Appropriate Assessment Screening Report
and
Natura Impact Statement to inform Appropriate Assessment

Proposal for four houses at Doogort, Achill, Co. Mayo

For
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1.0 Introduction

Giorria Environmental Services were commissioned by Gary McGinty (Client – Emmanuel Matt) to undertake a Screening for Appropriate Assessment under Article 6 of the EU Habitats Directive on the proposal to construct four dwellings at Doogort, Achill, Co. Mayo.

The aim of this report is to identify any significant impacts of the proposed development on any adjacent Natura 2000 sites. The report has been prepared in accordance with the current guidance (NPWS 2009, revised February 2010, Office of Planning Regulator 2021). The report was compiled and written by Alex Hayden, MSc and reviewed by Dr. Karina Dingerkus, ecologist (see Appendix 7 for qualifications).

1.1. Overview of Proposal to construct four houses at Doogort, Achill, Co. Mayo

It is proposed to construct four dwellings of 3 different designs at Doogort, Achill, Co. Mayo. The site is 0.81 ha and the houses will be situated along a new 4.5 m access road in a single file. The first house (Design type A) is a two-storey dormer-style, four-bedroom dwelling with a floor area of 84.33 m^2 and a total area of 160.26 m^2. The second house (Design type B) is a two-storey, dormer-style, four-bedroom dwelling with a floor area of 94.75 m^2 and a total area of 176.46 m^2. The last two houses (Design type C) are single-storey (floor area 160 m^2), four-bedroom dwellings. This development will require a new 150 mm foul sewer to be connected to the public sewer at the public road to the front of the site. Any surface water from the newly paved road/paths and the roofs will be discharged into the adjoining stream via a 225 mm storm sewer.

Photograph 1: Site location at Doogort, Achill, Co. Mayo.

1.2. The Appropriate Assessment Process

Natura 2000 is a European network of important ecological sites. The EU Habitats Directive (92/43/EEC) placed an obligation on Member States of the EU to establish the Natura 2000 network. The network is made up of Special Protection Areas (SPAs), established under the EU Birds Directive (2009/147/EC), and SACs, established under the Habitats Directive itself. Ireland's contribution to Natura 2000 is being created under the European Communities (Natural Habitats) Regulations, 1997 (S.I. 94 of 1997 as amended by S.I. 233 of 1998 and S.I. 378 of 2005). These regulations transpose the EU directives into Irish national Law.

There is a requirement, under Article 6(3) of the EU Habitats Directive (Directive 92/43/EEC), to carry out an Appropriate Assessment when a plan or project is proposed that may have conservation implications for the Natura 2000 site. The first step of the Appropriate Assessment process is to establish whether, in relation to a particular plan or project, Appropriate Assessment is required. Article 6(3) states:

> *"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."*

Several guidance documents on the appropriate assessment process have been referred to during the preparation of this NIS. These are:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (NPWS 2009, Revised February 2010)
- EU Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC (2007)
- 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 (Nov. 2001 – published 2002)
- Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2000)
- Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01

Should a decision be reached to the effect that it cannot be said with sufficient certainty that the development will not have any significant effect on the Natura 2000 sites, then, as is stated above, it is necessary and appropriate to carry out an appropriate assessment of the implications of the development for the sites in view of their conservation objectives. The guidance for Appropriate Assessment (NPWS, 2009, revised February 2010) states:

"AA is an impact assessment process that fits within the decision-making framework and tests of Articles 6(3) and 6(4) and, for the purposes of this guidance, it comprises two main elements. Firstly, a Natura Impact Statement – i.e. a statement of the likely and possible impacts of the plan or project on a Natura 2000 site (abbreviated in the following guidance to "NIS") must be prepared. This comprises a comprehensive ecological impact assessment of a plan or project; it examines the direct and indirect impacts that the plan or project might have on its own or in combination with other plans and projects, on one or more Natura 2000 sites in view of the sites' conservation objectives. Secondly, the competent authority carries out the AA, based on the NIS and any other information it may consider necessary. The AA process encompasses all of the processes covered by Article 6(3) of the Habitats Directive, i.e. the screening process, the NIS, the AA by the competent authority, and the record of decisions made by the competent authority at each stage of the process, up to the point at which Article 6(4) may come into play following a determination that a plan or project may adversely affect the integrity of a Natura 2000 site".

1.3. Appropriate Assessment Stages

The European Commission's Guidance promotes a four-stage process to complete the Appropriate Assessment.
Stage 1 – Screening Process
Stage 2 – Appropriate Assessment
Stage 3 – Assessment of alternative Solutions
Stage 4 – Assessment where no alternative solutions exist and where adverse impacts remain.

Stage 1 and 2 deal with the main requirements of assessment under Article 6.3. Stage 3 may be part of Article 6.3 or a necessary precursor to Stage 4.

Screening determines whether appropriate assessment is necessary by examining:

i. Whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of the site.
ii. The potential effects of a project or plan, either alone or in combination with other projects or plans, on a Natura 2000 site in view of its conservation objectives and considering whether these effects will be significant.

Screening involves the following:

i. Description of plan or project, and local site or plan area characteristics.
ii. Identification of relevant Natura 2000 sites, and compilation of information qualifying interests and conservation objectives.
iii. Assessment of likely effects – direct, indirect on the basis of available information as a desk study and/or field survey and/or primary research as necessary.
iv. Screening statement and conclusion.

The report also provides the information required for the Competent Authority to complete the Appropriate Assessment (Stage 2) should this be necessary and appropriate in the opinion of the Competent Authority.

2.0 Methods

2.1. Zone of Influence

The Zone of Influence of a project may be defined as area(s) over which ecological features may be affected by the biophysical changes caused by the proposed project and associated activities (CIEEM 2016). The zone of influence can extend beyond the project site, for example, where there are ecological or hydrological links beyond the site boundaries.

The NPWS (2010) recommends that: "the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects.". Generally, all European sites within 15km of the proposed project are examined. In some circumstances it may be necessary to go beyond this distance (e.g. hydrologically connect site).

Recent guidance from Office of the Planning Regulator (2021) indicates that the zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a Natura 2000 Site. It indicates that this should be established on a case-by-case basis using the Source-Pathway-Receptor framework.

2.2. Desk-Top Study

A desk study was carried out to gather information available on Natura 2000 sites in the vicinity of the proposed project. The Environmental Protection Agency Appropriate Assessment GeoTool application was used to gather data about SACs and SPAs from the National Parks and Wildlife Service (NPWS). The Environmental Sensitivity Mapping tool (ESM tool) was also consulted (https://airomaps.geohive.ie/ESM/). The NPWS and National Biodiversity Data Centre online databases were consulted concerning designated conservation areas in the vicinity of the proposed development and protected species. The Mayo County Council website online planning access: https://www.eplanning.ie/mayocc/searchtypes was consulted for information on other plans or projects in the area, which may result in a cumulative impact when considered with the proposed development. Other databases consulted include:

- Information on other plans or projects in the area from www.myplan.ie
- Information on soils, geology and hydrogeology in the area www.gsi.ie
- National Biodiversity Action Plan 2017–2021 (Department of Culture, Heritage and the Gaeltacht, 2017)
- Mayo County Development Plan 2015-2020
- National Biodiversity database https://maps.biodiversityireland.ie/
- Environmental Protection Agency - https://gis.epa.ie/EPAMaps/

2.3. Site Description

A multidisciplinary walkover survey was conducted on the 22nd February 2023 following NRA (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes) by ecologist Dr. Richard Stone. All habitats were identified. The walkover surveys were designed to detect the presence, or likely presence, of a range of protected species. The survey included a search of all potentially suitable habitat for protected species that are likely to occur in the vicinity of the project area. Habitats were identified in accordance with the Heritage Council's 'Guide to Habitats in Ireland' (Fossitt, 2000).

The site is situated on the L1406 road within the village of Doogort, Achill. It is on the south side of the road overlooking the bay to the north.

The site is presently a pasture field (Fossit Classification GA1) with grass and is dominated by rushes (*Juncus effusus).* Some sheep were grazing the field, but the gate was open allowing the sheep to roam freely. The field is long and narrow rising up from the road for 240 m to the south and 42 m wide at its widest. The road is at approximately 28 m asl and rises to 55 m asl at the far end of the field to the south. The field is 0.809 ha in size.

The roadside frontage is fairly narrow (18.3 m) with a drain running down the hill from the east to the west along the side of the road. This drain goes under the field entrance which is piped. This drain joins a small stream (EPA River Waterbody Code IE_WE_33B030960, Segment Code: 33_1096) running down the outside of the field along the western boundary. This stream goes under the road and between fields before discharging into the bay 220 m downstream. The small stream runs from the south beyond the field and towards the top of the field where it forms a small valley/gully that gets wider higher up the hill (up to 20 m wide in places). There is public access up the stream bed from the road to the hill beyond the line of fields. The access is overgrown with fuchsia and does not look to be in use. The field boundary is post and sheep wire and dominated by fuchsia bushes along its length on the western side, towards the south there are a few gorse bushes, and rhododendron with some bramble. Outside the fence, the bank is steep and in parts up to 4 m deep to the stream.

The eastern field boundary is concrete post and rail fencing with sheep wire added. This field boundary runs up the field in a straight line with a driveway running along the fence line in the neighbouring field giving access to the three houses in the field.

The northern field boundary is narrow (15 m) and is a soil bank with sheep fencing on top. Beyond the bank, water runs from the east to join the small stream running down the hill. From the EPA website, this is the start of the stream, but the water runs off the hill to this stream from east, west and south connecting at this point to form the stream.

The site soil type for the site falls under BktPt (blanket peat) (National Soil Survey).

Photograph 2: Existing access to site

Photograph 3: Stream exiting the western boundary of the site

Photograph 4: Roadside stream at northern boundary

3.0 Screening for Appropriate Assessment

The aim of this section of the report is to identify any significant impacts of the proposed development on any adjacent Natura 2000 sites. The report covers Stage 1 screening for appropriate assessment and has been prepared in accordance with the current guidance (NPWS 2009, revised February 2010 and Office of the Planning Regulator 2021).

3.1. Description of Development

It is proposed to construct 4 dwelling houses at the site in Doogort, Achill, Co. Mayo. The houses are of different designs, Type A is a two-storey dormer-style four-bedroom dwelling with a floor area of 84.33 m^2 and a total area of 160.26 m^2. Type B is two-storey dormer-style four-bedroom dwelling with a floor area of 94.75 m^2 and a total area of 176.46 m^2. Type C is a single-storey (floor area 160 m^2), four-bedroom dwelling. The houses are finished with smooth white plaster with blue/black slates and black uPVC window frames. The two-storey houses are in the lower part of the field with two Type C higher up. Services are connected to the local system.

A new roadside entrance is proposed with the present roadside drain piped (600 mm ogee concrete pipe) and backfilled and levelled. The entrance will be widened with a new 4.5 m setback from the public highway and a new stonewall forming the boundary to the site. A new access road to the site will be 4.5 m wide with a 1.5 m service strip. The road will be tar and chip. This new access road runs along the western boundary past the first house within the site before crossing the site to run along the eastern boundary to access the three higher houses. The fuchsia hedge along the western boundary will be retained but trimmed back. Other individual site boundaries will be planted with New Zealand flax/fuchsia hedging.

Services are connected to the local system. All surface water will be disposed of via a new 225 mm storm sewer with no discharge to adjoining stream.

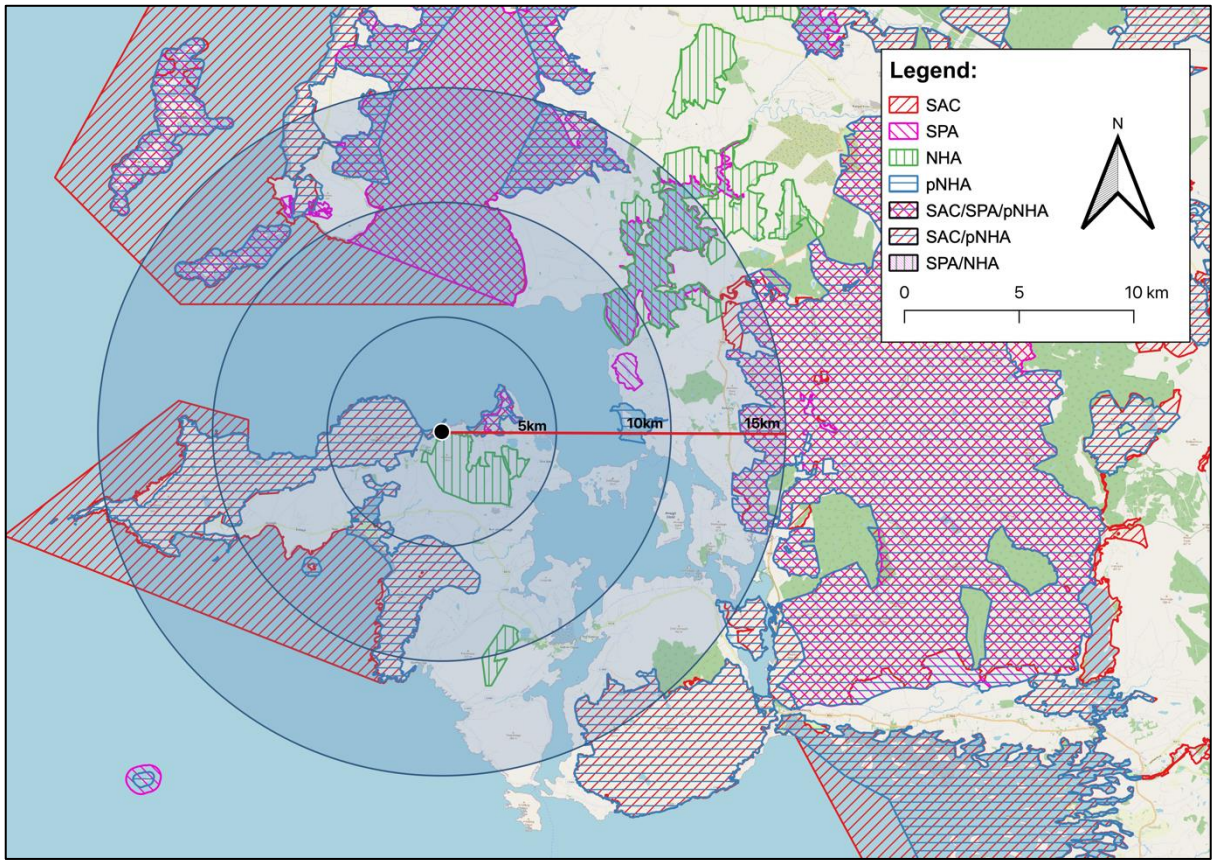
Map 1: Site at Doogort, Achill, Co. Mayo with location of proposal for four new dwellings

3.2. Description of Natura 2000 Sites

Due to the scale and nature of the proposed project, the zone of influence is highly unlikely to extend to 15 km. However, in order to ensure no impact on Natura 2000 sites occurring within 15 km of the project site, all were considered for the initial assessment.

The site lies 153 m from the Croaghaun/Slievemore SAC (001955). Seventeen other Natura 2000 sites (SACs and SPAs) fall within a 15 km radius of the site. See Table 1 below for details.

Doogort East Bog NHA lies 136 m from the site. Thirteen other Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHA) lie within 15 km of the site (see Table 2 below). The basic designation for wildlife is the Natural Heritage Area. It is an area considered important for the habitats present, or which holds species of plants and animals whose habitat needs protection. Proposed Natural Heritage Areas (pNHA) were published on a non-statutory basis in 1995. They have not since been statutorily proposed or designated. These sites are of significance for wildlife and habitats. A process is underway to resurvey and formally designate some pNHAs as NHAs.



Map 2: Natura 2000 sites within 15 km radius of site

(Map created using the Free and Open Source QGIS
QGIS Version: 3.22.10-Białowieża
Source CRS: Irish Grid
GIS Layers: National Parks & Wildlife Services
https://www.npws.ie/maps-and-data/designated-site-data/download-boundary-data)

Map 3: Natura 2000 sites within close proximity of site

(Map created using the Free and Open Source QGIS
QGIS Version: 3.22.10-Białowieża
Source CRS: Irish Grid
GIS Layers: National Parks & Wildlife Services
https://www.npws.ie/maps-and-data/designated-site-data/download-boundary-data)

Table 1: Natura 2000 sites lying in a 15 km radius of the proposed development site and connectivity to Natura sites

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
001955 Croaghaun/Slievemore SAC: Croaghaun/Slievemore SAC is located on the north-western side of Achill Island, in north-west Co. Mayo. Croaghaun/Slievemore SAC has a variety of heath communities. Alpine heath is found at high altitudes in a mosaic with scree and exposed rock, patches of blanket bog and corrie lakes. All of which support an array of unusual vascular plants and bryophytes. On the rocky habitats, scree slopes, gullies and cliffs around the corrie lakes of Loughs Bunnafreva and Nakeeroge, other notable bryophytes are found. The vegetation of the sea cliffs at Achill Head consists of well-developed examples of plantain sward. There are five corrie lakes within the site. Other habitats at the site include both wet and dry heaths, upland rivers, sea cliffs, islets and small areas of boulder and sandy beaches and some machair. The uncommon species Irish Heath occurs on the shores of Lough Nakeeroge. Choughs also occur.	**Habitats** 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European dry heaths 4060 Alpine and Boreal heaths 7130 Blanket bogs (* if active bog) 8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani)* 8220 Siliceous rocky slopes with chasmophytic vegetation	153	195	SAC lies north and west of the project site. There is a hydrological connection from the site to this SAC (EPA River Waterbody Code IE_WE_33B030960, Segment Code: 33_1096). Due to the proximity and hydrological connection between the site and this SAC, further analysis will be required to determine the impact of this project on this SAC (see Table 3).
001497 Doogort Machair/Lough Doo SAC: Doogort Machair/Lough Doo SAC is a small coastal site lying in the north-east corner of Achill Island. Most of this site consists of machair which occurs on two plains separated by an escarpment. One consists of a low, wet,	**Habitats** 21A0 Machairs (* in Ireland) **Species** 1395 Petalwort (*Petalophyllum ralfsii*)	1105	N/A	SAC Lies just over 1 km east of the project site. There's no direct hydrological connection between the site and this SAC.

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
hummocky plain near the sea, while the second is higher, drier, and flatter, and found further inland. This second plain grades into bog. Several rare and scarce mosses and liverwort species occur. Lough Doo is bordered at its western end by a freshwater. Along the seaward fringe of the site are a range of shoreline habitats including sandy beach, shingle beach, boulder beach and exposed bedrock. The site supports several species of breeding waders including Lapwing, Dunlin and Ringed Plover.				Given the proximity to the site, this SAC will require further analysis to evaluate the likelihood of effect as a result of this project (See Table 4).
004235 Doogort Machair SPA: Doogort Machair SPA is a small coastal site situated in the north-east corner of Achill Island, adjacent to the village of Valley and approximately 3 km east of Doogort, Co. Mayo. The site comprises machair and associated habitats, including foredunes and freshwater marsh, as well as two lakes, Lough Doo and Lough Nambrack. The site traditionally supported breeding Dunlin with no breeding has been recorded in recent years. Other breeding birds including Lapwing and Ringed Plover may use the site. Chough may also occur.	**Birds** A466 Dunlin (*Calidris alpina schinzii*)	1833	N/A	SPA lies east of the project site. There is no direct hydrological link between this SPA and the proposed site. Due to the close proximity of the site to this SPA, further analysis is required to determine the likelihood of effect as a result of this project (See Table 5).
001513 Keel Machair/Menaun Cliffs SAC: This site is located along the southern coast of Achill Island, Co. Mayo. The northern part of the site consists of a low-lying, flat coastal grassland, or machair, which is backed by Keel	**Habitats** 1220 Perennial vegetation of stony banks 21A0 Machairs (* in Ireland) 4060 Alpine and Boreal heaths	2970	N/A	SAC lies nearly 3 km south and south-west of the project site. There is no direct hydrological connection to this SAC from the proposed project site.

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
Lough. Damp hollows in the dunes and machair support low-growing mats of mosses and liverworts. This includes among other rare species, Petalwort, a liverwort species listed on Annex II of the Habitats Directive. South-east of the machair, the ground rises steeply, and the shoreline changes from a flat, sandy beach to sea-cliffs. The site also extends inland, past Menaun Heights, the summit of which supports heath vegetation corresponding to alpine and subalpine heath. Part of the heath vegetation on Menaun is unusual because of the presence of an uncommon community of mosses and liverworts, known as the Northern Atlantic Hepatic Mat community. Keel Lough supports wintering Whooper Swan as well as other species. Chough breed on the cliffs.	**Species** 1395 Petalwort (*Petalophyllum ralfsii*)			Given the size and nature of this project, and the distance of over 3.9 km to the proposed project site, and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs. No further analysis is required.
002268 Achill Head SAC: Achill Head is the most westerly point of Achill Island in Co. Mayo. The site supports excellent examples of reef communities. The rocky shores are very exposed to wave action. The shallow subtidal reef communities may extend to a depth of 31m. Littoral sediment communities, examples of the Annex I habitat intertidal mudflats and sandflats, are very exposed at Tramore Strand and moderately exposed at Keem Bay Strand, with typical communities for these levels of wave exposure.	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1160 Large shallow inlets and bays 1170 Reefs	5777	N/A	SAC lies over 5 km south-west of project site. There is no direct hydrological connection to this SAC from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works being contained within the project site boundary, there is no possibility for significant

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
				effects on this SAC and it's QIs No further analysis is required.
000470 Mullet/Blacksod Bay Complex SAC: This large coastal site, located in north-west Co. Mayo, comprises much of the Mullet Peninsula, the sheltered waters of Blacksod Bay and the low-lying sandy coastline from Belmullet to Kinrovar. The bay has a good range of representative littoral and sublittoral sediment communities, and also infralittoral reefs. Large areas of machair, a priority habitat occur. Fixed dunes with herbaceous vegetation, another Annex I priority habitat, are found throughout the site. Areas of fixed dunes form a complex mosaic with other dune habitats such as shifting dunes and machair. The site also includes shallow freshwater lakes, Termoncarragh Lough, Cross Lough and Leam Lough. Termoncarragh Lough is an example of alkaline fen. The Annex II liverwort species *Petalophyllum ralfsii* has been recorded from damp areas of machair at Doolough and Dooyork. The Red Data Book plant species Narrow leaved Marsh-orchid (*Dactylorhiza traunsteineri*) also occurs. Otter, a species also listed under Annex II of the Habitats Directive, is well distributed throughout the site. This site has high ornithological importance, with seven Annex I E.U. Birds Directive species occurring regularly in winter, and a further two as rare breeders.	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1160 Large shallow inlets and bays 1170 Reefs 1310 Salicornia and other annuals colonising mud and sand 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2150 Atlantic decalcified fixed dunes (*Calluno-Ulicetea)** 21A0 Machairs (* in Ireland) 3150 Natural eutrophic lakes with *Magnopotamion or Hydrocharition* - type vegetation 7230 Alkaline fens **Species** 1355 Otter (*Lutra lutra*) 1395 Petalwort (*Petalophyllum ralfsii*)	6251	N/A	SAC lies over 6 km north of project site. There is no direct hydrological connection to this SAC from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs. No further analysis is required.

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
Great Northern Diver occurring in numbers of international importance. The site is an important wintering area for an internationally important population of Barnacle Goose, Greenland White-fronted Goose and Whooper Swans.				
004037 Blacksod Bay/Broad Haven SPA: The site comprises a number of bays and inlets including Sruwaddacon Bay, Moyrahan Bay, Traw-Kirtaun, Blind Harbour, Tullaghan Bay, and the various sheltered bays and inlets in Blacksod Bay, including Trawmore Bay, Feorinyeeo Bay, Saleen Harbour, Elly Bay and Elly Harbour. At low tide extensive areas of intertidal sand and mudflats are exposed. These support a well-developed macro-invertebrate fauna. Eelgrass occurs at several localities. Salt marshes provide useful roosts for the wintering waterfowl. Cross Lough and Leam Lough, and some areas of machair are also included. The site supports a diversity of wintering waterfowl species and is one of the most important wetland complexes in the west. It has internationally important populations of Great Northern Diver and Light-bellied Brent Goose. The site also supports nationally important populations of Common Scoter, Red-breasted Merganser, Ringed Plover, Sanderling, Dunlin, Bar-tailed Godwit and Curlew. A number of wader species breed on the machair including a	**Birds** A046 Light-bellied Brent Goose (*Branta bernicla hrota*) A001 Red-throated Diver (*Gavia stellata*) A069 Red-breasted Merganser (*Mergus serrator*) A003 Great Northern Diver (*Gavia immer*) A007 Slavonian Grebe (*Podiceps auritus*) A065 Common Scoter (*Melanitta nigra*) A157 Bar-tailed Godwit (*Limosa lapponica*) A466 Dunlin (*Calidris alpina schinzii*) A160 Curlew (*Numenius arquata*) A144 Sanderling (*Calidris alba*) A137 Ringed Plover (*Charadrius hiaticula*) A191 Sandwich Tern (*Sterna sandvicensis*)	6251	N/A	SAC lies over 6 km north of proposed project site. There is no direct hydrological connection to this SPA from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs No further analysis is required.

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
nationally important population of Dunlin (subsp. *schinzii*). Inishderry Island has a nationally important breeding colony of Sandwich Tern.	A149 Dunlin (*Calidris alpina*) **Habitats** Wetlands			
002998 West Connacht Coast SAC: This site consists of a large area of marine waters lying off the coasts of Counties Mayo and Galway. The northern component of the site extends from the coastal waters off Erris Head westwards beyond Eagle Island and the Mullet Peninsula in Co. Mayo. From there it extends southwards immediately off the coast as far as the entrance to Blacksod Bay. In its southern component, the site stretches from Clare Island and the outer reaches of Clew Bay at Old Head and continues southwards off the Mayo coast to the Connemara coast near Clifden and Ballyconneely, Co Galway. Predominantly coastal in nature, the site extends westwards into Atlantic continental shelf waters up to approximately 7-11 km from the mainland. Bottle nosed Dolphin occurs within the site in all seasons and the area comprises a key habitat for the species both regionally and within Irish waters as a whole.	**Species** 1349 Common Bottlenose Dolphin (*Tursiops truncatus*)	6290	N/A	SAC lies over 6 km north-west of project site. There is no direct hydrological connection to this SAC from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs. No further analysis is required.
004227 Mullet Peninsula SPA: Duvillaun Islands SPA comprises a group of marine islands, rocks and reefs, and the surrounding seas to a distance of 200m and	**Birds** A122 Corncrake (*Crex crex*)	10548	N/A	The SPA lies over 10 km north-west of the project site. There is no hydrological connection

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
the area of water between the islands are included in the site. Duvillaun More is the largest of the islands with cliffs on the north-west, west and south-west sides. About two-thirds of the island is covered by a maritime grassland sward and a small area of dry heath. Duvillaun Beg, also has a grassy sward and an extensive intertidal shore. In winter, the Duvillaun Islands support an internationally important population Barnacle Goose. The islands also support colonies of breeding seabirds including Fulmar, Cormorant and Black Guillemot. Storm Petrel breeds on Duvillaun Beg. The populations of Fulmar and Storm Petrel are of national importance. Peregrine and Chough also occur.				to this SPA from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs. No further analysis is required.
004111 Duvillaun Islands SPA: Duvillaun Islands SPA comprises a group of marine islands, rocks and reefs, and the surrounding seas to a distance of 200m and the area of water between the islands are included in the site. Duvillaun More is the largest of the islands with cliffs on the north-west, west and south-west sides. About two-thirds of the island is covered by a maritime grassland sward and a small area of dry heath. Duvillaun Beg, also has a grassy sward and an extensive intertidal shore. In winter, the Duvillaun Islands support an internationally important population Barnacle Goose. The islands also support colonies of breeding	**Birds** A045 Barnacle Goose (*Branta leucopsis*) A014 Storm Petrel (*Hydrobates pelagicus*) A009 Fulmar (*Fulmarus glacialis*)	10563	N/A	SPA lies over 10 km north-west of project site. There is no direct hydrological connection to this SPA from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SPA and it's QIs. No further analysis is required.

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
seabirds including Fulmar, Cormorant and Black Guillemot. Storm Petrel breeds on Duvillaun Beg. The populations of Fulmar and Storm Petrel are of national importance. Peregrine and Chough also occur.				
000495 Duvillaun Islands SAC: The Duvillaun Islands form part of a larger group of islands, together with the Inishkeas, Inishkeeragh and Inishglora, which hold an important breeding population of Grey Seal. The breeding population is estimated at 648-833 individuals. The Duvillaun Islands are also of ornithological interest for their colonies of breeding seabirds and wintering geese. They hold the second largest colony of Great Black-backed Gull in Ireland. Other nationally important colonies include Cormorant, Shag, Fulmar, Common Gull and Black Guillemot. Herring Gull and Storm Petrel also occur. The islands are also used as a wintering ground for internationally important numbers of Barnacle Goose.	**Species** 1349 Common Bottlenose Dolphin (*Tursiops truncatus*) 1364 Grey Seal (*Halichoerus grypus*)	10565	N/A	SAC lies over 10 km north-west of project site. There is no direct hydrological connection to this SAC from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs. No further analysis is required.
000485 Corraun Plateau SAC: The site is situated on the Corraun Peninsula to the south-east of Achill Island, Co. Mayo. The site is dominated by wet heath and dry heath, in combination with pockets of peat and rock and a scattering of small lakes. The upland blanket bog on Corraun Plateau has been heavily grazed and now has more of a heath character, with a virtual absence of	**Habitats** 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European dry heaths 4060 Alpine and Boreal heaths 5130 Juniperus communis formations on heaths or calcareous grasslands	12803	N/A	SAC lies over 12 km south-east of project site. There is no hydrological connection to this SAC from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
pools and hummocks. Oligotrophic lakes occur in association with the blanket bog towards the northern side of the site. Rocky ground within the site, including silicious screes and rocky slopes, supports a variety of plant species. Several rare bryophytes are known within the site. Other habitats present on the site include deciduous woodland, saltmarsh, sea cliffs, rivers, streams and boulder beaches. The rare Red Data Book plant species Alpine Saw-wort occurs on cliffs within the site.	8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) 8220 Siliceous rocky slopes with chasmophytic vegetation			being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs. No further analysis is required.
000534 Owenduff/Nephin Complex SAC This site covers the Owenduff River Catchment, the Nephin Beg mountain range and stretches northward to the Owenmore River towards Bangor Erris, and westwards if the Ballycroy townland. Notable features within this site include relatively intact blanket bog, mountains, and Lough Feeagh. Good quality blanket bog is present on the low slopes of the mountains dominated by Purple Moor-grass (*Molinia caerulea*), Black Bog-rush (*Schoenus nigricans*) and Deergrass (*Scirpus cespitosus*). There are hummocks and wet hollows formed by a variety of bog moss species such as *Sphagnum imbricatum* and *S. fuscum*. The mountains reach a maximum height of 717m and carry wet heath, cliff vegetation, and upland grassland. There are also corrie lakes and rock basin lakes within the area of the SAC. The east boundary is	**Habitats** 3110 Oligotrophic Waters containing very few minerals 3160 Dystrophic Lakes 3260 Floating River Vegetation 4010 Wet Heath 4060 Alpine and Subalpine Heaths 5130 Juniper Scrub 7130 Blanket Bogs (Active)* 7140 Transition Mires **Species** 1106 Atlantic Salmon (*Salmo salar*) 1355 Otter (*Lutra lutra*) 1393 Slender Green Feather-moss (*Drepanocladus vernicosus*) 1528 Marsh Saxifrage (*Saxifraga hirculus*)	12827	N/A	SAC lies east of the proposed project site. There is no hydrological connection to this SAC from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs. No further analysis is required.

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
neighboured by coniferous plantations. The north and west boundaries are adjoined by agricultural land and reclaimed bog or wet floodplain vegetation. Some rare and important species have been recorded in this SAC. The moss species *Tomentypnum nitens* (Annex I, Habitats Directive) Slender Green Feather-moss (*Drepanocladus vernicosus*; Annex II, Habitats Directive) have been recorded. The former in two flushes and the later was last recorded in 1995. Marsh Saxifrage (*Saxifraga hirculus*; Annexes II and IV, Habitats Directive) has been recorded in two flushes on this site.				
004098 Owenduff/Nephin Complex SPA The Owenduff/Nephin Complex SPA provides one of the best examples of blanket bog and upland bird communities in the country. The site is a SPA for Merlin and Golden Plover. Merlin nests within the site (population conservatively estimated at between 4 and 8 pairs). A nationally important population of Golden Plover also breeds within the site (15 pairs in 2004). The high cliffs and crags provide good nesting sites for Peregrine. Greenland White-fronted Goose also use the site in winter. Red Grouse occurs on the bogs throughout the site. Widespread bird species which occur within the site include Meadow Pipit, Skylark, Wheatear, Raven, Hooded Crow and Kestrel. Much of the site is a National Park	**Birds** A098 Merlin (*Falco columbarius*) A140 Golden Plover (*Pluvialis apricaria*)	12827	N/A	SPA lies over 12 km east of the project site. There is no hydrological connection to this SPA from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SPA and it's QIs. No further analysis is required.

Site Name, Code and Brief Description:	Qualifying Interests (QI) and Codes: (Potential Receptors)	Distance (m):	Downstream Distance (m):	Connectivity/Comment:
and the Owenduff catchment is a Ramsar Convention site.				
000522 Lough Gall Bog SAC Lough Gall Bog is an excellent example of a western lowland blanket bog found on a low-lying peninsula on the western side of Bellacragher Bay, a sheltered sea inlet in north-west Co. Mayo. It is a relatively small area of lowland blanket bog, with a good diversity of features typical of the habitat, i.e. hummock and hollow areas, pool systems, streams, flushes, lakes, swallow-holes, islands and natural drains. It is surrounded by the sea to the north, east and south, giving rise to an unusual and natural transition from blanket bog vegetation to saltmarsh and shingle beach. A number of scarce plant species occur on Lough Gall Bog, e.g. Cranberry, Irish Heath, Juniper and Marsh Clubmoss a species listed on the Flora (Protection) Order, 1999. Otter also occur.	**Habitat** 7130 Blanket Bogs (Active)* 7150 Rhynchosporion Vegetation	14413	N/A	SAC lies over 14 km east of proposed project site. There is no hydrological connection to this SAC from the proposed site. Given the size and nature of this project, as well as the distance from the proposed site, and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SPA and it's QIs. No further analysis is required.

Table 2: Natural Heritage Area and proposed Natural Heritage Areas lying in a 15 km radius of the proposed development site

Name:	Site Ref.:	Distance (m):	Connectivity:
Doogort East Bog NHA	002381	136	Hydrological link from the bog to the site via a stream that flows away from the bog in a northern direction on the west boundary of the site (EPA River Water Body Code: IE_WE_33B030960; Segment Code: 33_1096). Given the size and nature of the project and the flow of the hydrological link, this project is unlikely to have any influence on this NHA.
Corraun Point Machair/Dooreel Creek pNHA	001488	7411	No connectivity.
Sraheens Bog NHA	002430	8844	No connectivity.

3.3. Assessment of Likely Effects

The proposed development of four dwellings is not directly connected with or necessary to the management of any Natura 2000 site. In light of this the site must be subject to AA for its implications for the Natura 2000 sites in view of the site's conservation objectives *"if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects"* (EC, 2006). The assessment is based on a preliminary impact assessment using available information and data (e.g. NPWS data, water quality data etc.), supplemented with local site information and ecological surveys.

In order, to assess the likely impacts and ascertain whether a significant impact on the integrity of the Natura site is likely to occur as a result of the proposed development it is necessary to consider what constitutes the integrity of a Site as referred to in Article 6(3). The document Managing Natura 2000 Site, the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2000) gives clear guidance and states:

> *"The integrity of the site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives".*

3.3.1 Direct, Indirect or Secondary Impacts

The screening analysis below considers each qualifying interest of the Croaghaun/Slievemore SAC (001955), Doogort Machair/Lough Doo SAC, and Doogort Machair SPA (004235), and lists the potential pathway and potential threat source and whether it is likely to have a significant effect on the qualifying habitats or species.

Table 3: Croaghaun/Slievemore SAC (001955) – Screening analysis (using a source-pathway-receptor model) to identify SAC qualifying habitats and any "Likely Significant Effects" of impacts on the Natura 2000 site, based on current project proposals.

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
4010 Northern Atlantic wet heaths with *Erica tetralix*	To restore the favourable conservation condition of Northern Atlantic wet heaths with *Erica tetralix* in Croaghaun/Slievemore SAC, which is defined by the following list of attributes and targets: **Attribute:** Habitat area **Target:** Area increasing, subject to natural processes. **Attribute:** Habitat distribution **Target:** No decline, subject to natural processes. **Attribute:** Ecosystem function: soil nutrients **Target:** Maintain soil pH and nutrient status within natural ranges. **Attribute:** Community diversity **Target:** Maintain variety of vegetation communities, subject to natural processes. **Attribute:** Vegetation composition: cross-leaved heath **Target:** Cross-leaved heath (*Erica tetralix*) present within a 20m radius of each monitoring stop. **Attribute:** Vegetation composition: positive indicator species **Target:** Cover of positive indicator species at least 50%	Land/Air Pathway	Erosion Climate Change	Approximately 1,411.8 ha of this SAC has been classified as this habitat (NPWS, 2021; Roche et al., 2014). The closest area of this habitat in this SAC to the site is roughly 0.82 km west of the site (see Map 3 in Conservation Objectives document, NPWS 2021). Due to the distance to this QI in this SAC, the scale and nature of this project, and the lack of a hydrological link to this QI, the fact that works will be confined within the project site, there will be no significant effect on the Northern Atlantic wet heath of this SAC.

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Attribute: Vegetation composition: lichens and bryophytes **Target:** Total cover of Cladonia and Sphagnum species, Racomitrium lanuginosum and pleurocarpous mosses at least 10%. **Attribute:** Vegetation composition: ericoid species and crowberry **Target:** Cover of ericoid species and crowberry (*Empetrum nigrum*) at least 15%. **Attribute:** Vegetation composition: dwarf shrub species **Target:** Cover of dwarf shrubs less than 75%. **Attribute:** Vegetation composition: negative indicator species. **Target:** Total cover of negative indicator species less than 1%. **Attribute:** Vegetation composition: non-native species **Target:** Cover of non-native species less than 1%. **Attribute:** Vegetation composition: native trees and shrubs **Target:** Cover of scattered native trees and shrubs less than 20%. **Attribute:** Vegetation composition: bracken **Target:** Cover of bracken (*Pteridium aquilinum*) less than 10% **Attribute:** Vegetation composition: soft rush			

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Target: Cover of soft rush (Juncus effusus) less than 10%. **Attribute:** Vegetation composition: Sphagnum condition **Target**: Less than 10% of the Sphagnum cover is crushed, broken and/or pulled up. **Attribute:** Vegetation structure: signs of browsing **Target:** Less than 33% collectively of the last complete growing season's shoots of ericoids, crowberry (*Empetrum nigrum*) and bog-myrtle (*Myrica gale*) showing signs of browsing. **Attribute:** Vegetation structure: burning **Target:** No signs of burning in sensitive areas, into the moss, liverwort or lichen layer or exposure of peat surface due to burning. **Attribute:** Physical structure: disturbed bare ground **Target:** Cover of disturbed bare ground less than 10% **Attribute:** Physical structure: drainage **Target:** Area showing signs of drainage from heavy trampling, tracking or ditches less than 10% **Attribute:** Indicators of local distinctiveness **Target:** No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat and no decline in status of hepatic mats associated with this habitat			

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
4030 European dry heaths	To restore the favourable conservation condition of European dry heaths in Croaghaun/Slievemore SAC, which is defined by the following list of attributes and targets: **Attribute:** Habitat area **Target:** Area stable or increasing, subject to natural processes **Attribute:** Habitat distribution **Target:** No decline, subject to natural processes. **Attribute:** Ecosystem function: soil nutrients **Target:** Maintain soil pH and nutrient status within natural ranges. **Attribute:** Community diversity **Target:** Maintain variety of vegetation communities, subject to natural processes. **Attribute:** Vegetation composition: lichens and bryophytes **Target:** Number of bryophyte or non-crustose lichen species present at each monitoring stop at least three, excluding Campylopus and Polytrichum mosses. **Attribute:** Vegetation composition: number of positive indicator species **Target:** Number of positive indicator species present at each monitoring stop at least two.	Land/Air Pathway	Erosion Climate Change	Approximately 201.7 ha of this SAC has been classified under this habitat (NPWS, 2021; Roche et al., 2014). The closest area of this habitat in this SAC to the site is around 0.82 km west of the site (see Map 4 in Conservation Objectives document, NPWS 2021). Due to the distance to this QI in this SAC, the scale and nature of this project, and the lack of a hydrological link to this QI, the fact that works will be confined within the project site, there will be no significant impact on the European dry heaths of this SAC.

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Attribute: Vegetation composition: cover of positive indicator species **Target:** Cover of positive indicator species at least 50% for siliceous dry heath and 50- 75% for calcareous dry heath. **Attribute:** Vegetation composition: dwarf shrub species **Target:** Proportion of dwarf shrub cover composed collectively of bog-myrtle (*Myrica gale*), creeping willow (Salix repens) and western gorse (*Ulex gallii*) is less than 50%. **Attribute:** Vegetation composition: negative indicator species. **Target:** Total cover of negative indicator species less than 1%. **Attribute:** Vegetation composition: non-native species **Target:** Cover of non-native species less than 1%. **Attribute:** Vegetation composition: native trees and shrubs **Target:** Cover of scattered native trees and shrubs less than 20%. **Attribute:** Vegetation composition: bracken **Target:** Cover of bracken (*Pteridium aquilinum*) less than 10% **Attribute:** Vegetation composition: soft rush **Target:** Cover of soft rush (*Juncus effusus*) less than 10%.			

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Attribute: Vegetation structure: senescent ling **Target:** Senescent proportion of ling (*Calluna vulgaris*) cover less than 50%. **Attribute:** Vegetation structure: signs of browsing **Target:** Less than 33% collectively of the last complete growing season's shoots of ericoids showing signs of browsing. **Attribute:** Vegetation structure: burning **Target:** No signs of burning in sensitive areas. **Attribute:** Vegetation structure: growth phases of ling **Target:** Outside sensitive areas, all growth phases of ling (*Calluna vulgaris*) should occur throughout, with at least 10% of cover in the mature phase. **Attribute:** Physical structure: disturbed bare ground **Target:** Cover of disturbed bare ground less than 10%. **Attribute:** Indicators of local distinctiveness **Target:** No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat and no decline in status of hepatic mats associated with this habitat			
4060 Alpine and Boreal heaths	To restore the favourable conservation condition of Alpine and Boreal heaths in Croaghaun/Slievemore SAC, which is defined by the following list of attributes and targets:	Land/Air Pathway	Erosion Climate Change	268.2 ha of this SAC has been classified under this habitat (NPWS, 2021; Roche et al., 2014).

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Attribute: Habitat area **Target:** Area stable or increasing, subject to natural processes **Attribute:** Habitat distribution **Target:** No decline, subject to natural processes. **Attribute:** Ecosystem function: soil nutrients **Target:** Maintain soil pH and nutrient status within natural ranges. **Attribute:** Community diversity **Target:** Maintain variety of vegetation communities, subject to natural processes. **Attribute:** Vegetation composition: lichens and bryophytes **Target:** Number of bryophyte or non-crustose lichen species present at each monitoring stop at least three. **Attribute:** Vegetation composition: positive indicator species **Target:** Cover of positive indicator species at least 66%. **Attribute:** Vegetation composition: dwarf shrub species **Target:** Cover of dwarf shrub species at least 10%. **Attribute:** Vegetation composition: negative indicator species. **Target:** Total cover of negative indicator species less than 10%.			The closest area of this habitat in this SAC to the site is roughly 1.70 km west of the site (see Map 5 in Conservation Objectives document, NPWS 2021). Due to the distance to this QI in this SAC, the scale and nature of this project, the fact that works will be confined within the project site, there will be no significant impact on the alpine and boreal heath of this SAC.

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Attribute: Vegetation composition: non-native species **Target:** Cover of non-native species less than 1%. **Attribute:** Vegetation structure: signs of grazing **Target:** Less than 10% collectively of the live leaves of specific graminoids showing signs of grazing. **Attribute:** Vegetation structure: signs of browsing **Target:** Less than 33% collectively of the last complete growing season's shoots of ericoids and crowberry (*Empetrum nigrum*) showing signs of browsing. **Attribute:** Vegetation structure: burning **Target:** No signs of burning within habitat. **Attribute:** Physical structure: disturbed bare ground **Target:** Cover of disturbed bare ground less than 10%. **Attribute:** Indicators of local distinctiveness **Target:** No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat and no decline in status of hepatic mats associated with this habitat			
7130 Blanket bogs (* if active bog)	To restore the favourable conservation condition of Blanket bogs (* if active bog) in Croaghaun/Slievemore SAC, which is defined by the following list of attributes and targets:	Land/Air Pathway	Erosion Climate Change	Approximately 218.8 ha has been classified under this habitat (NPWS, 2021; Roche et al., 2014).

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Attribute: Habitat area **Target:** Area increasing, subject to natural processes **Attribute:** Habitat distribution **Target:** No decline, subject to natural processes. **Attribute:** Ecosystem function: soil nutrients **Target:** Maintain soil pH and nutrient status within natural ranges. **Attribute:** Ecosystem function: peat formation **Target:** At least 99% of the total Annex I blanket bog area is active. **Attribute:** Ecosystem function: hydrology **Target:** Natural hydrology unaffected by drains and erosion. **Attribute:** Community diversity **Target:** Maintain variety of vegetation communities, subject to natural processes. **Attribute:** Vegetation composition: positive indicator species **Target:** Number of positive indicator species at each monitoring stop at least seven. **Attribute:** Vegetation composition: lichens and bryophytes **Target:** Cover of bryophytes or lichens, excluding *Sphagnum fallax*, at least 10%.			The closest area of this habitat in this SAC to the site is around 0.98 km west of the site (see Map 6 in Conservation Objectives document, NPWS 2021). Due to the distance to this QI in this SAC, the scale and nature of this project, and the lack of a hydrological link to this QI, the fact that works will be confined within the project site, there will be no significant impact on the active blanket bog of this SAC.

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Attribute: Vegetation composition: potential dominant species **Target:** Cover of each of the potential dominant species less than 75%. **Attribute:** Vegetation composition: negative indicator species. **Target:** Total cover of negative indicator species less than 1%. **Attribute:** Vegetation composition: non-native species **Target:** Cover of non-native species less than 1%. **Attribute:** Vegetation composition: native trees and shrubs **Target:** Cover of scattered native trees and shrubs less than 10%. **Attribute:** Vegetation composition: *Sphagnum* condition **Target:** Less than 10% of the *Sphagnum* cover is crushed, broken and/or pulled up **Attribute:** Vegetation structure: signs of browsing **Target:** Last complete growing season's shoots of ericoids, crowberry (*Empetrum nigrum*) and bog-myrtle (*Myrica gale*) showing signs of browsing collectively less than 33%. **Attribute:** Vegetation structure: burning			

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Target: No signs of burning in sensitive areas, into the moss, liverwort or lichen layer or exposure of peat surface due to burning. **Attribute:** Physical structure: disturbed bare ground **Target:** Cover of disturbed bare ground less than 10%. **Attribute:** Physical structure: drainage **Target:** Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%. **Attribute:** Physical structure: erosion **Target:** Less than 5% of the greater bog mosaic comprises erosion gullies and eroded areas. **Attribute:** Indicators of local distinctiveness **Target:** No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat.			
8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani)*	To maintain the favourable conservation condition of Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) in Croaghaun/Slievemore SAC, which is defined by the following list of attributes and targets: **Attribute:** Habitat area **Target:** Area stable or increasing, subject to natural processes	Land/Air Pathway	Pollution	Approximately 69.8 ha has been classified under this habitat (NPWS, 2021; Roche et al., 2014). The closest area of this habitat in this SAC to the site is around 1.42 km west of the site (see Map 7 in Conservation Objectives document, NPWS 2021).

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Attribute: Habitat distribution **Target:** No decline, subject to natural processes. **Attribute:** Ecosystem function: soil nutrients **Target:** Maintain soil pH and nutrient status within natural ranges. **Attribute:** Vegetation composition: lichens and bryophytes **Target:** Cover of bryophytes and non-crustose lichen species at least 5%. **Attribute:** Vegetation composition: negative indicator species. **Target:** Total cover of negative indicator species less than 1%. **Attribute:** Vegetation composition: non-native species **Target:** Cover of non-native species less than 1%. **Attribute:** Vegetation composition: positive indicator species **Target:** At least one positive indicator species present in vicinity of each monitoring stop in block scree. **Attribute:** Vegetation composition: grass species and dwarf shrubs **Target:** Total cover of grass species and dwarf shrubs less than 20%.			Due to the distance to this QI in this SAC, the scale and nature of this project, the fact that works will be confined within the project site, there will be no significant impact on the siliceous scree of the montane to snow levels of this SAC.

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Attribute: Vegetation composition: bracken, native trees and shrubs **Target:** Total cover of bracken (Pteridium aquilinum), native trees and shrubs less than 25%. **Attribute:** Vegetation structure: grazing and browsing **Target:** Live leaves of forbs and shoots of dwarf shrubs showing signs of grazing or browsing collectively less than 50%. **Attribute:** Vegetation structure: disturbance **Target:** Ground disturbed by human and animal paths, scree running or vehicles less than 10%. **Attribute:** Indicators of local distinctiveness **Target:** No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat.			
8220 Siliceous rocky slopes with chasmophytic vegetation	To restore the favourable conservation condition of Blanket bogs (* if active bog) in Croaghaun/Slievemore SAC, which is defined by the following list of attributes and targets: **Attribute:** Habitat area **Target:** Area stable or increasing, subject to natural processes. **Attribute:** Habitat distribution **Target:** No decline, subject to natural processes.	Land/Air Pathway	Pollution	Approximately 38 hahas been classified under this habitat (NPWS, 2021; Roche et al., 2014). The closest area of this habitat in this SAC to the site is around 1.17 km west of the site (see Map 8 in Conservation Objectives document, NPWS 2021).

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Attribute: Ecosystem function: soil nutrients **Target:** Maintain soil pH and nutrient status within natural ranges. **Attribute:** Vegetation composition: positive indicator species **Target:** At least one positive indicator species present in vicinity of each monitoring stop. **Attribute:** Vegetation composition: non-native species **Target:** Proportion of vegetation composed of non-native species less than 1%. **Attribute:** Vegetation composition: bracken, native trees and shrubs **Target:** Total cover of bracken (*Pteridium aquilinum*), native trees and shrubs less than 25%. **Attribute:** Vegetation structure: grazing and browsing **Target:** Live leaves of forbs and shoots of dwarf shrubs showing signs of grazing or browsing collectively less than 50%. **Attribute:** Indicators of local distinctiveness **Target:** No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat.			Due to the distance to this QI in this SAC, the scale and nature of this project, the fact that works will be confined within the project site, there will be no significant impact on the siliceous rocky slopes with chasmophytic vegetation of this SAC.

Table 4: Doogort Machair/Lough Doo SAC (001497) – Screening analysis (using a source-pathway-receptor model) to identify SAC qualifying habitats and any "Likely Significant Effects" of impacts on the Natura 2000 site, based on current project proposals.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives:**	**Pathway/ Comment:**	**Source of Potential Threats:**	**Likelihood of Significance:**
Habitats				
21A0 Machairs (* in Ireland)	To restore the favourable conservation condition of Machairs (* in Ireland) in Doogort Machair/Lough Doo SAC, which is defined by the following list of attributes and targets: **Attribute:** Habitat area **Target:** Area stable or increasing, subject to natural processes including erosion and succession. **Attribute:** Habitat distribution **Target:** No decline or change in habitat distribution, subject to natural processes. **Attribute:** Physical structure: functionality and sediment supply **Target:** Maintain the natural circulation of sediment and organic matter, without any physical obstructions. **Attribute:** Physical structure: hydrological and flooding regime **Target:** Maintain natural hydrological regime. **Attribute:** Vegetation structure: zonation	Land/Air pathway	Erosion Climate Change	The site lies approximately 1.30 km from mapped habitat within this SAC and there is no hydrological connection between the two. Machairs are assessed as Unfavourable-Bad (Delaney et al., 2013). Machair develops when the dune system is eroded by wind down to a level just above the water table. This prevents further erosion and results in the formation of a flat, sandy plain. They are dynamic systems only found on the northwest coasts of Ireland and Scotland (Gaynor, 2006). Loss of machair habitat due to erosion can be exacerbated by human activity (Delaney et al., 2013). Given the scale and nature of the project, the distance between the site and the SAC, as well as the lack of a hydrological connection, the terrestrial nature of this habitat and the fact that works will only occur within site boundary, there is no possibility for significant effects on area, distribution, composition, or structure of Machair.

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
	Target: Maintain the range of coastal habitats including transitional zones, subject to natural processes, including erosion and succession. **Attribute:** Vegetation structure: bare ground **Target:** Bare ground should not exceed 10% of machair habitat, subject to natural processes **Attribute:** Vegetation structure: sward height **Target:** Maintain structural variation within sward. **Attribute:** Vegetation composition: typical species and sub-communities **Target:** Maintain range of subcommunities with typical species listed in Delaney et al. (2013). **Attribute:** Vegetation composition: negative indicator species. **Target:** Negative indicator species (including non-native species) to represent less than 5% cover. **Attribute:** Vegetation composition: scrub/trees **Target:** No more than 5% cover or under control **Attribute:** Vegetation composition: bryophytes. **Target:** Should always be at least an occasional component of the vegetation.			

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
Species				
1395 Petalwort (*Petalophyllum ralfsii*)	To maintain the favourable conservation condition of Petalwort in Doogort Machair/Lough Doo SAC, which is defined by the following list of attributes and targets: **Attribute:** Distribution **Target:** No decline. **Attribute:** Population size. **Target:** No decline. **Attribute:** Area of suitable habitat. **Target:** No decline. Area of suitable habitat at Doogort Machair currently unknown, but is estimated to be at least c.0.00008ha **Attribute:** Hydrological conditions: soil moisture. **Target:** Maintain hydrological conditions so that substrate is kept moist and damp throughout the year, but is not subject to prolonged inundation by flooding in winter. **Attribute:** Vegetation: open structure. **Target:** Maintain open, low vegetation, with a high percentage cover of bryophytes (small acrocarps and liverwort turf) and bare ground.	Land/Air Pathway	Erosion Physical disturbance Pollution Climate Change	The closest record in this SAC lies approximately 2.4 km of the site. Petalwort is a thallose liverwort found in coastal areas mainly in dune systems with damp, calcareous dune slacks or machair; two habitats listed under Annex I of the Habitats Directive (Campbell et al., 2019). The species requires damp, compact soil with the groundwater level within 80 cm of ground level in a short, sward without heavy shading (Campbell et al., 2019). Given the scale and nature of the project, the distance between the site and the SAC and records, and the fact that works will only occur within site boundary, there is no possibility for significant effects on population size, area of suitable habitat, hydrological condition, or vegetation structure.

Table 5: Doogort Machair SPA (004235) – Screening analysis (using a source-pathway-receptor model) to identify SPA qualifying habitats and any "Likely Significant Effects" of impacts on the Natura 2000 site, based on current project proposals.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives:**	**Pathway/ Comment:**	**Source of Potential Threats:**	**Likelihood of Significance:**
Birds				
A466 Dunlin (*Calidris alpina schinzii*)	To maintain and restore the habitat and species at favourable conservation conditions with the aim to contribute to overall maintenance of favourable conservation status of the Dunlin at a national level.	Land/Air Pathway	Species Disturbance	SPA designated for breeding Dunlin. The Dunlin is a ground nesting wader with a preference for low vegetation and Irish machair (BWI, 2019). A limited number of Dunlin breed in Ireland (estimate 20-50 breeding pairs (Crowe, et al., 2021)). Breeding numbers are in decline throughout Ireland. Breeding Dunlin are vulnerable to habitat change including drainage, overgrazing or inappropriate developments. Dunlin is especially vulnerable to predation (Crowe, et al., 2021). The population in this SPA has dropped from 10 breeding pairs to 0 breeding pairs between 1985 and 2009 (NPWS, 2013b). However, dunlin in breeding plumage have been seen in recent years (Jackie Hunt, Life on Machair ecologist, personal communication). Dunlin have been assessed to have a medium sensitivity to human disturbance (Goodship et al., 2022). In the same review, a buffer zone of 100-200m is suggested to protect breeding birds from disturbance (Goodship et al., 2022). Due to the distance of 1.8 km from project site to SPA disturbance will not be an issue during construction work. However, construction of new dwellings in the vicinity of this SPA is likely to increase number of walkers / dog walkers to the area, though it would be difficult to assess numbers and potential effects. Given that there are no recent breeding dunlin

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives:	Pathway/ Comment:	Source of Potential Threats:	Likelihood of Significance:
		Hydrological Pathway	Pollution	on the site it is possible that disturbance levels have already reach levels that are no longer sustainable for ground nesting birds. However, work by LIFE on machair, including installation of predator exclusion fence is trying to reverse this (Jackie Hunt, Life on Machair ecologist, personal communication). There is a hydrological link (EPA River Waterbody Code IE_WE_33B030960, Segment Code: 33_1096) to the sea from the project site. Soil movements and other work during construction work could result in sediment and pollution reaching the sea. Dunlin feed predominantly on small invertebrates of estuarine mudflats, particularly polychaete worms and small gastropods. They feed in flocks, in the muddier sections of the estuaries and close to the tide edge. Their prey could be affected by any sedimentation or pollution from the proposed project site into Pollawaddy Strand (Dunlin are likely to feed here as well as within the SPA). Therefore the risk of pollution or sedimentation via the hydrological link effecting the food source of the Dunlin has been highlighted on a precautionary basis.

There are 17 Natura 2000 sites within a 15 km radius of the proposed project, 12 SACs and 5 SPAs. The proposed project is not situated in any of the SACs or SPAs. The closest Natura 2000 site to the project site is Croaghaun/Slievemore SAC at 153 m, followed by Doogort Machair/Lough Doo SAC at 1.10 km and Doogort Machair SPA at 1.83 km. The general risks to the qualifying interests of these Natura 2000 sites include erosion, pollution, climate change as well as physical and species disturbance. The pathways for most of these threats was deemed as land and air, and hydrological.

The closest stream (EPA River Water Body Code: IE_WE_33B030960; Segment Code: 33_1096) to the site runs along the site's western boundary and into the sea via the Croaghaun/Slievemore SAC. After evaluating each qualifying interest of this SAC, it was noted that this hydrological connection does not directly link the project site to the mapped areas of habitats protected under this SAC. However, the prey of Dunlin (qualifying interest of the Doogort Machair SPA) could be affected by any sedimentation or pollution flowing from the proposed project site via the hydrological connection into Pollawaddy Strand (dunlin are likely to feed here as well as within the SPA). Therefore potential effect on dunlin has been highlighted on a precautionary basis. .

The qualifying interest species identified within Doogort Machair/Lough Doo SAC and Doogort SPA were Petalwort and Dunlin. The proposed project site in its current state, is not suitable habitat for either of these two species, and no records of these species occurring within the site were found. The closest record of Petalwort was 2.4 km away within the Doogort Machair/Lough Doo SAC. There is potential for direct species disturbance of dunlin through physical and noise means due to the presence of machinery during construction. However, this disturbance is unlikely to be significant due to the distance between the project site and the Doogort Machair/Lough Doo SAC and Doogort SPA.

However, construction of new dwellings in the vicinity of this SPA is likely to increase number of walkers / dog walkers to the area, though it would be difficult to assess numbers and potential effects. There is an existing loop walk in this area (Valley Loop Walk) and the hope is to have this re-routed so it avoids the sensitive area within the machair. Given that there are no recent records of breeding dunlin on the site it is possible that disturbance levels have already reach levels that are no longer sustainable for ground nesting birds. However, work by LIFE on Machair, including installation of predator exclusion fence is trying to reverse this (Jackie Hunt, Life on Machair ecologist, personal communication).

There are no direct post-construction hydrological effects are envisaged as the wastewater will be directed to the public sewer at the entrance to the project site and a new storm sewer will be constructed to prevent surface water from discharging into the adjoining stream.

The proposed project site is located on peat soils (BktPt- blanket peat) on a moderate slope, which has the potential to increase the movement of sediment downstream via the hydrological connection toward the shore.

3.3.2 *Cumulative Impacts – Other Projects*

Under Appropriate Assessment it is necessary to investigate if there are any other projects or plans that together with the project outlined here could affect the Natura 2000 Sites. Table 6 below lists other proposed plans accesses through the Mayo County Council planning database.

Table 6: Planning Application Near Proposed Development Site

(Planning site access on the 06/03/2023) Townlands searched – DOOGORT EAST, DOOGORT, TONATANVALLY, BUNACURRY, DOOKINELLY (Calvy), BELLANASALLY.)

Planning Ref and Address:	**Description:**	**Comments:**
2368 - Dugort East, Achill, Co. Mayo	Section 5 Declaration: minor elevation changes to side and rear elevation.	A decision is due on March 15th 2023. No Appropriate Assessment Screening Report has been uploaded. This project entails the renovation to an existing dwelling. The potential risk of a cumulative impacts on the surrounding Natura 2000 sites in combination with the proposed project is unlikely due to the nature and scale of the proposal.
211199 - Finsheen Cottage, Doogort, Achill, Co. Mayo	Construction of an extension to the front and side of the existing dwelling house along with all necessary site works and ancillaries.	Conditional approval granted on January 19th 2022. The Appropriate Assessment Screening determined that it would be unlikely to have an impact by itself or in combination with other projects in the area.
21207 - Golden Strand, Doogort East, Achill, Co. Mayo	Demolition of a building and construction of 17 new mobile home parking bays, connection to existing public services and all associated ancillary works.	Conditional approval granted on September 7th 2021. Appropriate Assessment Screening conclude that there would be no significant impact on Natura 2000 sites. However, it should be noted that the proposal will likely increase numbers of visitors to the area, which in turn is likely to increase number of walkers / dog walkers to Doogort Machair SPA, though it is difficult to assess numbers and the significance of any potential effects on SCI namely Dunlin.
21320 - Doogort East, Achill, Co. Mayo	Construction of a new dwelling house with connection to public services along with all necessary site works and ancillaries.	Conditional approval granted on December 8th 2021. Planning report conclude that in accordance with Article 6(3) of the Habitats Directive, the proposed development by itself or in combination with other development in the vicinity, would not be likely to have a significant effect on European sites (s).

Planning Ref and Address:	Description:	Comments:
21592 - Doogort, Achill, Co. Mayo	Extension and alterations to existing dwelling, construction of shed and associated site works.	Conditional approval granted on July 27th 2022. The Appropriate Assessment Screening determined that it would be unlikely to have an impact by itself or in combination with other projects in the area.
21720 - Doogort, Achill, Co. Mayo	Construct extension and carry out renovations to existing cottage with all associated site works on this site.	Conditional approval granted on August 26th 2022. The Appropriate Assessment Screening determined that it would be unlikely to have an impact by itself or in combination with other projects in the area.
21981 - Doogort, Achill, Co. Mayo	Construct a new vehicular entrance and access road to access lands.	Conditional approval granted on November 2nd 2022. The Appropriate Assessment Screening determined that it would be unlikely to have an impact by itself or in combination with other projects in the area.
22260 - Doogort, Achill, Co. Mayo	Retention of an extension to the side of the existing dwelling house and first floor roof windows along with alterations to the dwelling house.	Conditional approval granted on May 16th 2022. The Appropriate Assessment Screening determined that it would be unlikely to have an impact by itself or in combination with other projects in the area.
22515 - 8 Dugort Beech Holiday Cottages, Dugort East, Achill	Retain as constructed (subsequently modified) holiday cottage (previously granted permission under file reference number P97/1764) together with associated and ancillary works and development above and below ground level.	A decision is due on March 13th 2023. No Appropriate Assessment Screening Report has been uploaded. As this is a retention application, no cumulative impacts are expected.

Table 7: An Bord Pleanála Planning Appeals Near Proposed Development Site

(Planning site access on the 06/03/2023)

(Data source: https://www.pleanala.ie/en-ie/home/, Townlands searched – DOOGORT EAST, DOOGORT, TONATANVALLY, BUNACURRY, DOOKINELLY (Calvy), BELLANASALLY.)

Application No. and Address:	Description:	Risk of Significant Impact or in Combination Effects from Plans:
314848 - Dookinelly, Calvy, Achill, Co Mayo	Construction of a 3 bay enclosed dry bedded sheep shed with underground effluent storage tank along with all the associated site works.	This planning appeal was deemed invalid. Therefore, will have no impact by itself or in combination with other project/plans.

3.3.3 Cumulative Impacts – Other Plans

It is a requirement of Appropriate Assessment that the 'in-combination' (the cumulative development with any other plans) effects be assessed. A search of Mayo County Council Planning enquiry system was conducted for plans that may have in-combination effects on the listed Natura 2000 sites.

Table 6: Other Plans and Possible Impacts

Plan:	Summary Objectives:	Possible Impacts:	Risk of Significant Impact or in Combination Effects from Plans:
Mayo County Development Plan 2022-2028, August 2022	1: To facilitate the sustainable growth of all rural areas, towns, villages and countryside throughout the county. 2: To promote and enhance Mayo's economic development potential. 3: To develop Mayo as a leading tourism destination through continued sustainable expansion of the tourism sector. 4: To develop a safer, more sustainable, efficient, effective and connected transport system within Mayo. 5: To maintain the strategic function, capacity and safety of the national roads network. 6: To protect, improve and provide water, wastewater, surface water	Impact on the Natura Network cannot be excluded.	*Appropriate Assessment Determination for the Mayo County Development Plan 2022-2028* Implementation of the Plan would have had the potential to result in effects to the integrity of European sites, if unmitigated. • The risks to the safeguarding and integrity of the qualifying interests, special conservation interests and conservation objectives of the European sites have been partially addressed by the inclusion of mitigation measures that will prioritise the avoidance of effects in the first place and reliably mitigate effects where these cannot be avoided. In addition, any lower-level plans and projects arising through the implementation of the Plan will themselves

Plan:	Summary Objectives:	Possible Impacts:	Risk of Significant Impact or in Combination Effects from Plans:
	and flood alleviation services throughout the county. 7: To develop and support vibrant sustainable communities in Mayo. 8: To recognise and enhance the unique identity, character and built heritage of Mayo's towns, village and rural areas. 9: To continue to protect and enhance the county's natural heritage and Biodiversity. 10: To transition to a low carbon and climate resilient county. 11: To develop Mayo's settlements as a network of attractive, liveable towns, villages and countryside in the county.		be subject to AA when further details of design and location are known. • The cumulative effect of changes at a core strategy level was not possible to assess, in the absence of a coherent alternative strategy that evaluated the scale and nature and location of development. Additionally, the ancillary impacts that could be associated with such a strategy change cannot be assessed with the present information. • In the case of the Material Amendments some new zoning or zoning changes were considered to be within the Zone of Influence for potential impact on Natura Sites, without due consideration for alternatives provided. • Given the changes in core strategy and zoning changes as part of the Material Amendments the potential for integrity level impact on the Natura Network cannot be excluded.
River Basin Management Plan for Western River Basin District in Ireland	1. Prevent deterioration 2. Restore good status 3. Reduce chemical pollution 4. Achieve water related protected areas objectives.	No negative impacts envisaged	Screening completed for this plan – no significant 'in combination' effects

In reviewing the above plans and projects and the best objective information, potential cumulative effects were identified between the proposed project and one other project (21207 - Golden Strand, Doogort East, Achill, Co. Mayo). This is due to the potential increased numbers of visitors to the area and potential to increase disturbance of SCI Dunlin on Doogort Machair SPA, though it is difficult to assess numbers and the significance of any potential effects on the SCI.

3.4. Stage 1 Screening Conclusion and Statement

The Screening process identified 17 Natura 2000 sites within a 15 km radius of the proposed project site. This included 12 SACs and 5 SPAs. The closest Natura 2000 were Croaghaun/Slievemore SAC at 153 m, followed by Doogort Machair/Lough Doo SAC at 1.10 km and Doogort Machair SPA at 1.83 km. These sites required additional screening analysis given their proximity to the site and the hydrological link between the site and Croaghaun/Slievemore SAC. See also the Screening Matrix in Appendix 1.

The screening exercise concludes that potential significant effects on Doogort Machair SPA and Croaghaun/Slievemore SACare likely or uncertain. Therefore, the project must proceed to Stage 2 (AA).

Based on the information contained in this Screening Report, it was not considered possible to rule out the potential for significant effects of the proposed project on the conservation objectives of the following European site, whether alone or in-combination with other plans or projects:

- Croaghaun/Slievemore SAC
- Doogort Machair SPA

Signed

Dr Karina Dingerkus (Ecologist)

SECTION 2

4.0 Stage 2: Natura Impact Statement to Inform Appropriate Assessment

4.1. Introduction

The impact of a project or plan alone and in combination with other projects or plans on the integrity of the Natura 2000 site is considered with respect to the conservation objectives of the site and to its structure and function. The Natura Impact Statement provides information to aid the competent authority in making the Appropriate Assessment.

The Stage 1 Screening concluded that there was potential for Croaghaun/Slievemore SAC and Doogort Machair SPA to be affected by the proposed project (see Table 3 and 5 and Section 3.3 above), due to potential risks to water quality from sediment run-off and pollution. Effects on water quality could result in an indirect effect on Dunlin, the only qualifying interest of the Doogort Machair SPA through disruption of their food source. Construction of new dwellings in the vicinity of this SPA in combination with construction of 17 new mobile home parking bays (reference planning number: 21207) is likely to increase the number of walkers / dog walkers to the area. It is difficult to assess numbers and the significance of any potential effects. Given that there are no recent breeding Dunlin on the Doogort Machair SPA (NPWS, 2013b), it is possible that disturbance levels have already reached levels that are no longer suitable for ground nesting birds. However, it is necessary to prepare a Natura Impact Statement that outlines mitigation measures to prevent sediment run-off and pollution from the site and potential increase in disturbance.

4.2. Conservation Objectives of the Croaghaun/Slievemore SAC and Doogort Machair SPA

The general aim of the Habitats Directive is to maintain or restore the favorable conservation status of habitats and species of community interest. European and national legislation places a shared obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network (SACs and SPAs) at favourable conservation status. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, is 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 favourable.

The favourable conservation status 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.
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The Conservation Objectives of Croaghaun/Slievemore SAC and Doogort Machair SPA can be found in Tables 3 and 5 above in screening report and at:

- https://www.npws.ie/protected-sites/sac/001955
- https://www.npws.ie/protected-sites/spa/004235

4.3. Impact Prediction

The proposed project is not situated in any of the SACs or SPAs. It lies 0.53 km of the Croaghaun/Slievemore SAC and 1.83 km of the Doogort Machair SPA.

The closest stream (EPA River Water Body Code: IE_WE_33B030960; Segment Code: 33_1096) to the site runs along the site's western boundary and into the sea via the Croaghaun/Slievemore SAC. After evaluating each qualifying interest of this SAC, it was noted that this hydrological connection does not directly link the project site to the mapped areas of habitats protected under this SAC. However, the prey of Dunlin (qualifying interest of the Doogort Machair SPA) could be affected by any sedimentation or pollution flowing from the proposed project site via the hydrological connection into Pollawaddy Strand (dunlin are likely to feed here as well as within the SPA). Therefore potential effect on dunlin has been highlighted on a precautionary basis.

The qualifying interest species identified within Doogort Machair/Lough Doo SAC and Doogort SPA were Petalwort and Dunlin. The proposed project site in its current state, is not suitable habitat for either of these two species, and no records of these species occurring within the site were found. The closest record of Petalwort was 2.4 km away within the Doogort Machair/Lough Doo SAC. There is potential for direct species disturbance of dunlin through physical and noise means due to the presence of machinery during construction. However, this disturbance is unlikely to be significant due to the distance between the project site and the Doogort Machair/Lough Doo SAC and Doogort SPA.

However, construction of new dwellings in the vicinity of this SPA is likely to increase number of walkers / dog walkers to the area, though it would be difficult to assess numbers and potential effects. There is an existing loop walk in this area (Valley Loop Walk) and the hope is to have this re-routed so it avoids the sensitive area within the machair. Given that there are no recent records of breeding dunlin on the site it is possible that disturbance levels have already reach levels that are no longer sustainable for ground nesting birds. However, work by LIFE on Machair, including installation of predator exclusion fence is trying to reverse this (Jackie Hunt, Life on Machair ecologist, personal communication).

There are no direct post-construction hydrological effects are envisaged as the wastewater will be directed to the public sewer at the entrance to the project site and a new storm sewer will be constructed to prevent surface water from discharging into the adjoining stream.

The proposed project site is located on peat soils (BktPt- blanket peat) on a moderate slope, which has the potential to increase the movement of sediment downstream via the hydrological connection toward the shore.

Table 7: Croaghaun/Slievemore SAC (001955) – Qualifying Interests – assessment of potential impacts on qualifying interest assessed as having potential impact at Pre-Screening stage.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Assessment**	**Source of Potential Threats:**	**Likelihood of Significance:**
4010 Northern Atlantic wet heaths with *Erica tetralix*	Approximately 1,411.8 ha of this SAC has been classified as this habitat (NPWS, 2021; Roche et al., 2014). The closest area of this habitat in this SAC to the site is roughly 0.82 km west of the site. Due to the distance to this QI in this SAC, the scale and nature of this project, and the lack of a hydrological link to this QI, the fact that works will be confined within the project site, there will be no significant impact on the Northern Atlantic wet heath of this SAC.	No threat envisaged from this project.	No mitigation required as there is no possibility of significant effect.
4030 European dry heaths	Approximately 301.7 ha of this SAC has been classified under this habitat (NPWS, 2021; Roche et al., 2014). The closest area of this habitat in this SAC to the site is around 0.82 km west of the site. Due to the distance to this QI in this SAC, the scale and nature of this project, and the lack of a hydrological link to this QI, the fact that works will be confined within the project site, there will be no significant impact on the European dry heaths of this SAC.	No threat envisaged from this project.	No mitigation required as there is no possibility of significant effect.
4060 Alpine and Boreal heaths	268.2 ha of this SAC has been classified under this habitat (NPWS, 2021; Roche et al., 2014).	No threat envisaged from this project.	No mitigation required as there is no possibility of significant effect.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Assessment**	**Source of Potential Threats:**	**Likelihood of Significance:**
	The closest area of this habitat in this SAC to the site is roughly 1.70 km west of the site. Due to the distance to this QI in this SAC, the scale and nature of this project, the fact that works will be confined within the project site, there will be no significant impact on the alpine and boreal heath of this SAC.		
7130 Blanket bogs (* if active bog)	Approximately 218.8 ha has been classified under this habitat (NPWS, 2021; Roche et al., 2014). The closest area of this habitat in this SAC to the site is around 0.98 km west of the site. Due to the distance to this QI in this SAC, the scale and nature of this project, and the lack of a hydrological link to this QI, the fact that works will be confined within the project site, there will be no significant impact on the active blanket bog of this SAC.	No threat envisaged from this project.	No mitigation required as there is no possibility of significant effect.
8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani)*	Approximately 69.8 ha has been classified under this habitat (NPWS, 2021; Roche et al., 2014). The closest area of this habitat in this SAC to the site is around 1.42 km west of the site. Due to the distance to this QI in this SAC, the scale and nature of this project, the fact that works will be confined within the project site, there will be no significant impact on	No threat envisaged from this project.	No mitigation required as there is no possibility of significant effect.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Assessment**	**Source of Potential Threats:**	**Likelihood of Significance:**
	the siliceous scree of the montane to snow levels of this SAC.		
8220 Siliceous rocky slopes with chasmophytic vegetation	Approximately 38.0 ha has been classified under this habitat (NPWS, 2021; Roche et al., 2014). The closest area of this habitat in this SAC to the site is around 1.17 km west of the site. Due to the distance to this QI in this SAC, the scale and nature of this project, the fact that works will be confined within the project site, there will be no significant impact on the siliceous rocky slopes with chasmophytic vegetation of this SAC.	No threat envisaged from this project.	No mitigation required as there is no possibility of significant effect.

Table 8: Doogort Machair SPA (004235) – Qualifying Interests – assessment of potential impacts on qualifying interest assessed as having potential impact at Pre-Screening stage.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Assessment**	**Source of Potential Threats:**	**Likelihood of Significance:**
Birds			
A466 Dunlin (*Calidris alpina schinzii*)	SPA designated for breeding Dunlin. The Dunlin is a ground nesting wader with a preference for low vegetation and Irish machair (BWI, 2019). Breeding numbers are in decline throughout Ireland. Breeding Dunlin are vulnerable to habitat change including drainage, overgrazing or inappropriate developments. Dunlin is especially vulnerable to predation (Crowe, et al., 2021). The population in this SPA has dropped from 10 breeding pairs to 0 breeding pairs between 1985 and 2009 (NPWS, 2013b). Dunlin will not be affected by disturbance during construction work, due to the distance of 1.8 km from project site to SPA disturbance. However, construction of new dwellings in the vicinity of this SPA is likely to increase number of walkers / dog walkers to the area, though it is difficult to assess numbers and potential effects. Given that there are no recent records of breeding dunlin on the site it is possible that disturbance levels have already reach levels that are no longer sustainable for ground nesting birds.	Human Disturbance	There are currently no records of breeding Dunlin on the site or within the SPA which is 1.83 km north-east of the project site. The most recent survey of waders suggest that it is possible that, due to the small and isolated breeding populations, Dunlin are suffering from significantly reduced genetic diversity, which could increase the risk of extinction for Dunlin as a breeding species in Ireland (Suddaby et al., 2020). Only 8 pairs of breeding dunlin were recorded in the most recent survey (Suddaby et al., 2020). The LIFE on Machair project is currently working to increase breeding wader numbers on machair sites such as this one at Doogort. Current work includes the erection of a predator exclusion fence and the possible re-routing of the existing Valley Loop Walk so that it does not include potential suitable nesting areas for dunlin (Jackie Hunt, LIFE on Machair, personal communication). Walkers and specifically dog walkers, where dogs are not kept on leads, can affect ground nesting waders, whereby dogs or walkers, force brooding females to leave the nest site leaving eggs and/or chicks prone to predation. Low productivity levels in Dunlin is thought to be one of the main drivers in the decline of this species. Increased predation by, foxes *Vulpes vulpes,*

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Assessment**	**Source of Potential Threats:**	**Likelihood of Significance:**
			Common Gulls *Larus canus,* and hooded crows *Corvus cornix* on breeding waders possibly linked with climate change and habitat loss has limited their productivity (Suddaby et al., 2010). The likelihood of significance of increased walkers / dog walkers in the area is very hard to assess, and effects would only be of concern during the dunlin breeding season. The project alone is unlikely to see significant increase in numbers. However, see also section 5.0 below – cumulative effects.
	There is a hydrological link (EPA River Waterbody Code IE_WE_33B030960, Segment Code: 33_1096) to the sea from the project site. Soil movements and other work during construction work could result in sediment and pollution reaching the sea. Dunlin feed predominantly on small invertebrates of estuarine mudflats, particularly polychaete worms and small gastropods. They feed in flocks, in the muddier sections of the estuaries and close to the tide edge. Their prey could be affected by any sedimentation or pollution from the proposed project site into Pollawaddy Strand (Dunlin are likely to feed here as well as within the SPA).	Potential threats arising from this project are: - Release of sediment to receiving waters. - Release of levels of nutrients into the water, which could lead to oxygen depletion in the water. - Release of chemicals (pesticides,	A decline in water quality may affect availability of forage for Dunlin feeding in Pollawaddy Bay. A silt fence is recommended to mitigate an potential release of silt/sediment into the adjoining stream. See section 6.6 and Appendix 5 for more details.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Assessment**	**Source of Potential Threats:**	**Likelihood of Significance:**
	Therefore the risk of pollution or sedimentation via the hydrological link effecting the food source of the Dunlin has been highlighted on a precautionary basis.	fuels, hydraulic oils) into watercourses.	

5.0 Cumulative Impacts

Under Appropriate Assessment it is necessary to investigate if there are any other projects or plans that together with the project outlined here could affect the Natura 2000 Sites. Table 5 in Section 1 above lists other proposed plans accessed through the Mayo County Council planning database.

It is a requirement of Appropriate Assessment that the 'in-combination' (the cumulative development with any other plans) effects be assessed. Table 6 in section 1 above lists other plans.

Construction of new dwellings in the vicinity of this SPA is likely to increase number of walkers / dog walkers to the area, though it is difficult to assess numbers and the significance of any potential effects. Given that there are no recent breeding dunlin on the Doogort Machair SPA (NPWS, 2013b), it is possible that disturbance levels have already reach levels that are no longer sustainable for ground nesting birds. The risks of increased visitors is further augmented by the in combination effect of the construction of 17 new mobile home parking bays (reference planning number: 21207), which Is also likely to increase number of walkers / dog walkers to the area. Work by projects such as the LIFE on Machair will aim to raise awareness of the plight of waders breeding on Machair habitats such as Dunlin.

6.0 Measures to Mitigate Potential Adverse Impacts

Mitigation refers to *measures taken to avoid or reduce negative impacts and effects* (CIEEM 2018). The evaluation of likely significant impacts of the proposed development includes recommendations for specific measures to avoid and reduce any negative impacts of a project (i.e. mitigation measures). These measures are considered necessary to minimise environmental impacts associated with the proposed development. Avoiding and/or minimising negative impacts is best achieved through consideration of potential impacts of the proposed project from the initial stages.

To minimise environmental impacts, it is important in the first instance that the following general principles are taken on board:

- Implementation of good construction work practices on site.
- Working in accordance with relevant legislation, for example, (Wildlife Acts 1976 to 2021 and European Communities (Birds and Natural Habitats) Regulations 2011-2021).
- Contractors should ensure adequate site supervision and security.
- Construction workers should be briefed to ensure that environmental issues are taken into consideration and that guidelines and codes of practice are followed.

6.1. Habitat Loss

No qualifying habitat will be lost from Natura 2000 sites as part of the proposed project. Therefore, no mitigation measures are required for habitat loss.

6.2. Fragmentation

No potentially qualifying habitat or connecting corridors will be lost from Natura 2000 sites. Therefore, no mitigation measures are required for habitat fragmentation.

6.3. Disturbance

Given the scale of the project, it's distance from Natura 2000 sites, and the lack of species records on the project site, Natura 2000 sites will not be disturbed during the construction phase of the project. Therefore, no mitigation measures are required for the construction phase.

Developer should make contact with LIFE on Machair community liaison officer (https://lifeonmachair.ie/) to seek advice and guidance on how best to raise awareness among his clients about the sensitivities of the habitats in the area, specially Doogort Machair.

6.4. Species impact

The species relevant to the Natura Impact Statement for this project is Dunlin. There are no recent records of this species on the project site or breeding within the SPA designated for its conservation. Given the SPA is approximately 1.38 km from the project site, species disturbance will not be significant during the construction phase of the project. However, see point 6.3 above and 6.6 below.

6.5. Water Resource

Water resource will not be impacted by this project. Therefore, no mitigation measures have been provided for water resource.

6.6. Water Quality

A hydrological connection was identified between the project site and Pollawaddy Bay via an un-named stream (EPA River Waterbody Code IE_WE_33B030960, Segment Code: 33_1096) to Croaghaun/Slievemore SAC. Loss of silt/sediment, nutrients, and chemicals (e.g. fuels, hydraulic oils) into the stream during the construction phase of this project could impact the water quality of this stream and the Bay. Although there are no effects predicted for the qualifying interests of Croaghaun/Slievemore SAC, there are indirect impacts on the qualifying interest of the Doogort Machair SPA. The Dunlin is a wading bird that feeds on polychaete worms and small gastropods (BWI, 2019). If water quality is affected by this project, it may disrupt the food source of the Dunlin.

Mitigation measures aim to eliminate both the discharge of polluting materials (e.g. fuel or oil from vehicles; concrete etc.) and the mobilisation of silts and sediments into the watercourses. Pollution may occur following accidents that result in spillage of fuel or other materials. Strict pollution prevention measures must be implemented during construction of the new dwelling, access road, sewer line and all associated works to avoid siltation or discharge of pollutants.

<u>Pre-Construction</u>

- The location of any construction compound should be located well away from the stream and should not be located in the eastern part of the site where the stream borders the site boundary.

<u>Construction Site Set-Up</u>

Sediment control measures

- During construction, it will be necessary to install a silt fence along the western site boundary to prevent any silt or other run-off running from the site and entering into the stream (EPA River Water Body Code: IE_WE_33B030960; Segment Code: 33_1096) (See Map 4 below). See also Appendix 5 for silt fence installation guides.
- Straw bales can be used along the access to site to allow for machinery movements.
- Soil stripping should only occur during periods of dry weather.

Construction

Standard good building practices should always be followed with extra care given to following points:

- Sediment control measures must be put in place during construction as detailed above.
- Shuttering needs to be adequately secured and sealed to ensure no leakage of concrete. Ensure shutters are stable enough to eliminate failures.
- There should be supervision of the delivery of concrete to site.
- Concrete pouring should be carried out in dry weather.
- All concrete pouring should be monitored carefully to ensure no accidental discharge.
- Mixer washings and excess concrete should not be discharged to the stream and should be carried out in designated area well away from the watercourse (a minimum of 50 m).

Map 4: Site of proposed four new dwellings at Doogort, Achill, Co. Mayo with proposed mitigation measures against silt/sediment loss.

Hydrocarbon Use

Hydrocarbon use (e.g. fuel) during construction may lead to potential pollution of the waterway. Examples of potential threats include spillages during re-fuelling operations, leaks in poorly maintained plant and machinery and the use of oil on shuttering boards.

- Fuel storage - all fuels, lubricants and hydraulic fluids should be kept in secure bunded areas away from the stream (recommend a minimum of 100m from watercourse). The bunded area will accommodate 110% of the total capacity of the containers within it. Containers will be properly secured to prevent unauthorised access and misuse. An effective spillage procedure should be put in place (see below). Any waste oils or hydraulic fluids should be collected, stored in appropriate containers and disposed of off-site in an appropriate manner.

- The contractor should provide spill kits and they should be stored on-site during construction and used in the event of a fuel or chemical spillage. Such kits should contain absorbent materials (such as absorbent granules, booms or mats). Appropriate operatives responsible for handling chemicals or oils or for plant refuelling should be trained in the use of this kit.
- Re-fuelling and lubrication of plant should not occur within 50m of the water source. Appropriate drip-trays should be used. Vehicles should never be left unattended during re-fuelling.
- All construction vehicles should be regularly maintained and checked to prevent hydrocarbon leaks.
- All stationary machinery such as pumps should be placed on drip trays to contain any hydrocarbon spillages. These trays will be checked regularly, and rainwater removed to maintain their effectiveness.
- Biodegradable, vegetable-based oils should be used to oil shuttering boards.
- Any hydraulically operated machinery to be used within 50m of the stream should utilize synthetic biodegradable hydraulic oil such as Castrol Tribol Biotop 1448.

Site Decommissioning

Decommissioning of the construction site needs to be carefully managed as there is the potential for polluting material to enter any waterway.

- Remove sediment fence, taking care to ensure that any trapped sediment is removed well away from the watercourse.
- No construction materials, plant or machinery should be left on site following completion of works.

6.7. Visual Impact

No mitigation measures are provided as no visual impacts are envisaged.

6.8. Collated Mitigation Measures

Collated Mitigations

Following measures will need to be followed in order to ensure there is no risk of water quality of the Croaghaun/Slievemore SAC and the habitat of the food source of the qualifying interests of the Doogort Machair SPA being impacted by sediment run-off or pollution.

1. The location of any construction compound should be located well away from the stream and should not be located in the western part of the site where the stream borders the site boundary.
2. During construction, it will be necessary to install a silt fence along the western site boundary to prevent any silt or other run-off running from the site and entering into the stream and from there into the Croaghaun/Slievemore SAC (see diagram 2 below). See also Appendix 5 for silt fence installation guides.
3. Soil stripping should only occur during periods of dry weather.
4. Standard good building practices should always be followed.
5. Sediment control measures must be put in place during construction as detailed above.
6. Shuttering needs to be adequately secured and sealed to ensure no leakage of concrete. Ensure shutters are stable enough to eliminate failures.
7. There should be supervision of the delivery of concrete to site.
8. Concrete pouring should be carried out in dry weather.
9. All concrete pouring should be monitored carefully to ensure no accidental discharge.
10. Mixer washings and excess concrete should not be discharged to the stream and should be carried out in designated area well away from the watercourse (a minimum of 50 m).
11. Fuel storage - all fuels, lubricants and hydraulic fluids should be kept in secure bunded areas away from the stream (recommend a minimum of 100 m from watercourse). The bunded area will accommodate 110% of the total capacity of the containers within it. Containers will be properly secured to prevent unauthorised access and misuse. An effective spillage procedure should be put in place (see below). Any waste oils or hydraulic fluids should be collected, stored in appropriate containers and disposed of off-site in an appropriate manner.
12. The contractor should provide spill kits and they should be stored on-site during construction and used in the event of a fuel or chemical spillage. Such kits should contain absorbent materials (such as absorbent granules, booms or mats). Appropriate operatives responsible for handling chemicals or oils or for plant refuelling should be trained in the use of this kit.
13. Re-fuelling and lubrication of plant should not occur within 50 m of the water source. Appropriate drip-trays should be used. Vehicles should never be left unattended during re-fuelling.
14. All construction vehicles should be regularly maintained and checked to prevent hydrocarbon leaks.

15. All stationary machinery such as pumps should be placed on drip trays to contain any hydrocarbon spillages. These trays will be checked regularly, and rainwater removed to maintain their effectiveness.
16. Biodegradable, vegetable-based oils should be used to oil shuttering boards.
17. Any hydraulically operated machinery to be used within 50 m of the stream should utilize synthetic biodegradable hydraulic oil such as Castrol Tribol Biotop 1448.
18. Decommissioning of the construction site needs to be carefully managed as there is the potential for polluting material to enter any waterway.
    - Removed any straw bales used for sediment fencing and compost.
    - Remove sediment fence, taking care to ensure that any trapped sediment is removed well away from the watercourse.
    - No construction materials, plant or machinery should be left on site following completion of works.

In order to prevent disturbance to breeding dunlin it is recommended that:

Developer should make contact with LIFE on Machair community liaison officer (https://lifeonmachair.ie/) to seek advice and guidance on how best to raise awareness among his clients about the sensitivities of the habitats in the area, specially Doogort Machair.

7.0 Residual Effects

The mitigation measures described above will ensure that the proposed project itself will not prevent or obstruct the Qualifying Interests of Croaghaun/Slievemore SAC and Doogort Machair SPA from reaching favourable conservation status.

The measures described above, together with adherence to relevant environmental guidelines/requirements/standards and to the site-specific mitigation measures set out above, ensure that the proposed project will not result in any adverse effect on any European Site.

Based on the above, it can be concluded in view of best scientific knowledge and based on objective information, that the proposed project itself will not adversely affect the Qualifying Interests/Special Conservation interests or integrity of the above European sites.

8.0 Conclusions

Screening for Appropriate Assessment of the proposed development concluded that there was potential for Croaghaun/Slievemore SAC and Doogort Machair SPA to be affected by the development due to the potential for sediment run off and pollution from the site into the adjacent stream where it could potentially have indirect effects on species of special conservation interests.

For the reasons set out in detail in this NIS, in the light of the best scientific knowledge in the field, all aspects of the proposed project which, by itself, or in combination with other plans or projects, which may affect the relevant European Sites have been considered.

The NIS contains information which the competent authority, may consider in making its own complete, precise and definitive findings and conclusions and upon which it is capable of determining that all reasonable scientific doubt has not been removed as to the effects of the proposed project on the integrity of the relevant Natura 2000 sites.

In conclusion, in the light of the conclusions of the assessment which it shall conduct on the implications for the European sites concerned, the competent authority is enabled to ascertain that the proposed project will not affect the integrity of any of the European sites concerned.

Signed
Dr Karina Dingerkus (Ecologist)

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Appendices

Appendix 1 – Screening Matrix

Screening Matrix

Description of project	See section 3.1
Description of Natura 2000 sites	See section 3.2

Assessment Criteria	
Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.	It is considered that the proposed plan either alone or in combination with other plans or projects is not likely to give rise to significant effects on the Natura 2000 sites if mitigation measured outlined Section 6 are taken into consideration.
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:	The potential impacts on the integrity of the Croaghaun/Slievemore SAC and Doogort Machair SPA. This was the potential to run-off sediment and pollution from the project site into the adjoining stream which flows into the Croaghaun/Slievemore SAC and into Pollawaddy Bay. The shoreline of Pollawaddy Bay maybe used as foraging area for Dunlin, a qualifying interest of Doogort Machair SPA. Changes in water quality may disrupt the food source for the Dublin and therefore has an indirect effect on this SPA.
	Size and scale The size and scale of the project is small and does not impact directly on a Natura 2000 site.
	Land-take There will be no land take from any Natura 2000 sites.
	Distance from the Natura 2000 site or key features of the site The distances to the Natura sites are listed in Table 1 – the closest Natura 2000 is Croaghaun/Slievemore SAC, which lies 153 m from the site and there are other protected areas within 15km of the site.
	Resource requirements (water abstraction etc.) The proposed development is not dependent on any resource, such as freshwater, from any of the Natura sites.
	Emissions (disposal to land, water or air) Minimal emissions from proposed development.
	Excavation requirements Some excavation will occur on-site during the construction phase of the project. Potential for run-off to stream, which is directly hydrologically connected to the Croaghaun/Slievemore SAC and indirectly hydrologically connected to the Doogort Machair SPA.
	Transportation requirements Minimum increase in traffic during construction phase. Will not impact Natura 2000 sites.
	Duration of construction, operation, decommissioning, etc. Short construction phase. Unlikely to impact Natura 2000 sites
	Other None envisaged

Describe any likely changes to the site(s) arising as a result of:	**Reduction of habitat area** None
	Disturbance of key species None
	Habitat or species fragmentation None
	Reduction in species density None for qualifying species.
	Changes in key conservation indicators Unlikely
	Climate change Minimum impact
Describe any likely impacts on the Natura 2000 site as a whole in terms of:	**Interference with the key relationships that define the structure of the site** None envisaged
	Interference with key relationships that define the function of the site None envisaged
Provide indicators of significance as a result of the identification of effects set out above in terms of:	**Loss** N/A
	Fragmentation N/A
	Disruption N/A
	Disturbance N/A
	Change to key element of the site N/A

The Assessment of Significance of Effects	
Describe how the project or plan (alone or in combination) is likely to affect the Natura sites.	The proposed project is not likely to affect any Natura 2000 site if mitigation measures outline in Section 6 are implemented.
Explain why these effects are not considered significant.	There are 17 Natura 2000 sites within a 15km radius of the proposed project, 12 SACs and 5 SPAs. The proposed project is not situated within any of the SACs or the SPA, therefore, direct impacts will not occur through habitat loss or fragmentation of habitats or species. Disturbance will be minimal and only caused during the construction phase of the project. However, post construction and cumulative effects of increased visitor numbers are highlighted. There are water quality impacts if there is sediment run-off or pollution from the site into the adjacent stream and from there to the sea, which could affect prey availability to special conservation interest, namely Dunlin. If all mitigation measures in Section 6 are implemented, then no significant water quality impacts are expected.
List of agencies consulted and responses, if applicable	LIFE on Machair (see text)

Data collected to carry out the Assessment	
Who carried out the Assessment	Giorria Environmental Services
Sources of data	www.npws.ie, https://gis.epa.ie/EPAMaps/, http://www.eplanning.ie/LeitrimCC/searchtypes https://maps.biodiversityireland.ie/ Giorria Environmental Services
Level of assessment completed	Desktop and site survey
Where can full results of the Assessment screening be viewed	Mayo County Council Planning

Appendix 2 – Qualifying Interests and Documented Threats to the Natura 2000 Sites

Table 2.1: Qualifying interests and documented threats to the Natura 2000 sites lying in a 15 km radius of the proposed development site

Site Name and Code:	**Qualifying Interests** (* denotes a priority habitat)	**Conservation Objectives:**	**Documented Threats/Pressures:** Information primarily based on NPWS Site Synopses, NATURA 2000 – standard data forms and other sources
Croaghaun/Slievemore SAC (001955)	**Habitats** 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European dry heaths 4060 Alpine and Boreal heaths 7130 Blanket bogs (* if active bog) 8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani)* 8220 Siliceous rocky slopes with chasmophytic vegetation	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001955.pdf	▪ Paths, tracks, cycling tracks ▪ Peat extraction ▪ Grazing ▪ Restructuring agricultural land holding ▪ Invasive non-native species ▪ Sand and gravel quarries ▪ Invasive non-native species ▪ Outdoor sports and leisure activities, recreational activities
Doogort Machair/Lough Doo SAC (001497)	**Habitats** 21A0 Machairs (* in Ireland) **Species** 1395 Petalwort (*Petalophyllum ralfsii*)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001497.pdf	▪ Grazing levels ▪ Agricultural improvement ▪ Fertilizers ▪ Trampling ▪ Camping/caravans ▪ Motorized vehicles ▪ Erosion ▪ Peat extraction ▪ Restructuring agricultural holding ▪ Walking/horse riding
Doogort Machair SPA (004235)	**Birds** A466 Dunlin (*Calidris alpina schinzii*)	http://www.npws.ie/sites/default/files/protected-sites/conservatio	▪ Modification of cultivation ▪ Changes in biotic conditions ▪ Over grazing

Site Name and Code:	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives:	Documented Threats/Pressures: Information primarily based on NPWS Site Synopses, NATURA 2000 – standard data forms and other sources
		n_objectives/CO004235.pdf	
Keel Machair/Menaun Cliffs SAC (001513)	**Habitats** 1220 Perennial vegetation of stony banks 21A0 Machairs (* in Ireland) 4060 Alpine and Boreal heaths **Species** 1395 Petalwort (*Petalophyllum ralfsii*)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001513.pdf	▪ Over-grazing, intensive sheep grazing ▪ Amenity use/golf course/camping caravans ▪ Development ▪ Invasive species ▪ Mowing/cutting
Achill Head SAC (002268)	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1160 Large shallow inlets and bays 1170 Reefs	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002268.pdf	▪ Hunting/fishing ▪ Invasive species ▪ Disturbance ▪ Trampling
Mullet/Blacksod Bay Complex SAC (000470)	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1160 Large shallow inlets and bays 1170 Reefs 1310 Salicornia and other annuals colonising mud and sand 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2150 Atlantic decalcified fixed dunes (*Calluno-Ulicetea)** 21A0 Machairs (* in Ireland)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000470.pdf	▪ Heavy grazing ▪ Feeding on sensitive site ▪ Fertilization ▪ Division of dune and machair commonage ▪ Bottom-fishing gear ▪ Bait digging

Site Name and Code:	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives:	Documented Threats/Pressures: Information primarily based on NPWS Site Synopses, NATURA 2000 – standard data forms and other sources
	3150 Natural eutrophic lakes with *Magnopotamion or Hydrocharition* - type vegetation 7230 Alkaline fens **Species** 1355 Otter (*Lutra lutra*) 1395 Petalwort (*Petalophyllum ralfsii*)		
Blacksod Bay/Broad Haven SPA (004037)	**Birds** A046 Light-bellied Brent Goose (*Branta bernicla hrota*) A001 Red-throated Diver (*Gavia stellata*) A069 Red-breasted Merganser (*Mergus serrator*) A003 Great Northern Diver (*Gavia immer*) A007 Slavonian Grebe (*Podiceps auritus*) A065 Common Scoter (*Melanitta nigra*) A157 Bar-tailed Godwit (*Limosa lapponica*) A466 Dunlin (*Calidris alpina schinzii*) A160 Curlew (*Numenius arquata*)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004037.pdf	▪ Fertilization ▪ Disturbance ▪ Outdoor sports ▪ Bait digging ▪ Leisure fishing ▪ Marine and freshwater aquaculture

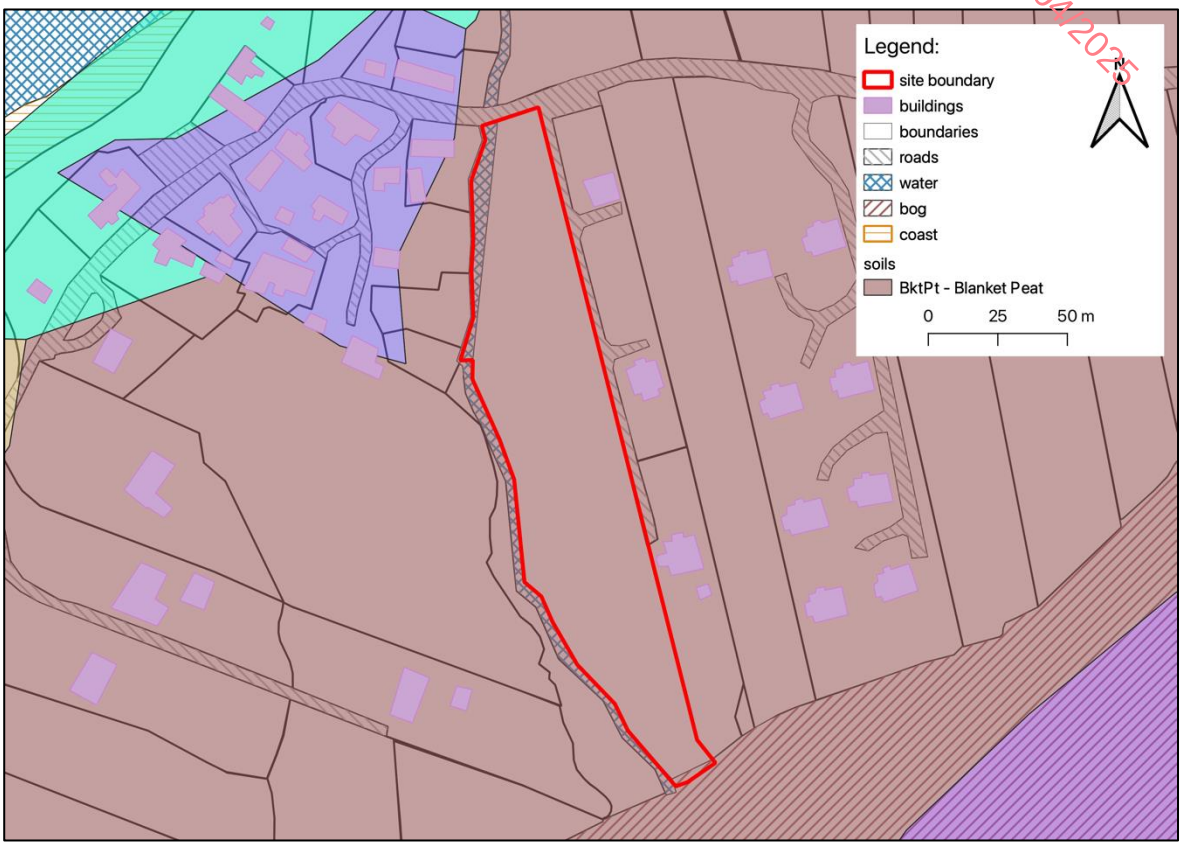
Site Name and Code:	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives:	Documented Threats/Pressures: Information primarily based on NPWS Site Synopses, NATURA 2000 – standard data forms and other sources
	A144 Sanderling (*Calidris alba*) A137 Ringed Plover (*Charadrius hiaticula*) A191 Sandwich Tern (*Sterna sandvicensis*) A149 Dunlin (*Calidris alpina*) **Habitats** Wetlands		
West Connacht Coast SAC (002998)	**Species** 1349 Common Bottlenose Dolphin (*Tursiops truncatus*)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002998.pdf	▪ Noise pollution ▪ Fishing ▪ Marine water pollution ▪ Discharges
Mullet Peninsula SPA (004227)	**Birds** A122 Corncrake (*Crex crex*)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004227.pdf	▪ Mowing/cutting of grassland ▪ Cultivation ▪ Grazing
Duvillaun Islands SPA (004111)	**Birds** A045 Barnacle Goose (*Branta leucopsis*) A014 Storm Petrel (*Hydrobates pelagicus*)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004111.pdf	▪ Overgrazing ▪ Disturbance

Site Name and Code:	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives:	Documented Threats/Pressures: Information primarily based on NPWS Site Synopses, NATURA 2000 – standard data forms and other sources
	A009 Fulmar (*Fulmarus glacialis*)		
Duvillaun Islands SAC (002268)	**Species** 1349 Common Bottlenose Dolphin (*Tursiops truncatus*) 1364 Grey Seal (*Halichoerus grypus*)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000495.pdf	▪ Reconstruction, renovation of buildings ▪ Noise nuisance, noise pollution ▪ Fishing and harvesting aquatic resources ▪ Abandonment of pastoral systems, lack of grazing ▪ Utility and service lines ▪ Urbanised areas, human habitation
Corraun Plateau SAC (000485)	**Habitats** 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European dry heaths 4060 Alpine and Boreal heaths 5130 Juniperus communis formations on heaths or calcareous grasslands 8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) 8220 Siliceous rocky slopes with chasmophytic vegetation	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000485.pdf	▪ Invasive species ▪ Over grazing ▪ Turf cutting
Owenduff/Nephin Complex SAC (000534)	**Habitats** 3110 Oligotrophic Waters containing very few minerals 3160 Dystrophic Lakes 3260 Floating River Vegetation 4010 Wet Heath 4060 Alpine and Subalpine Heaths 5130 Juniper Scrub 7130 Blanket Bogs (Active)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000534.pdf	▪ Forestry ▪ Development - dispersed habitation ▪ Hunting ▪ Grazing, over-grazing ▪ Fertilisation ▪ Peat extraction ▪ Roads

Site Name and Code:	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives:	Documented Threats/Pressures: Information primarily based on NPWS Site Synopses, NATURA 2000 – standard data forms and other sources
	7140 Transition Mires **Species** 1106 Atlantic Salmon (*Salmo salar*) 1355 Otter (*Lutra lutra*) 1393 Slender Green Feather-moss (*Drepanocladus vernicosus*) 1528 Marsh Saxifrage (*Saxifraga hirculus*)		▪ Hunting ▪ Peat extraction ▪ Fire and fire suppression
Owenduff/Nephin Complex SPA (004098)	**Birds** A098 Merlin (*Falco columbarius*) A140 Golden Plover (*Pluvialis apricaria*)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004098.pdf	▪ Fire and fire suppression ▪ Grazing ▪ Forestry ▪ Peat extraction ▪ Leisure fishing ▪ Development - dispersed habitation ▪ Fertilisation
Lough Gall Bog SAC (000522)	**Habitat** 7130 Blanket Bogs (Active)* 7150 Rhynchosporion Vegetation	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000522.pdf	▪ Mechanical removal of peat ▪ Grazing ▪ Disposal of household/recreational facility waste ▪ Paths, tracks, cycling tracks

Appendix 3 – Soil and Geological Information

Following information is from the Geological Survey Ireland
https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx



Map 5: Soil map of proposed project site.

Following information is from the Geological Survey Ireland
https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx
and ESM tool (https://airomaps.geohive.ie/ESM/)

Table 3.1: Geological Information for Proposed Site

Geology:	23, Appin Group; Psammitic & Pelitic Schist & Marble
Aquifer:	Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
Aquifer Vulnerability:	High
Ground Water Vulnerability:	Not at Risk
Groundwater Status:	Good

Appendix 4 – Biodiversity Records

Table 4.1: National Biodiversity Record Centre showing sample records in the vicinity of the site

Species:	Grid ref.:	Date:	Distance (km):	Database:
Petalwort (*Petalophyllum ralfsii*)	F6909	1987	1.0	Bryophytes of Ireland
	F6908	1987	1.0	Bryophytes of Ireland
	F703095	1998	0.1	Bryophytes of Ireland
	F60	07/07/2006	10	Bryophytes of Ireland
Dunlin (*Calidris alpina*)	F60	Nov 1987 – Feb 1984	10	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84
	F60	Apr 1988 – Jul 1991	10	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
	F60	2007 – 2011	10	Bird Atlas 2007 - 2011
	F70	Apr 1968 – Jul 1972	10	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972
	F70	Nov 1981 – Feb 1984	10	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84
	F70	Apr 1988 – Jul 1991	10	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
	F70	2007 – 2011	10	Bird Atlas 2007 - 2011
	F60M	Apr 1988 – Jul 1991	2	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
	F60M	2007 – 2011	2	Bird Atlas 2007 - 2011
	F70F	2007 – 2011	2	Bird Atlas 2007 - 2011
	F70J	2007 – 2011	2	Bird Atlas 2007 - 2011
	F6406	1994 - 2001		Irish Wetland Birds Survey (I-WeBS) 1994-2001
	F723090	31/07/2016	0.1	Birds of Ireland

SILT FENCING INSTALLATION

- Posts are placed every 3 to 5 m and a 1 m high geotextile membrane is attached to this fence on the uphill side.
- Place about 600 m of membrane on the post with the other 300 mm loose at the bottom facing uphill.
- This membrane foot is then covered with soil/turf that is removed from the house plot area.
- The soil turfs should be bigger than the membrane foot, 400 mm to 1000 m wide. This is easily done with a digger bucket.
- The soil turfs hold the membrane down and any water/runoff has to go through the soil and membrane and is filtered as it goes.
- It is important not to leave any gaps in the membrane foot or to have any areas uncovered or lifted up as this will allow the runoff to go under the membrane foot and so it will not be filtered.
- When removing the fence, the turfs can be left in place the fence simply pulled out from under them.

See http://ssienvironmental.ie/wp-content/uploads/2018/03/Terrastop_Install_02-1.pdf for more information

Appendix 6 – Site Synopsis

Site Name: Croaghaun/Slievemore SAC
Site Code: 001955

Croaghaun/Slievemore SAC is located on the north-western side of Achill Island, in north-west Co. Mayo. The underlying geology is pre-Cambrian schists and gneisses at Slievemore and quartzite at Croaghaun. The site consists largely of two mountains, Croaghaun and Slievemore, both over 650 m O.D. It is dominated by cliffs which can exceed 300 m, with scree mantling the slopes above the vertical cliffs. From the high cliffs around Croaghaun towards the northern cliff edge is a group of five cirques perched at various levels above the sea. In these corries some very old and degraded moraines are found. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[4010] Wet Heath
[4030] Dry Heath
[4060] Alpine and Subalpine Heaths
[8110] Siliceous Scree
[8220] Siliceous Rocky Slopes

Croaghaun/Slievemore SAC contains interesting mix of heath communities. Alpine heath is found at high altitudes in a mosaic with scree and exposed rock, patches of blanket bog and corrie lakes. The montane heath is of particular importance for its communities of oceanic bryophytes, some of which constitute what is known as the north Atlantic hepatic mat community, which descends on Achill to its lowest known altitude. As well as the typical species for this community, a number of rarities are found including *Adelanthus lindenbergianus, Bazzania pearsonii, Mastigophora woodsii, Dicranodontium uncinatum, Scapania ornithopodioides* and the filmy ferns *Hymenophyllum wilsonii* and *H. tunbrigense*. In flushed areas, the rare bog moss *Sphagnum warnstorfii* occurs. An interesting array vascular plants are also found on the summits, including St. Patrick's-cabbage (*Saxifraga spathularis*), Starry Saxifrage (*S. stellaris*), Dwarf Willow (*Salix herbacea*), Bearberry (*Arctostaphylos uva-ursi*), Lesser Twayblade (*Listera cordata*) and Stiff Sedge (*Carex bigelowii*). An uncommon species of eyebright, Euphrasia frigida, is found on Croaghaun, while the scarp below Slievemore supports another scarce species, Mountain Sorrel (*Oxyria digyna*).

On the rocky habitats, scree slopes, gullies and cliffs around the corrie lakes of Loughs Bunnafreva and Nakeeroge, other notable bryophytes are found including Version date: 20. 07.20162 of 2 001955_Rev16.Docx *Plagiothecium cavifolium, Cyclodictyon laetevirens, Andeaea rothii, Geocalyx graveolens, Anthelia juratzkana, Radula carringtonii, Marsupella sprucei* and *M. sphacelata*. The vegetation of the sea cliffs at Achill Head consists of well-developed examples of plantain sward (Plantago association) which extends up to 150 m up the cliffs. In some areas there is a dense smooth mat of Sea Plantain (*P. maritima*) and Buck's-horn Plantain (*P. coronopus*), dotted with Thrift (*Armeria,maritima*), Rock Sea-spurrey (*Spergularia rupicola*), Sea Pearlwort (*Sagina maritima*), Procumbent Pearlwort(S. procumbens), Sea Mouse-ear (*Cerastium tetrandum*), Allseed(*Radiola linoides*) and the grasses *Festuca ovina, Aira praecox* and *Agrostis capillaris*. The low sea cliffs in the north are hung with Roseroot (*Rhodiola rosea*). There are five corrie lakes within the site. At Bunnafreva Lough East, Quillwort (*Isoetes lacustris*) has been recorded, with an abundance of Water Dropwort (*Lobelia dortmanna*). Other habitats at the site include both wet and dry heaths, upland rivers, sea cliffs, islets and small areas of boulder and sandy beaches and some machair. The uncommon species Irish Heath (*Erica erigena*) has its most westerly station on the shores of Lough Nakeeroge. The plant was recorded here between 1982 and 1984. About 40 bushes were seen in a small bay on the northern lakeshore and ten plants were seen growing along a stream that flows into

the lake from the west. This plant has a disjunct distribution being found in Spain, Portugal and western France, and counties Galway and Mayo in Ireland. Chough, a localised species of the western seaboard, breeds at this site with up to four pairs recorded during a survey in 1992. Chough is an E.U. Birds Directive Annex I species.

The main land use at the site is grazing, with stock occurring at high densities in places, especially on the lower slopes where the vegetation is eroded down to mineral soil in places. Peat cutting is carried out in some areas. Other land uses include amenity management, involving track development and provision of car parks, and quarrying immediately adjacent to the boundary at the south centre of the site. This site is of ecological interest for its excellent quality heaths and rocky habitats, supporting a range of rare species of vascular plants and bryophytes. The presence of a number of other typical coastal and upland habitats adds habitat diversity to this scenic site.

20/07/2016

Site Name: Doogort Machair SPA
Site Code: 004235

Doogort Machair SPA is a small coastal site situated in the north-east corner of Achill Island, adjacent to the village of Valley and approximately 3 km east of Doogort, Co. Mayo. The site comprises machair and associated habitats, including foredunes and freshwater marsh, as well as two lakes, Lough Doo and Lough Nambrack. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species:

[A466] Dunlin (*Calidris alpina schinzii*)

This site traditionally supported a breeding Dunlin population with ten pairs recorded here in 1985. The population declined to two pairs in 1996 and by 2009 no breeding Dunlin were recorded at the site. However, Dunlin has been recorded here during the early stages of the breeding season in recent years, indicating its potential as a breeding resource for this scarce breeding bird whose national population has declined in recent years. The site can also be of importance for other breeding wader species - a 1996 survey recorded eleven pairs of Lapwing and one pair of Ringed Plover. It is also used on occasion by Chough. Doogort Machair SPA is of ornithological importance for its suitability as a breeding site for Dunlin (*Calidris alpina subsp. schinzii*), which is listed on Annex I of the E.U. Birds Directive. Chough is also listed on Annex I of this Directive.

19/06/13

Site Name: Doogort Machair/Lough Doo SAC
Site Code: 001497

Doogort Machair/Lough Doo SAC is a small coastal site lying in the north-east corner of Achill Island, Co. Mayo, adjacent to the village of Valley and approximately 3 km east of Doogort. Most of this site consists of machair (i.e. coastal grassland on a sandy substrate), which fronts onto the shoreline. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[21A0] Machairs*
[1395] Petalwort (Petalophyllum ralfsii)

The machair at this site occurs on two plains separated by an escarpment. One consists of a low, wet, hummocky plain near the sea, while the second is higher, drier, and flatter, and found further inland. This second plain grades into bog. The machair sward is generally close-cropped and includes species such as Common Bird's-foot-trefoil (*Lotus corniculatus*), Lady's Bedstraw (Galium verum) and small sedges (e.g. *Carex panicea* and *C. nigra*), as well as Sand Sedge (*C. arenaria*). There is frequently a carpet of mosses and liverworts covering the sand surface, and a number of rare and scarce species occur, including *Campylopus subulatus, Amblyodon dealbatus, Haplomitrium hookeri* and *Mastigophora woodsii*. Two small lakes lie at the back of the machair. Lough Doo is bordered at its western end by a freshwater marsh with Fool's Water-cress (Apium nodiflorum) and Lesser Spearwort (*Ranunculus flammula*). Lough Nambrack, to the south, is partially fringed by Common Reed (Phragmites australis), with occasional Branched Bur-reed (*Sparganium erectum*) and Bulrush (Typha latifolia). At its western end is a small, species-rich marsh with Water Mint (Mentha aquatica), Marsh-marigold (Caltha palustris) and Marsh Cinquefoil (Potentilla palustris). Around these lakes, as on the machair, there is a good moss and liverwort flora which includes some scarce and rare species, e.g. *Catoscopium nigritum* and *Fossombronia incurva.* The liverwort Leiocolea gillmanniihas been recently recorded here - this is the only Irish station for this species. Along the seaward fringe of the site are a range of shoreline habitats including sandy beach, shingle beach, boulder beach and exposed bedrock. Fucoids and green algae colonise the lower shore. In places, the shore is backed by low sea-cliffs (approximately 3 m high), which are formed of soft deposits of clay, and occasionally peat.

As well as the interesting moss and liverwort species already mentioned, Petalwort (*Petalophyllum ralfsii),* a rare species listed on Annex II of the E.U. Habitats Directive, has also been recorded at this site. The site supports several species of breeding waders, with Lapwing (7 pairs), Dunlin (2 pairs) and Ringed Plover (1 pair) recorded in 1996. The occurrence of Dunlin is of particular note as it is a rare Irish breeding bird and is listed as a Red Data Book species. Unfortunately numbers have declined since 1985 when 10 pairs were recorded at the site. The machair at Doogort is a largely unenclosed commonage used for grazing sheep and cattle. The correct level of grazing, evenly spread over the site, is a critical factor in maintaining species diversity and habitat quality of machair. A major threat to machair is agricultural improvement. Application of fertilisers can result in the loss of semi-natural vegetation and a reduction in species-richness. Run-off of fertiliser can also cause pollution of associated freshwater systems. This scenic coastal site contains a good

diversity of habitats in a small area. The machair here is a good example of a habitat type which is increasingly rare and receives priority status under Annex I of the E.U. Habitats Directive. An outstanding feature of this site is its moss and liverwort flora, which includes a number of rarities, including an Annex II species. A number of oceanic species occur here which are rare in a European context.

11/10/2013

Dr. Karina Dingerkus

Summary:

Experienced field ecologist with twenty years' experience of working with local authorities, communities, charities, academic institutions and as a self-employed consultant.

Employment:

2005-present	Self-employed Environmental Consultant, based in Co. Mayo
2000–2005	Ecology Officer, Norwich City Council
1998–2000	Environmental Liaison Officer, Ulster Wildlife Trust/Lisburn Borough Council
1997	Part time field worker for ATEC (Environmental Consultants)
1993	Fieldworker at Culterty Field Station, Aberdeen University, Scotland

Education:

PhD. 1997 The Ecology and Distribution of the Irish hare in Northern Ireland, Queen's University, Belfast

BSc. 1993 (2:1 Class Hons.), Zoology (Animal Ecology), Aberdeen University, Scotland

Selected Publications and Reports:

Various NIS reports for planning applications for private individuals.

Ballinedine Wildlife and Pollinator Wildlife (2018), Ballindine Tidy Towns, Heritage Office, Mayo County Council

Survey of woodland at Laghtarvarry, Ballyvary and Chancery, Turlough, Co Mayo **(2016)** for Bernard and Zane Joyce. Unpublished report

Survey for squirrels at Jamestown Forest, Co Westmeath for Coillte **(2015)**

County Louth Hedgerow Survey (2014): Survey and report for Heritage Office, Louth County Council. www.louthheritage.ie/publications392350481956.pdf

Nature and Wildlife in Roscommon - Action for Biodiversity, Giorria Environmental Services and Janice Fuller, Roscommon County Council (2012)

Dingerkus, SK, Stone, RE, Wilkinson, JW, Marnell F and Reid N., (2010) Developing a methodology for the National Frog Survey of Ireland: a pilot study in Co. Mayo. Irish Naturalists' Journal *31 No.2 2010: 85-90*

West Galway Hedgerow Survey and associate hedgerow leaflets for Galway County Council (2007).

Biodiversity Action Plans for County Mayo and County Roscommon (Heritage Council funded) (2007).

County Cavan Hedgerow Report for Cavan County Council (2006).

Reid, N., Dingerkus, K., Montgomery, W.I., Marnell, F., Jeffrey, R., Lynn, D., Kingston, N. & McDonald, R.A. (2007) Status of hares in Ireland. *Irish Wildlife Manuals*, No. 30. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government

Dr. Richard Stone

Summary:

Experienced ornithologist and field ecologist with wide range of surveying experience including aquatic, hedgerow, bird, mammal, and vegetation surveys.

Employment:

2005 - present	Self-employed Environmental Consultant, based in Co. Mayo
2003 - 2005	Organ keyboard maker. P & S Specialist Joinery, UK
2000 - 2002	Environmental Research Scientist at British Antarctic Survey, Cambridge, UK
1998 - 1999	Field Ecologist ATEC Consultants
1998	Breeding Bird survey for RSPB Northern Ireland.
1989	Set-aside survey for RSPB, bird and vegetation surveys.
1987	Vegetation survey of open cast coal sites, Wales for RSPB

Education:

PhD. 1999 The ecology and behaviour of water birds in relation to human activity on Strangford Lough, Queen's University, Belfast.

BSc. 1993 (2:1 Class Hons.), Zoology (Animal Ecology), Aberdeen University, UK.

Selected Publications and Reports:

Survey of woodland at Laghtarvarry, Ballyvary and Chancery Turlough Co Mayo (2016) for Bernard and Zane Joyce. Unpublished report

Survey for squirrels at Jamestown Forest, Co Westmeath for Coillte (2015)

Cooper, F., Stone, R.E., McEvoy, P., Wilkins, T. & Reid, N. (2012). The conservation status of juniper formations in Ireland. Irish Wildlife Manuals, No. 63. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

Dingerkus, SK, Stone, RE, Wilkinson, JW, Marnell F and Reid N., (2010) Developing a methodology for the National Frog Survey of Ireland: a pilot study in Co. Mayo. Irish Naturalists' Journal 31 No.2 2010: 85-90

West Galway Hedgerow Survey and associate hedgerow leaflets (2007).

Mathers, R.G., Watson, S., Stone, R.E. and Montgomery, W.I. (2000) A study of the impact of human disturbance on Wigeon *Anas penelope* and Brent geese *Branta bernicla hrota* on an Irish Sea Loch. Wildfowl 51: 67-81.

Speakman, J.R., Irwin, N., Tallach, N. and Stone, R.E. (1999) Effect of roost size on the emergence behaviour of pipistrelle bats (*Pipistrellus pipistrellus*): Statistical artefacts and intra- and inter-roost effects. Animal Behaviour 58: 787-795.

Mathers, R.G., Montgomery, W.I., Portig, A.A. and Stone, R. (1998) Winter habitat use by Brent Geese *Branta bernicla hrota* and Wigeon *Anas penelope* on Strangford Lough, Co. Down. Irish Birds 6: 257-268.

Alex Hayden, MSc(Agr)

Summary:

Field ecologist who has worked on the Great Yellow Bumblebee EIP Project and completed a Masters (Agr) in Environmental Resource Management from the University College Dublin (Grade 1.1 honours) in 2022. Previously worked as a data scientist for First Derivatives/Kx Systems.

Employment:

2022–Present	Self-Employed Environmental Consultant
2017–2021	Data Scientist, First Derivatives/Kx

Education:

2021-2022	***MSc(Agr)*** *Environmental Resource Management,* University College Dublin.
2012-2017	***BSc*** *Applied Mathematics & Chemistry*, Maynooth University (2:1 Class Hons.)

Relevant Reports and Work Experience:

Assisting with the preparation of Appropriate Assessment Screening and Natura Impact Statement reports as per the European Habitats Directive for planning applications for private individuals.

Fieldwork (Multidisciplinary Walkover Survey):

- Following the National Roads Authority guidelines for fieldwork as per the Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes.
- Recording data including all habitats using Heritage Council's 'Guide to Habitats in Ireland' (Fossitt, 2000), presence or potential presence of protected species, characteristics of the terrain, visible hydrological features, and construction preparation (e.g., trial holes for a septic tank).

Desk Studies:

- Identifying Natura 2000 sites within 15km of proposed sites using QGIS and EPA maps.
- Researching qualifying interests (and potential threats) within relevant Natura 2000 sites.
- Designing multipurpose maps (QGIS) and tables (MS Excel and Word).
- Data management and analysis (MS Excel and R).

Publications and Theses:

Hayden, A. (2022) Evaluating the Effectiveness of Agri-Environmental Measures for Rare and Common Bumblebees [Master's Thesis, University College Dublin] Unpublished.

Hayden, A. (2017) Spectral Analysis of an Umbelliferone Derivative (AH1P2): The investigation of AH1P2 as an imaging agent for hypoxic tumour cells [Undergraduate Thesis, Maynooth University] Unpublished.

Hayden, A. (2016) Oxidative Stress and Antioxidant Activity in Edible Mushrooms [Undergraduate Thesis, Maynooth University] Unpublished.

Sedgwick, A. C., Hayden, A., Hill, B., Bull, S. D., Elmes, R. B., & James, T. D. (2018). A simple umbelliferone based fluorescent probe for the detection of nitroreductase. *Frontiers of Chemical Science and Engineering*, *12*, 311-314.

Posters:

Hayden, A. (2023) Evaluating the Effectiveness of Agri-Environmental Measures for Rare and Common Bumblebees [Poster Presentation] IEA 4th Ecology & Evolution Conference, Dublin (IRE).

Dingerkus, K. & Hayden, A. (2022) The Great Yellow Bumblebee Project - Results Summary [Poster Presentation] EIP-AGRI National Conference 2022, Roscommon (IRE).

Dingerkus, K. & Hayden, A. (2022) The Great Yellow Bumblebee Project - Farmer Feedback [Poster Presentation] GYBB Project Farmer Feedback Session, Mayo (IRE).