

A.10 INISHBOFIN AND INISHARK SAC (IE000278)

Conservation Objectives for: Inishbofin and Inishark SAC (000278)			
Grey Seal (*Halichoerus grypus*) [1364]			
To maintain the favorable conservation condition of grey seal in **Inishbofin and Inishark SAC,** which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	See marine supporting document for further details
Breeding behavior	Breeding sites	Conserve breeding sites in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, comprehensive breeding surveys in 1995 (Kiely, 1998; Kiely and Myers, 1998), 1998 and 1999 (BIM, 2001), 2002 (Ó Cadhla and Strong, 2003) and 2005 (Ó Cadhla et al, 2008) and unpublished NPWS records,

Conservation Objectives for: Inishbofin and Inishark SAC (000278)			
Grey Seal (*Halichoerus grypus*) [1364]			
			including those reported by Lyons (2004). See marine supporting document for further details
Moulting behavior	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish populations, on review of data from Kiely (1998) and Lyons (2004), a national moult survey (Ó Cadhla and Strong, 2007) and unpublished NPWS records. See marine supporting document for further details
Resting behavior	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition.	Attribute and target based on review of data from Kiely (1998), BIM (2001), Lyons (2004), Cronin et al., (2004), Ó Cadhla et al, (2008) and unpublished NPWS records. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the site	See marine supporting document for further details

A.11 DUVILLAUN ISLANDS SAC (IE000495)

Conservation Objectives for: Duvillaun Islands SAC (000495)			
Grey Seal (*Halichoerus grypus*) [1364]			
To maintain the favorable conservation condition of grey seal in **Duvillaun Islands SAC SAC,** which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	See marine supporting document for further details
Breeding behavior	Breeding sites	Conserve breeding sites in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, comprehensive breeding surveys in 1995 (Kiely, 1998; Kiely and Myers, 1998), 1998 and 1999 (BIM, 2001), 2002 (Ó Cadhla and Strong, 2003) and 2005 (Ó Cadhla et al., 2008) and unpublished NPWS records including those reported by Lyons (2004). See marine supporting document for further details

Conservation Objectives for: Duvillaun Islands SAC (000495)			
Grey Seal (*Halichoerus grypus*) [1364]			
Moulting behavior	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, review of data from Kiely (1998) and Lyons (2004), a national moult survey (Ó Cadhla and Strong, 2007) and unpublished NPWS records. See marine supporting document for further details
Resting behavior	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition.	Attribute and target based on review data from Kiely (1998), BIM (2001), Lyons (2004), Cronin et al. (2004), Ó Cadhla et al. (2008) and unpublished NPWS records. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the site	See marine supporting document for further details

A.12 INISHKEA ISLANDS SAC (IE000507)

Conservation Objectives for: Inishkea Islands SAC (000507)			
Grey Seal (*Halichoerus grypus*) [1364]			
To maintain the favorable conservation condition of grey seal in **Inishkea Islands SAC,** which is defined by the following list of attributes and targets:			
Attribute	**Measure**	**Target**	**Notes**
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.	See marine supporting document for further details
Breeding behavior	Breeding sites	Conserve breeding sites in a natural condition.	Attribute and target based on background knowledge of Irish breeding populations, repeated breeding surveys in 1995, 1996 (Kiely, 1998; Kiely and Myers, 1998), 1998 and 1999 (BIM, 2001), 2002 (Ó Cadhla and Strong, 2003), 2003 (Cronin and Ó Cadhla, 2004; Cronin et al., 2007), 2005 (Ó Cadhla et al., 2008) and 2011 (Ó Cadhla et al., 2013), and unpublished NPWS records including those reported by Summers (1983) and Lyons (2004).

Conservation Objectives for: Inishkea Islands SAC (000507)			
Grey Seal (*Halichoerus grypus*) [1364]			
			See marine supporting document for further details
Moulting behavior	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition.	Attribute and target based on background knowledge of Irish populations, on review of data from Kiely (1998) and Lyons (2004), a national moult survey (Ó Cadhla and Strong, 2007) and unpublished NPWS records. See marine supporting document for further details
Resting behavior	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition.	Attribute and target based on review of data from Kiely (1998), BIM (2001), Lyons (2004), Cronin et al. (2004), Ó Cadhla et al. (2008), Duck and Morris (2013) and unpublished NPWS. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the site	See marine supporting document for further details

UK SACs

A.13 ISLES OF SCILLY COMPLEX SAC (UK0013694)

Conservation Objectives for: Isles of Scilly Complex SAC (UK0013694)	
Grey Seal (*Halichoerus grypus*) [1364]	
Annex II species present as a qualifying feature, but not a primary reason for site selection To avoid deterioration of the habitats of the grey seal or significant disturbance to the grey seal, thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to maintaining Favourable Conservation Status (FCS) for the UK grey seal. To ensure for grey seal that: subject to natural change, the following attributes are maintained or restored in the long term	
Attribute	Target
Species is a viable component of the site	Maintained or restored in the long term – subject to natural change
Disturbance	No significant disturbance of the species
Habitats and processes	Habitats and processes relevant to grey seal and its prey are maintained or restore in the long term – subject to natural change

A.14 BRISTOL CHANNEL APPROACHES SAC (UK0030396)

Conservation Objectives for: Bristol Channel Approaches SAC (UK0030396)	
Harbour porpoise [1351]	
To ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for harbour porpoise in UK waters.	
Attribute	**Target**
Species is a viable component of the site	Maintained or restored in the long term – subject to natural change.
Disturbance	No significant disturbance of the species.
Habitats and processes	Habitats and processes relevant harbour porpoise and its prey are maintained or restore in the long term – subject to natural change

A.15 PEMBROKESHIRE MARINE/SIR BENFRO FOROL SAC (UK13116)

Conservation Objectives for: Pembrokeshire Marine /Sir Benfro Forol SAC (UK13116)		
1364 Grey seal (*Halichoerus grypus*)		
To achieve favourable conservation status all the following, subject to natural processes, need to be fulfilled and maintained in the long-term. If these objectives are not met restoration measures will be needed to achieve favourable conservation status.		
Attribute	**Objective**	**Notes**
Population	Grey seals present within the site at any one time do not form a discrete population, but are centred (in terms of abundance) on the Pembrokeshire coast and are considered part of the SW England and Wales management unit. This population itself is not isolated but extends from SW Scotland to SW England and SE Ireland (individuals have been photographically recaptured among these regions and there are movements and exchanges with more distant populations (satellite tracked individuals have been tracked to/from France, west coast of Scotland and Ireland. Pup production from 1992 to 2008 in the Skomer MCZ remained fairly consistent with the expected natural fluctuations with an average of 208 pups. From 2009 to 2015 there has been a steady increase in pup production with the greatest increase being at the mainland sites, although in 2014 and 2015 increases at the island sites have also been recorded. Pup production for the past 3 years has shown the highest totals ever recorded with average production for 2013-15 at 357 pups.	Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. Populations should not be reduced as a consequence of human activity. An emerging phenomenon is the appearance of mortal spiral wounds thought to be caused by sudden traumatic events involving the strong rotational shearing force of a rotating blade. These injuries are consistent with the seals being drawn through a ducted propeller. The occurrence of 'corkscrew' injuries is a growing concern in the UK and such occurrences have recently been reported in Wales. A range of viral, bacterial and parasitic diseases are known to be endemic within seal populations but appear to have limited effect on healthy, unstressed, adult seals.
Range	Seals are widely distributed withinand travel far beyond the Pembrokeshire Marine SAC. Pupping takes place throughout the site on open coast in	Their range within the SAC and adjacent inter-connected areas is not constrained or hindered.

Conservation Objectives for: Pembrokeshire Marine /Sir Benfro Forol SAC (UK13116)		
	suitable habitat (i.e. physically accessible, remote and/or undisturbed rocky coast beaches, coves and caves) and the high proportion of use of sea caves by the south-west Wales population is a particularly unusual variation in breeding behaviour. The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing.The grey seal population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future.	There are appropriate and sufficient food resources within the SAC and beyond. The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing.
Supporting Habitat and Species	The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include distribution, extent, structure, function and quality of habitat and prey availability and quality. Moulting and resting haul-out sites are distributed throughout the site, though only a small number of sites are regularly used as haul-outs by large numbers of seals. Known winter moulting haul-outs and non-moulting / resting haul-outs are limited to offshore islands and remote, undisturbed and inaccessible rocky shores and beaches.	The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature, is appropriate for maintaining it in favourable condition and is secure in the long term.

A.16 LUNDY SAC (UK0013114)

Conservation Objectives for: Lundy SAC (UK0013114)	
Grey Seal (*Halichoerus grypus*) [1364]	
Annex II species present as a qualifying feature, but not a primary reason for site selection To avoid deterioration of the habitats of the grey seal or significant disturbance to the grey seal, thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to maintaining Favourable Conservation Status (FCS) for the UK grey seal. To ensure for grey seal that: subject to natural change, the following attributes are maintained or restored in the long term	
Attribute	Target
Species is a viable component of the site	Maintained or restored in the long term – subject to natural change
Disturbance	No significant disturbance of the species
Habitats and processes	Habitats and processes relevant to grey seal and its prey are maintained or restore in the long term – subject to natural change

A.17 NORTH ANGLESEY MARINE SAC (UK0030398)

Conservation Objectives for: North Anglesey Marine SAC (UK0030398)	
Harbour porpoise [1351]	
To avoid deterioration of the habitats of the harbour porpoise or significant disturbance to the harbour porpoise. Thus, to ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for harbour porpoise in UK waters.	
Attribute	**Target**
Species is a viable component of the site	Maintained or restored in the long term – subject to natural change.
Disturbance	No significant disturbance of the species.
Habitats and processes	Habitats and processes relevant harbour porpoise and its prey are maintained or restore in the long term – subject to natural change

A.18 WEST WALES MARINE / GORLLEWIN CYMRU FOROL SAC (UK0030397)

Conservation Objectives for: West Wales Marine / Gorllewin Cymru Forol SAC (UK0030397)	
Harbour porpoise [1351]	
To ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for harbour porpoise in UK waters.	
Attribute	**Target**
Species is a viable component of the site	Maintained or restored in the long term – subject to natural change.
Disturbance	No significant disturbance of the species.
Habitats and processes	Habitats and processes relevant harbour porpoise and its prey are maintained or restore in the long term – subject to natural change

A.19 NORTH CHANNEL SAC (UK0030399)

Conservation Objectives for: North Channel SAC (UK0030399)	
Harbour porpoise [1351]	
Ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for harbour porpoise in UK waters.	
Attribute	**Target**
Species is a viable component of the site	Maintained or restored in the long term – subject to natural change.

Disturbance	No significant disturbance of the species.
Habitats and processes	Habitats and processes relevant harbour porpoise and its prey are maintained or restore in the long term – subject to natural change

A.20 FRENCH SACS

Harbour Porpoise

Conservation Objectives for French SACs	
Harbour Porpoise (*Phocoena phocoena*)	
To maintain or restore species of Community interest and their functional habitats to a favourable conservation status. This objective is a commitment of the Habitats Directive. The aim is to monitor the evolution of the population of these species, limit their disturbance and maintain their functional habitat in a state of conservation favourable to their ecological requirements.	
Site Code	**Site Name**
FR5302015	Mers Celtiques - Talus du golfe de Gascogne
FR5302016	Récifs du talus du golfe de Gascogne
FR2502022	Nord Bretagne DH
FR5300018	Ouessant-Molène
FR5300017	Abers - Côte des légendes
FR5302007	Chaussée de Sein
FR5300015	Baie de Morlaix
FR5300009	Côte de Granit rose-Sept-Iles
FR5302006	Côtes de Crozon
FR5300010	Tregor Goëlo
FR2500084	Récifs et landes de la Hague
FR2502019	Anse de Vauville
FR5300011	Cap d'Erquy-Cap Fréhel
FR5300066	Baie de Saint-Brieuc - Est
FR2502018	Banc et récifs de Surtainville
FR5300012	Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard
FR2500079	Chausey
FR5300061	Estuaire de la Rance
FR2500077	Baie du Mont Saint-Michel

Bottlenose Dolphin

Conservation Objectives for French SACs	
Bottlenose Dolphin (*Tursiops truncatus*)	
To maintain or restore species of Community interest and their functional habitats to a favourable conservation status. This objective is a commitment of the Habitats Directive. The aim is to monitor the evolution of the population of these species, limit their disturbance and maintain their functional habitat in a state of conservation favourable to their ecological requirements.	
Site Code	**Site Name**
FR5302015	Mers Celtiques - Talus du golfe de Gascogne

Conservation Objectives for French SACs	
Bottlenose Dolphin (*Tursiops truncatus*)	
FR5302016	Récifs du talus du golfe de Gascogne
FR2502022	Nord Bretagne DH
FR5300018	Ouessant-Molène
FR5300017	Abers - Côte des légendes
FR5302007	Chaussée de Sein
FR5300015	Baie de Morlaix
FR5300009	Côte de Granit rose-Sept-Iles
FR5300010	Tregor Goëlo
FR2500084	Récifs et landes de la Hague
FR2502019	Anse de Vauville
FR5300011	Cap d'Erquy-Cap Fréhel
FR5300066	Baie de Saint-Brieuc - Est
FR2502018	Banc et récifs de Surtainville
FR5300012	Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard
FR2500079	Chausey
FR2500085	Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire
FR5300061	Estuaire de la Rance
FR2500077	Baie du Mont Saint-Michel
FR2502020	Baie de Seine occidentale
FR2502021	Baie de Seine orientale
FR2300139	Littoral Cauchois
FR2200346	Estuaires et littoral picards (baies de Somme et d'Authie)
FR3100478	Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et Dunes de Wissant

APPENDIX B

MITIGATION MEASURES TO PREVENT HARM TO ANNEX II SPECIES ASSESSED IN THE SUPPORTING INFORMATION PROVIDED FOR STAGE 2 APPROPRIATE ASSESSMENT

In line with best practice guidelines 'Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters' from DAHG (2014), which are now being incorporated into the standard operating procedures of all noise emitting surveys in Irish waters, the measures detailed below will be applied to where possible prevent and if not reduce injury and disturbance to Annex II species during all noise emitting site investigation activities. Note, if any updated guidelines are issued prior to site investigation activities these would be followed.

6.1 MARINE MAMMAL MONITORING

A qualified and experienced Marine Mammal Observer (MMO) will be appointed to monitor for marine mammals and to log all relevant events using standardised data forms provided by the DAHG (2014). In addition to this, a Passive Acoustic Monitoring (PAM) Operator will be used as a complementary measure in order to optimise marine mammal detection around the study site. Therefore, continuous visual and passive acoustic monitoring will be conducted during daylight hours to monitor for the presence of marine mammals. In the case where survey activities will continue into hours of darkness, PAM will continue to be used. In the event of initiation of acoustic input into the marine environment, and any species are detected within the relevant mitigation zone, a delay in the commencement of acoustic input will be implemented (see below).

6.1.1 PRE-START MONITORING

Marine mammal monitoring will be conducted for a pre soft-start search of at least 30 minutes i.e. prior to the commencement of marine operations which may impact detrimentally upon marine mammals. This will involve both a dedicated visual observation (required under DAHG 2014) and acoustic monitoring (complementary measure) to determine if any marine mammals are within the relevant zone of mitigation.

6.1.2 MITIGATION ZONE

For geophysical acoustic surveys the radial distance of 1,000m from the sound source intended for use is designated as the mitigation zone (DAHG 2014).

6.1.3 SOFT START

A soft start is the gradual ramping of power over a set period of time, to give any Annex IV species adequate time to leave the area.

If marine mammals are detected within the mitigation zone prior to soft start commencement (guidelines suggest visually, but we will also include acoustically as it has become best practice), the soft start must be delayed until their passage, or the transit of the vessel, results in them being outside of the mitigation zone. A minimum delay of 20 minutes is required between the last detection within the mitigation zone and the start of the soft start. This delay allows animals that were not detected (i.e., those that did not resurface within that time) to move outside of the mitigation zone.

Once the soft start commences, there is no requirement to halt or discontinue the procedure at night-time, if weather or visibility conditions deteriorate, or if Annex IV marine mammal species enter the mitigation zone.

In commencing a geophysical survey operation, including any testing of seismic sound sources, where the output peak sound pressure level exceeds 170 dB re: 1µPa @1m, the following ramp up procedure will be undertaken in line with the DAHG (2014) guidance:

a) Energy output will commence from a low energy start-up (e.g. increasing the number of airguns starting with the smallest airgun in the array or increasing the airgun pressure) and be allowed to gradually build up to the necessary maximum output over a period of 20-40 minutes (the exact time period will be dependent on the equipment being used and will be designed in consultation with an experienced marine ecologist). A 'soft start' (from commencement of soft start to commencement of the line) should take no longer than 40 minutes.

b) This controlled build-up of energy output will occur in consistent stages to provide a steady and gradual increase over the ramp-up period.

c) If marine mammals enter or are detected within the mitigation zone while the ramp-up procedure is under way but incomplete, the energy output will not be increased until the marine mammals are no longer within the mitigation zone.

6.1.4 LINE CHANGES

Geophysical data is typically collected along predetermined survey lines. "Line change" or "line turn" refers to the process of turning the vessel at the end of one survey line prior to commencement of the next.
Geophysical techniques such as seismic surveys that involve extensive towed streamers,generally exceed 40-minutes for completing line changes (Stone, 2015).

Given the characteristics of the proposed streamers as outlined in Section 2.2 of the AIMU report, it is anticipated that survey line or station changes will exceed a 40-minute duration. Consequently, under the current guidelines (DHAG 2014) the following procedures will need to be undertaken:

- The sound source activity will, on completion of the line/station being surveyed, need to be terminated.
- Prior to the start of the next line/station, all pre-survey monitoring measures and soft start procedures will be followed as for start-up (Sections 6.1.1 and 6.1.4).

Where the duration of a survey line/station change is less than 40 minutes the activity will continue as normal.

6.1.5 AIRGUN TESTING

Airgun tests may be necessary to trial new equipment or to evaluate repaired or misfiring airguns. Such tests can involve one or more airguns and may be conducted at different power levels. Where feasible, airgun testing will be incorporated into the soft start procedure and conducted before the start of a survey line to reduce the total amount of noise being introduced into the marine environment.

6.1.6 BREAKS IN THE SURVEY PERIODS

If there is a break in sound output from survey equipment for a period greater than 10 minutes (e.g., due to equipment failure, shut-down, survey line/station change) then all pre-start monitoring measures and ramp-up procedures will recommence prior to re-starting.
Unplanned breaks of less than 10 minutes will not require a soft start and firing can recommence at the same power level as at prior to the break (or lower), provided no marine mammals have been detected in the mitigation zone during the breakdown period. When marine mammals are detected, the MMO operator will advise to delay recommencement of activities as outlined in Section 6.1.4.

6.1.7 REPORTING

All recordings of Annex IV marine mammal species will be made using standardised data forms provided by the NPWS. Full reporting on operations and mitigation will be provided to the NPWS to facilitate reporting under Article 17 of the EC Habitats Directive and future improvements to guidance (DAHG, 2014). The report will also include feedback on how successful the measures were. This requirement will be communicated to the MMOs at project start up meetings and at crew change.

6.1.8 SURVEY VESSELS SPEED

The project survey vessels will be moving at a speed of approximately 5 knots during surveys to allow marine mammal species to move away from the vessel should they be disturbed by the vessel presence or noise emissions.

GLOBAL PROJECT REACH

Offices

Dublin (Head Office)
Gavin & Doherty Geosolutions
[redacted]

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Gavin & Doherty Geosolutions (UK) Limited
[redacted]

Cork
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Edinburgh
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