

SUPPORTING INFORMATION FOR SCREENING FOR APPROPRIATE ASSESSMENT

Foynes Island: Marine Site Investigations



NI2542 Foynes Island
Marine SI
SISAA
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1 INTRODUCTION

With the introduction of the Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitat and of wild fauna and flora) came the obligation to establish the Natura 2000 network of Sites of Community Interest (SCIs), comprising a network of areas of highest biodiversity importance for rare and threatened habitats and species across the European Union (EU).

In Ireland, the Natura 2000 network of sites comprises Special Areas of Conservation (SACs, including candidate SACs) designated under domestic legislation transposing Directive 92/43/EEC, and Special Protection Areas (SPAs, including proposed SPAs) classified under the Birds Directive (Council Directive 2009/147/EC on the conservation of wild birds) and designated under the same domestic legislation.

SACs are designated for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are designated for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is designated correspond to the qualifying interests of the sites; from these the conservation objectives of the site are derived.

SACs and SPAs make up the pan-European network of Natura 2000 sites. It should be noted that 'European sites' are defined in Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended ('the 2011 Regulations').

1.1 Appropriate Assessment

1.1.1 The Habitats Directive

A key protection mechanism in the Habitats Directive is the requirement to subject plans and projects to Appropriate Assessment (AA) in line with the requirements of Article 6(3) of the Habitats Directive, which requires that–

Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and if appropriate, after having obtained the opinion of the general public.

Thus, Article 6(3) defines a step-wise procedure for considering plans and projects:

- The first part of this procedure consists of a preliminary 'screening' stage to determine whether, firstly, the plan or project is directly connected with or necessary to the management of the site, and secondly, whether it is likely to have a significant effect on the site; it is governed by the first sentence of Article 6(3).
- The second part of the procedure, governed by the second sentence of Article 6(3), relates to the appropriate assessment and the decision of the competent national authorities.

1.1.2 Domestic Transposition

1.1.2.1 Screening

Regulation 42 of the 2011 Regulations requires *inter alia* that screening for appropriate assessment of a project for which an application for consent is received, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.

A screening for appropriate assessment of an application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that proposed development, individually or in combination with another plan or project is likely to have a significant effect on a European site.

1.1.2.2 Appropriate Assessment

Regulation 42 of the 2011 Regulations requires *inter alia* that a public authority shall determine that an appropriate assessment of a project is required where the project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening that the project, individually or in combination with other plans or projects, will have a significant effect on a European site.

An appropriate assessment carried out by the competent authority shall include a determination under Article 6(3) of the Habitats Directive as to whether or not a proposed development would adversely affect the integrity of a European site and an appropriate assessment shall be carried out by the competent authority where it has made a determination under section 42(1) of the 2011 Regulations that an appropriate assessment is required, before consent is given for the proposed development.

1.1.3 The Appropriate Assessment Procedure

According to European Commission guidance documents ‘Assessment of plans and projects in relation to Natura 2000 sites’ (EC, 2021); ‘Guidance document on wind energy developments and EU nature legislation’ (EC, 2020); and ‘Managing Natura 2000 sites: The Provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC’ (EC, 2019); the obligations arising under Article 6 establish a step-wise procedure as illustrated in Figure 1.1.

The first part of this procedure consists of a pre-assessment stage (‘screening’) to determine whether, firstly, a plan or project is directly connected with or necessary to the management of the site, and secondly, whether it is likely to have a significant effect on the site; it is governed by Article 6(3), first sentence.

The second part of the procedure, governed by Article 6(3), second sentence, relates to the appropriate assessment and the decision of the competent national authorities.

A third part of the procedure (governed by Article 6(4)) comes into play if, despite adverse effects on the integrity of the site concerned, it is proposed not to reject a plan or project but to give it further consideration. In this case Article 6(4) allows for derogations from Article 6(3) under certain conditions.

The extent to which the sequential steps of Article 6(3) applies to a given plan or project depends on several factors, and in the sequence of steps, each step is influenced by the previous step. The order in which the steps are followed is therefore essential for the correct application of Article 6(3).

Each step determines whether a further step in the process is required. If, for example, the conclusion at the end of a Habitats Directive stage one screening appraisal is that significant effects on European sites can be excluded in the absence of any best practice or targeted measures intended to avoid or reduce the harmful effects of the proposed development on European sites, there is no requirement to proceed to the next step.

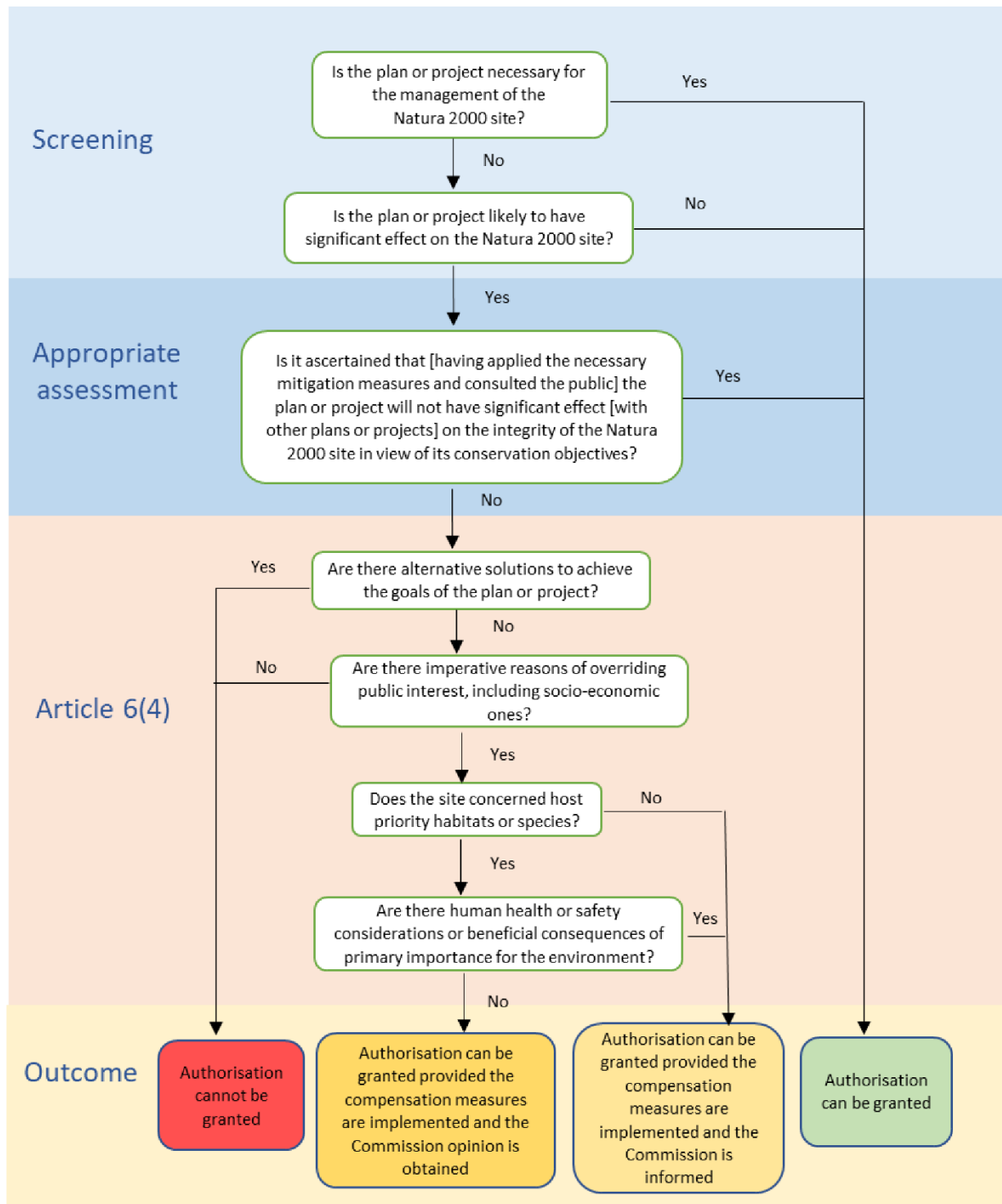


Figure 1.1: Step-wise procedure of Article 6 of the Habitats Directive (from EC, 2021)

1.2 Document Structure

1.2.1 Objective of the Document

The purpose of this document which contains information to support screening for appropriate assessment (supporting information for screening for appropriate assessment or 'SISAA') is to provide the competent authority with information to assist them in carrying out a screening for appropriate assessment of the implications of the proposed marine site investigation works project at Foynes Island on European sites in view of their conservation objectives.

This exercise has been conducted on behalf of Shannon Foynes Port Company in support of an application to the Maritime Area Regulatory Authority (MARA) under the Maritime Area Planning Act 2021.

This SISAA report seeks to assist MARA as a public authority under the 2011 Regulations in fulfilling its obligations to conduct a screening for appropriate assessment, and where applicable, an appropriate assessment.

1.2.2 Methodology and Guidance

Section 2 of the SISAA report, sets out the methodology followed and guidance documents used in conducting a screening appraisal for appropriate assessment and subsequent appraisal for appropriate assessment of the implications of the proposed development on European sites.

1.2.3 Proposed Development

Section 3 of the SISAA report describes the proposed development, the general methodology sequence and activities to be undertaken.

1.2.4 Information for Stage 1 Screening Appraisal

Section 4 of the SISAA report contains a preliminary examination and analysis to understand whether or not the proposed development is likely to have a significant effect on any European site. This is the information for screening appraisal for appropriate assessment. It has been undertaken in view of best scientific knowledge, in light of the Conservation Objectives of the sites concerned and considers the proposed development individually or in combination with other plans and projects. In accordance with EC guidance and settled case law of the CJEU, measures intended to avoid or reduce the harmful effects of the proposed development on European sites, (i.e. "mitigation measures") or best practice measures have not been taken into account in the screening stage appraisal.

2 METHODOLOGY

2.1 Published guidance on Appropriate Assessment

Appropriate Assessment Guidelines for Planning Authorities have been published by the Department of the Environment Heritage and Local Government ([DEHLG, 2010a](#)) and more recently by the Office of the Planning Regulator Practice Note (PN01) ([OPR, 2021](#)). In addition to the advice available from the Department, the European Commission has published a number of documents which provide a significant body of guidance on the requirements of Appropriate Assessment, most notably including Notice C(2021) 6913 'Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC', which sets out the principles of how to approach decision making during the process. These principal national and European guidelines have been followed in the preparation this SISAA report. The following list identifies these and other pertinent guidance documents:

- Communication from the Commission on the Precautionary Principle., Office for Official Publications of the European Communities, Luxembourg (EC, 2000);
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Luxembourg (EC, 2001);
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission. Office for Official Publications of the European Communities, Luxembourg (EC, 2007);
- Estuaries and Coastal Zones within the Context of the Birds and Habitats Directives - Technical Supporting Document on their Dual Roles as Natura 2000 Sites and as Waterways and Locations for Ports. Office for Official Publications of the European Communities, Luxembourg (EC, 2009);
- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin (DEHLG, 2010a);
- Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities, Dublin (DEHLG, 2010b);
- Guidance document on the implementation of the birds and habitats directive in estuaries and coastal zones with particular attention to port development and dredging. Office for Official Publications of the European Communities, Luxembourg (EC, 2011a);
- European Commission Staff Working Document 'Integrating biodiversity and nature protection into port development', Office for Official Publications of the European Communities, Luxembourg (EC, 2011b);
- European Commission Note on Setting Conservation Objectives for Natura 2000 Sites, Office for Official Publications of the European Communities, Luxembourg (EC, 2012);
- Marine Natura Impact Statements in Irish Special Areas of Conservation: A working document, National Parks and Wildlife Service, Dublin (NPWS, 2012);
- Interpretation Manual of European Union Habitats. Version EUR 28. Office for Official Publications of the European Communities, Luxembourg (EC, 2013a);
- Guidelines on Climate Change and Natura 2000. Office for Official Publications of the European Communities, Luxembourg (EC, 2013b);

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- Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects. Department of Communications, Climate Action and Environment, Dublin (DCCAE, 2017);
 - European Commission Notice C(2018) 7621 'Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC', Office for Official Publications of the European Communities, Luxembourg (EC, 2019);
 - Institute of Air Quality Management 'A guide to the assessment of air quality impacts on designated nature conservation sites (Version 1.1)', London (IAQM, 2020);
 - European Commission Notice C(2020) 7730 'Guidance document on wind energy developments and EU nature legislation', Office for Official Publications of the European Communities, Luxembourg (EC, 2020);
 - Office of the Planning Regulator Practice Note (PN01) 'Appropriate Assessment Screening for Development Management', Dublin (OPR, 2021);
 - European Commission Notice C(2021) 6913 'Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC', Office for Official Publications of the European Communities, Luxembourg (EC, 2021); and
 - European Commission Guidance document on Assessment of plans and projects in relation to Natura 2000 sites - A summary, Office for Official Publications of the European Communities, Luxembourg (EC, 2022).

2.2 Likely Significant Effect

The Commission's 2018 Notice (EC, 2019) advises that the appropriate assessment procedure under Article 6(3) is triggered not by the certainty but by the likelihood of significant effects, arising from plans or projects regardless of their location inside or outside a protected site. Such likelihood exists if significant effects on the site cannot be excluded. The significance of effects should be determined in relation to the specific features and environmental conditions of the site concerned by the plan or project, taking particular account of the site's conservation objectives and ecological characteristics.

The threshold for a Likely Significant Effect ("LSE") is treated in the screening exercise as being above a *de minimis* level. A *de minimis* effect is a level of risk that is too small to be concerned with when considering ecological requirements of an Annex I habitat or a population of Annex II species present on a European site necessary to ensure their favourable conservation condition. If low level effects on habitats or individuals of species are judged to be in this order of magnitude and that judgment has been made in the absence of reasonable scientific doubt, then those effects are not considered to be LSEs.

The analysis involved in a Stage 1 screening appraisal for Appropriate Assessment is described in EC (2021) as comprising four steps:

- ascertaining whether the plan or project is directly connected with or necessary to the management of a Natura 2000 site;
- identifying the relevant elements of the plan or project and their likely impacts;
- identifying which (if any) Natura 2000 sites may be affected, considering the potential effects of the plan or project alone or in combination with other plans or projects;
- assessing whether likely significant effects on the Natura 2000 site can be ruled out, in view of the site's conservation objectives.

Case law of the Court of Justice of the European Union (CJEU) has confirmed that a significant effect is triggered when:

- there is a probability or a risk of a plan or project having a significant effect on a European site;
- the plan is likely to undermine the site's conservation objectives; and
- a significant effect cannot be excluded on the basis of objective information.

EC (2021) defines a LSE as being “any effect that may reasonably be predicted as a consequence of a plan or project that would negatively and significantly affect the conservation objectives established for the habitats and species significantly present on the Natura 2000 site. This can result from either on-site or off-site activities, or through combinations with other plans or projects”.

The requirement that the effect in question be ‘significant’ exists in order to lay down a *de minimis* or negligible threshold – thus, plans or projects that have no appreciable or imperceptible effects on the site are thereby excluded.

2.3 Mitigation Measures

In determining whether or not likely significant effects will occur or can be excluded in the Stage 1 appraisal, measures intended to avoid or reduce the harmful effects of the proposed development on European sites, (i.e. “mitigation measures”) or best practice measures have not been taken into account in this screening stage appraisal. This approach is consistent with up-to-date EU guidance (EU,2019; EC,2021; EC, 2022) and the case law of the Court of Justice of the European Union (CJEU).

EC (2001) states that “project and plan proponents are often encouraged to design mitigation measures into their proposals at the outset. However, it is important to recognise that the screening assessment should be carried out in the absence of any consideration of mitigation measures that form part of a project or plan and are designed to avoid or reduce the impact of a project or plan on a Natura 2000 site”. This direction in the European Commission’s guidance document is unambiguous in that it does not permit the inclusion of mitigation at screening stage.

In April 2018, the Court of Justice of the European Union issued a ruling in case C-323/17 *People Over Wind & Peter Sweetman v Coillte Teoranta* (“People Over Wind”) that Article 6(3) of Directive 92/43/EEC must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site.

The judgment in *People Over Wind* is reaffirmed in up-to-date EC guidance documents which refers to CJEU Case C-323/17.

2.4 Consideration of *ex-situ* effects

EC (2019) advises that Member States, both in their legislation and in their practice, allow for the Article 6(3) safeguards to be applied to any development pressures, including those which are external to European sites but which are likely to have significant effects on any of them.

The CJEU developed this point when it issued a ruling in case C-461/17 (“*Brian Holohan and Others v An Bord Pleanála*”) that determined inter alia that Article 6(3) of Directive 92/43/EEC must be interpreted as meaning that an appropriate assessment must on the one hand, catalogue the entirety of habitat types and species for which a site is protected, and, on the other, identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed, and the

implications for habitat types and species to be found outside the boundaries of that site, provided that those implications are liable to affect the conservation objectives of the site.

In that regard, consideration has been given in this Habitats Directive appraisal to implications for habitats and species located both inside and outside of the European sites considered in the screening appraisal with reference to those sites' Conservation Objectives where effects upon those habitats and/or species are liable to affect the conservation objectives of the sites concerned.

2.5 Conservation Objectives

The conservation objectives for each European site are to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the site has been selected. The favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing;
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- the conservation status of its typical species is favourable.

The favourable conservation status (or condition, at a site level) of a 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;
- 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.

EC (2022) advises that an assessment should be done for all of the designating features (species, habitat types) that are significantly present on the site (habitats and species with A, B or C, but not D, site assessment in the Standard Data Form for the site) in view of their conservation objectives. EC (2022) additionally notes that *“the lack of site-specific conservation objectives or the establishment of conservation objectives, which are not in line with the required standard, as specified in the Commission note on “Setting conservation objectives of Natura 2000 sites” (EC, 2012), jeopardises compliance with the requirements of Article 6(3)”*.

2.5.1 Site-Specific Conservation Objectives

NPWS began preparing detailed Site-Specific Conservation Objectives (SSCOs) for European sites in 2011. The European sites within the Shannon Estuary in closest proximity to the proposed development which are considered in some detail in this SISAA report have all had SSCO set. The published SSCO documents are as described in Section 4.1 of this document.

The published SSCO documents note that an appropriate assessment based on the most up to date conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.

The most up-to-date Conservation Objectives for the European sites being considered, and details in relation to the Qualifying Interests and Special Conservation Interests of these European sites is based on publicly available data on these European Sites, sourced from the [NPWS website](#) in June 2023.

2.5.2 In-combination Effects

Article 6(3) of the Habitats Directive requires that in-combination effects with other plans or projects are also considered. As set out in the Commission's 2018 Notice (EC, 2019), significance will vary depending on factors such as magnitude of impact, type, extent, duration, intensity, timing, probability, cumulative effects and the vulnerability of the habitats and species concerned. Whilst the Directive does not explicitly define which other plans and projects are within the scope of the in-combination provision of Article 6(3), it is important to note that the underlying intention of this provision is to take account of cumulative impacts, and these will often only occur over time.

In that context, one can consider plans or projects which are completed, approved but uncompleted, or proposed. EC (2019) specifically advises [on p43] that *"as regards other proposed plans or projects, on grounds of legal certainty it would seem appropriate to restrict the in-combination provision to those which have been actually proposed, i.e. for which an application for approval or consent has been introduced"*.

EC (2021) additionally advises that:

- an in-combination assessment is often less detailed at the screening stage than in the appropriate assessment;
- there is still a need to identify all other plans or projects that could give rise to cumulative impacts with the plan or project in question and
- if this analysis cannot reach definitive conclusions, it should at least identify any other relevant plans and projects that should be scrutinised in more detail during the appropriate assessment.

3 THE PROPOSED DEVELOPMENT

3.1 Wider Context

The proposed development is limited to proposed marine site investigation (SI) works within a number of areas surrounding Foynes Island, Foynes, Co. Limerick. The site boundary of the works is illustrated in Figure 3.1.

The scale of the SI works is commensurate with the level of detail required to facilitate the preliminary and detailed design and environmental assessment of the development for the Planning and Marine Area Consent (MAC) applications of the wider proposed project which comprises the development of a new deepwater port at Foynes Island.

The quantity of boreholes required is based on the requirement for the following infrastructure within the wider port development proposals:

- 800m long open pile quay structure;
- Reclamation behind the full length of the quay structure;
- Bridge landing position moved to the north of the orchard on the Island; and
- Road corridor notionally amended to meet new bridge landing point.

Boreholes/assumed depths may be refined further by site surveys, subsequent design changes and requirements arising as a result of the environmental assessment.

3.2 Marine Geophysical Survey

A marine geophysical survey will be carried out and will cover the full area of the development footprint under water (where accessible). The aims of the survey are to:

- Identify and map potential geohazards;
 - Identify and map potential archaeological sites and features;
 - Facilitate the development of a ground model in support of the wider design; and
 - Provide data and information in support of Environmental Impact Assessment.
- A range of instruments will be deployed for this survey including:
- GNSS positioning;
 - Motion Reference Unit;
 - Multibeam Echosounder;
 - Sound Velocity Profiler;
 - Sub-bottom Profiler, chirp;
 - Side-scan Sonar, dual frequency, low and high;
 - Magnetometer, caesium;
 - Navigation, acquisition and processing suite;
 - Post-processing navigation suite; and
 - Charting software.

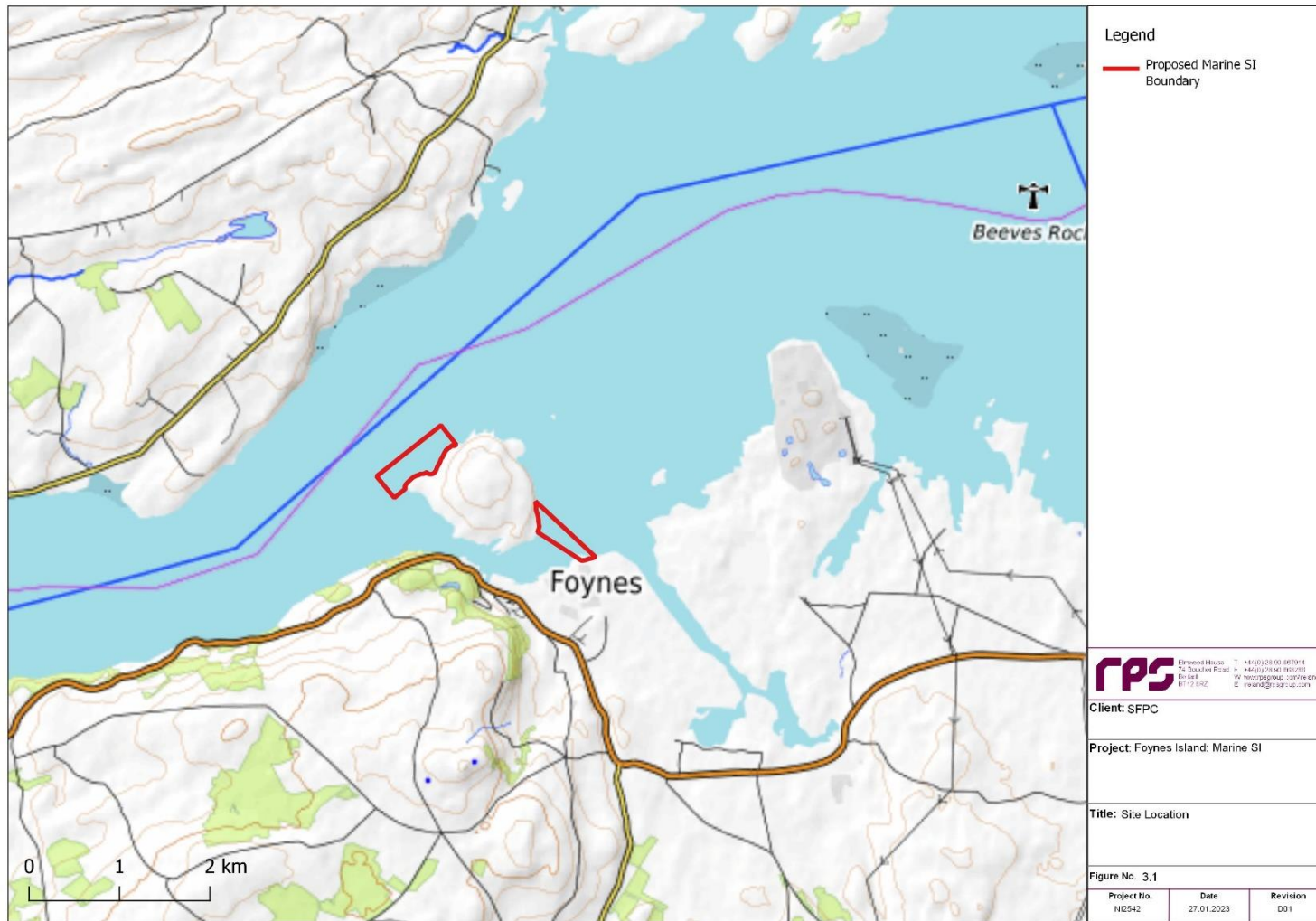


Figure 3.1: Location of the proposed Marine SI Works

The survey will be undertaken by a competent and experienced marine hydrographer and will use a Department of Marine licenced survey vessel capable of accessing all survey areas at high water. Main lines will be spaced at 20m apart in shallow waters, increasing to 50m spacing in deeper water. Cross lines will be spaced at 200m apart. Additional infill lines in shallow areas may be required to allow for full device-suite coverage at 100% and greater, thus ensuring there are no data gaps.

3.3 Marine Site Investigations

Proposed marine SI works include the follow main components over 2 phases, phase 1 planning to inform preliminary design and environmental assessment and phase 2 to inform detailed design

AREA 1 – Piled Quay and Reclamation Area Geotechnical Boreholes

- 71nr. boreholes in Phase 1 Q1/Q2 2024
- 62nr. boreholes in Phase 2 2026 for approximately 16 weeks

AREA 2 – Bridge Crossing Area Geotechnical Boreholes

- 8nr. boreholes in Phase 1
- 22nr. boreholes in Phase 2

3.3.1 Boreholes

The proposed borehole locations are illustrated at Figure 3.2.

Boreholes will consist of cable percussion drilling through soft estuarine overburden, with follow-on rotary coring for recovery of firm granular/till material and bedrock.

The boreholes are to be drilled firstly using cable percussive techniques. If rock is to be penetrated, then rotary drilling will follow on. The machinery to be used is approximately 2m tall when it is in transit and approximately 7m tall when the borehole is being driven. The machinery will be supported by a suitable jack-up barge. A typical jack-up barge arrangement will be similar to that shown in Figure 3.3.

For each borehole the footprint of the works on the foreshore will be four approximately 1 m² legs of the jack-up barge and the 200mm (8") temporary steel casing. The 200mm steel casing is the diameter of the borehole.

There will be no permanent structures, all site investigation will be facilitated by temporary works. The moving marine plant will remain on site for the duration of the works.

Associated sampling and testing (both in-situ and geotechnical/geo-environmental laboratory testing).

Proposed marine SI works will not require access to Foynes Island itself and will be conducted entirely from vessels within the marine environment.

3.3.2 Surface Grab Sample

It is proposed to collect surface grab samples from 16 locations within the immediate footprint of the proposed development. It is expected that 12 of these sample locations will occur in the subtidal area, and 4 locations in the intertidal area. In addition, a subtidal reef habitat has been identified along the centre of the main Shannon channel which is immediately adjacent to the development. It is expected that 10 drop down video locations will be surveyed within and adjacent to this reef community. A walkover survey will be undertaken on the hard-benthos intertidal areas within and immediately adjacent to the footprint of the hardstand area.

It is proposed to collect benthic faunal samples from 8 locations within the vicinity of the proposed bridge location. It is expected that 5 of these sample locations will occur in the subtidal area and 3 will occur in the intertidal area at the southern landfall point of the bridge. A walkover survey will be undertaken along the hard-benthos intertidal areas at both landfall locations of the bridge.

Subtidal sampling will involve the following:

- Single 0.1m² grab samples collected at each of the subtidal sampling stations;
- An additional grab will be collected for Grainsize and Loss on Ignition;
- Ancillary information will be recorded on pre-prepared data record sheets;
- Samples will be positioned using the vessel's GPS. Sample positions will be recorded when on site;
- Photographs will be taken of each sample; and
- Drop down video footage will be collected from circa 5-10 locations within and adjacent to an extensive reef area located within Lower Shannon SAC.
- Intertidal sampling will include the following:
 - Single stove-pipe core (0.028m²) will be collected at each intertidal sample station;
 - A surface scrape will be collected at each site;
 - Ancillary information will be recorded on pre-prepared data record sheets;
 - Samples will be positioned using a hand-held GPS. Sample positions will be recorded when on site; and
 - Photographs of the site will be collected at each location.

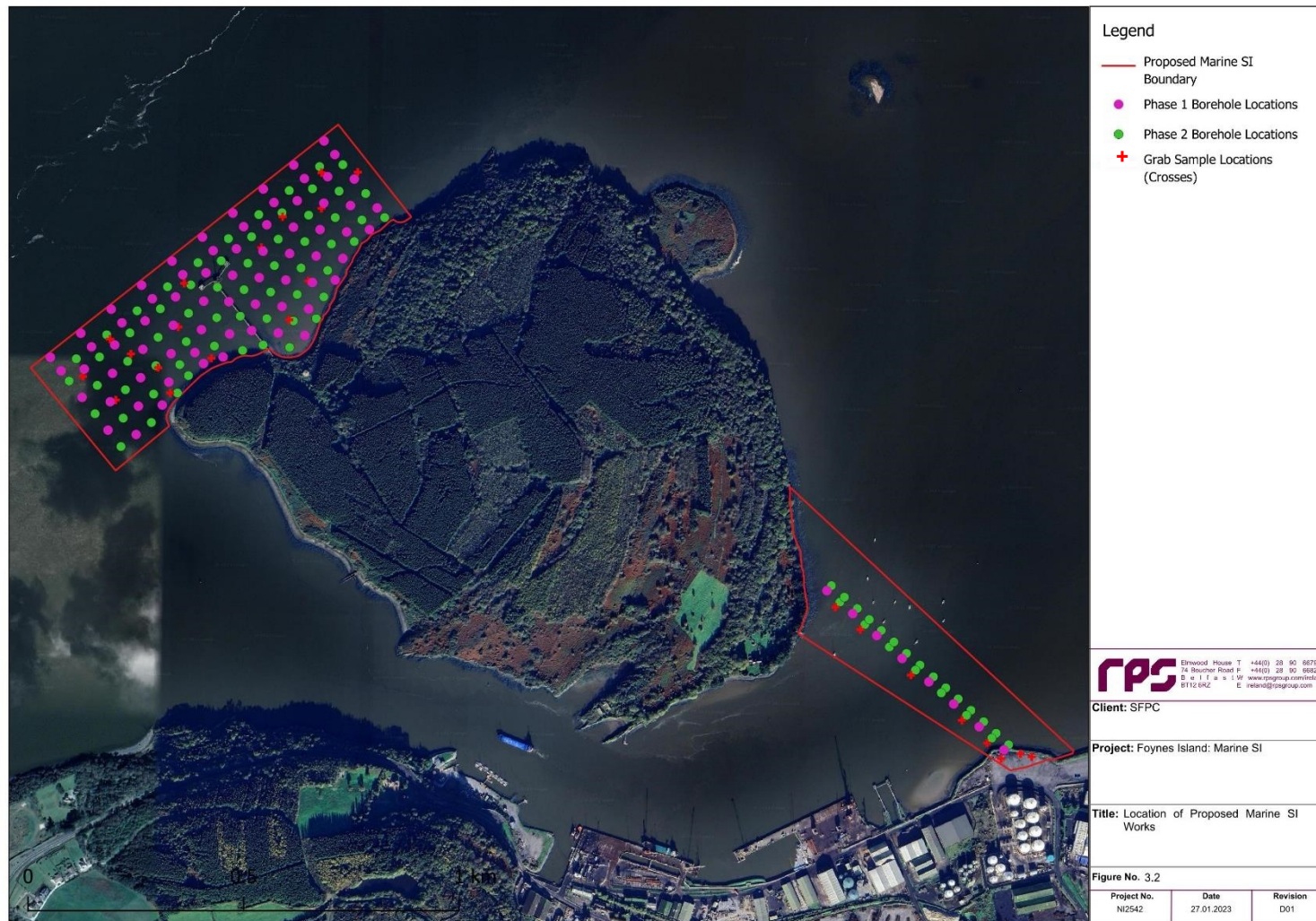


Figure 3.2: Location of the proposed Marine SI Boreholes



Figure 3.3: Typical Jack-up Barge Arrangement for Marine SI Works

4 STAGE 1 SCREENING APPRAISAL FOR APPROPRIATE ASSESSMENT

4.1 Directly Connected with or Necessary to the Management of the Site

The proposed works, which are limited to marine SI works to inform the design of a proposed deep-water port and associated infrastructure at Foynes Island, with this proposed port representing an expansion of the existing Shannon Foynes Port Company infrastructure.

On this basis, the proposed development is not directly connected with or necessary to the management of any site as a European Site.

4.2 European Sites in proximity to Foynes Island

A screening exercise must be undertaken by the competent authority to determine whether, firstly, the plan or project is directly connected with or necessary to the management of the site, and secondly, whether it is likely to have a significant effect on the site; it is governed by the first sentence of Article 6(3).

In addition, the provisions of national legislation, such as Regulation 42 of the 2011 Regulations make clear that screening for appropriate assessment of an application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.

This screening assessment considers European sites designated under European Council Directives 92/43/EEC and 2009/147/EC. The proposed development will be screened against those European sites in order to appraise whether it is likely to have a significant effect on the site.

The most up-to-date Conservation Objectives for the European sites under consideration, and details in relation to the Qualifying Interests and Special Conservation Interests of these European sites are provided in Table 4.1.

The information contained in these tables is based on publicly available data on these European Sites and their Conservation Objectives, sourced from NPWS in January 2023.

Candidate SACs (“cSACs”), SACs and SPAs described in Table 4.1 are illustrated in Figure 4.1.

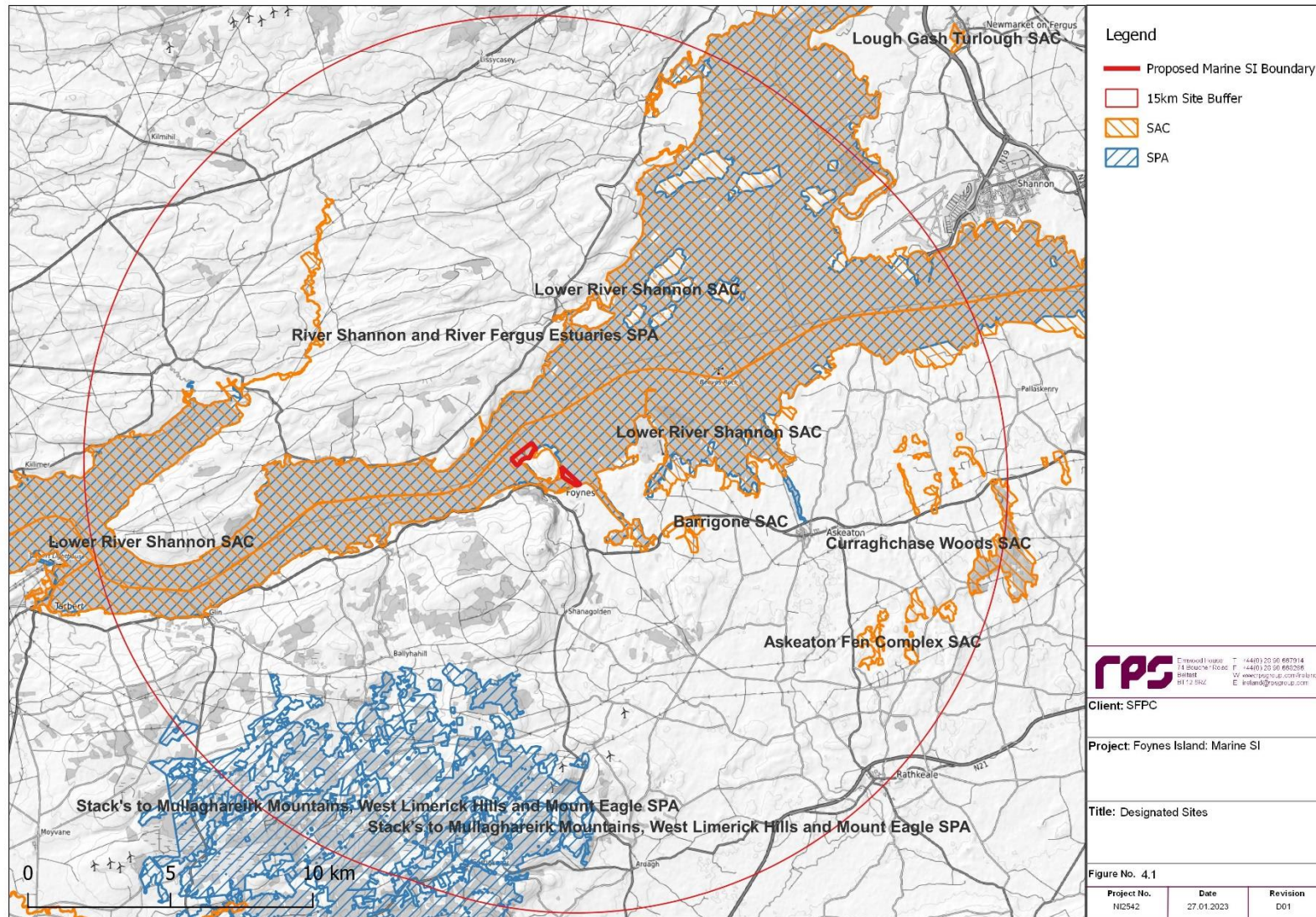


Figure 4.1: European Sites considered in the Screening Assessment

Table 4.1: Qualifying Interests and Conservation objectives of European sites considered

Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project																					
IE002165	Lower River Shannon SAC	<p>Conservation Objectives Specific Version 1.0 (07/08/12) To maintain the favourable conservation condition of the 14 no. Annex I habitat types in the SAC, as defined by a range of attributes and targets; and of 7 no. Annex II species in the SAC, as defined by a range of attributes and targets.</p> <p>Annex I Habitats Sandbanks which are slightly covered by seawater all the time [1110]</p> <table border="1"> <thead> <tr> <th>Attribute</th> <th>Measure</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Habitat Distribution</td> <td>Occurrence</td> <td>The distribution of sandbanks is stable, subject to natural processes</td> </tr> <tr> <td>Habitat Area</td> <td>Hectares</td> <td>The permanent habitat area is stable or increasing, subject to natural processes</td> </tr> <tr> <td>Community Distribution</td> <td>Hectares</td> <td>Conserve the following community type in a natural condition: Subtidal sand to mixed sediment with <i>Nephtys</i> spp. community complex</td> </tr> </tbody> </table> <p>Estuaries [1130]</p> <table border="1"> <thead> <tr> <th>Attribute</th> <th>Measure</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Habitat Area</td> <td>Hectares</td> <td>The permanent habitat area is stable or increasing, subject to natural processes</td> </tr> <tr> <td>Community Distribution</td> <td>Hectares</td> <td>Conserve the following community types in a natural condition: Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex; Estuarine subtidal muddy sand to mixed sediment with gammarids community complex; Subtidal sand to mixed sediment with <i>Nucula nucleus</i> community complex; Subtidal sand to mixed sediment with <i>Nephtys</i> spp. community complex; Furoid-dominated intertidal reef community complex;</td> </tr> </tbody> </table>	Attribute	Measure	Target	Habitat Distribution	Occurrence	The distribution of sandbanks is stable, subject to natural processes	Habitat Area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes	Community Distribution	Hectares	Conserve the following community type in a natural condition: Subtidal sand to mixed sediment with <i>Nephtys</i> spp. community complex	Attribute	Measure	Target	Habitat Area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes	Community Distribution	Hectares	Conserve the following community types in a natural condition: Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex; Estuarine subtidal muddy sand to mixed sediment with gammarids community complex; Subtidal sand to mixed sediment with <i>Nucula nucleus</i> community complex; Subtidal sand to mixed sediment with <i>Nephtys</i> spp. community complex; Furoid-dominated intertidal reef community complex;	N/A Works will take place within the SAC boundary.
Attribute	Measure	Target																						
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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		Faunal turf-dominated subtidal reef community; and Anemone-dominated subtidal reef community	
		Mudflats and sandflats not covered by seawater at low tide [1140]	
		Attribute Measure Target	
		Habitat Area Hectares The permanent habitat area is stable or increasing, subject to natural processes	
		Community Distribution Hectares Conserve the following community types in a natural condition: Intertidal sand with <i>Scolelepis squamata</i> and <i>Pontocrates spp.</i> community; and Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex	
		Coastal lagoons [1150]	
		Attribute Measure Target	
		Habitat Area Hectares Area stable or increasing, subject to natural processes. Favourable reference area 33.4ha- Shannon Airport Lagoon 24.2ha; Cloonconeen Pool 3.9ha; Scattery Lagoon 2.8ha; Quayfield and Poulaweala Loughs 2.5ha	
		Habitat Distribution Occurrence No decline, subject to natural processes	
		Salinity Regime Practical salinity units (psu) Median annual salinity and temporal variation within natural ranges	
		Hydrological regime Metres Annual water level fluctuations and minima within natural ranges	
		Barrier: connectivity between lagoon and sea Permeability Appropriate hydrological connections between lagoons and sea, including where necessary, appropriate management	
		Water quality: chlorophyll a µg/L Annual median chlorophyll a within natural ranges and less than 5µg/L	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project																					
		<table border="0"> <tr> <td>Water quality: Molybdate</td> <td>mg/L</td> <td>Annual median MRP within natural ranges and less than 0.1mg/L</td> </tr> <tr> <td>Reactive Phosphorus (MRP)</td> <td></td> <td></td> </tr> <tr> <td>Water quality: Dissolved Inorganic Nitrogen (DIN)</td> <td>mg/L</td> <td>Annual median DIN within natural ranges and less than 0.15mg/L</td> </tr> <tr> <td>Depth of macrophyte colonisation</td> <td>Metres</td> <td>Macrophyte colonisation to maximum depth of lagoons</td> </tr> <tr> <td>Typical plant species</td> <td>number and m2</td> <td>Maintain number and extent of listed lagoonal specialists, subject to natural variation</td> </tr> <tr> <td>Typical animal species</td> <td>number</td> <td>Maintain listed lagoon specialists, subject to natural variation</td> </tr> <tr> <td>Negative indicator species</td> <td>Number and % cover</td> <td>Negative indicator species absent or under control</td> </tr> </table>	Water quality: Molybdate	mg/L	Annual median MRP within natural ranges and less than 0.1mg/L	Reactive Phosphorus (MRP)			Water quality: Dissolved Inorganic Nitrogen (DIN)	mg/L	Annual median DIN within natural ranges and less than 0.15mg/L	Depth of macrophyte colonisation	Metres	Macrophyte colonisation to maximum depth of lagoons	Typical plant species	number and m2	Maintain number and extent of listed lagoonal specialists, subject to natural variation	Typical animal species	number	Maintain listed lagoon specialists, subject to natural variation	Negative indicator species	Number and % cover	Negative indicator species absent or under control	
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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project																														
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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		Vegetation composition: Percentage cover Negative indicator species (including non-natives) to represent less than 5% cover	
		Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	
		Attribute Measure Target	
		Habitat length Kilometres Area stable or increasing, subject to natural processes, including erosion. For sub- sites mapped: Kilbaha- 4.1km; Ladder Rock- 1.0km; Moyarta- 0.9km; Lisheencrony- 1.1km; Burrane- 0.2km; Kerry Head- 33.4km; Ballybunion- 15.6km; Kilclogher- 4.9km; Loop Head- 6.1km	
		Habitat Distribution Occurrence No decline, or change in habitat distribution, subject to natural processes	
		Physical structure: functionality and hydrological regime Occurrence of artificial barriers No alteration to natural functioning of geomorphological and hydrological processes due to artificial structures	
		Vegetation structure: zonation Occurrence Maintain range of sea cliff habitat zonations including transitional zones, subject to natural processes including erosion and succession	
		Vegetation structure: vegetation height Centimetres Maintain structural variation within sward	
		Vegetation composition: typical species and sub-communities Percentage cover at a representative sample of monitoring stops Maintain range of sub- communities with typical species listed in the Irish Sea cliff survey (Barron et al., 2011)	
		Vegetation composition: negative indicator species Percentage cover Negative indicator species (including non-natives) to represent less than 5% cover	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project																											
		Vegetation composition: Percentage bracken and woody species Cover of bracken (<i>Pteridium aquilinum</i>) on grassland and/or heath to be less than 10%. Cover of woody species on grassland and/or heath to be less than 20%																												
		Salicornia and other annuals colonising mud and sand [1310]																												
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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project																		
		<p>monitoring stop</p> <p>Vegetation composition: Percentage cover Maintain the presence of species-poor communities with typical species listed in Saltmarsh Monitoring Project (McCorry and Ryle, 2009)</p> <p>Vegetation structure: Hectares No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1%</p> <p>negative indicator species- <i>Spartina anglica</i></p> <p>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]</p> <table border="1"> <thead> <tr> <th>Attribute</th> <th>Measure</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Habitat Area</td> <td>Hectares</td> <td>Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Carrigafoyle- 6.774ha; Barrigone, Aughinish- 10.288ha; Beagh- 0.517ha; Bunratty- 26.939ha; Shepperton, Fergus Estuary- 37.925ha; Inishdea, Owenshere- 18.127ha; Killadysert, Inishcorker- 2.604ha; Knock- 0.576ha; Querin- 3.726ha; Rinevilla Bay- 11.883ha</td> </tr> <tr> <td>Habitat Distribution</td> <td>Occurrence</td> <td>No decline or change in habitat distribution, subject to natural processes.</td> </tr> <tr> <td>Physical structure: sediment supply</td> <td>Presence/ absence of physical barriers</td> <td>Maintain natural circulation of sediments and organic matter, without any physical obstructions</td> </tr> <tr> <td>Physical structure: creeks and pans</td> <td>Occurrence</td> <td>Maintain creek and pan structure, subject to natural processes, including erosion and succession</td> </tr> <tr> <td>Physical structure: flooding regime</td> <td>Hectares flooded; frequency</td> <td>Maintain natural tidal regime</td> </tr> </tbody> </table>	Attribute	Measure	Target	Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Carrigafoyle- 6.774ha; Barrigone, Aughinish- 10.288ha; Beagh- 0.517ha; Bunratty- 26.939ha; Shepperton, Fergus Estuary- 37.925ha; Inishdea, Owenshere- 18.127ha; Killadysert, Inishcorker- 2.604ha; Knock- 0.576ha; Querin- 3.726ha; Rinevilla Bay- 11.883ha	Habitat Distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.	Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions	Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession	Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	
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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		Vegetation structure: Occurrence Maintain the range of coastal habitats including transitional zones, zonation subject to natural processes including erosion and succession	
		Vegetation structure: Centimetres Maintain structural variation within sward vegetation height	
		Vegetation structure: Percentage cover at a representative sample of monitoring stops vegetation cover	
		Vegetation composition: Percentage cover at a representative sample of monitoring stop typical species and sub-communities	
		Vegetation structure: Hectares No significant expansion of common cordgrass (<i>Spartina anglica</i>), negative indicator species- <i>Spartina anglica</i>	
		Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	
		Attribute Measure Target	
		Habitat Area Hectares Area increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Carrigafoyle- 4.193ha; Barrigone, Aughinish- 2.407ha; Bunratty- 0.865ha; Inishdea, Owenshere- 11.609ha; Killadysert, Inishcorker- 0.705ha; Knock- 0.143ha, Querin- 0.008ha; Rinevilla Bay- 2.449ha	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives			Distance from proposed project
		Habitat Distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes	
		Physical structure: sediment supply	Presence/absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions	
		Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession	
		Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	
		Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
		Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	
		Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated	
		Vegetation composition: typical species	Percentage cover	Maintain range of sub-communities with typical species listed in Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		Vegetation structure: Hectares No significant expansion of common cordgrass (<i>Spartina anglica</i>), negative indicator species - <i>Spartina anglica</i> with an annual spread of less than 1%	
		<i>Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation [3260]</i>	
		Attribute Measure Target	
		Habitat Area Kilometres Area stable or increasing, subject to natural processes	
		Habitat Distribution Occurrence No decline, subject to natural processes	
		Hydrological regime: river flow Metres per second Maintain appropriate hydrological regimes	
		Hydrological regime: tidal influence Daily water level fluctuations - metres Maintain natural tidal regime	
		Hydrological regime: freshwater seepages Metres per second Maintain appropriate freshwater seepage regimes	
		Substratum composition: particle size range Millimetres The substratum should be dominated by the particle size ranges, appropriate to the habitat sub-type (frequently sands, gravels and cobbles)	
		Water quality: nutrients Milligrammes per litre The concentration of nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition	
		Vegetation composition: typical species Occurrence Typical species of the relevant habitat sub-type should be present and in good condition	
		Floodplain connectivity Area The area of active floodplain at and upstream of the habitat should be maintained	
		Riparian habitat Area The area of riparian woodland at and upstream of the bryophyte-rich sub-type should be maintained	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project																														
		<p>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]</p> <table border="1"> <thead> <tr> <th data-bbox="573 475 884 507">Attribute</th> <th data-bbox="889 475 1032 507">Measure</th> <th data-bbox="1037 475 1854 507">Target</th> </tr> </thead> <tbody> <tr> <td data-bbox="573 510 884 542">Habitat Area</td> <td data-bbox="889 510 1032 542">Hectares</td> <td data-bbox="1037 510 1854 542">Area stable or increasing, subject to natural processes</td> </tr> <tr> <td data-bbox="573 545 884 577">Habitat Distribution</td> <td data-bbox="889 545 1032 577">Occurrence</td> <td data-bbox="1037 545 1854 577">No decline, subject to natural processes</td> </tr> <tr> <td data-bbox="573 580 884 644">Vegetation structure: broadleaf herb: grass ratio</td> <td data-bbox="889 580 1032 644">Percentage</td> <td data-bbox="1037 580 1854 644">Broadleaf herb component of vegetation between 40 and 90%</td> </tr> <tr> <td data-bbox="573 647 884 711">Vegetation structure: sward height</td> <td data-bbox="889 647 1032 711">Percentage</td> <td data-bbox="1037 647 1854 711">30-70% of sward between 10 and 80cm high</td> </tr> <tr> <td data-bbox="573 715 884 778">Vegetation composition: typical species</td> <td data-bbox="889 715 1032 778">Number</td> <td data-bbox="1037 715 1854 778">At least 7 positive indicator species present, including 1 "high quality" species</td> </tr> <tr> <td data-bbox="573 782 884 845">Vegetation composition: notable species</td> <td data-bbox="889 782 1032 845">Number</td> <td data-bbox="1037 782 1854 845">No decline, subject to natural processes</td> </tr> <tr> <td data-bbox="573 849 884 944">Vegetation composition: negative indicator species</td> <td data-bbox="889 849 1032 944">Percentage</td> <td data-bbox="1037 849 1854 944">Negative indicator species collectively not more than 20% cover, with cover by an individual species less than 10%. Non-native invasive species, absent or under control</td> </tr> <tr> <td data-bbox="573 948 884 1043">Vegetation composition: negative indicator moss species</td> <td data-bbox="889 948 1032 1043">Percentage</td> <td data-bbox="1037 948 1854 1043">Bog mosses (<i>Sphagnum</i> spp.) not more than 10% cover; hair mosses (<i>Polytrichum</i> spp.) not more than 25% cover</td> </tr> <tr> <td data-bbox="573 1046 884 1169">Vegetation structure: woody species and bracken (<i>Pteridium aquilinum</i>)</td> <td data-bbox="889 1046 1032 1169">Percentage</td> <td data-bbox="1037 1046 1854 1169">Cover of woody species and bracken not more than 5% cover</td> </tr> </tbody> </table>	Attribute	Measure	Target	Habitat Area	Hectares	Area stable or increasing, subject to natural processes	Habitat Distribution	Occurrence	No decline, subject to natural processes	Vegetation structure: broadleaf herb: grass ratio	Percentage	Broadleaf herb component of vegetation between 40 and 90%	Vegetation structure: sward height	Percentage	30-70% of sward between 10 and 80cm high	Vegetation composition: typical species	Number	At least 7 positive indicator species present, including 1 "high quality" species	Vegetation composition: notable species	Number	No decline, subject to natural processes	Vegetation composition: negative indicator species	Percentage	Negative indicator species collectively not more than 20% cover, with cover by an individual species less than 10%. Non-native invasive species, absent or under control	Vegetation composition: negative indicator moss species	Percentage	Bog mosses (<i>Sphagnum</i> spp.) not more than 10% cover; hair mosses (<i>Polytrichum</i> spp.) not more than 25% cover	Vegetation structure: woody species and bracken (<i>Pteridium aquilinum</i>)	Percentage	Cover of woody species and bracken not more than 5% cover	
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		Physical structure: bare ground Percentage Not more than 10% bare ground	
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]	
		Attribute Measure Target	
		Habitat Area Hectares Area stable or increasing, subject to natural processes, at least c.8.5ha for sites surveyed	
		Habitat Distribution Occurrence No decline	
		Woodland size Hectares Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	
		Woodland structure: cover and height Percentage and metres Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi- mature trees and shrubs; and well-developed herb layer	
		Woodland structure: community diversity and extent Hectares Maintain diversity and extent of community types	
		Woodland structure: natural regeneration Seedling: sapling: pole ratio Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	
		Hydrological regime: flooding depth/height of water table Metres Appropriate hydrological regime necessary for maintenance of alluvial vegetation	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		Woodland structure: dead wood	
		m2 woodland structure: dead wood	
		At least 30m ³ /ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder)	
		Woodland structure: veteran trees	
		Number per hectare	No decline
		Woodland structure: indicators of local distinctiveness	
		Occurrence	No decline
		Vegetation composition: native tree cover	
		Percentage	No decline. Native tree cover not less than 95%
		Vegetation composition: typical species	
		Occurrence	A variety of typical native species present, depending on woodland type, including alder (<i>Alnus glutinosa</i>), willows (<i>Salix</i> spp) and, locally, oak (<i>Quercus robur</i>) and ash (<i>Fraxinus excelsior</i>)
		Vegetation composition: negative indicator species	
		Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control
		<i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]	
		Attribute	Measure Target
		Distribution	Kilometres Maintain at 7km.
		Population size	Number of adult mussels Restore to 10,000 adult mussels
		Population structure: recruitment	Percentage per size class Restore to least 20% of population no more than 65mm in length; and at least 5% of population no more than 30mm in length

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Attribute	Measure	Target																																											
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use																																											
Habitat use: critical areas	Location and hectares	Critical areas, representing habitat used preferentially by bottlenose dolphin, should be maintained in a natural condition.																																											
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the bottlenose dolphin population at the site																																											
<i>Lutra lutra (Otter) [1355]</i>																																													
Attribute	Measure	Target																																											
Distribution	Percentage positive survey sites	No significant decline																																											
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 596.8ha above high water mark (HWM); 958.9ha along river banks/ around ponds																																											
Extent of marine habitat	Hectares	No significant decline. Area mapped and calculated as 4,461.6ha																																											

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project															
		<table border="0"> <tr> <td>Extent of freshwater (river) habitat</td> <td>Kilometers</td> <td>No significant decline. Length mapped and calculated as 500.1km</td> </tr> <tr> <td>Extent of freshwater (lake/lagoon) habitat</td> <td>Hectares</td> <td>No significant decline. Area mapped and calculated as 125.6ha</td> </tr> <tr> <td>Couching sites and holts</td> <td>Number</td> <td>No significant decline</td> </tr> <tr> <td>Fish biomass available</td> <td>Kilograms</td> <td>No significant decline</td> </tr> <tr> <td>Barriers to connectivity</td> <td>Number</td> <td>No significant increase</td> </tr> </table>	Extent of freshwater (river) habitat	Kilometers	No significant decline. Length mapped and calculated as 500.1km	Extent of freshwater (lake/lagoon) habitat	Hectares	No significant decline. Area mapped and calculated as 125.6ha	Couching sites and holts	Number	No significant decline	Fish biomass available	Kilograms	No significant decline	Barriers to connectivity	Number	No significant increase	
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Fish biomass available	Kilograms	No significant decline																
Barriers to connectivity	Number	No significant increase																
IE004077	River Shannon and River Fergus Estuaries SPA	<p>Conservation Objectives Specific Version 1.0 (17/09/12)</p> <p>To maintain the favourable conservation condition of –</p> <p>21 no. overwintering species in the SPA, as defined by 2 no. attributes and targets;</p> <p>1 no. breeding species Cormorant, as defined by a wider range of attributes and targets; and</p> <p>wetland habitats in the SPA as a resource for the regularly-occurring migratory waterbirds that utilise it, as defined by 1 no. attribute and target.</p> <p>Special Conservation Interests</p> <p>Cormorant (<i>Phalacrocorax carbo</i>) [A017]</p> <table border="0"> <thead> <tr> <th>Attribute</th> <th>Target</th> <th>Measure</th> </tr> </thead> <tbody> <tr> <td>Breeding population abundance: apparently occupied nests (AONs)</td> <td>Number</td> <td>No significant decline</td> </tr> <tr> <td>Productivity rate</td> <td>Mean number</td> <td>No significant decline</td> </tr> <tr> <td>Distribution: breeding colonies</td> <td>Number; location; area (hectares)</td> <td>No significant decline</td> </tr> <tr> <td>Prey biomass available</td> <td>Kilogrammes</td> <td>No significant decline</td> </tr> </tbody> </table>	Attribute	Target	Measure	Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline	Productivity rate	Mean number	No significant decline	Distribution: breeding colonies	Number; location; area (hectares)	No significant decline	Prey biomass available	Kilogrammes	No significant decline	N/A Works will take place within the SPA boundary
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Productivity rate	Mean number	No significant decline																
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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project															
		<p>Wetland and Waterbirds [A999]</p> <table border="1"> <thead> <tr> <th>Attribute</th> <th>Target</th> <th>Measure</th> </tr> </thead> <tbody> <tr> <td>Wetland habitat area</td> <td>hectares</td> <td>The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 32,261ha, other than that occurring from natural patterns of variation</td> </tr> </tbody> </table>	Attribute	Target	Measure	Wetland habitat area	hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 32,261ha, other than that occurring from natural patterns of variation										
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Wetland habitat area	hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 32,261ha, other than that occurring from natural patterns of variation																
IE000432	Barrigone SAC	<p>Conservation Objectives Specific Version 1.0 (15/02/19)</p> <p>To maintain the favourable conservation condition of the three no. Annex I habitat types in the SAC, as defined by a range of attributes and targets; and a single Annex II species in the SAC, as defined by three no. attributes and targets.</p> <p>Annex I Habitats</p> <p>Juniperus communis formations on heaths or calcareous grasslands [5130]</p> <table border="1"> <thead> <tr> <th>Attribute</th> <th>Measure</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Habitat area</td> <td>Hectares</td> <td>Area stable or increasing, subject to natural processes</td> </tr> <tr> <td>Habitat distribution</td> <td>Occurrence</td> <td>No decline, subject to natural processes.</td> </tr> <tr> <td>Juniper formation size</td> <td>Number and proximity of juniper plants</td> <td>At least 50 juniper plants present with each plant separated by no more than 20m</td> </tr> <tr> <td>Vegetation structure: female fruiting plants</td> <td>Percentage in a representative number of 5m x 5m monitoring stops or in an ad hoc count of 50 plants</td> <td>Fruiting females comprise at least 10% of juniper plants rooted in a plot in at least 50% of stops or in an ad hoc count of 50 plants</td> </tr> </tbody> </table>	Attribute	Measure	Target	Habitat area	Hectares	Area stable or increasing, subject to natural processes	Habitat distribution	Occurrence	No decline, subject to natural processes.	Juniper formation size	Number and proximity of juniper plants	At least 50 juniper plants present with each plant separated by no more than 20m	Vegetation structure: female fruiting plants	Percentage in a representative number of 5m x 5m monitoring stops or in an ad hoc count of 50 plants	Fruiting females comprise at least 10% of juniper plants rooted in a plot in at least 50% of stops or in an ad hoc count of 50 plants	3.5km
Attribute	Measure	Target																
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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		<p>Vegetation structure: seedling recruitment Presence in a At least one seedling recorded in at least one monitoring stop representative number of 5m x 5m monitoring stops</p> <p>Vegetation structure: live juniper Percentage in At least 90% of juniper plants rooted in plot alive in at least 75% of a stops or across the site as a whole representative number of 5m x 5m monitoring stops or across the site as a whole</p> <p>Vegetation composition: negative indicator species Percentage in Total cover of negative indicator species to be less than 10% in at least 50% of stops representative number of 5m x 5m monitoring stops</p> <p>Physical structure: germination niches Percentage in At least 5% bare soil and/or at least 5% bare rock in at least 50% of stops representative number of 5m x 5m</p>	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project									
		<p>monitoring stops</p> <p>Formation structure: Percentage of Browning or dead juniper branches (excluding fully dead plants) comprising no more than 20% of total juniper cover in plot in at least 75% of stops in a representative number of 5m x 5m monitoring stops</p> <p>Formation structure: Occurrence Recent browsing of juniper plants and bark stripping and trampling due to browsers evident in no more than 50% of stops across a representative number of 5m x 5m monitoring stops</p> <p>Indicators of local distinctiveness Occurrence and population size No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat</p> <p>Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]</p> <table border="1"> <thead> <tr> <th data-bbox="573 1193 887 1225">Attribute</th> <th data-bbox="891 1193 1048 1225">Measure</th> <th data-bbox="1052 1193 1854 1225">Target</th> </tr> </thead> <tbody> <tr> <td data-bbox="573 1228 887 1289">Habitat area</td> <td data-bbox="891 1228 1048 1289">Hectares</td> <td data-bbox="1052 1228 1854 1289">Area stable or increasing, subject to natural processes; at least 5.85ha for the sub-site (Barrigone - site code 2701) mapped</td> </tr> <tr> <td data-bbox="573 1292 887 1324">Habitat distribution</td> <td data-bbox="891 1292 1048 1324">Occurrence</td> <td data-bbox="1052 1292 1854 1324">No decline, subject to natural processes.</td> </tr> </tbody> </table>	Attribute	Measure	Target	Habitat area	Hectares	Area stable or increasing, subject to natural processes; at least 5.85ha for the sub-site (Barrigone - site code 2701) mapped	Habitat distribution	Occurrence	No decline, subject to natural processes.	
Attribute	Measure	Target										
Habitat area	Hectares	Area stable or increasing, subject to natural processes; at least 5.85ha for the sub-site (Barrigone - site code 2701) mapped										
Habitat distribution	Occurrence	No decline, subject to natural processes.										

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		<p>Vegetation composition: positive indicator species Number at a representative 5–6 present in monitoring stops; within 20m surrounding area of monitoring stops At least 7 positive indicator species present in monitoring stop or, if 5–6 present in stop, additional species within 20m of stop; this number of 2m includes at least two 'high quality' positive indicator species present in stop or within 20m of stop</p> <p>Vegetation composition: negative indicator species Percentage cover at a representative number of 2m x 2m monitoring stops Negative indicator species collectively not more than 20% cover, with cover by an individual species not more than 10%</p> <p>Vegetation composition: non-native species Percentage cover at a representative number of 2m x 2m monitoring stops Cover of non-native species not more than 1%</p> <p>Vegetation composition: woody species and bracken Percentage cover at a representative number of 2m Cover of woody species (except certain listed species) and bracken (<i>Pteridium aquilinum</i>) not more than 5%</p>	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		<p>x 2m monitoring stops</p>	
		<p>Vegetation structure: broadleaf herb:grass ratio Percentage at Broadleaf herb component of vegetation between 40% and 90% a representative number of 2m x 2m monitoring stops</p>	
		<p>Vegetation structure: sward height Percentage at At least 30% of sward between 5cm and 40cm tall a representative number of 2m x 2m monitoring stops</p>	
		<p>Vegetation structure: litter Percentage cover at a representative number of 2m x 2m monitoring stops Litter cover not more than 25%</p>	
		<p>Physical structure: bare soil Percentage cover at a representative Not more than 10% bare soil</p>	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project															
		<p>number of 2m x 2m monitoring stops</p> <p>Physical structure: grazing Area in local vicinity of a representative number of monitoring stops</p> <p>Area of the habitat showing signs of serious grazing or disturbance less than 20m²</p> <p>Limestone pavements [8240]</p> <table border="1"> <thead> <tr> <th>Attribute</th> <th>Measure</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Habitat area</td> <td>Hectares</td> <td>Area stable or increasing, subject to natural processes</td> </tr> <tr> <td>Habitat distribution</td> <td>Occurrence</td> <td>No decline</td> </tr> <tr> <td>Vegetation composition: positive indicator species</td> <td>Number at a representative number of monitoring stops</td> <td>At least seven positive indicator species present</td> </tr> <tr> <td>Vegetation composition: bryophyte layer</td> <td>Percentage at a representative number of monitoring stops</td> <td>Bryophyte cover at least 50% on wooded pavement</td> </tr> </tbody> </table>	Attribute	Measure	Target	Habitat area	Hectares	Area stable or increasing, subject to natural processes	Habitat distribution	Occurrence	No decline	Vegetation composition: positive indicator species	Number at a representative number of monitoring stops	At least seven positive indicator species present	Vegetation composition: bryophyte layer	Percentage at a representative number of monitoring stops	Bryophyte cover at least 50% on wooded pavement	
Attribute	Measure	Target																
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Vegetation composition: bryophyte layer	Percentage at a representative number of monitoring stops	Bryophyte cover at least 50% on wooded pavement																

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		<p>Vegetation composition: Percentage at Collective cover of negative indicator species on exposed pavement not more than 1% a representative number of monitoring stops</p> <p>Vegetation composition: Percentage at Cover of non-native species not more than 1% on exposed pavement; on wooded pavement not more than 10% with no regeneration a representative number of monitoring stops</p> <p>Vegetation composition: Percentage at Scrub cover no more than 25% of exposed pavement a representative number of monitoring stops</p> <p>Vegetation composition: Percentage at Bracken (<i>Pteridium aquilinum</i>) cover no more than 10% on exposed pavement a representative number of monitoring stops</p> <p>Vegetation structure: Percentage at Canopy cover on wooded pavement at least 30% a representative number of</p>	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project						
		<p>monitoring stops</p> <p>Vegetation structure: dead wood Occurrence in Sufficient quantity of dead wood on wooded pavement to provide a habitat for saproxylic organisms</p> <p>representative number of monitoring stops</p> <p>Physical structure: disturbance Occurrence in No evidence of grazing pressure on wooded pavement</p> <p>a representative number of monitoring stops</p> <p>Indicators of local distinctiveness Occurrence Indicators of local distinctiveness are maintained</p> <p>Euphydryas aurinia (Marsh Fritillary) [1065]</p> <table border="1"> <thead> <tr> <th>Attribute</th> <th>Measure</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Distribution: occupied grid squares</td> <td>Number</td> <td>Confirmed records</td> </tr> </tbody> </table> <p>Proof or breeding: larval webs Number at a representative number of sub-sites Proof of breeding, confirmed by detection of webs</p>	Attribute	Measure	Target	Distribution: occupied grid squares	Number	Confirmed records	
Attribute	Measure	Target							
Distribution: occupied grid squares	Number	Confirmed records							

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project																		
		Potential habitat: area Hectares Area of potential habitat stable or increasing, subject to natural processes																			
IE004161	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	<p>Conservation Objectives Specific Version 1.0 (17/09/12) To maintain the favourable conservation condition of – One no. breeding species, hen harrier, as defined by eight no. attributes and targets; and Special Conservation Interests Hen Harrier (<i>Circus cyaneus</i>) [A082]</p> <table border="1"> <thead> <tr> <th>Attribute</th> <th>Measure</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Population size</td> <td>Number of confirmed breeding pairs</td> <td>Restore the numbers of confirmed breeding pairs to at least 38–39 confirmed breeding pairs</td> </tr> <tr> <td>Productivity rate</td> <td>Number of fledged young per confirmed pair</td> <td>Maintain at least 1.0–1.4 fledged young per confirmed pair</td> </tr> <tr> <td>Spatial utilisation by breeding pairs</td> <td>Percentage</td> <td>Restore the spatial utilisation of the SPA by breeding pairs to at least 97–98 %</td> </tr> <tr> <td>Extent and condition of heath and bog and associated habitats</td> <td>Hectares; condition assessment</td> <td>Restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation</td> </tr> <tr> <td>Extent and condition of low intensity managed grasslands and associated habitats</td> <td>Hectares; condition assessment</td> <td>Restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation</td> </tr> </tbody> </table>	Attribute	Measure	Target	Population size	Number of confirmed breeding pairs	Restore the numbers of confirmed breeding pairs to at least 38–39 confirmed breeding pairs	Productivity rate	Number of fledged young per confirmed pair	Maintain at least 1.0–1.4 fledged young per confirmed pair	Spatial utilisation by breeding pairs	Percentage	Restore the spatial utilisation of the SPA by breeding pairs to at least 97–98 %	Extent and condition of heath and bog and associated habitats	Hectares; condition assessment	Restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation	Extent and condition of low intensity managed grasslands and associated habitats	Hectares; condition assessment	Restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation	7.6km
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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project															
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002279	Askeaton Fen Complex SAC	<p>Conservation Objectives Specific Version 1.0 (18/05/18)</p> <p>To maintain the favourable conservation condition of the two no. Annex I habitat types in the SAC, as defined by a range of attributes and targets.</p> <p>Annex I Habitats</p> <p>Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210]</p> <table border="0"> <thead> <tr> <th>Attribute</th> <th>Measure</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Habitat area</td> <td>Hectares</td> <td>Area stable or increasing, subject to natural processes</td> </tr> <tr> <td>Habitat distribution</td> <td>Occurrence</td> <td>No decline, subject to natural processes</td> </tr> <tr> <td>Ecosystem function: peat formation</td> <td>Percentage cover of peat-forming vegetation and water table levels</td> <td>Maintain active peat formation, where appropriate</td> </tr> <tr> <td>Ecosystem function: hydrology - groundwater levels</td> <td>Water levels (centimetres); duration of</td> <td>Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat</td> </tr> </tbody> </table>	Attribute	Measure	Target	Habitat area	Hectares	Area stable or increasing, subject to natural processes	Habitat distribution	Occurrence	No decline, subject to natural processes	Ecosystem function: peat formation	Percentage cover of peat-forming vegetation and water table levels	Maintain active peat formation, where appropriate	Ecosystem function: hydrology - groundwater levels	Water levels (centimetres); duration of	Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	11.3km
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SISAA

Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		<p>levels; hydraulic gradients</p> <p>Ecosystem function: Drain density Maintain, or where necessary restore, as close as possible to hydrology - surface water and form natural or semi-natural drainage conditions flow</p> <p>Ecosystem function: water Water Maintain appropriate water quality, particularly pH and nutrient quality chemistry measures habitat</p> <p>Vegetation composition: Percentage Maintain adequate cover of typical species, including brown typical species cover at a mosses and vascular plants representative number of 2m x 2m monitoring stops</p> <p>Vegetation composition: Percentage Cover of native negative indicator species at insignificant levels native negative indicator species cover at a representative number of 2m x 2m monitoring stops</p> <p>Vegetation composition: Percentage Cover of non-native species less than 1% non-native species cover at, and in local vicinity of, a representative</p>	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		<p>number of 2m x 2m monitoring stops</p> <p>Vegetation composition: trees and shrubs Percentage cover in local vicinity of a representative number of monitoring stops Cover of scattered native trees and shrubs less than 10%</p> <p>Physical structure: disturbed bare ground Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops Cover of disturbed bare ground not more than 10%. Where tufa is present, disturbed bare ground not more than 1%</p> <p>Indicators of local distinctiveness Occurrence and population size No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes</p>	

SISAA

Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project																		
		<p>Alkaline fens [7230]</p> <table border="1"> <thead> <tr> <th data-bbox="573 480 875 515">Attribute</th> <th data-bbox="880 480 1048 515">Measure</th> <th data-bbox="1052 480 1854 515">Target</th> </tr> </thead> <tbody> <tr> <td data-bbox="573 518 875 553">Habitat area</td> <td data-bbox="880 518 1048 553">Hectares</td> <td data-bbox="1052 518 1854 553">Area stable or increasing, subject to natural processes</td> </tr> <tr> <td data-bbox="573 582 875 617">Habitat distribution</td> <td data-bbox="880 582 1048 617">Occurrence</td> <td data-bbox="1052 582 1854 617">No decline, subject to natural processes</td> </tr> <tr> <td data-bbox="573 646 875 904">Ecosystem function: soil nutrients</td> <td data-bbox="880 646 1048 904">Soil pH and appropriate nutrient levels at a representative number of monitoring stops</td> <td data-bbox="1052 646 1854 904">Maintain soil pH and nutrient status within natural ranges</td> </tr> <tr> <td data-bbox="573 908 875 1102">Ecosystem function: peat formation</td> <td data-bbox="880 908 1048 1102">Percentage cover of peat-forming vegetation and water table levels</td> <td data-bbox="1052 908 1854 1102">Maintain active peat formation, where appropriate</td> </tr> <tr> <td data-bbox="573 1106 875 1294">Ecosystem function: hydrology - groundwater levels</td> <td data-bbox="880 1106 1048 1294">Water levels (centimetres); duration of levels; hydraulic gradients</td> <td data-bbox="1052 1106 1854 1294">Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat</td> </tr> </tbody> </table>	Attribute	Measure	Target	Habitat area	Hectares	Area stable or increasing, subject to natural processes	Habitat distribution	Occurrence	No decline, subject to natural processes	Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil pH and nutrient status within natural ranges	Ecosystem function: peat formation	Percentage cover of peat-forming vegetation and water table levels	Maintain active peat formation, where appropriate	Ecosystem function: hydrology - groundwater levels	Water levels (centimetres); duration of levels; hydraulic gradients	Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	
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SISAA

Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		<p>Ecosystem function: Drain density Maintain, or where necessary restore, as close as possible to hydrology - surface water and form natural or semi-natural drainage conditions flow</p> <p>Ecosystem function: water Water Maintain appropriate water quality, particularly pH and nutrient quality chemistry measures levels, to support the natural structure and functioning of the habitat</p> <p>Community diversity Abundance of Maintain variety of vegetation communities, subject to natural variety of vegetation processes communities</p> <p>Vegetation composition: Percentage Maintain adequate cover of typical brown moss species brown mosses cover at a representative number of 2m x 2m monitoring stops</p> <p>Vegetation composition: Percentage Maintain adequate cover of typical vascular plant species typical vascular plants cover at a representative number of 2m x 2m monitoring stops</p>	

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Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		<p>Vegetation composition: native negative indicator species Percentage cover at a representative number of 2m x 2m monitoring stops Cover of native negative indicator species at insignificant levels</p> <p>Vegetation composition: non-native species Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops Cover of non-native species less than 1%</p> <p>Vegetation composition: native trees and shrubs Percentage cover in local vicinity of a representative number of monitoring stops Cover of scattered native trees and shrubs less than 10%</p> <p>Vegetation composition: soft rush and common reed cover Percentage cover in local vicinity of a representative number of Total cover of soft rush (<i>Juncus effusus</i>) and common reed (<i>Phragmites australis</i>) less than 10%</p>	

SISAA

Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project
		<p data-bbox="891 424 1021 485">monitoring stops</p> <p data-bbox="573 536 1514 756">Vegetation structure: litter Percentage cover in local vicinity of a representative number of monitoring stops Total cover of litter not more than 25%</p> <p data-bbox="573 759 1666 1043">Physical structure: disturbed bare ground Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops Cover of disturbed bare ground not more than 10%</p> <p data-bbox="573 1046 1823 1267">Physical structure: tufa formations Percentage cover in local vicinity of a representative number of monitoring stops Disturbed proportion of vegetation cover where tufa is present is less than 1%</p> <p data-bbox="573 1270 1845 1380">Indicators of local distinctiveness Occurrence and No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes</p>	

SISAA

Site Code	Site Name	Qualifying Interests & Conservation Objectives	Distance from proposed project																					
		population size																						
000174	Curraghchase Woods SAC	<p>Conservation Objectives Specific Version 1.0 (18/05/18)</p> <p>To maintain the favourable conservation condition of the two no. Annex I habitat types in the SAC, as defined by a range of attributes and targets and the two number Annex II species in the SAC, as defined by a range of attributes and targets.</p> <p>Annex I Habitats Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p> <table border="1"> <thead> <tr> <th>Attribute</th> <th>Target</th> <th>Measure</th> </tr> </thead> <tbody> <tr> <td>Habitat area</td> <td>Hectares</td> <td>Area stable or increasing, subject to natural processes</td> </tr> <tr> <td>Habitat distribution</td> <td>Occurrence</td> <td>No decline, subject to natural processes. See map 2 for surveyed woodland locations</td> </tr> <tr> <td>Woodland size</td> <td>Hectares</td> <td>Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size</td> </tr> <tr> <td>Woodland structure: cover and height</td> <td>Percentage and metres</td> <td>Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and well-developed herb layer</td> </tr> <tr> <td>Woodland structure: community diversity and extent</td> <td>Hectares</td> <td>Maintain diversity and extent of community types</td> </tr> <tr> <td>Woodland structure: natural regeneration</td> <td>Seedling:sapling:pole ratio</td> <td>Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy</td> </tr> </tbody> </table>	Attribute	Target	Measure	Habitat area	Hectares	Area stable or increasing, subject to natural processes	Habitat distribution	Occurrence	No decline, subject to natural processes. See map 2 for surveyed woodland locations	Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	Woodland structure: cover and height	Percentage and metres	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and well-developed herb layer	Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types	Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	13.7km
Attribute	Target	Measure																						
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Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy																						

SISAA

Site Code	Site Name	Qualifying Interests & Conservation Objectives			Distance from proposed project
		Hydrological regime: flooding depth/height of water table	Metres	Appropriate hydrological regime necessary for maintenance of alluvial vegetation	
		Woodland structure: dead wood	m ³ per hectare; number per hectare	At least 30m ³ /ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder (<i>Alnus glutinosa</i>))	
		Woodland structure: veteran trees	Number per hectare	No decline	
		Woodland structure: indicators of local distinctiveness	Occurrence	No decline	
		Vegetation composition: native tree cover	Percentage	No decline. Native tree cover not less than 95%	
		Vegetation composition: typical species	Occurrence	A variety of typical native species present, depending on woodland type, including alder (<i>Alnus glutinosa</i>), willows (<i>Salix</i> spp.), oak (<i>Quercus</i> spp.), ash (<i>Fraxinus excelsior</i>) and birch (<i>Betula pubescens</i>)	
		Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control	
		Taxus baccata woods of the British Isles [91J0]			
		Attribute	Measure	Target	
		Habitat area	Hectares	Area stable or increasing, subject to natural processes.	
		Habitat distribution	Occurrence	No decline, subject to natural processes.	

SISAA

Site Code	Site Name	Qualifying Interests & Conservation Objectives			Distance from proposed project
		Woodland size	Hectares	Area stable or increasing	
		Woodland structure: cover and height	Percentage and metres	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and herb and bryophyte layer	
		Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types	
		Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	
		Woodland structure: dead wood	m ³ per hectare; number per hectare	At least 30m ³ /ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter	
		Woodland structure: veteran trees	Number per hectare	No decline	
		Woodland structure: indicators of local distinctiveness	Occurrence	No decline	
		Vegetation composition: native tree cover	Percentage	No decline. Native tree cover not less than 95%	
		Vegetation composition: typical species	Occurrence	A variety of typical native species present, including yew (<i>Taxus baccata</i>) and ash (<i>Fraxinus excelsior</i>)	
		Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control	
		Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]			
		Attribute	Measure	Target	

SISAA

Site Code	Site Name	Qualifying Interests & Conservation Objectives			Distance from proposed project
		Distribution	Number of squares	No decline, subject to natural processes. There is one known site occupied 1km for this species in the SAC within the 1km grid squares R4148 and R4149.	
		Occurrence in suitable habitat	Percentage positive records in a representative number of samples	No decline, subject to natural processes. A baseline figure of 50% positive samples is set	
		Habitat area	Hectares	Area of suitable habitat stable or increasing, subject to natural processes; no less than 1.8ha of at least sub-optimal habitat	
		Habitat quality	Percentage of samples classified as suitable habitat	No decline, subject to natural processes	
		Habitat quality: soil wetness	Soil wetness criteria	No decline, subject to natural processes	
		Habitat quality: water levels	Hydrological regime	Maintain at current levels, subject to natural processes	
		Habitat quality: vegetation structure	Grazing levels	No increase in grazing levels	
		Tree canopy extent	Percentage cover	Tree canopy cover around lake stable at current levels, subject to natural processes	
		Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]			

SISAA

Site Code	Site Name	Qualifying Interests & Conservation Objectives			Distance from proposed project
		Attribute	Measure	Target	
Population per roost	Number	Minimum number of 100 bats for the summer roost (linked roost ids 659 and 852 in NPWS database); minimum number of 81 bats for the winter roost (roost id. 659).			
Winter roosts	Condition	No decline			
Summer roosts	Condition	No decline			
Auxiliary roosts	Number and condition	No decline			
Extent of potential foraging habitat	Hectares	No significant decline within 2.5km of qualifying roosts			
Linear features	Kilometres	No significant loss within 2.5km of qualifying roosts			
Light pollution	Lux	No significant increase in artificial light intensity adjacent to named roosts or along commuting routes within 2.5km of those roosts. See map 4			

4.3 Establishing an Impact Pathway

The possibility of significant effects is considered in this SISAA report using the source-pathway-receptor model. 'Source' is defined as the individual elements of the proposed works that have the potential to affect the identified ecological feature (or receptor). 'Pathway' is defined as the means or route by which a source can affect the ecological receptor. 'Ecological receptor' is defined as the Special Conservations Interests (for SPAs) or Qualifying Interests (of SACs/cSACs) for which conservation objectives have been set for the European sites under consideration (refer to Table 4.1). Each element can exist independently however an effect is created when there is a linkage between the source, pathway and receptor. Possible effects are discussed under four themes:

- Habitat loss;
- Water quality and habitat deterioration;
- Underwater noise and disturbance; and
- Aerial noise and visual disturbance.

4.4 Potential Effects

4.4.1 Habitat Loss

The proposed marine site investigations work area lies within two European sites, namely the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA. The works area does not lie within or in proximity to any other European sites.

The proposed Marine SI works will take place within areas of the Lower River Shannon SAC which support the following Annex I habitats:

- Estuaries [1130] – 54 no. Cable percussive boreholes (Phase 1); 54 No. Cable percussive boreholes (Phase 2); and 15 Benthic grab samples.
- Mudflats and sandflats not covered by seawater at low tide [1140] - 17 Cable percussive boreholes (Phase 1); 19 Cable percussive boreholes (Phase 2); and 8 Benthic grab samples.
- Reefs [1170] - 8 Cable percussive boreholes (Phase 1); 11 Cable percussive boreholes (Phase 2); and one benthic grab sample.

The distribution of Annex I habitats within the Lower River Shannon SAC in the context of proposed borehole locations and grab samples is illustrated at Figure 4.2-4.4. Areas of mudflats and sandflats [1140] Annex I habitat are also considered to represent wetland habitat which forms a qualifying interest of the River Shannon and River Fergus Estuaries SPA.

The methodology proposed for borehole drilling will utilise a cable percussive approach through soft overburden and, where required, follow-on rotary coring for recovery of firm granular/till material and bedrock. The legs of the jack-up rig from which the works will take place will cover an area of 1m² each (for a combined total of 4m²), while the boreholes themselves will be drilled within a steel casing 200mm in diameter.

Table 4.2 details the predicted areas within each of the Annex I habitats within the Lower River Shannon SAC, to be affected by the proposed borehole drilling, at both phases. It is noted that the entire Marine SI area is mapped as being Annex I habitats: estuaries. This mapping overlaps that of the Annex I habitats reefs and mudflats and sandflats and as such boreholes within these habitats have been subtracted from the number within estuaries habitats to avoid double counting of areas.

Table 4.2: Predicted areas of Annex I habitats within Lower River Shannon SAC to be affected by the proposed Marine SI works (both phases).

Annex I Habitat	No. Boreholes Proposed	Total Area of Proposed Boreholes (m ²)	Total Cumulative Area of Jack-up Rig Footings (m ²)	Total Area Affected (m ²)	Total area of Annex I Habitat within SAC (ha)	Percentage of Total Area Affected (%)
Estuaries [1130]	108	3.39	432	435.39	24,273	0.00018
Mudflats and Sandflats [1140]	36	1.13	144	145.13	8,808	0.00016
Reefs [1170]	19	0.60	76	76.6	21,421	0.000036

Potential impacts associated with the deployment of the jack-up rig footings will be extremely short-term in nature and will only temporarily disturb the marine bed. These potential impacts are predicted to be similar to the deployment of a boat anchor within the relevant habitats and will not give rise to any alterations to these habitats beyond the short-term. The areas over which these effects would occur are extremely small in the context of the areas of the relevant Annex I habitats supported across the SAC.

On this basis it is considered that the proposed use of a jack-up rig and associated footing on the estuary bed, to undertake marine SI works, will give rise to no likely significant loss of habitat within the Lower River Shannon SAC or the likely significant loss of wetland habitats within the River Shannon and River Fergus Estuaries SPA.

The proposed borehole creation, within the relevant areas of Annex I habitats, will involve the direct disturbance of a 200mm wide circle of habitat, per borehole, for estuary and mudflat habitats. Direct disturbance of the habitat associated with borehole creation will be extremely temporary in nature, as it is anticipated that borehole locations will be subject to rapid and natural filling by surrounding sediments following completion of the works, through normal tidal action and other natural processes. These effects will occur within an energetically active marine environment which supports significant quantities of mobile sediment as part of the natural process occurring throughout the estuary including the areas proposed for SI works. The proposed borehole creation will also involve a direct impact of seabed habitat loss of a 200mm wide circle of habitat, per borehole, for reef where it occurs. For all habitat types affected by the works, the areas over which such effects would occur are extremely small in the context of the areas of the relevant Annex I habitats across the SAC, being a very small fraction of one percent, as set out at Table 4.2.

Proposed grab sampling will involve the removal of a maximum of 0.1m² of material at each sample location. It is considered that such small sample volumes will have no potential to give rise to likely significant effects upon any Annex I habitat within the SAC through habitat loss.

It is considered that the proposed marine boreholes would have potential to lead to likely significant effects through direct disturbance of habitat within both the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA. Further analysis or the implementation of mitigation measures is therefore required at Appropriate Assessment stage.

Consideration is given in the following section as to whether the proposed project would result in other indirect effects upon habitats supported within these European sites, given their close proximity to the proposed works.

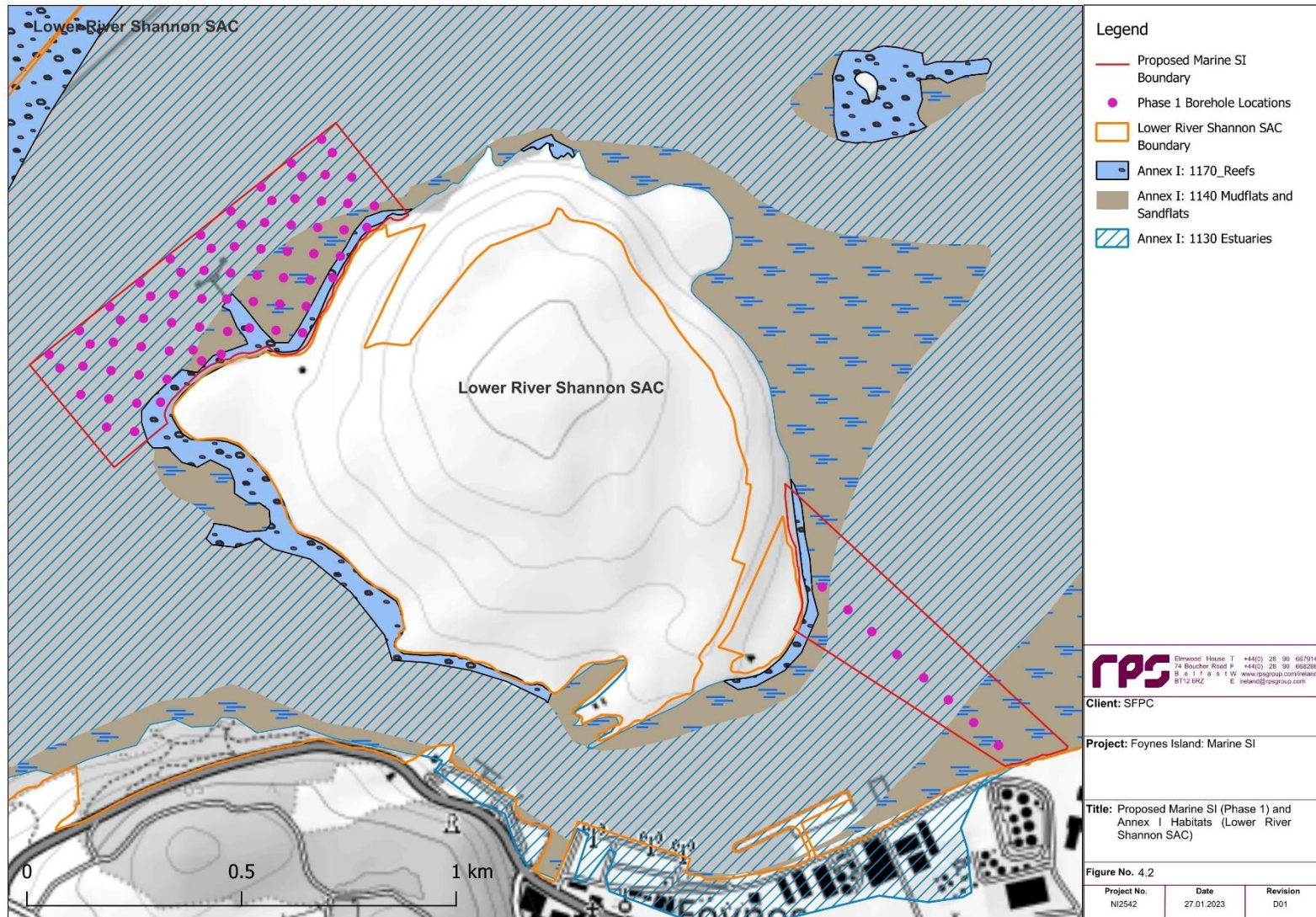


Figure 4.2: Proposed Borehole Locations (Phase 1) and Annex I Habitats (Lower River Shannon SAC)

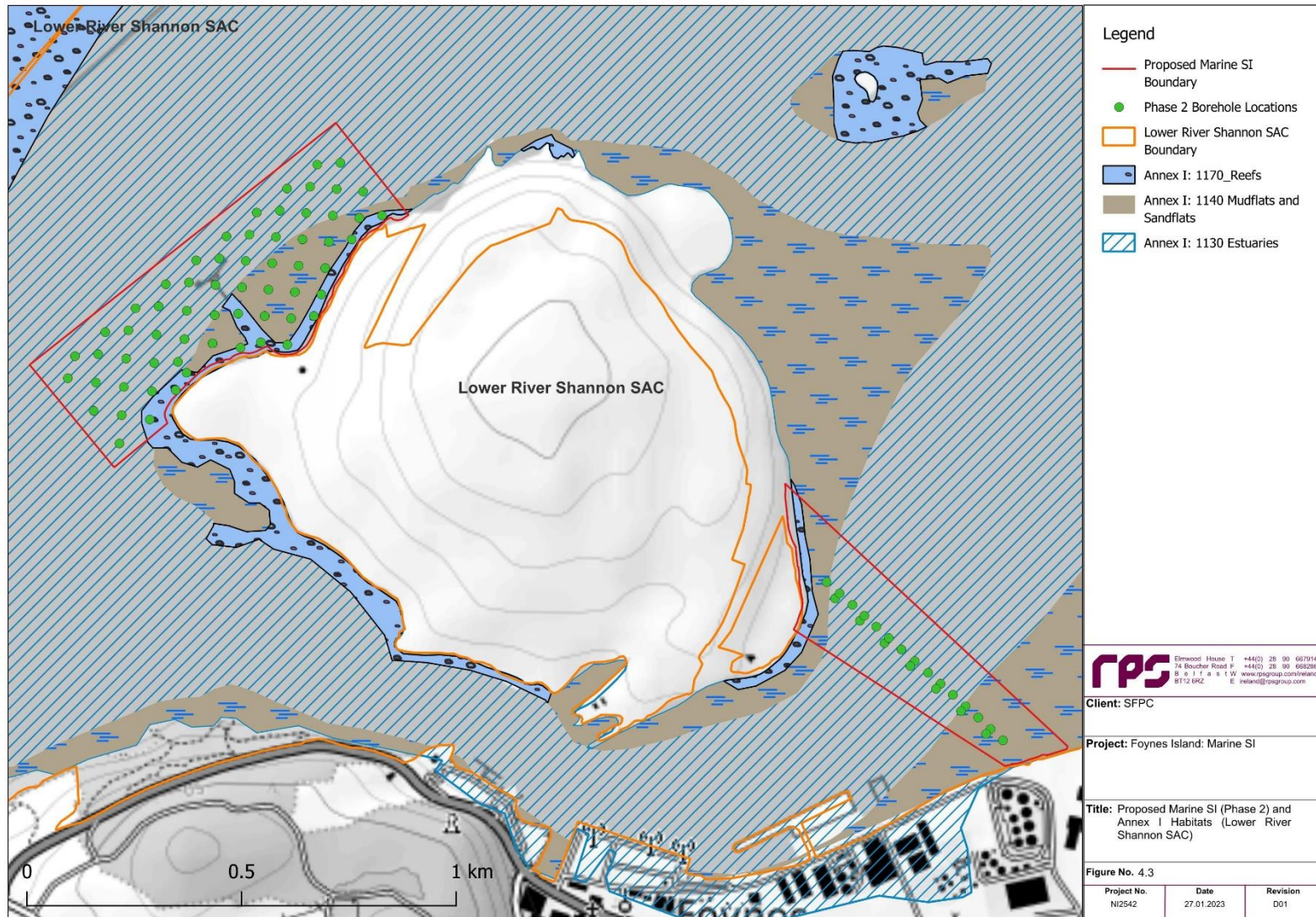


Figure 4.3: Proposed Borehole Locations (Phase 2) and Annex I Habitats (Lower River Shannon SAC)

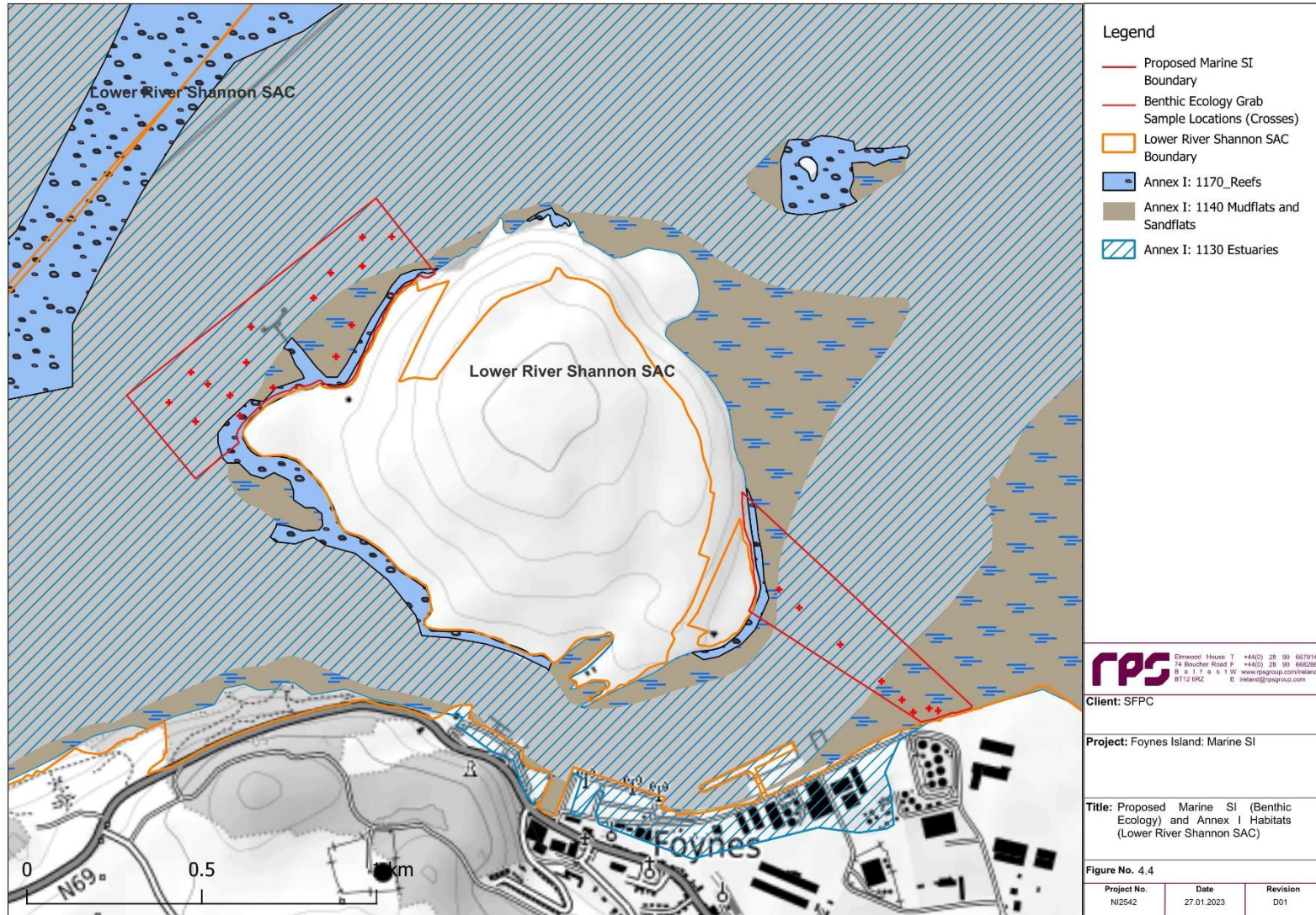


Figure 4.4: Proposed Benthic Ecology Grab Sample Locations and Annex I Habitats (Lower River Shannon SAC)

4.4.2 Water Quality and Habitat Deterioration

4.4.2.1 Suspended Solids

The proposed works will result in disturbance to the estuary bed, both through the placement of jack-up rig footings and through the creation of the borehole itself. The methodology proposed for borehole drilling will involve cable percussive drilling through soft overburden. This methodology, which is less energetic than rotary drilling, will give rise to fairly minimal dispersal of sediments, with the coring taking place within the 200mm steel casing. While rotary drilling will subsequently be utilised to penetrate underlying bedrock, as required, this will occur at great depths and as such surrounding overburden is likely to limit the dispersal of sediments. Again, rotary drilling will take place within the 200mm steel casing which will also limit, to a certain extent, arising suspended sediments. The works will not involve the use of additional substances which could enter the water column as suspended solids, with any arising suspended sediments being limited to natural materials already present within the estuarine environment.

The proposed borehole drilling will take place on the bed of estuarine waters which are subject to significant sediment transport associated with the tidal action on soft overburdens including sand and mud and significant suspended sediments which are washed down into the estuary from the River Shannon and River Fergus catchments, with the Shannon Estuary in total drawing from an inland catchment of approximately 17,963km².

Habitats within proximity to the proposed SI works are estuarine and intertidal habitats including reefs and mudflats and sandflats. These habitats are not particularly sensitive to adverse effects associated with the movements of small quantities of suspended and subsequently deposited sediments, as such habitats will interact with such sediments continuously as transport occurs throughout the estuary system.

Annex II species for which the Lower River Shannon SAC is designated include a range of species which are sensitive to sedimentation including freshwater pearl mussel, sea lamprey, brook lamprey, river lamprey and salmon. The sensitivity of these species to adverse effects associated with sedimentation is largely limited to the headwaters of freshwater watercourses in which the species breed. The proposed works lie downstream of all freshwater habitats within the SAC and as such have no potential to give rise to likely significant effects upon freshwater pearl mussel or breeding habitats of importance for QI fish species. It is considered that the proposed works, given the small quantities of sediment likely to arise, would have no potential to give rise to any likely significant adverse effects upon QI fish species of the Lower River Shannon SAC during the adult portion of their life cycle.

Given that potential sedimentation effects arising as a result of the proposed works will be extremely minimal in nature and will occur over a short period of time, and in the context of information set out above, it is considered that there will be no potential for adverse effects upon non-QI fish species within the area proposed for works. As such it is considered that the proposals would have no potential to give rise to likely significant sedimentation effects upon foraging otter within proximity to the proposed marine SI works.

As discussed above, given the nature of the estuary environment which supports relatively large quantities of suspended sediments and supports significant sediment transport through natural processes, in addition to the lack of predicted impacts upon fish populations generally, it is considered that there is no potential for likely significant sedimentation effects on either the QI species common bottlenose dolphin or upon wintering or breeding SCI bird species associated with the River Shannon and River Fergus Estuaries SPA.

No sedimentation effects to any further, more distantly situated European sites, are predicted to arise as a result of the proposed works.

On the basis of the above information it is considered that sedimentation effects associated with the proposed SI works would not have potential to give rise to likely significant effects upon any European

Site. Likely significant effects are excluded at the screening stage. This conclusion is drawn in the absence of the application of mitigation measures.

4.4.2.2 Pollution Incidents

There is a risk involved with any activity involving the use of machinery within the marine environment that a pollution incident might arise and result in spills or leaks of polluting substances into the water. There is potential for the works required, inclusive of the movement of a jack-up barge and associated tug and workboat, to give rise to pollution events from discharges of hydrocarbon fuels, oil-based lubricants and other chemicals. It is noted however that risks are extremely minimal, typical of the movement of any motor-operated vessel, as occurs continually within the harbour environment.

It is considered that given the nature of the proposals, which are small in scale, will not involve the use of large volumes of hydrocarbon fuels or other chemicals, that any potential pollution incidents potentially arising as a result of the proposed development will be very minor.

Significant mixing of seawater occurs within the Shannon Estuary with freshwater flowing in from the surrounding river catchments. The mixing of any polluting materials that escape to the marine environment as a result of the proposed works is further aided by the tidal currents, wind and wave climate which transport and continue to mix the seawater and freshwater (and any polluting substances) both into and out of the Shannon Estuary, and help it disperse widely and dilute to much lower concentrations to the point where it cannot be detected above background levels. On this basis any potential minor inputs arising as a result of the proposed works are highly likely to be undetectable beyond the immediate vicinity of the proposed works. It is considered likely therefore that any potential spills will be slowly dispersed into the wider estuary or biodegrade or settle within proximity to the works location.

The site of the proposed SI works will take place within areas which support Annex I habitats within the Lower River Shannon SAC, as detailed above, and intertidal wetlands which are a qualifying feature of the River Shannon and River Fergus Estuaries SPA.

An accidental pollution spill associated with the proposed marine SI works would not likely sufficiently dissipate prior to interacting with Annex I habitats within the Lower River Shannon SAC, namely reefs, mudflats and sandflats and estuaries to be able to exclude likely significant effects. Furthermore wetland habitats forming qualifying features of the River Shannon and River Fergus Estuaries SPA may be similarly affected. LSEs cannot therefore be excluded at the screening stage.

No LSEs to any further European sites considered within this assessment through impacts arising through pollution incidents will occur.

It is considered therefore that likely significant pollution effects upon the Lower River Shannon SAC and the River Shannon and River Fergus SPA cannot be excluded at the screening stage, in the absence of mitigation measures.

4.4.3 Underwater Noise and Disturbance

As described in Section 3, some aspects of the proposed SI works will require activities in the marine environment including activities producing underwater noise, including:

- Movement of a single work boat, tug and jack-up barge within the estuary to facilitate proposed works.
- Undertaking of boreholes incorporating a cable percussive drilling method through soft overburden and a rotary drilling method through underlying bedrock where required.

These activities carry a very small inherent risk of noise induced effects upon some marine species as a result of underwater acoustic energy being released into the marine environment. The purpose of the screening assessment is to determine whether or not such risks can be excluded.

Underwater noise is not a persistent effect, and once the noise source ceases noise levels drop very quickly to pre-existing levels. The natural underwater soundscape of the Shannon Estuary is not silent - biological sounds from fish and marine mammals are mixed with sounds from waves and surface noise; current flow and turbulence; rain and wind/storm noise; and noise from shipping and leisure craft activities. The ambient noise levels in coastal and inshore water, bays and harbours are subject to huge variation.

Lower River Shannon SAC is designated for the supported population of common bottlenose dolphin. No other European site within 20km of Foynes Island or its surrounds is designated for a species of marine mammal.

Proposed marine SI works will take place in close proximity to the Shannon Foynes Port, which supports regular marine traffic generating significant underwater noise. It is considered that the proposed borehole drilling works, in particular, will have limited potential to give rise to underwater noise effects in addition to background noise levels and those associated with the operation of Shannon Foynes Port. The area around Foynes Island is not identified in Map 16 of the Lower River Shannon SAC Conservation Objectives document as a 'critical area' for bottlenose dolphin, but nonetheless, elevated levels of man-made noise will occur throughout the works.

MacGillivray et al. (2014) showed that low-frequency sources such as sub-bottom profilers were the most audible sources to large baleen whales. Mid-frequency sources (fisheries, communication, and hydrographic systems) were the most audible sources to odontocetes at ranges below 3km, but low-frequency sources began to dominate between 3 and 10 km. Low- and mid-frequency systems have similar estimated audibility for seals due to their broad hearing range. For all species, modelled sensation levels are lowest for the high-frequency sources (side-scan and multibeam), which operate at the upper limits of the audible spectrum. The estimated zone of audibility for all species is largest for the low-frequency sources (sub-bottom profiler), which propagate over longer distances relative to the rapidly attenuating high frequencies. Thus bottlenose dolphins if very close to the vessel during site investigations may lead to disturbance and at worse auditory injury through temporary threshold shift (TTS).

In the absence of further information it is considered that the proposed marine SI works have potential to give rise to likely significant adverse impacts to common bottlenose dolphin populations of the Lower River Shannon SAC through underwater noise and vibrational disturbance.

It is understood that QI fish species, including sea lamprey, brook lamprey and river lamprey are, at several stages in their life cycle, vulnerable to the effects of underwater noise and vibration. While adult salmon are not particularly sensitive to relatively low intensity underwater noise (Harding et al. 2016)¹ their larval stages are more vulnerable and particularly sensitive to underwater vibration. On a precautionary basis it is assumed that lamprey have similar sensitivity to underwater noise and vibration as salmon, however little data is available.

The proposed works will take place at a significant distance downstream of any spawning habitat for QI fish species within the SAC and any potential underwater noise or vibrational effects predicted will only have potential to interact with juvenile or adult fish which are not recorded to be particularly sensitive to such effects. It is considered therefore that underwater noise and vibration would not have potential to give rise to likely significant adverse effects upon QI fish species of the Lower River Shannon SAC.

Given the nature of the works, which will take place during daylight hours and within the marine environment, it is not considered that there would be any potential for likely significant adverse effects

¹ Harding, H., Radford, A.N. & Simpson, S.D. (2016) The impact of pile driving playback on the behaviour and physiology of Atlantic salmon. Marine and Fisheries. 21st March 2016.

to otter populations within the SAC given their largely nocturnal habit and in the context of existing levels of disturbance at Shannon Foynes Port.

No other qualifying interests of this SAC or any other European sites, including bird populations within the River Shannon and River Fergus Estuaries SPA are considered to be sensitive to underwater noise and vibrational disturbance effects arising as a result of the proposed SI works.

It is considered therefore that the proposed marine SI works will potentially give rise to likely significant underwater noise and vibrational effects upon the Lower River Shannon SAC in the absence of mitigation measures.

4.4.4 Aerial Noise and Visual Disturbance

Mobile species that live above the water line can also be vulnerable to aerial noise and visual triggers of disturbance.

Given the aquatic nature of the vast majority of Annex II QI species for which the Lower River Shannon SAC is designated it is considered that only otter is vulnerable to the effects of aerial noise and visual disturbance.

It is noted that temporary disturbance to foraging adult otters would be unlikely to give rise to a likely significant adverse effect as individuals are likely to simply move on to adjacent undisturbed foraging habitat if they were present when a noise producing activity commenced. As the species is largely nocturnal, daytime disturbance to foraging otter is unlikely to occur as a result of the proposed works. Disturbance to this species is more critical where it arises in close proximity to otters with young, particularly disturbance to natal holts or dens, where young are being raised. While resting places utilised by adult otters may be within areas requiring tolerance to disturbance, a key factor in the location of otter breeding sites and natal holts or dens is a lack of regular human disturbance (Liles, 2003)².

It is noted that the proposed borehole locations are universally situated in marine habitat in proximity to areas which are subject to relatively high levels of human disturbance associated with the ongoing operation of Shannon Foynes Port or recreational boating. These areas are therefore well away from any potential otter natal holts or dens, which are typically situated within terrestrial habitats well inland of the shore. As such it is considered highly unlikely that natal holts or dens would be present within proximity to proposed GI works locations.

No further SACs within the project's zone of influence would be potentially affected by aerial noise or visual disturbance arising as a result of the proposed works.

The River Shannon and River Fergus Estuaries SPA is designated for the supported populations of waders or waterbirds. These species are known to be susceptible to aerial noise or visual disturbance impacts including through abandonment of foraging habitats which, if disturbance is regular or prolonged, can give rise to a functional loss of habitat in the context of the SPA.

The proposed works will involve activities emitting aerial noise and associated with the movement of a single work boat, tug and jack-up rig, in proximity to Foynes Island and the Shannon Foynes Port. Areas of intertidal mud in proximity to the proposed works are known to support occasional populations of SCI species and function as foraging habitat for these species.

Likely significant effects as a result of aerial noise and visual disturbance effects associated with the proposed marine SI works, upon qualifying features of both the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA, cannot be excluded.

² Liles G (2003). Otter Breeding Sites. Conservation and Management. Conserving Natura 2000 Rivers Conservation Techniques Series No. 5. English Nature, Peterborough

4.5 In-Combination Effects

Article 6(3) of the Habitats Directive and Irish national law requires that in-combination effects with other plans or projects are considered. The significance of any identified combined effects of the proposed development and other past, present or reasonably foreseeable future plans or projects must also be evaluated. On this basis, a range of other port projects were considered in terms of their potential to have in-combination effects with the proposed works. Those plans and projects include:

- Capacity Extension Project at Shannon Foynes
- Various permissions and applications within the Shannon Foynes Port Estate.

4.5.1 Capacity Extension at Foynes Port

A project for capacity extension at Foynes Port (file number: 18301561) to facilitate capacity extension at Shannon Foynes Port. This capacity extension has been granted permission and is under construction. Capacity is to be provided in two interrelated ways – increased capacity of the quay wall, and, increased capacity of supporting landside storage facilities and logistics. The project includes two specific elements of development and operational activities as follows:

- Jetty Extension (the joining of the existing ‘West Quay’ and the ‘East Jetty’), and;
- Durnish land development (to provide for increased port related storage and port-centric logistics)

The proposed development seeks to provide for Port Capacity Extension that will consist of the following:

1. **Modifications to the existing jetties and quays to include:** connection of the existing West Quay to the existing East Jetty for the purpose of extending the length of the existing quay to facilitate the mooring of vessels and Port related operations. Development works consist of; (i) Construction of an open piled jetty structure with suspended 116.5 metre concrete deck connecting the West Quay to the East Jetty; (ii) quayside furniture including quay fenders, mooring bollards, safety ladders, toe rail, and lighting columns, (iii) construction and remedial works to the both existing West Quay and East Jetty ends to facilitate structural ‘tie-in’ of the proposed new jetty structure, (iv) removal of the existing small craft landing pontoon and walkway from its current position affixed to the shore between the West Quay and the East Jetty, and provision of a new small craft landing pontoon and walkway affixed to the western side of the West Quay wall, and, (v) all associated site development works; and
2. **Phased Expansion of the Port Estate** on 33.95 hectares of land immediately adjacent to the east of the existing port estate to provide serviced industrial land, and, to accommodate marine related industry, port centric logistics and associated infrastructure that will be provided in accordance with a development framework programme prepared for the overall ‘expansion’ area and which is lodged with the planning application. The development includes:
 - i. site development and infrastructure works to the entire expansion lands on a phased basis including (a) raising of ground levels with fill material to a typical height of +4.44m OD Malin; (b) provision of all associated services including storm water infrastructure and modification to the existing OPW drainage attenuation system; (c) provision of 2.4m high perimeter fencing, (d) landscaping berms and treatments, and (e) all associated site development works; all to be delivered on a phased basis; and

- ii. Implementation and use of 'Phase 1' of port expansion works including: (a) modification and realignment to part of the existing port estate access road including provision of new roundabout and junction arrangements on that road, and associated lighting, and storm water drainage; (b) provision of new internal Port access road (with associated footpath and combined cycle path) including the provision of bridge structures to facilitate access across existing drainage channels; (c) construction of three covered industrial type warehouse units (with typical maximum ridge height of 15.1m above raised ground level) with associated external storage, parking and circulation areas; (d) the provision of separate dedicated uncovered 'open' storage area/ container storage area and associated circulation and service area (with maximum container stacking height of 8m if/when container storage required); (e) provision of Klargest BE model (or similar) package foul water treatment system with polishing filter and discharge to ground to serve the Phase 1a expansion area; (f) modifications to existing 'Foynes Engineering' industrial building which involves the removal of the 'lean-to' structure affixed to the main building and remedial building and site development works; (g) provision of an ESB electrical substation; (h) provision of lighting columns within the 'Phase 1' expansion area; (i) provision of a new security kiosk and access control barrier on the existing Port access road; (j) provision of noise attenuation measures along parts of the southern and western boundary of 'Phase 1' expansion area; (k) provision of a 'bus-stop' on the existing Port access road; (l) landscaping; and (m) all associated site development works.

This project was subject to Appropriate Assessment as part of the consenting process in 2018. This assessment concluded that subject to the implementation of a range of mitigation measures, including those intended to reduce the risk of pollution incidents both at construction and operational stages and underwater noise and vibration effects at construction phase.

If noise producing activities in the marine environment were to occur concurrently for the Capacity Expansion project and the proposed site investigation works, there is a possibility that cumulative underwater noise effects could occur on the Annex II marine QI species that occur in the Estuary. If activities potentially resulting in significant triggers of visual disturbance were to occur concurrently for the Capacity Expansion project and the proposed site investigation works, there is a possibility that cumulative disturbance effects could occur on the non-breeding SCI species of the SPA that occur in the Estuary. If accidental pollution events in the marine environment or were to occur concurrently for the Capacity Expansion project and the proposed site investigation works, there is a possibility that cumulative water quality effects could occur on the Annex I marine QI habitats that occur in the Estuary. Likely significant in-combination effects cannot be excluded.

4.5.2 Shannon Foynes Port Developments

An application (File number: 2360011) was submitted in January 2023 and has yet to be determined. Proposals include the construction of three covered industrial type warehouse units with associated external storage, parking and circulation areas, upgrade of existing site services and all ancillary works associated with the site development.

This application was subject to appropriate assessment as part of the submissions. This assessment concluded that subject to the implementation of mitigation measures at construction stage, principally to avoid the potential for pollution and associated water quality and habitat deterioration effects, there would be no adverse impacts upon any European sites as a result of the development. On this basis it is considered that the proposed development would not have potential to act in-combination with the proposed development.

An application (File number: 22742) was submitted in July 2022 for construction of seven covered industrial type warehouse units (with typical maximum ridge height of 14m above raised ground level)

with associated external storage, parking and circulation areas; upgrade of existing site services and all ancillary works associated with the site development. This application is for a 10-year permission. The application has yet to be determined.

While the application has not been supported by a Screening for Appropriate Assessment document or Natura Impact Statement, it is noted that the proposed development lies well away from the Shannon Estuary and the associated designated sites and is separated from them by existing port development. As such it is considered unlikely that this proposed development would have potential to act in-combination with the proposed marine SI works.

While various further applications have been submitted for development within Shannon Foynes Port, these are generally older and the construction to which they relate has already occurred. As such they do not have potential to act in combination with the proposed development.

4.5.3 Clarus Offshore Wind Farm

Clarus Offshore Wind Farm Limited is investigating the feasibility of developing an offshore wind farm off the west coast of Ireland. Clarus Offshore Wind Farm Limited intend to carry out the proposed site investigations investigate potential export cable corridors and landfall areas, and to assess the associated seabed.

The developer has sought a foreshore license application for these site investigation works. The area in which the proposed Clarus SI works are located includes a large proportion of the mouth of the Shannon including areas of the estuary terminating at Tarbert Island, all lying approximately 17km from the proposed Foynes marine SI works.

The foreshore license application has been supported by a Supporting Information for Screening for Appropriate Assessment and Natura Impact Statement. This report sets out that the SI works proposed for the Clarus project were anticipated to give rise to likely significant effects upon Annex I habitat: reef, and Annex II species: bottlenose dolphin, of the Lower River Shannon SAC in addition to further qualifying interests of additional European sites not relevant to the proposed Foynes marine SI works.

Subject to the implementation of mitigation in connection with these proposed site investigations including the use of marine mammal observers (MMO) and the avoidance of areas of reef habitat within the Lower River Shannon SAC it has been concluded that these works will not give rise to an adverse impact upon the integrity of the SAC. As such it is not anticipated that this proposal will have potential to act in-combination with the proposed Foynes marine SI works.

4.5.4 Illen Offshore Array

Illen Array Ltd. is proposing to develop an offshore wind farm at a site off the Kerry and Clare coasts. The proposed site will be developed using fixed and floating foundation wind turbine technologies.

Illen Array Ltd. is seeking to undertake a variety of marine surveys at the proposed site in order to inform the specific location, design and layout of the proposed offshore wind farm and export cable route to shore. The surveys will include geophysical, geotechnical, environmental and metocean campaigns.

SI works associated with the foreshore license works will take place within areas at least 19km from the proposed Foynes marine SI area. No information on appropriate assessment is currently publicly available in respect of the foreshore license application.

It is anticipated that these works will be similar to the above Clarus Offshore Wind Farm in respect of its potential to give rise to likely significant effects upon Annex I marine habitats and Annex II species bottlenose dolphin associated with the Lower River Shannon SAC. However as no information is currently available on the incorporation of mitigation measures in respect of the proposed SI works it is assumed that these works will have potential to give rise to likely significant effects upon the Lower River Shannon SAC and as such in the absence of mitigation measures would have potential to act in-combination with the proposed Foynes marine SI works.

4.5.5 Mainstream Renewable Power Ltd.

Mainstream has identified potential search or investigation areas which are based on available data and minimise potential impacts to a number of key stakeholders.

The cable corridor and the array investigation areas are search areas in which surveys will be carried out to determine where infrastructure could be located. The Foreshore Licence Application Area is located off the west coast of County Kerry and County Clare approximately 17km at its closest point from the proposed Foynes marine SI area.

As per the Illen Offshore Array, no supporting information in relation to appropriate assessment has been submitted in support of the foreshore license for the proposed site investigation works connected with this project.

It is anticipated that these works will be similar to the above Clarus Offshore Wind Farm in respect of its potential to give rise to likely significant effects upon Annex I marine habitats and Annex II species bottlenose dolphin associated with the Lower River Shannon SAC. However as no information is currently available on the incorporation of mitigation measures in respect of the proposed SI works it is assumed that these works will have potential to give rise to likely significant effects upon the Lower River Shannon SAC and as such in the absence of mitigation measures would have potential to act in combination with the proposed Foynes marine SI works.

4.5.6 Moneypoint Offshore Wind

Plans to develop offshore wind farms around the coast of Ireland in support of national and European targets for renewable electricity generation and de-carbonisation of our society.

Comprised of two projects, namely Moneypoint Offshore One Wind and Moneypoint Offshore Two which are both proposed as floating offshore wind projects. Moneypoint Offshore One is located to the west of County Clare and County Kerry and at least 22km from the proposed Foynes marine SI works. This Foreshore licence application relates to proposed Site Investigation (SI) works only.

As per the Illen Offshore Array, no supporting information in relation to appropriate assessment has been submitted in support of the foreshore license for the proposed site investigation works connected with this project.

It is anticipated that these works will be similar to the above Clarus Offshore Wind Farm in respect of its potential to give rise to likely significant effects upon Annex I marine habitats and Annex II species bottlenose dolphin associated with the Lower River Shannon SAC. However as no information is currently available on the incorporation of mitigation measures in respect of the proposed SI works it is assumed that these works will have potential to give rise to likely significant effects upon the Lower River Shannon SAC and as such in the absence of mitigation measures would have potential to act in combination with the proposed Foynes marine SI works.

4.5.7 Rian Offshore Array Ltd.

The overall Rian Offshore Array Project relates to an offshore floating wind farm located which will be located off the west coast of Ireland, predominantly off the coast of north Kerry and county Clare with the closest aspect to the proposals taking place at least 17km from the proposed Foynes marine SI works.

Rian Offshore Array will take a phased approach to development which incorporates two development phases:

- Phase 1 – Assessment of the Foreshore Investigatory Area, for the survey works investigating cable routing options
- Phase 2 – A further development site is proposed but details were not included in the foreshore licence application

As per the Illen Offshore Array, no supporting information in relation to appropriate assessment has been submitted in support of the foreshore license for the proposed site investigation works connected with this project.

It is anticipated that these works will be similar to the above Clarus Offshore Wind Farm in respect of its potential to give rise to likely significant effects upon Annex I marine habitats and Annex II species bottlenose dolphin associated with the Lower River Shannon SAC. However as no information is currently available on the incorporation of mitigation measures in respect of the proposed SI works it is assumed that these works will have potential to give rise to likely significant effects upon the Lower River Shannon SAC and as such in the absence of mitigation measures would have potential to act in-combination with the proposed Foynes marine SI works.

4.5.8 Moneypoint Hub Project

Marine SI is proposed as part of the overall Site Investigations in both the terrestrial and marine environment at the ESB facility at Moneypoint in order to inform the future development of the site as an offshore floating wind construction and deployment facility.

This proposal has been supported by documents relevant to appropriate assessment which identified that the proposed SI works would not have potential to give rise to likely significant effects upon the Lower River Shannon SAC, or any other relevant European sites.

On this basis it is considered that the proposed Foynes marine SI works would have no potential to act in-combination with this project.

4.5.9 Shannon Technology and Energy Park

This development is for a site investigations associated with a proposed power plant and LNG terminal located at least 22km from the proposed Foynes marine SI works area.

This proposal has been accompanied by a Natura Impact Statement which identified the potential for likely significant effects upon the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA.

Subject to the implementation of a range of mitigation measures it is concluded that this proposal will not give rise to any adverse effects upon the integrity of any European sites and as such will not have potential to give rise to any in-combination effects alongside the proposed Foynes marine SI works.

4.5.10 Eirgrid Cross Shannon 400kV Electricity Cable

This development involves the laying of 400 kV submarine cables across the Lower Shannon Estuary between the Moneypoint 400 kV Electricity Substation in the townland of Carrowdotia South County Clare and Kilpaddoge 220/110 kV Electricity Substation in the townland of Kilpaddoge County Kerry. The proposal is located 19km from the closest aspect of the proposed Foynes marine SI works area.

This project has been subject to appropriate assessment which identified the potential for likely significant effects upon the qualifying features of the Lower River Shannon SAC through pollution and underwater noise disturbance. Subject to the implementation of mitigation measures in respect of this project in relation to these potential effects, including the use of MMOs, no adverse impacts to the integrity of this or any other European sites.

On this basis it is considered highly likely that this project will have no potential to act in combination with the proposed Foynes marine SI works.

4.6 Summary of Screening Appraisal

Table 4.3 summarises the outcome of the screening exercise for each European site considered.

Table 4.3: Screening Summary for European sites considered

Site Code	Site Name	Can the possibility of Likely Significant Effects be excluded at the Screening Stage of assessment?			
		Habitat Loss	Water Quality and Habitat Deterioration	Underwater Noise and Disturbance	Aerial Noise and Visual Disturbance
IE002165	Lower River Shannon SAC	x	x	x	x
IE004077	River Shannon and River Fergus Estuaries SPA	x	x	✓	x
IE000432	Barrigone SAC	✓	✓	✓	✓
IE004161	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	✓	✓	✓	✓
IE002279	Askeaton Fen Complex SAC	✓	✓	✓	✓
IE000174	Curraghchase Woods SAC	✓	✓	✓	✓

5 NEXT STEPS

A screening exercise was completed in compliance with the relevant European Commission and national guidelines to determine whether or not LSEs on any European site could be discounted as a result of the construction or operation of the proposed development.

From the findings of the Screening exercise, the possibility of LSEs upon two of the European sites scoped into the appraisal cannot be excluded in the absence of further evaluation and analysis and quite likely the application of mitigation measures, as a result of the proposed project alone and in combination with the other projects considered.

- The possibility of likely significant **Habitat Loss** effects cannot be discounted for the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA without further evaluation and analysis.
- The possibility of likely significant **Water Quality and Habitat Deterioration** effects cannot be discounted for the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA without further evaluation and analysis.
- The possibility of likely significant **Underwater Noise and Disturbance** effects cannot be discounted for the Lower River Shannon SAC without further evaluation and analysis.
- The possibility of likely significant **Aerial Noise and Visual Disturbance** effects cannot be discounted for the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA without further evaluation and analysis.

Having regard to the methodology employed and the findings of the screening stage exercise, it is concluded that an appropriate assessment of the implications of the proposed development on the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA is required, in view of their conservation objectives and in combination with any other relevant plans or projects.