FITZSIMONS WALSH ENVIRONMENTAL
SUSTAINABLE SOLUTIONS

Natura Impact Statement to inform Appropriate Assessment.

Cuan na Loinge Road – Coastal Flooding Mitigation.

Report prepared by:	**Fitzsimons Walsh Environmental Limited**
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Report Title:	**Natura Impact Statement to inform Appropriate Assessment for the Proposed *Cuan na Loinge* Road Coastal Flooding mitigation.**

Contents

1.0 Introduction

This report, prepared in compliance with Appropriate guidelines[1], provides the information required to allow the competent authority (in this case Galway County Council) to conduct an Article 6 (3) Appropriate Assessment for a proposed development on *Cuan Na Loinge*. This information is being submitted as a Natura Impact Statement (NIS).

The purpose of this NIS is to provide the information required to establish whether the proposed development is likely to have a significant impact on Natura sites in the context of their conservation objectives and specifically on the habitats and species for which the Natura 2000 conservation sites have been designated.

The proposed development consists of road improvement works to alleviate coastal flooding on a 200 metre stretch of the L-52214, including its junctions with two side roads, in *Cuan Na Loinge*, *Ceantar na nOileán*, Co. Galway

This assessment has been undertaken by Ms. Catherine Howarth[i] BSc, Consultant Ecologist and by Oliver Fitzsimons[ii] BSc. Environmental Scientist.

Figure 1.1 Location map.

[1] Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DoEHLG 2009, February 2010) and the European Communities (Birds and Natural Habitats) Regulations 2011 (DoEHLG 2011)

1.1 The Appropriate Assessment Process

A Natura Impact Statement (NIS) is defined as *"a report comprising the scientific examination of a plan or project and the relevant European Site or European Sites, to identify and characterise any possible implications of the plan or project individually or in combination with other plans or projects in view of the conservation objectives of the site or sites, and any further information including, but not limited to, any plans, maps or drawings, scientific information or data required to enable the carrying out of an Appropriate Assessment".*

The NIS identifies and characterises any possible implications the project may have (either individually or in combination with other plans and projects) on the conservation objectives of any 'screened-in' European Site(s), taking into account the full scope of these objectives, whether generic or site specific.

The Appropriate Assessment process is a four-stage process with issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

Stage (1) Appropriate Assessment (Habitats Directive) Screening

This initial process identifies the likely impacts of a proposed project or plan upon a Natura 2000 site, either alone, or in combination with other projects or plans and considers whether these impacts are likely to be significant. A recent judgement in the ECJ (C323/17) that has large implications for appropriate assessment screening in Ireland has found that:

"…Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora 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…"

Stage (2) Preparation of Natura Impact Statement

The consideration of the impact of the project or plan on the integrity of the Natura 2000 Site, either alone or in combination with other projects or plans to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts.

Stage (3) Assessment of Alternative Solutions

The process examines alternative ways of achieving the objectives of the project or plans that avoid adverse impacts on the integrity of the Natura 2000 site.

Stage (4) Assessment where Adverse Impacts Remain

An assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

1.2 Legislative Context

The "Habitats Directive" (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna) is the main legislative instrument for the protection and conservation of biodiversity within the European Union and lists certain habitats and species that must be protected within wildlife conservation areas, considered to be important at a European as well as at a national level. A "Special Conservation Area" or SAC is a designation under the Habitats Directive.

The "Birds Directive" (Council Directive 2009/147/EC on the Conservation of Wild Birds) provides for a network of sites in all member states to protect birds at their breeding, feeding, roosting, and wintering areas. This directive identifies species that are rare, in danger of extinction or vulnerable to changes in habitat and which need protection. A "Special Protection Area" or SPA, is a designation under The Birds Directive.

Special Areas of Conservation and Special Protection Areas form a pan-European network of protected sites known as Natura 2000 sites.

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and of wild fauna and flora by the designation of Special Areas of Conservation (sacs) and the Birds Directive (79/409/EEC) seeks to protect birds of special importance by the designation of Special Protected Areas (spas). It is the responsibility of each member state to designate spas and sacs, both of which will form part of Natura 2000, a network of protected sites throughout the European Community. Further information is available at:

- Http://ec.europa.eu/environment/nature/legislation/habitatsdirective/
- Http://www.npws.ie/planning/appropriateassessment/

The Habitats Directive sets out the protocol for the protection and management of SACs. The Directive sets out key elements of the system of protection including the requirement for Appropriate Assessment of plans and projects. The requirements for an Appropriate Assessment are set out in the EU Habitats Directive. Articles 6(3) and 6(4) of the Directive respectively, state:

> *"...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…."

"…If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of over-riding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted…."

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission to other imperative reasons of overriding public interest."

The Water Framework Directive (WFD) (2000/60/EC) aims to ensure that Member States achieve water quality at least Good Status in rivers, lakes, groundwater, estuaries and coastal waters by 2027 and that status does not deteriorate in any waters. The WFD was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003). Water quality must be protected and highly impacts species diversity as such it is an important factor to consider in Appropriate Assessment. Stage 1 - Screening for Appropriate assessment.

2.0 The Screening Process

The task of establishing whether a plan or project is likely to have an effect on a Natura 2000 site(s) is based on a preliminary impact assessment using available environmental information, supplemented as necessary by local site information and ecological surveys.

Screening for Appropriate Assessment (Stage 1) determines the need for a full Appropriate Assessment (Stage 2) and consists of the following steps:

- Establish whether the proposed project is necessary for the management of a Natura 2000 site.
- Description of the receiving environment
- Identification of Natura 2000 sites potentially affected.
- Identification and description of potential impacts of the proposed project
- Assessment of the significance of the impacts on the integrity of Natura 2000 sites
- Exclusion of sites where it can be objectively concluded that there will likely be no significant adverse effects
- A Conclusion to the screening stage

2.1 Article 6(3) Tests

Article 6(3) of the Habitats Directive 92/43/EEC defines a stepwise procedure for considering plans and projects that may have a significant effect on a Natura 2000 site

According to the NPWS guidelines (2009), Appropriate Assessment Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3):

Article 6(3):	Detail
Is the plan or project directly connected to or necessary for the management of a Natura 2000 site?	The proposed works **<u>are not</u>** directly connected to or necessary for the management of any Natura 2000 site.
Is the plan or project, alone or in combination with other such plans or projects likely to have significant negative effects on a Natura 2000 site(s) in view of the conservation objectives of that site(s)?	Adopting the precautionary principle, we must determine whether the proposed development individually and/or in combination with other development plans ***could have significant negative effects*** on a Natura 2000 site. To adequately address this question, we must proceed with the screening exercise which will inform the Appropriate Assessment process. Potential impacts will be identified and if **deemed to be significant**, potentially significant or uncertain, a Stage 2 Appropriate Assessment will be required.

3.0 Methodology

Statement of Authority

This report has been prepared by Catherine Howarth BSc and Oliver Fitzsimons BSc.

Ms. Howarth BSc, Consultant Ecologist holds a bachelor's degree in Conservation Biology and Ecology from the University of Exeter, a Certificate in Ecological Consultancy from ETUK and a PGCE in secondary science from the University of Chester. Catherine has over 16 years' experience in habitat monitoring and surveying, report writing, science communication and education.

Mr. Fitzsimons holds a bachelor's degree in Environmental Science and Technology from Atlantic Technological University Sligo. Mr. Fitzsimons has been granted a Master of Science degree in Applied Science by the University of Limerick and a Master of Science degree in Geographic Information Systems by the University of Ulster. Mr. Fitzsimons is a an Environmental Clerk of works having qualified from the University of the West of Scotland. Oliver has 24-years' experience in the field of environmental management and impact assessment and control and has participated in the planning of significant projects across the Island of Ireland including mining, wind energy infrastructure and road infrastructure.

The report has been prepared with reference to the following:

- European Commission (2018). Managing Natura 2000 Sites: The Provisions of Article 6 of the
- 'Habitats' Directive 92/43/EEC.
- European Commission (2021). Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission (2006). Nature and Biodiversity Cases: Ruling of the European Court of Justice.
- European Commission (2007). Clarification of the Concepts of: Alternative Solution, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.
- Department of Environment, Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities.
- Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management.
- NPWS (2019). The Status of EU Protected Habitats and Species in Ireland.

3.1 Desk Studies & Consultation

A desk study was carried out to collate information on European sites in the vicinity of the proposed development. The following data sources were accessed to complete a thorough examination of potential impacts prior to the completion of this statement:

- National Parks and Wildlife Service - Aerial photographs and maps of designated sites, information on habitats and species within these sites and information on protected plant or animal species, conservation objectives, site synopses and standard data forms for relevant designated sites.
- Environmental Protection Agency (EPA)- Information pertaining to water quality, geology and licensed facilities within the area.
- Myplan.ie – Mapped based information;
- National Biodiversity Data Centre (NBDC) – Information pertaining to protected plant and animal species within the study area.
- Galway County Council – Information on planning history in the area for the assessment of cumulative impacts.

3.2 Assessment Methodology

The development was assessed to identify any potential ecological impacts and it's 'Zone of Influence' (ZoI). The ZoI of a proposed development is the geographical area over which it could affect the receiving environment in a manner that could have significant effects on the Qualifying Interests of a European site.

For significant effects to arise there must be a potential impact:

- From a Source, i.e., a development,
    - To a Receptor, i.e., a European site
        - Via an Ecological pathway e.g. a water course.

If there is no ecological pathway or functional link between the proposed development and the European site, there is no potential for impact and the project can be screened out.

Based on the potential impacts and their ZoI, the Natura 2000 sites potentially at risk from direct, indirect or in-combination impacts were identified. The assessment considered all potential impact sources and pathways connecting the proposed development to Natura 2000 sites, in view of the conservation objectives supporting the favourable conservation condition of the site's Qualifying Interests (QIs) or Special Conservation Interests (SCIs).

The conservation objectives relating to each Natura 2000 site and its QIs/SCIs are cited generally for SACs as "to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or Annex II species for which the SAC has been selected", and for SPAs "to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA".

According to the Habitats Directive, the conservation status of a natural habitat will be taken as 'favourable' within its biogeographic range when:

- Its natural range, and areas 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.
- The conservation status of its typical species is favorable as defined below.

According to the Habitats Directive the conservation status is considered 'favorable' within its biogeographic range when:

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

A distance of 15km is a baseline used for plans with regard to ZoI according to CIEEM 2018 Guidance, however the ZoI will vary for different ecological features depending on their sensitivity to an environmental change, therefore this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors and the potential for in-combination effects.

Where site-specific conservation objectives (SSCOs) have been prepared for a European site, these include a series of specific attributes and targets against which effects on conservation condition, or integrity, can be measured. Where potential significant effects are identified, then these SSCOs should be considered in detail.

4.0 Description of the proposed development

4.1 Site location

The site is located at the local road L-52214, in Cuan Na Loinge, Ceantar na nOileán, Co. Galway, as show in figures 4.1 and 4.2.

Figure 4.1 Scheme location (**O**)

Figure 4.2 Scheme location

4.2 Project description

The proposed road improvement/flood alleviation project is located on a 200m stretch of the L-52214, including its junctions with two side roads in Cuan Na Loinge, Ceantar na nOileán, Co. Galway. This section of the road is frequently inundated by seawater during high tides and storm surges events, impacting the access to up to 17 residences in the area.

The objective of the project is to raise the road level to minimise the impact of coastal flooding, without significantly altering the existing road footprint nor tidal patterns and water flows.

Figure 4.3 Site layout

4.2.1 The Proposed works

The flood containment solution includes raising the road level to 3.6mOD, representing a maximum increase of 1.0 metre above the existing level.

A rock-armour embankment with a natural stone roadside wall will be constructed along the route, with a parapet height of 0.8m above the new road surface. The embankment slope is designed at 1:1, and five 450mm diameter culverts with headwalls will be installed to facilitate water flow beneath the road.

Road closure during the works is not feasible as the road provides the only access for the local residents therefore the roadway is to remain online throughout the construction period. It is estimated that the proposed works will take four to six weeks to complete.

Table 4.1 Construction Sequence and Methodology

Phase	Detail
Site Preparation and Traffic Management	➢ Erect temporary traffic signage and barriers in accordance with Chapter 8 of the Traffic Signs Manual. ➢ Install silt fencing and sediment traps around works areas to protect adjacent aquatic features ➢ Identify and mark utilities using a utility survey and Ground Penetrating Radar (GPR) where required.
Culvert Removal and Upgrade	➢ Excavate around existing culverts under controlled conditions. ➢ Remove old culvert sections ➢ Install new precast or HDPE culverts of appropriate hydraulic capacity. ➢ Backfill and compact in 150 mm layers with suitable granular fill (Clause 808 material).
Installation of Precast L-Uprisers	➢ Excavate roadside trenches to accommodate the base slab of the L-shaped concrete uprisers (depth ~500 mm or as per structural specification). ➢ Ensure the base is leveled and compacted to formation level (CBR > 15%). ➢ Place L-uprisers in sequence along the outer road edge, ensuring full contact with the bedding mortar or concrete blinding layer. ➢ Backfill behind uprisers with granular Class 6N or 6F2 material in 150 mm compacted layers.
Road Raising and Layer Construction	➢ Excavate the existing road surface to formation level (depth determined by new road profile). ➢ Construct road build-up using the following layers: ➢ Capping Layer: 600 mm of 6F2 material compacted to 95% MDD ➢ Sub-base Layer: 150–225 mm of Type 1 granular material to Clause 804 ➢ Base Course: 60 mm Dense Bitumen Macadam (DBM) base ➢ Wearing Course: 40 mm Close-Graded Macadam or SMA 10 surface ➢ All layers to be laid using appropriate plant (grader, roller, paver) and tested for compaction and compliance.
Final Works and Restoration	➢ Install roadside verge treatment (e.g., grass seeding or riprap) as appropriate. ➢ Install road markings and cat's eyes if required. ➢ Remove temporary traffic management and demobilise the site. ➢ Conduct post-construction inspection and prepare as-built records.

5.0 The Existing Environment

The site is located in the townland of Carrowroe West (bounded by the townland of Bealadangan to the north) at *Cuan na Loinge*.

Cuan na Loinge is a coastal inlet situated within Ceantar na nOileán a Gaeltacht district comprising interconnected islands and peninsulas. The area is characterised by a rugged, low-lying landscape with a mix of granite outcrops, boglands, and small inlets. The terrain is shaped by glacial activity and is interspersed with narrow local roads and dry-stone walls.

Ceantar na nOileán as a whole has approximately 2,000 residents with only 17 residences in the immediate area of the proposed works area. The low population density reflects the rural and dispersed settlement pattern typical of the area. The settlement pattern consists of dispersed rural housing clusters, reflecting traditional landholding.

The landscape at and in the vicinity of the proposed works is rural in nature as defined by the 2018 CORINE landcover dataset, is classified as 'Inland Wetlands (Peat bog). The bedrock of the site is Errisbeg Townland Granite (Megacrystic pink/grey monozogranite).

The land is primarily used for low-intensity agriculture, such as sheep grazing, and contains extensive areas of blanket bog and heathland.

Figure 5.1 Aerial view 2025

The following Ecological field surveys were carried out:

- Preliminary site visit: 24th October 2024
- Multi-disciplinary walkover survey including Otter survey: 14 February 2025)
- Multi-disciplinary walkover and habitat survey 26th May 2025

The aim of the surveys was

- To chronicle existing habitats and species in the environs of the proposed works
- To determine the presence or absence of habitats and species of ecological value/significance, including Annex I habitats and Annex II and IV species, bird species protected under the EU Birds Directive, Wildlife Act species and Flora Protection Order (FPO) plant species.
- To assess the suitability of the habitats within the proposed development site to support protected species.

5.1 Habitats within the Site

Habitats within the application site are classified in accordance with Level 3 of *A Guide to Habitats in Ireland* (Fossitt, 2000). These habitats are denoted in the text along with their habitat code, e.g., the habitat code for improved agricultural grassland is GA1.

The main habitats on the site are 'Buildings and Artificial Surfaces' (BL3), Salt Marsh (CM), Lagoons and Saline Lakes (CW1) with some smaller areas of Lowland Blanket Bog (PB3), Wet Grassland (GS4) and Exposed Siliceous Rock (ER1).

All habitats within the development site are illustrated in figure 5.2.

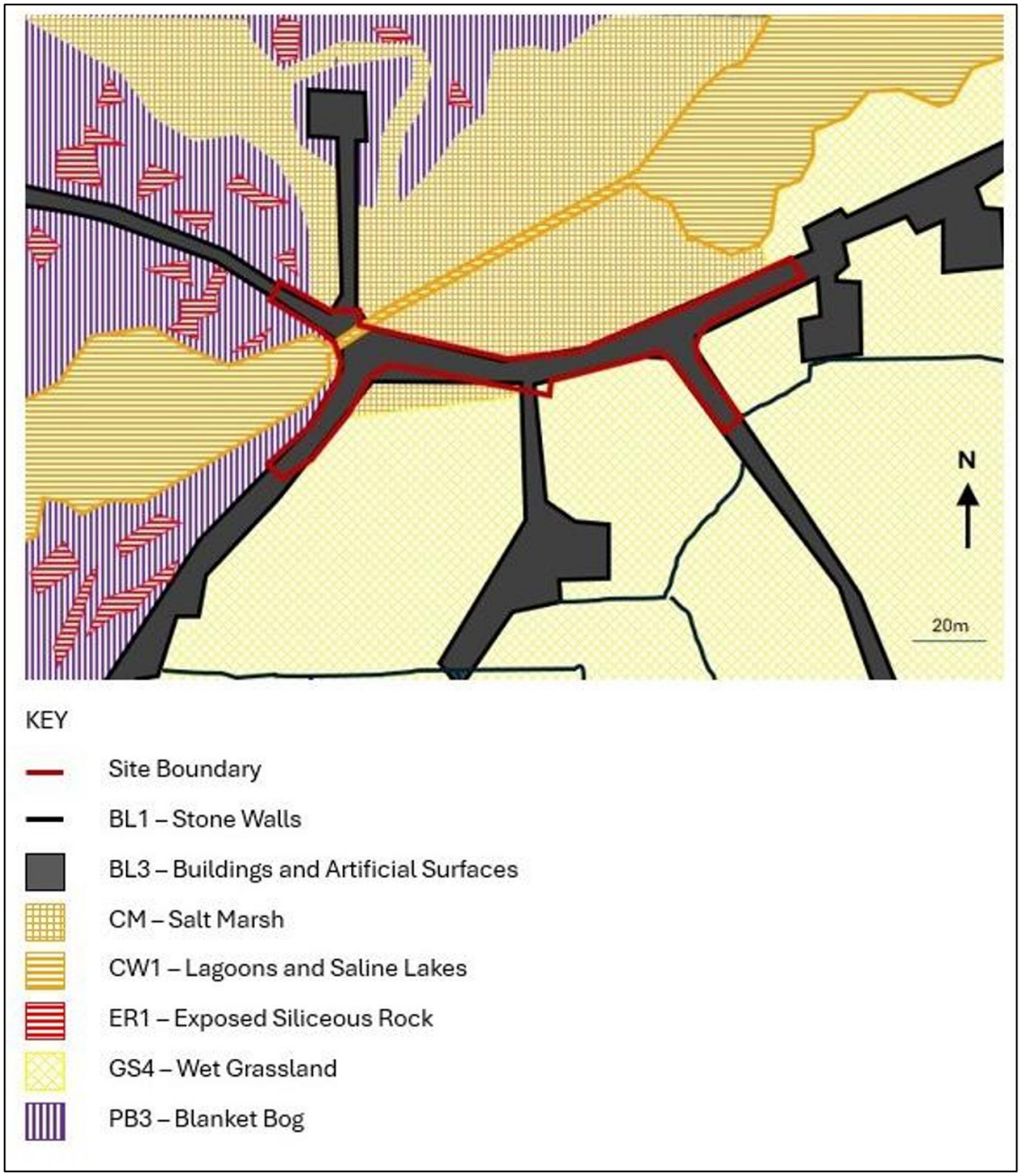

Figure 5.2 Habitat Map with Fossitt codes and description

5.2 Water features and Quality

The proposed site is located within the Galway Bay North Catchment (31), and the Furnace_SC_010 Sub-Catchment (31_). The site is within the Spiddal Groundwater Body and the status of this groundwater body is good. There is extreme groundwater vulnerability, and the site is located on a Poor aquifer

The proposed development intersects and lies adjacent to hydrologically sensitive features including Loch Fhada Upper Pools, Loch Fhada, and downstream transitional waters leading to Camus Bay. The site is classified as having extreme groundwater vulnerability, with a strong surface/groundwater interaction regime. The underlying aquifer is classified as 'Poor'.

The River Derrynea emerges from the Loch Fhada Upper Pool system and flows from east to west to Loch an Aibhinn before entering Camus Bay. The river water body status of Derrynea is good.

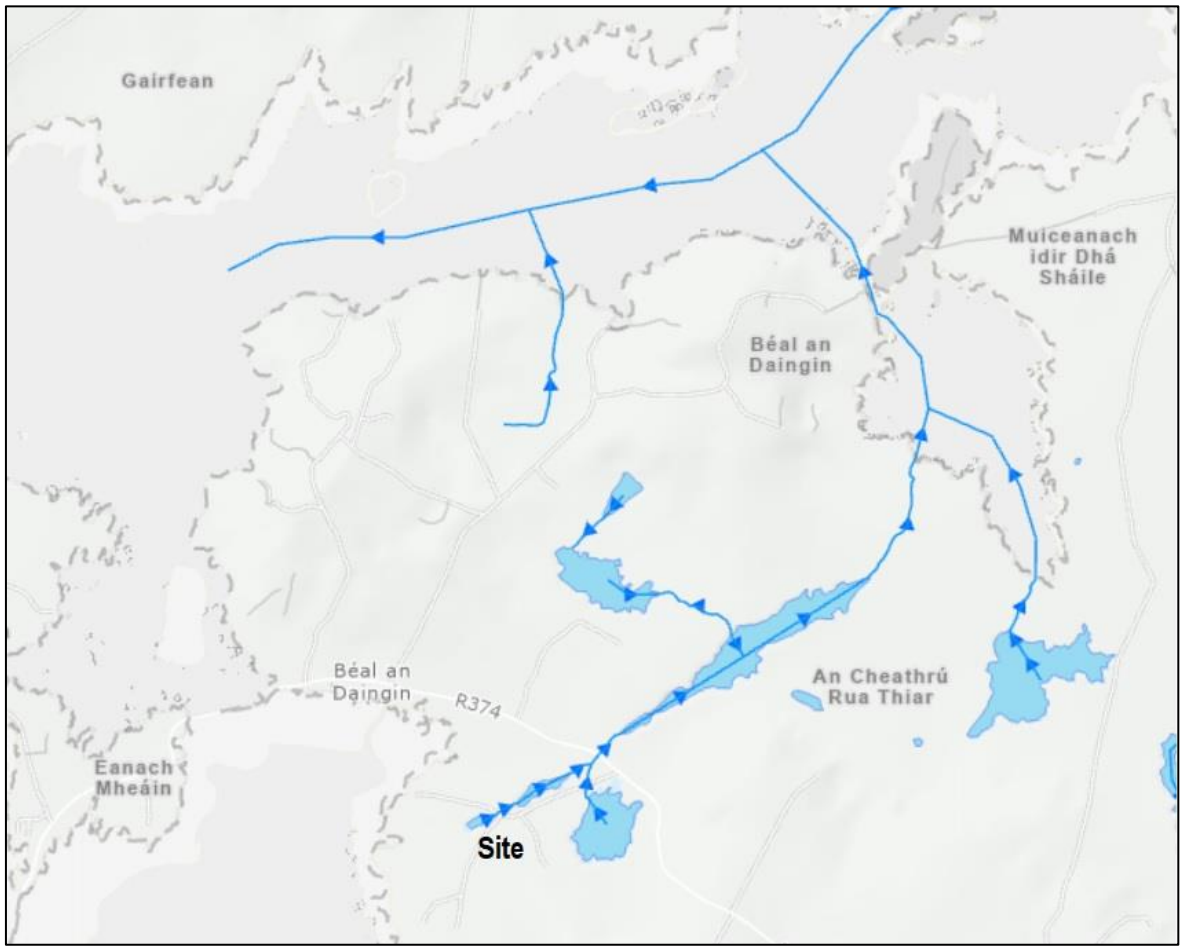

Figure 5.3 Surface water network

6.0 Identification of Natura 2000 sites potentially affected[2].

In accordance with the guidelines issued by the Department of the Environment and Local Government, a list of Natura 2000 sites within 15km of the proposed development have been identified and described according to their site synopses, qualifying interests and conservation objectives. In addition, any other sites further than this, but potentially within its zone of interest were also considered. The zone of impact may be determined by an assessment of the connectivity between the application site and the designated areas by virtue of hydrological connectivity, atmospheric emissions, flight paths, ecological corridors etc.

The proposed works are within 15km of two SACs and two SPAs that have been designated under the EU Habitats Directive and the EU Birds Directive. Maps and aerial photographs showing the locations of Natura 2000 sites relative to the application site are shown in Figures 6.1 and 6.2. These designated areas, their proximity to the development and QIs are outlined in Tables 6.1 and 6.2.

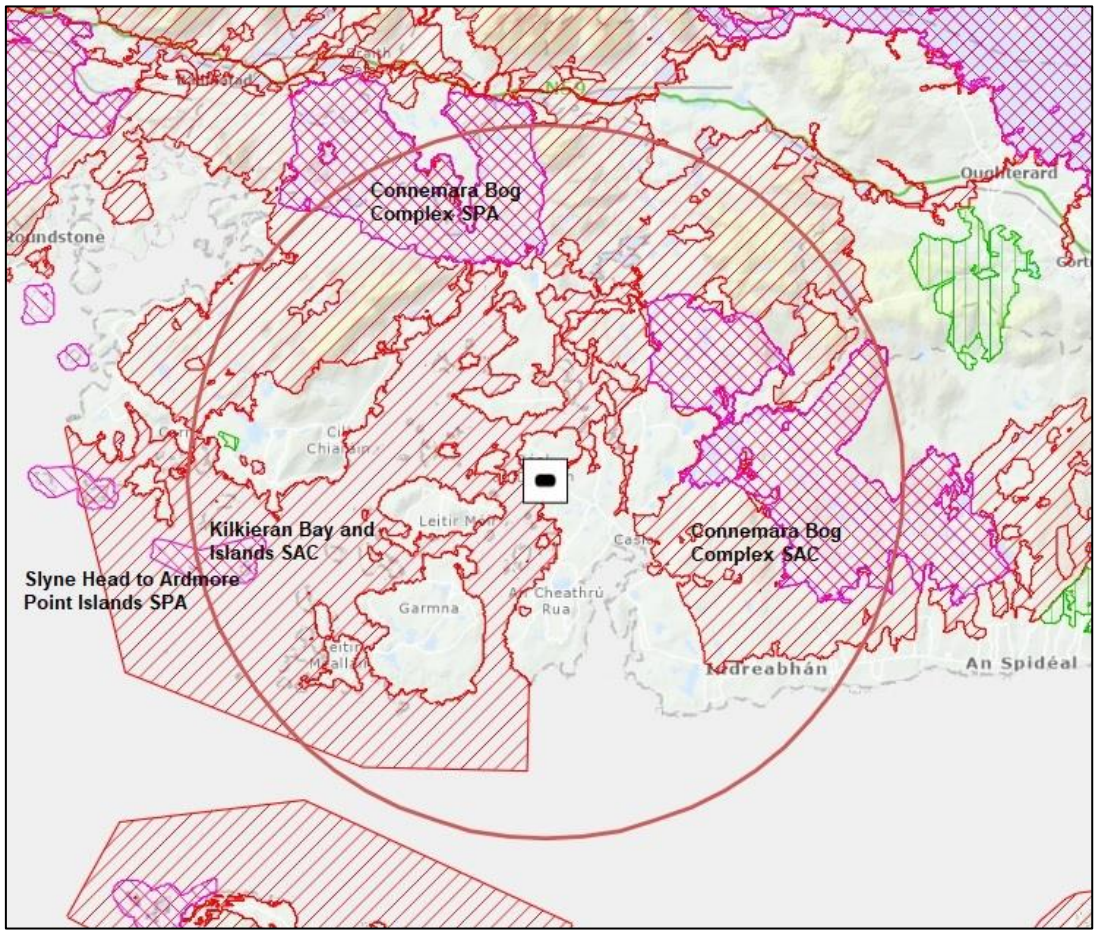

Figure 6.1 Natura 2000 sites within 15m radius of the project site.

[2] Source of information for data regarding Natura 2000 sites and Article 17 Conservation Assessments: www.npws.ie (Website of the National Parks and Wildlife Service)

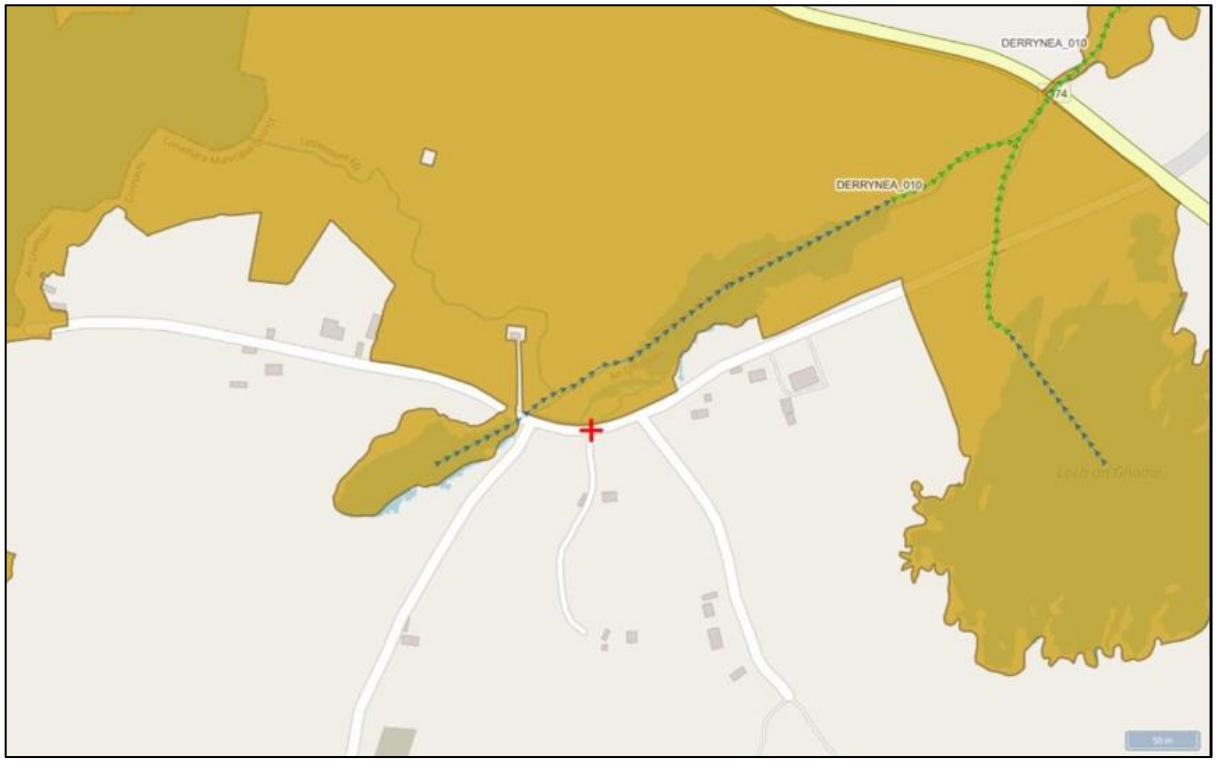

Figure 6.2 Proposed site in red [+] and the closest Natura 2000 site (EPA Maps)

Table 6.1 Natura 2000 sites within 15km radius of proposal site

Site Name	Code	Designation	Proximity
Kilkieran Bay and Islands SAC	002111	SAC	Immediately adjacent the site to the north and east
Connemara Bog Complex SAC	002034	SAC	3.93 km
Connemara Bog Complex SPA	004181	SPA	5.65km
Slyne Head to Ardmore Point Islands SPA	004159	SPA	11.97km

6.1 Characteristics of the identified Natura 2000 sites

Information pertinent to the Natura 2000 sites has been attained from a number of sources including.

- The National Parks and Wildlife. NPWS maintain information pertaining to Natura 2000 site including qualifying interests, conservation objectives accessible at www.npws.ie
- The European Commission website https://environment.ec.europa.eu/topics/nature-and-biodiversity/natura-2000_en
- The European Environment Area (EEA) maintains an annually updated database on Natura 2000 accessible via the online map viewer at https://natura2000.eea.europa.eu/

The qualifying interests of the Natura 2000 sites identified within 15km of the project site are summarised in table 6.2.

Table 6.2 Natura 2000 Sites Qualifying interests.

Natura Site	Qualifying Interests
Kilkieran Bay and Islands SAC	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1150 Coastal lagoons* 1160 Large shallow inlets and bays 1170 Reefs 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1410 Mediterranean salt meadows (Juncetalia maritimi) 21A0 Machairs (* in Ireland) 3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea 6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) **Species** 1351 Harbour Porpoise (Phocoena phocoena) 1355 Otter (Lutra lutra) 1365 Harbour Seal (Phoca vitulina) 1833 Slender Naiad (Najas flexilis)

Natura Site	Qualifying Interests
Connemara Bog Complex SAC	**Habitats** 1150 Coastal lagoons* 1170 Reefs 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea 3160 Natural dystrophic lakes and ponds 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation 4010 Northern Atlantic wet heaths with Erica tetralix 4030 European dry heaths 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 7130 Blanket bogs (* if active bog) 7140 Transition mires and quaking bogs 7150 Depressions on peat substrates of the Rhynchosporion 7230 Alkaline fens 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles **Species** 1065 Marsh Fritillary *(Euphydryas aurinia)* 1106 Salmon *(Salmo salar)* 1355 Otter *(Lutra lutra)* 1833 Slender Naiad *(Najas flexilis)*
Connemara Bog Complex SPA	**Birds** A017 Cormorant *(Phalacrocorax carbo)* A098 Merlin *(Falco columbarius)* A140 Golden Plover *(Pluvialis apricaria)* A182 Common Gull *(Larus canus)*
Slyne Head to Ardmore Point Islands SPA	**Birds** A045 Barnacle Goose *(Branta leucopsis)* A191 Sandwich Tern *(Sterna sandvicensis)* A194 Arctic Tern *(Sterna paradisaea)* A195 Little Tern *(Sterna albifrons)*

6.2 Screening sites within the Zone of potential impact

An initial assessment is made to determine which of the sites identified can be considered to be within the functional **zone of a potential impact**.

This assessment considers the scope, scale, nature, size and location of the project and the sensitivities of the ecological receptors particularly the features of interest and the conservation objectives.

Table 6.3 Identifying a zone of potential impact.

Designated Site	Code	Within zone of potential impact ?	Screened [In or Out]
Kilkieran Bay and Islands SAC	002111	Yes	**Screened In** – There is direct connectivity to this SAC
Connemara Bog Complex SAC	002034	No	**Screened Out** - There is no direct connectivity between the application site and this SAC, and significant effects upon this SAC will not arise
Connemara Bog Complex SPA	004181	No	**Screened Out** - There is no direct connectivity between the application site and this SPA, and significant effects upon this
Slyne Head to Ardmore Point Islands SPA	004159	No	**Screened Out** - There is no direct connectivity between the application site and this SPA, and significant effects upon this SPA will not arise.

It can be objectively concluded that no likely, significant impacts are reasonably foreseeable on a number of designated sites.

Therefore, only the Natura 2000 sites identified in table 6.4 are considered further in this assessment.

Table 6.4 Designated sites within the zone of significant impact influence.

Designated Site	Site Code
Kilkieran Bay and Islands SAC	002111

Kilkieran Bay and Islands - Synopsis

Kilkieran Bay and Islands Special Area of Conservation (SAC) extends from Keeraun point near Carraroe to Mace Head near Carna. It encompasses a variety of habitats, including marine waters, islands, and rocky islets, as well as bays, channels, and inlets.

The bedrock is primarily igneous, composed of granite and felsite, and the surrounding land consists of lowland blanket bog and small hills.

The SAC is designated for several important habitats and species including tidal mudflats, coastal lagoons, reefs, salt meadows, and various marine habitats.

Kilkieran Bay supports a diverse range of species including free-living red calcareous algae (maerl), and rare anemones like Scolanthus callimorphus and Mesacmaea mitchellii. These species are found in only a few locations across Ireland. The bay also has one of the largest populations of the rare Halcampoides elongatus anemone. Kilkeran Bay's marine ecosystems are rich in biodiversity, with seagrass beds, native

oysters, and polychaetes, alongside rocky shores that support various shore communities. The site's lagoons, such as Lettermullen Pool, are examples of saline lake lagoons situated on peat, which are rare in Europe and characteristic of the region. Saltmarshes, both Atlantic and Mediterranean, are found along the coastline, with the most extensive areas between Costelloe and Kinvara.

The Machair habitats present are rare in Ireland and of significant conservation value. These areas are home to a range of plant species, including Red Fescue and White Clover. The site also features lowland hay meadows, which are relatively rare but include valuable species such as the Lesser Butterfly-orchid.

The SAC is crucial for its populations of protected species like the otter, which is widespread in the area, and the common seal. Seabird colonies, including Arctic Tern and Common Tern, are also supported by the islands and islets in the bay, with some islands being important wintering sites for Barnacle Goose.

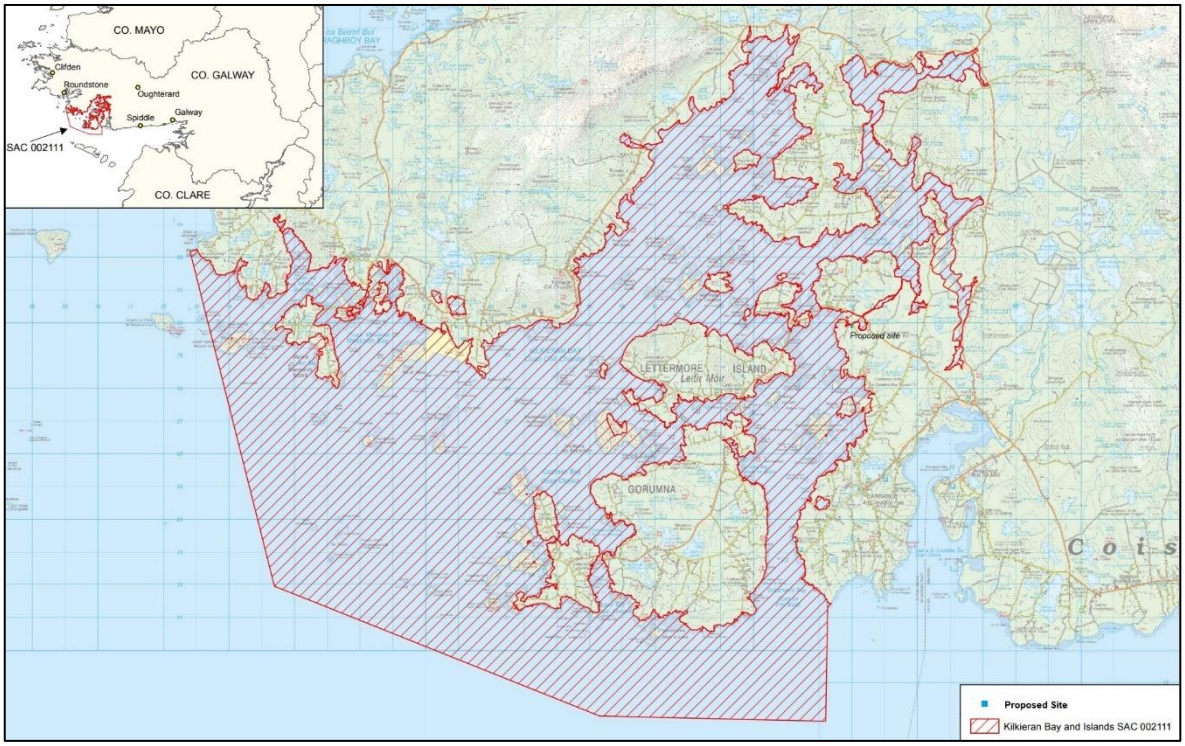

Figure 6.3 Kilkieran Bay and Islands SAC[3]

[3] NPWS (2014) Conservation Objectives: Kilkieran Bay and Islands SAC 002111.Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

6.3 Conservation objective of Kilkieran Bay and Islands SAC 002111

NPWS has drawn up conservation plans for areas designated for nature conservation. The plans set objectives for the conservation of the features of interest within a site. Where a detailed Conservation Objectives Document is not available, NPWS have provided a site synopsis, generic Conservation Objectives and a Natura 2000 data form from which information is sourced.

According to the Habitats Directive, the conservation status of a natural habitat will be taken as 'favourable' within its biogeographic range when:

- Its natural range, and areas 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.
- The conservation status of its typical species is favorable as defined below.

According to the Habitats Directive the conservation status is considered 'favorable' within its biogeographic range when:

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

The conservation objectives for the site, listed in table 6.5, were reviewed in the preparation of this report. All conservation objectives together with other designated site information are available on http://www.npws.ie/protectedsites/

Table 6.5 Conservation objectives

Conservation objectives	
To restore the favourable conservation condition of	To maintain the favourable conservation condition of
Kilkieran Bay and Islands SAC 002111	
• Atlantic salt meadows (GlaucoPuccinellietalia maritimae) • Mediterranean salt meadows (Juncetalia maritimi) • Machairs • Otter (Lutra lutra) • Slender Naiad (Najas flexilis)	• Mudflats and sandflats not covered by seawater at low tide • Coastal lagoons • Large shallow inlets and bays • Reefs • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) • Harbour seal (Phoca vitulina)

7.0 Identification of Potential Effects

The proposed development is 3m from Kilkieran Bay and Islands SAC (002111). Given the proximity and hydrological connectivity, the potential impacts affecting this site are address comprehensively in section 9.4 below.

Many of the conservation objectives of the qualifying interests of the identified Natura 2000 site are directly or indirectly dependent on water quality and disturbance levels.

The sources of impact most likely to impact on these Natura 2000 sites concern:

- Impacts on water quality during the implementation of the construction works
- Impacts on water quality during the operational activity of the proposed road
- The introduction and or spread of any plant species listed in Part (1) of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations of 2011 (as amended).

There are no expected impacts from the proposed works on the other designated sites identified as there are no direct hydrological connections or the distance is deemed far enough away that any disturbance emanating from the proposed works would be both temporary and on a negligible scale so as not to have an impact.

8.0 Conclusion of screening stage

To determine the potential impacts, if any, of the proposed works, a screening process for Appropriate Assessment has been undertaken.

According to the guidance published by the NPWS (DoEHLG, 2009), Screening for Appropriate Assessment can either identify that a Natura Impact Statement (NIS) is not required where:

(1) A project/proposal is directly related to the management of the site; or
(2) There is no potential for significant impacts affecting the Natura 2000 network.

Where the screening process identifies that significant impacts are certain, likely or uncertain the project must either proceed to Stage II Appropriate Assessment or be rejected.

Based on the findings of this Appropriate Assessment Screening it is concluded that the proposed development may, in the absence of site-specific mitigation, result in “Likely Significant Effects” on the integrity of the Kilkieran Bay and Islands SAC.

A Stage 2 Appropriate Assessment (Natura Impact Statement) is therefore required.

Stage 2 Natura Impact Statement to inform Appropriate Assessment

9.0 Introduction

Stage 2 considers any potential impacts of the plan or project in greater detail including whether further mitigation measures are required. Specifically, it is focused on the potential for the proposed plan or project to impact on the conservation objectives of the European Sites and the integrity of the European Sites. This stage involves the collection of information which is specifically relevant to determining impacts including a description of the proposed plan or project, the conservation objectives of the European Sites and an understanding of current factors which either maintain or threaten those conservation objectives, an assessment of aspects of the proposed plan or project which could negatively impact the conservation objectives of the European Sites, both in the absence of and with mitigation measures.

9.1 Methodology

- Assessment of the significance of likely potentially significant impacts
- Development of mitigation measures to the point where no adverse effects remain
- Concluding NIS Statement.

The term "likely" within the Habitats Directive and the Birds Directive (2009/147/EC) is used to express the probability that a plan or project could affect the integrity of a Natura 2000 site. According to the European Court of Justice (ECJ), "likely" does not require absolute certainty but reflects a reasonable probability based on available scientific evidence.

The likelihood of significant **effects** is determined based on the following factors:

- Habitat loss
- Habitat alteration
- Habitat or species fragmentation
- Disturbance and/or displacement of species
- Water quality and resources

9.2 Site Specific Conservation Objectives

Four natura 2000 sites were identified and only one, Kilkieran Bay and Islands SAC, was 'screened in' for further consideration.

The Site-Specific Conservation Objectives (SSCOs) Kilkieran Bay and Islands SAC have been reviewed considering the proposed development and the potential impacts that could potentially occur.

Thee SSCOs aim to define the favourable conservation condition for the habitats or species at that site. They outline certain attributes such as distribution, population

structure, water quality for different species and habitats with targets, which define favourable condition for a habitat or species at a particular site. The maintenance of habitats and species within the Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at national level. Where available, these SSCOs can be downloaded on the NPWS website. Any potential threats to the attributes and targets as defined in these SSCOs were assessed and where necessary, mitigated for.

For each Qualifying Interest of the SAC, the specific conservation objective is either to *maintain or restore* the favourable conservation condition of that interest, by defining a list of attributes and targets which are indicative of the conservation status of that interest.

The main target is to ensure that the habitats and species populations are stable or increasing in area and that the other attributes are maintained or restored. The main attributes are population trend and distribution, whilst the targets aim to ensure that the long-term population trends of the species are stable or increasing and that there is no significant decrease in the numbers or range of areas used by the species, other than that occurring from natural patterns of variation.

9.3 Kilkieran Bay and Islands SAC (004143)

Kilkieran Bay and Islands SAC is located just north of Galway Bay and extends from Keeraun Point, south of Carraroe, westwards to Mace Head, west of Carna, all in Co. Galway. The site contains a large area of open marine water, many islands and rocky islets, and the coastline is much indented with a series of bays, channels and inlets. The entrances of the bays face the prevailing south-westerly winds and they are subject to strong tidal streams as the sea funnels between islands and through channels. A number of streams, lakes and lagoons drain into the bays. The bedrock of the site is igneous, composed of granite, felsite and other intrusive rocks rich in silica. Generally, the site has a rocky shoreline which in most places gives way to mud in shallow water. The surrounding land is dominated by lowland blanket bog, with rock outcrops and small hills to the north.

The marine habitats found within Kilkieran Bay and Greatman's Bay are of very high conservation value. Both bays have a wide variety of habitats and Kilkieran Bay has a very high diversity of marine species (only Kenmare River is more diverse than Kilkieran Bay, according to studies thus far carried out). A high number of species that are rare or considered to be worthy of conservation in Ireland occur in the area.

Communities of particular importance are the extensive and varied beds of free-living red calcareous algae or maerl (which may be known locally as 'coral'). Kilkieran Bay is one of three known localities in Ireland where the maerl species *Lithothamnion corallioides, Lithophyllum dentatum* and *Lithothamnion fasciculatum* co-occur. The range of maerl deposits in Kilkieran Bay, including banks of maerl debris, live maerl and mixtures of maerl, gravel and mud gives rise to a variety of communities.

The site is extremely important for the number of lagoons that it includes - it is considered to be one of the best sites in the country for this habitat and provides an excellent example of a particularly unusual type of saline lake lagoon situated on peat. This habitat type appears to be rare in Europe but characteristic of south Connemara. Examples of lagoons in the site include Lettermullen Pool, Lough Tanai, Mill Lough, Carafinla Lough, the Lough Fhada complex and Loch an Aibhnín.

Areas of saltmarsh occur frequently throughout the site - a thin fringe of saltmarsh is found along most stretches of coastline. The habitat occurs most frequently in the many sheltered bays in the eastern half of the site and has developed in the lee of causeways built to connect islands to the mainland, e.g. Gorumna Island. The area of saltmarsh between Costelloe and Kinvara is particularly well-developed and extensive. The saltmarshes in the site are of the fringe type and most occur on peat. Although there are a large number of discrete and often narrow areas, taken together the habitat within the site is likely to be one of the largest areas of saltmarsh on peat in the country. The saltmarshes on the site include both the Atlantic and Mediterranean types, but low-growing Atlantic salt meadow appears to be the most common. The vegetation is typically dominated by various mixtures of species such as Thrift (Armeria maritima), Red Fescue (Festuca rubra), Common Saltmarsh-grass (Puccinellia maritima), Creeping Bent (Agrostis stolonifera), Sea Plantain (Plantago maritima), Buck's-horn Plantain (P. coronopus) and Sea Aster (Aster tripolium). Stands of Sea Rush (Juncus maritimus) occur in the site, and these correspond to the Mediterranean salt meadow type.

Otter, a species also listed on Annex II of the E.U. Habitats Directive, occurs commonly throughout the site. The site is used by Common Seal (maximum count of 116 in the all-Ireland survey of 2003). Grey Seal is a regular visitor and may breed.

Kilkieran Bay and Islands is an extensive coastal complex site that is of high conservation value, particularly for the fine examples of marine and terrestrial E.U. Habitats Directive Annex I habitats that it supports and for its important Slender Naiad, Otter, seal and seabird populations

In 2014, the NPWS published Site Specific Conservation Objectives (SSCOs) for the Kilkieran Bay and Islands SAC. These SSCOs can be downloaded on the NPWS website. Any potential threats to the attributes and targets as defined in these SSCOs were assessed and where necessary, mitigated for.

9.4 Identifying Likely, Significant Effects

Certain qualifying interests will not be potentially impacted upon as a result of the proposed development because they are features that are outside of the Zone of Influence of the site.

Qualifying Interests of the Kilkieran Bay and Islands SAC – Screened Out

These features and the reason for their screening out are listed in Table 9.1. In considering these QI features, the SSCOs of the site were referred to, along with the most recent Article 17 Reports on the status of protected habitats and species in Ireland (NPWS, 2019).

Table 9.1 Qualifying Interests of the Kilkieran Bay and Islands SAC -Screened Out

Designated Feature & Code	Rationale for Screening Out
1351 Harbour Porpoise (*Phocoena phocoena*) 1365 Harbour seal (*Phoca vitulina*) 1833 Slender Naiad (*Najas flexilis*)	These species are not present within or adjacent to the proposed application site. There will be no loss or fragmentation of the habitat within the SAC, and significant effects upon them can be ruled out.
Designated Feature & Code	**Rationale for Screening Out**
1140 Mudflats and sandflats not covered by seawater at low tide 1160 Large shallow inlets and bays 1170 Reefs 21A0 Machairs (in Ireland) 3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea 6510 Lowland hay meadows	These habitats are not present within or adjacent to the proposed application site. There will be no loss or fragmentation of the habitat within the SAC, and significant effects upon these habitats can be ruled out.

Qualifying Interests of the Kilkieran Bay and Islands SAC – Screened In

Table 9.2 describes the qualifying interest of the Kilkieran Bay and Islands SAC that have the potential to be impacted upon from the proposed development, i.e., these QIs have been screened in, and potential effects have been considered in terms of the SSCOs that have been set.

Table 9.2 Qualifying Interests of the Kilkieran Bay and Islands SAC (Screened In)

Designated Feature & Code	Rationale for Screening In
1355 Otter (Lutra lutra)	The Otters habitat extends to the site, as such the SSCOs of this species will be considered in detail and mitigation measures outlined to protect this species habitat.
1150 Coastal lagoons 1330 Atlantic salt meadows (*GlaucoPuccinellietalia maritimae*) 1410 Mediterranean salt meadows (*Juncetalia maritimi*)	These habitats have hydrological connectivity to the site, as such the SSCOs of this habitat will be considered in detail and mitigation measures outlined to protect this habitat.

SSCOS of the Kilkieran Bay and Islands SAC QI (Screened In)

Site specific conservation objectives for this site were prepared in 2014 (NPWS, 2014). These SSCOs are outlined in Tables 9.3, 9.4 and 9.5.

Otter (*Lutra lutra*) [1355]

The SSCO for this habitat is to restore the favourable conservation condition of Otter (*Lutra lutra*) [1355] in Kilkieran Bay and Islands SAC, which is generally defined by the following list of attributes and targets:

Table 9.3 Otter (Lutra lutra) [1355]

Attribute	Measure	Target
Distribution	Percentage of positive survey sites	No significant decline
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 316ha above high water mark (HWM); 14ha along river banks/ around ponds See Map 10 (Figure 9.1).
Extent of marine habitat	Hectares	No significant decline. Area mapped and calculated as 2996ha

Attribute	Measure	Target
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 4.4km
Extent of freshwater (lake/lagoon) habitat	Hectares	No significant decline. Area mapped and calculated as 24ha
Couching sites and holts	Number	No significant decline
Fish biomass available	Kilograms	No significant decline
Barriers to connectivity	Number	No significant increase.

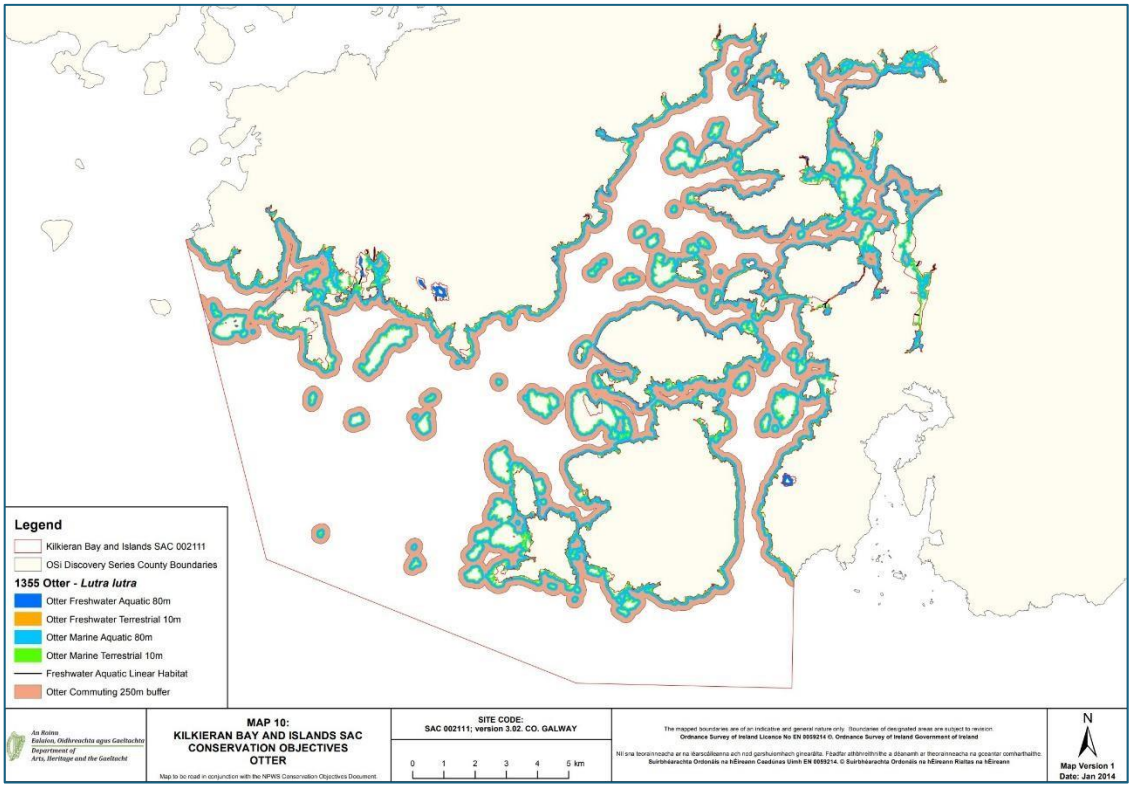

Figure 9.1 Map 10: Kilkieran Bay and Islands SAC Conservation Objectives Otter. (CO002111. NPWS 2014)

1150 Coastal lagoons

The SSCO for this habitat is to maintain the favourable conservation condition of Coastal Lagoons in Kilkieran Bay and Islands SAC which is defined by the following list of attributes and targets:

Table 9.4 Coastal lagoons [1150]

Attribute	Measure	Target
Habitat area	Hectares	Area stable, subject to natural processes. Favourable reference area 122.8ha. See Map 4. (Figure 9.2)
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	Meters	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	ug/L	Annual median chlorophyll a within natural ranges and less than ug/L
Water quality: Molybdate Reactive Phosphorus (MRP)	mg/L	Annual median MRP within natural ranges and less than 0.1mg/L
Water quality: Dissolved Inorganic Nitrogen (DIN)	mg/L	Annual median DIN within natural ranges and less than 0.15mg/L
Depth of macrophyte colonisation	Meters	Macrophyte colonisation to at least 2m depth
Typical plant species	Number and m^2	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

The COs Lagoons Supporting Document (2014) describes Loch Fhada upper pools as "two of a group of lagoons (including L. Fhada itself and L. an Ghadaí), approximately 1 km east of Bealadangan which were included previously as part of the Lough Fhada complex Seawater enters these pools occasionally from high tides flooding through saltmarsh channels in the northwest which flows to the northeast into Loch Fhada then into Loch an Aibhnín. It is possible that seawater also enters the pools from Loch Fhada. The western pool is very small (<0.5ha), approx. 3m deep, largely stagnant with a salinity of 12.4-29.5 psu., the eastern pool is slightly larger (0.5ha) but shallower, more like a saltmarsh pool, with a salinity of 18-31.5psu during the sampling period.

Loch Fhada upper pools are two small lagoons with a relatively high number of lagoonal specialist species (2 floral, 7 faunal), of which two species (*Littorina "tenebrosa", Jaera*

forsmani) have been recorded at only a few sites in Ireland previously. The western pool in particular is dominated by typical lagoonal species with dense growths of *Chaetomorpha linum* and high numbers of *Idotea chelipes, Hydrobia ventrosa* and *Littorina "tenebrosa"*. Due to the high number of lagoonal specialists, two of which are rare species, based on aquatic fauna the site is regarded as of **high conservation value**."

Conservation Status Assessment (from Oliver 2007)

"Impacts: Moderate eutrophication from decaying algae in small pool, otherwise adequately flushed by tides. Accumulation of organic material. Urbanisation. Dumping. Silting up.

Conservation Status: Unfavourable-Inadequate".

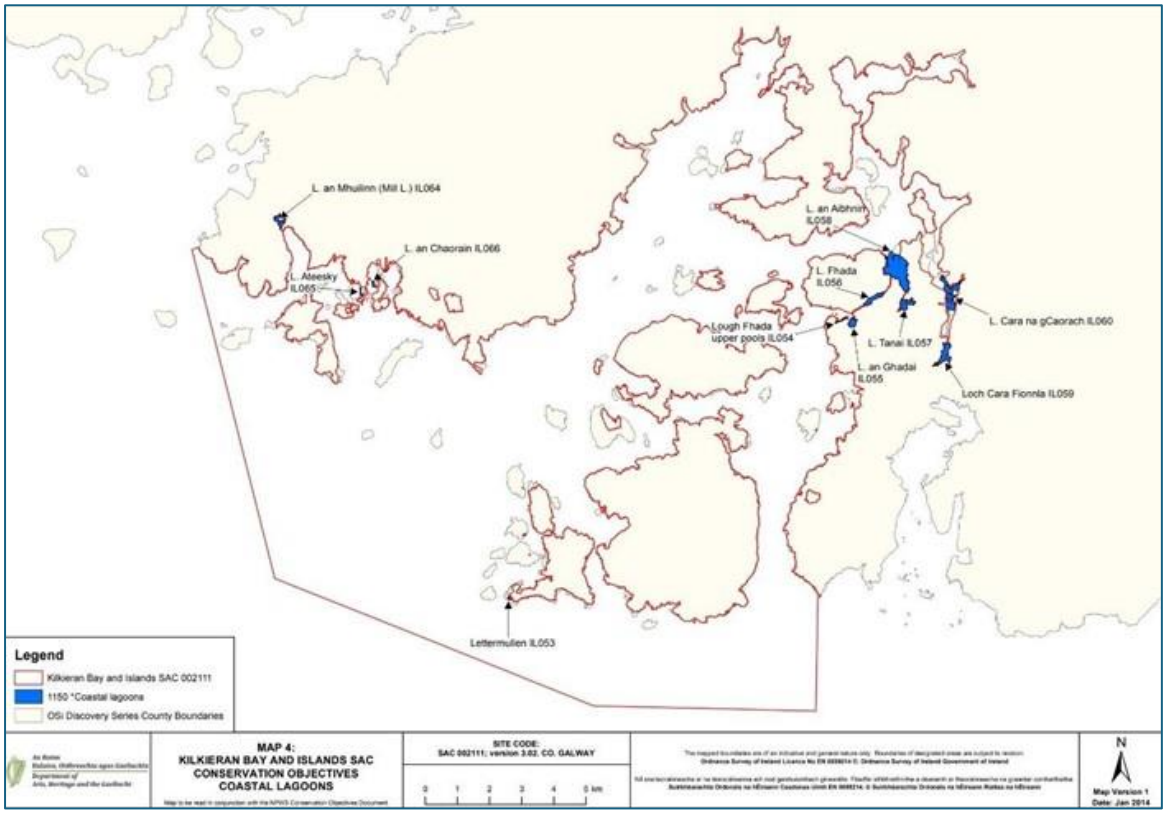

Figure 9.2 Map 4: Kilkieran Bay and Islands SAC Conservation Objectives Coastal Lagoons (CO002111 NPWS 2014)

1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

The SSCO for this habitat is to restore the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in Kilkieran Bay and Islands SAC which is defined by the following list of attributes and targets:

Table 9.5 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]

Attribute	Measure	Target
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Lettermullan-West - 0.53ha; Teeranea - 1.59ha; Lettermore South - 3.34ha; Bealadangan - 3.46ha; Kinvarra - 6.34ha; Turloughbeg - 0.43ha. See Map 8. (Figure 9.3 below)
Habitat distribution	Occurrence	No decline, 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
Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
Vegetation structure: vegetation height	Centimeters	Maintain structural variation within sward
Vegetation structure: vegetation cover	Percentage cover at a representative number of monitoring stops	Maintain more than 90% area outside creeks vegetated
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009)
Vegetation structure: negative indicator species - *Spartina anglica*	Hectares	There is currently no common cordgrass (*Spartina anglica*) in this SAC. Prevent establishment of cordgrass

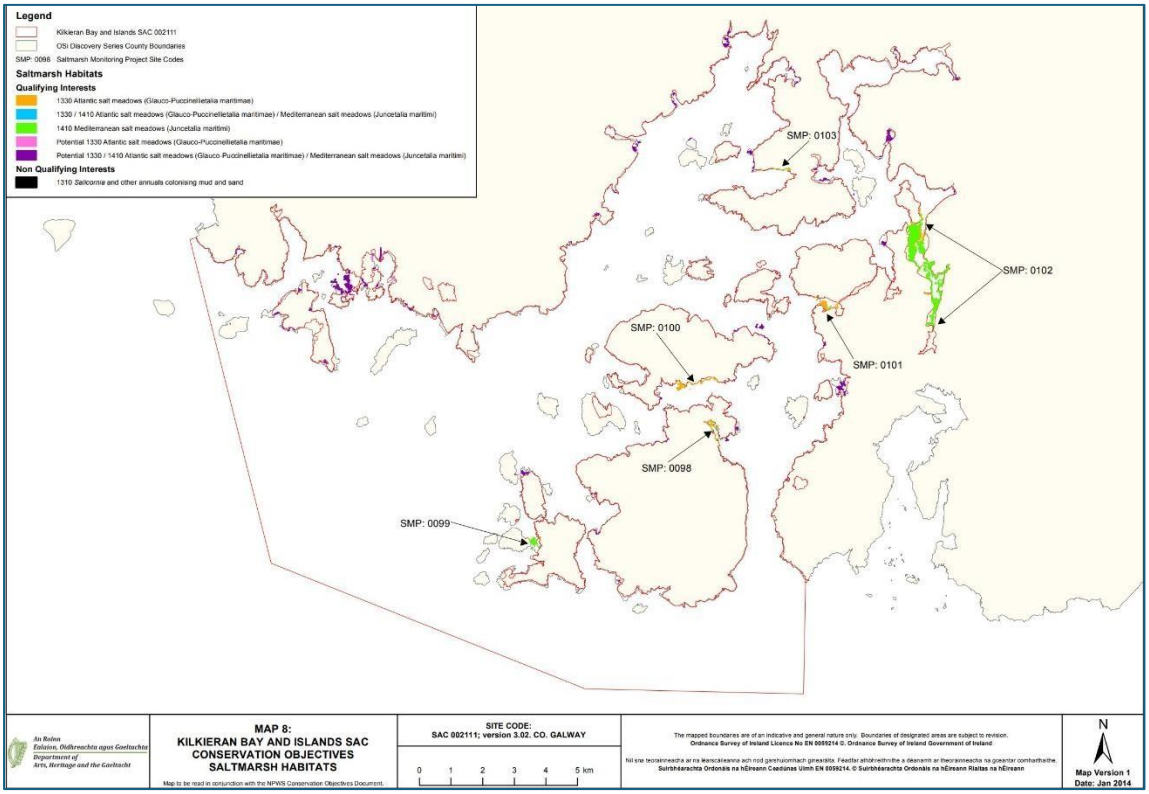

Figure 9.3 Map 8: Kilkieran Bay and Islands SAC Conservation Objectives Saltmarsh Habitats (CO002111. NPWS 2014

1410 Mediterranean salt meadows (*Juncetalia maritimi*)

The SSCO for this habitat is to restore the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Kilkieran Bay and Islands SAC which is defined by the following list of attributes and targets:

Table 9.6 Mediterranean salt meadows (Juncetalia maritimi) [1410]

Attribute	Measure	Target
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Teeranea - 0.51ha; Lettermullan West - 2.01ha; Lettermore South - 0.46ha; Bealadangan - 0.29ha; Kinvarra - 54.81ha; Turloughbeg - 0.27ha. See Map 8. (Figure 9.3)
Habitat distribution	Occurrence	No decline, subject to natural processes

Attribute	Measure	Target
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
Vegetation structure: zonation	Occurrence	Maintain 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 number of monitoring stops	Maintain more than 90% area outside creeks vegetated
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009)
Vegetation structure: negative indicator species - *Spartina anglica*	Hectares	There is currently no common cordgrass (*Spartina anglica*) in this SAC. Prevent establishment of cordgrass

The COs Coastal Habitats Supporting Document (2014) describes the Bealadangan Saltmarsh as:

"Located in west Co. Galway in the south-eastern corner of Kilkieran Bay. This part of the bay is called Greatman's Bay. This area is 5 km north of Carraroe Village and is located east of the road embankment over to Lettermore Island. One feature of this site is an old RTE mast that was built on blanket bog in the middle of the site. This part of the bay is moderately sheltered and there is extensive bed rock with Wrack cover lining the shore of this part of the bay in the more exposed areas. The landscape of this area is quite low-lying and dominated by patches of blanket bog, heath and outcropping rock with associated scrub, small pools and lakes and transitional habitats such as wet grassland. The saltmarsh is a typical 'fringe' type site. Most of the saltmarsh is found in a basin between the main regional road to Letterrmore Island (R374) and a connecting minor road to the south on higher ground. Blanket bog has been inundated by the tide and a complicated mosaic of saltmarsh habitat, cutover blanket bog, pools, scrub and exposed rock has developed that is related to the local topography. The structure of the site has been further complicated by peat-cutting in the past, which has created old channels

now containing saltmarsh vegetation along side old remnant face-banks with blanket bog vegetation. The distribution of mounds and hollows over a relatively uniform area influences the distribution of saltmarsh in hollows with blanket bog vegetation still remaining in some of the low mounds and face-banks.

There is an extensive band of rocky shoreline with abundant Wrack cover to the seaward side of this saltmarsh. Saltmarsh extends along some low-lying channels into the blanket bog for some distance. Tidal inundation seems to extend along a main channel into a small pool and continues westwards along connecting channels. These channels connect to Lough Aughnagaddy (Loch na Ghadai) and the Lough Fhada complex. Both Loch na Ghadai and Lough Fhada are classified as rock/peat lagoons, which are saline loughs with a tidal connection, sometimes through blanket bog.

The Lough Fhada upper pools have been classified as 'Saltmarsh' lagoons, which are more like large deep pools in saltmarsh (NPWS 2007). They are both in the mid-range salinity while Lough Fhada itself has a somewhat higher salinity with a Zostera/Ruppia community.

Two Annex I saltmarsh habitats are present at this site, Atlantic salt meadows (ASM) and Mediterranean salt meadows (MSM).

The site has also been modified by the construction of a radio mast. Part of the saltmarsh and blanket bog has been infilled to create a foundation and access causeway to the mast across a channel. The construction of an access road, which crosses a low embankment across some low-lying areas, has also modified the structure of the original saltmarsh, including drainage and tidal inundation into several of the small pools around the site.

The overall conservation status is unfavourable-bad due to severe overgrazing by sheep in places.

9.5 Potential Significant Effects

This section will establish whether the impacts of the proposed development at Cuan Na Loinge that were identified in the previous sections, are likely to be significant.

The identification of potential impacts and the assessment of their significance typically requires the identification of the type and magnitude of the impacts; whether impacts will be short term or long term, direct, indirect or cumulative and will they occur during construction or operation. These potential impacts will be examined with respect to the conservation objectives of the Natura 2000 site identified.

In the screening section of this report, the following possible future impacts on the Kilkieran Bay and Islands SAC, were listed. These concerns are again listed below, and they will be dealt with in more detail in this section.

I. Deterioration of water quality in designated areas resulting from pollution from surface water run-off during site preparation and construction.
II. Deterioration of habitat in designated areas during the construction and operation of the site.
III. Cumulative impacts with other proposed/existing developments.

Deterioration in Water Quality in the SAC During Installation

The proposed development will involve earthworks, removal of some existing road and culvert materials, trenching and bedding for drainage, installation of new culverts, construction of new raised road and junctions and all ancillary works. Any additional surface water run-off, due to the site preparations and construction works, has potential to have a short-term negative impact on the water quality within the Kilkieran Bay and Islands SAC. The new culverts have the potential to cause a change in the hydrology of the area, impacting the Coastal Lagoon habitat of the Upper pools of Loch Fhada and the surrounding saltmarsh habitats. The roadworks must be completed in accordance with best practice guidelines and follow recommended mitigation advice listed in section 10.

Deterioration in habitat in the SAC during Construction and Operation

Negative impacts upon the surrounding habitat in the Kilkieran Bay and Islands SAC arising from the construction and operation of the site have also been considered. The culverts must be maintained in accordance with best practice guidelines and follow recommended mitigation advice listed in section 10.

9.6 Cumulative impacts with other proposed/existing developments

In-combination effects may arise from the development of other projects in the vicinity of the site, such as construction of housing, roads, rail, water and wastewater infrastructure, gas, electricity, provision of tourism facilities and telecommunications infrastructure, however, the in-combination effects of other developments would depend on factors such as the distance in relation to the site, the scale and the characteristics e.g. the types and quantities of emissions.

9.6.1 Identification of other projects or plans or activities.

The proposed development was considered in combination with other projects in the area that could result in cumulative effects on the environment. The online planning system for Galway County Council[4], was consulted in May 2025.

Table 9.7 Plans for projects in the townland and neighbouring townlands of the proposed project site

Planning application details ref:	Development
2360503	Refurbishment and upgrading works [including (where necessary) replacement of existing poles along the existing overhead electricity line, minor ground works e.g. replacement or installation of stays, and maintenance or improvement works]; and all associated ancillary works including the provision of temporary accessways. **Development Address:** Clynagh - Glentrasna, Muckanaghkillew, Knockaphreaghaun, Shannakeela, Teeranea, Camus Oughter, *Carrowroe West*, Furnace, Oorid, Carrowroe North, Lettermullan, Knock, Lettercallow, Lettermore, Leam West, Muckanaghederdauhaulia, Boheeshal, Kinvarra, Derreennagusfoor, Derryerglinna, and Glentrasna County Galway

With the implementation of the mitigation measures that are included as part of this NIS, the proposed development will not lead to cumulative impacts upon any designated site when considered in combination with other developments that have been properly screened for AA, or where an NIS was submitted.

Any future application in the area that has the potential to impact upon these Natura 2000 sites will be subjected to Appropriate Assessment as required under Articles 6(3) of the Habitats Directive.

[4] https://www.eplanning.ie/GalwayCC

9.6.2 Specific Threats and Pressures:

The standard Natura 2000 form for the SAC identifies the following threats and pressures (table 9.8 below) with potential to cause negative impacts on qualifying interests of the site.

Table 9.8 Negative impacts and activities: SAC

Rank[5]	Threats and pressures [code and description]		Inside (i) Outside (o) Both (b)
M	A04.0102	Recreational activities (e.g., boating, tourism, and related infrastructure)	i
M	F01.01	Agriculture (including land use change, cultivation, livestock grazing, etc.)	i
M	A04.01.01	A04.01.01: Human-induced disturbance (e.g., noise, light, or visual disturbance)	i

Many of the Conservation objectives of the Natura 2000 site depend on high water quality Some agricultural practices like overgrazing put pressure on salt marshes, machairs, and hay meadows through land reclamation, drainage, and nutrient runoff, leading to habitat degradation. Pollution from agricultural runoff and industrial activities contributes to eutrophication, harming water quality and sensitive species like Slender Naiad.

Coastal development, such as infrastructure projects, causes habitat loss and disturbance, affecting species like harbour seals and otters, as well as ecosystems like salt meadows and seagrass beds. Climate change poses additional risks, with altered tidal regimes, flooding, and warming waters impacting habitats and species distribution. Overgrazing and habitat disturbance further degrade sensitive plant communities and disrupt seabird breeding success.

[5] Rank: H = high, M = medium, L = low

10.0 Mitigation Measures.

To protect Kilkieran Bay and Islands SAC and to avoid any reductions in water quality in the area surrounding the proposed development site, several site-specific mitigation measures have been recommended, and these must be implemented and followed.

The implementation of these measures will ensure the protection of Natura 2000 habitats and species, and the local non-designated ecological receptors. The primary parties responsible for the implementation of these measures include the applicants, the project manager and the construction contractors.

Given the environmental sensitivity of the site location, it's crucial to ensure that all construction activities are meticulously managed to prevent adverse impacts. Therefore, it's strongly recommended that the contractor employs a suitably qualified environmental specialist or Environmental Clerk of Works. This dedicated professional will be instrumental in implementing and overseeing all stipulated mitigation measures, ensuring they are not only adhered to but also adapted as needed to protect the delicate ecosystem.

10.1 Pre-construction Survey Requirements

- An Otter Survey should be conducted prior to works commencing to assess the use of the site by Otter and identify any additional mitigation for the protection of this Annex II and Annex IV species.
- An Invasive Species Survey should be conducted prior to works commencing to ensure no schedules species are present and may be spread during the proposed works. Should invasive species be identified an Invasive Species Management Plan will be required to inform the Construction Environmental Management Plan (CEMP).

10.2 Mitigation for the Construction Phase

General Good Practice and Initial Works

- The appointed construction contractor will also be made aware of the sensitivity of the site and the mitigation measures required to protect habitats, groundwater and surface water quality. All measures will be undertaken from initial site works until the completion of all construction and demobilisation of the site.
- Prior to the commencement of developments on site, the site engineer and the contractors must be made aware of the ecological sensitivity of the site and its proximity and connection to the Kilkieran Bay and Islands SAC.
- Site preparation and construction must be confined to the road works site only and it must adhere to all the mitigation measures outlined in this NIS. Work areas should be kept to the minimum area required to carry out the proposed works and the area should be clearly marked out in advance.

Guidelines in the following best practice documents should be adhered to:

- Construction Industry Research and Information Association (CIRIA) (2005)
- *Environmental Good Practice on Site (C692)* ○ Construction Industry Research and Information Association (2001) Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532) ○ IFI (2016) Guidelines on the Protection of Fisheries during Construction Works in and Adjacent to Water.
- *Planning for Watercourse in the Urban Environment (IFI, 2020).*
- Construction Industry Research and Information Association (2000) Environmental Handbook for Building and Civil Engineering Projects (C512)
- Environmental Protection Agency (2015) List of Waste and Determining if Waste is Hazardous or Non-Hazardous ○ Environment Agency et al. (2015) Guidance on the Classification and Assessment of Waste, Technical Guidance WM3.

The primary ecological risks are those associated with compromising water quality therefore every effort should be made to prevent surface water contamination during the construction works.

The guidelines published by Inland fisheries Ireland on the protection of fisheries during construction works in and adjacent to waters should be referred to when drafting construction procedures/method statements (Refer to www.fisheriesireland.ie/Construction Guidelines). The IFI guidelines identify potential construction related impacts and measures to mitigate them. The guidelines set out requirements specific to bridges and culverts and emphasises the necessity for these structures to be constructed and maintained in a manner that allows unhindered movement of aquatic species.

Mitigation Measures to protect surface water integrity.

Pollution may occur following accidents that result in spillage of fuel or other materials. Pollution prevention measures should be implemented during construction to avoid siltation or discharge of pollutants.

Silt and solids.

- Suspended solids and silt must be controlled by both minimisation of the creation of sediment laden run off, and also the control of suspended solids.

- Concrete should be poured in dry weather and sealed shuttering should be used to ensure no concrete enters the stream
- All machinery will be checked for oil leaks and hydrocarbon spill kits must be available on site
- Works will be as far as practicable carried out in dry conditions and weather forecasts will be monitored prior to works commencing to avoid working in adverse weather conditions.
- Suitable sized plant and machinery should be chosen to minimise the impact on the bankside and access route to the site.
- Silt fencing should be erected downstream of the works site.
- Excess spoil from the excavations should be excavated off site to a suitably licensed facility. Excess soil should not be stored on site.

The potential for hydrocarbons and other pollutants entering the watercourse and protected habitats during construction must be by both risk minimisation and an appropriate capacity for emergency response:

Discharges of fuels and oils can be directly toxic to aquatic life. Oil films on water can seriously interfere with the diffusion of oxygen from the atmosphere into waters and in extreme cases result in oxygen depletion.

- Fuel will be delivered to site (not stored). Refueling should take place at a designated location no less than 50 metres from the river edge.
- An effective spillage procedure must be put in place with all staff properly briefed. Any waste oils or hydraulic fluids shall be collected, stored in appropriate containers and disposed of offsite in an appropriate manner.
- Spill kits with an appropriate capacity for the contaminants used on site and the nature of the site must be kept on site and available throughout the construction process.
- A hydrocarbon oil boom must be available on site for immediate deployment within the river in the event of any hydrocarbon spillage at the site. A fuel spillage will be considered to be any loss of fuel, oil or lubricant, including hydraulic oil and spot leakage.
- Uncured concrete can kill fish, plant life and macroinvertebrates by altering the pH of the water. Pre-cast concrete should be used whenever possible, to eliminate the risk to all forms of aquatic life.
- Concrete should be delivered to site in small batches within bins and pours will be in a controlled manner to prevent spillages.

- When cast-in-place concrete is required, all work must be done in the dry and effectively isolated from any flowing water (or water that may enter streams and rivers) for a period sufficient to ensure no leachate from the concrete.
- No direct discharges be made to waters where there is potential for cement or residues in discharges.
- Designated impermeable cement washout areas must be provided.

Further guidance is available in:

- CIRIA Control of Water Pollution from Construction sites – Guidance for Consultants and Contactors (2001).
- NRA Guidelines (2006) NRA Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes.

Management of Waste

- All construction waste must be removed from site by a registered contractor to a registered site. Evidence of the movement and safe disposal of the construction waste must be retained and presented to Local Authority upon request.
- The applicants and construction contractors will be responsible for the safe removal of any construction waste generated on site.
- There must be no disposal of construction waste or topsoil in any designated site.
- Stockpile areas for gravel or other such construction materials will be kept to a minimum size, well away from all waterbodies and watercourses.

Biosecurity

In order to comply with Regulations 49 and 50 of the European Communities (Birds and Natural Habitat) Regulations (2011), the appointed Contractor will ensure biosecurity measures are implemented throughout the construction phase to ensure the introduction and translocation of invasive species is prevented.

The appointed contractor must have a biosecurity statement. The biosecurity statement should take cognizance of:

- The Inland Fisheries guidance document on invasive species and their management; available at: http://www.fisheriesireland.ie/Research/invasive-species.html.
- The IFI Biosecurity Protocols including: 'IFI Biosecurity Protocol for Field Survey Work (December 2010)'.

Biosecurity measures must be strictly adhered to throughout the proposed works. Measures must be in accordance with IFI (2010) Biosecurity Protocol for Field Survey

Work. Where staff are working instream, staff footwear and PPE should be inspected on daily completion of the works and vegetation or debris removed.

- All PPE and machines entering the water will be power washed before entry to the site and sprayed with a suitable disinfectant (e.g., 1% virkon aquatic solution or another proprietary disinfection product).
- Visually inspect all equipment that has come in contact with the water for evidence of attached plant or animal material, or adherent mud or debris. This will be carried out before leaving the site.

Temporary diversion of watercourse:

For any watercourse diversion, it is important to avoid unnecessary vegetation clearance, keep damage or construction impacts to a minimum and so avoid sediment pollution from runoff. Site clearance for these works should only commence and be undertaken when works are required, adopting a planned approach to avoid clearing the whole site at once, and leaving exposed ground for long periods of time.
Prior to works commencing, buffer zones around watercourses and protected habitats/species should be established and suitably isolated from works using fences, barriers, screens and signage.
The watercourses should be protected to prevent debris from falling into the water.

Temporary watercourse diversions are one of the most critical environmentally impacting elements of work in waterways, they must be inspected and maintained frequently to remain in effective operating condition.
During construction, it is highly recommended that flow barriers should be inspected at the start and end of each workday and at any time that excess water is noted in dry work areas. This would also require inspections to take place in advance of impending storms or forecasted heavy rainfall events.

Noise

To ensure that impacts on species that might use the habitats close to the site do not arise from the noise generated on site, measures to control noise on site must be undertaken. The construction plant and tools used on-site must comply with the relevant Irish regulations in relation to noise and vibration requirements. It is recommended that all equipment used on site are newer models equipped with noise dampening systems and that the equipment is maintained in good condition and serviced regularly.

Construction noise will be controlled in accordance with the guidance and procedures set out in BS 5228-1:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.

Noise control will be implemented through a combination of best practicable means (BPM), including but not limited to:

- Selection of quiet plant and equipment: Prioritising use of equipment with low-noise emissions or fitted with effective silencers, mufflers, or acoustic covers.
- Operation scheduling: Limiting high-noise activities to standard daytime hours (typically 08:00–18:00, Monday to Friday; 08:00–13:00 on Saturdays), with no work on Sundays or public holidays unless otherwise agreed.
- Operator training: Ensuring all operatives are trained in noise reduction practices and adhere to established protocols for switching off equipment when not in use.

Design of culverts

A change in the hydrological conditions of Loch Fhada upper pools may drastically impact the lagoonal specialist species present. The culverts should be designed with the hydrology of the site in mind. The existing water and tidal flow must be allowed to continue to maintain the sensitive ecological aquatic habitats of Kilkieran Bay and Islands SAC.

10.3 Mitigation for the Operational Phase

Maintenance

The culverts should be appropriately maintained to allow the correct hydrological regime required to maintain the habitats of Kilkieran Bay and Islands SAC.

Fuel and oil interceptors should be part of the road drainage design to avoid pollutants from vehicles using the road to enter the ecologically sensitive waters adjacent to the road. These must be maintained in good working order.

11.0 Conclusions

Potential impact(s) upon one Natura 2000 site were identified through an Appropriate Assessment Screening exercise therefore a Stage 2 Appropriate Assessment of the proposed development has been carried out in accordance with the requirements of Article 6(3) of the Habitats Directive (Council Directive 92/43/EEC).

The information to enable the Competent Authority to perform its statutory function in this regard is presented within this NIS.

The NIS evaluates the potential impacts of the proposed development regarding the effects upon the conservation objectives and qualifying interests (including the habitats and species) of the Kilkieran Bay and Islands SAC.

It is considered that following mitigation, that the proposed project does not have the potential to significantly affect the conservation objectives of these Natura 2000 sites, and the integrity of these sites will not be adversely impacted.

The qualifying interests of the site and their potential to be impacted upon from the potential development were listed in Section 5. It is considered that these potential impacts can be successfully mitigated against. With implementation of the mitigation measures there will be no deterioration in water quality or impacts upon any designated habitat or any species dependent on these designated habitats.

The integrity of these sites will not be adversely affected. Table 11.1 follows the integrity of the SAC / SPA checklist, which shows that the integrity of the site would not be affected by the proposed development.

Table 11.1 Integrity of Site Checklist (From NPWS, Information Checklist for AA)

Conservation objectives: does the project or plan have the potential to	**Assessment**	**Yes/No**
Cause delays in progress towards achieving the conservation objectives of the site	The Proposed Project will not cause delays or interrupt progress towards achieving the conservation objectives of the European Sites. Pending mitigation there will be no residual potential significant impacts on any QI of any European site have been identified.	No
Interrupt progress towards achieving the conservation objectives of the site		No

Conservation objectives: does the project or plan have the potential to	Assessment	Yes/No
Disrupt those factors that help to maintain the favourable conditions of the site.	The Proposed Project will not disrupt those factors that help to maintain the favourable conditions of the European Site. Pending mitigation there will be no residual potential significant impacts on any QI of any European site have been identified.	No
Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site.	The Proposed Project will not interfere with the balance, distribution and density of key species that are the indicators of the favourable condition European Sites. Pending mitigation there will be no residual potential significant impacts on any QI of any European site have been identified.	No
Other objectives: does the project or plan have the potential to		**Yes/No**
Cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem.	The Proposed Project will not cause changes to the structure and function of the habitats or ecosystems of any European Sites. Pending mitigation there will be no residual potential significant impacts on any QI of any European site have been identified.	No
Change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site.		No
Interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition).	Potential impacts on water quality are identified as the primary potential impact. Pending mitigation there will be no residual potential significant impacts on any QI of any European site have been identified.	No
Reduce the area of key habitats.	There will be no reduction in area of key habitat.	No
Reduce the population of key species?	The Proposed Project will not reduce the population of key species or change the balance between key species.	No
Change the balance between key species.		No
Reduce diversity of the site.		No

Conservation objectives: does the project or plan have the potential to	Assessment	Yes/No
Result in disturbance that could affect population size or density or the balance between key species.	The development is not anticipated to result in a reduction in diversity within any European site. Pending mitigation there will be no residual potential significant impacts on any QI of any European site have been identified.	No
Result in fragmentation.	The Proposed Project will not result in fragmentation due to its small scale.	No
Result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)	No key features will be lost as a result of the Proposed Project.	No

Considering the above, it is deemed that with the implementation of the mitigation measures, that the proposed works do not have the potential to significantly affect the conservation objectives or qualifying interests of the Kilkieran Bay and Islands SAC or any other Nature 2000 site.

References

- DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities. DEHLG
- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011)
- European Commission (2000) Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive
- European Commission (2002) Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Luxembourg: Office for Official Publications of the European Communities
- European Commission (2007) European 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.
- www.npws.ie – website of the National Parks and Wildlife Service, source of information for data regarding Natura 2000 sites and Article 17 Conservation Assessments.
    - NPWS (2013) Conservation Objectives: River Boyne and River Blackwater SAC (002299)
    - NPWS (2018) Conservation Objectives: River Boyne and River Blackwater SPA (004232)
    - NPWS (2012) Conservation Objectives: Boyne Coast and Estuary SAC (001957)
    - NPWS (2011) Conservation Objectives: Boyne Estuary SPA (004080)
- EPA Catchments.ie Mapping System
    - EPA (2024) Catchments.ie
- https://eunis.eea.europa.eu/index.jsp - European Nature Information System providing information on species, habitat types and protected sites across Europe.
- www.fisheriesireland.ie/sites/default/files/2021-06/research_biosecurity_biosecurity_for_fieldsurveys_2010.pdf
- www.fisheriesireland.ie/sites/default/files/migrated/docman/2016/Guidelines%20Report%202016.pdf

Statement of Authority

[i] ***Ms. Catherine Howarth BSc, Consultant Ecologist.***
Ms Howard holds a bachelor's degree in Conservation Biology and Ecology from the University of Exeter, a Certificate in Ecological Consultancy from ETUK and a PGCE in secondary science from the University of Chester. She has over 16 years' experience in habitat monitoring and surveying, report writing, science communication and education.

[ii] ***Mr. Oliver Fitzsimons BSc.MSc. Environmental Scientist***
Mr. Fitzsimons holds a bachelor's degree in Environmental Science and Technology from Atlantic Technological University Sligo, has been granted a Master of Science degree in Applied Science by the University of Limerick and a Master of Science degree in Geographic Information Systems from the University of Ulster. Mr Fitzsimons is a qualified Environmental Clerk of Works having qualified from the University of the West of Scotland.
Mr. Fitzsimons has 25-years' experience in the field of environmental management and impact assessment and control and has participated in the planning of significant projects across the Island of Ireland including mining, wind energy infrastructure and road infrastructure.