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

Proposed new open space development at "Rising of the Water", Cong, Co Mayo

For Mayo County Council

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Giorria Environmental Services
www.giorria.com

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SECTION 1

1.0 Introduction

Giorria Environmental Services were commissioned by Matt Stevens, Senior Executive Architect, Mayo County Council to undertake a Screening for Appropriate Assessment under Article 6 of the EU Habitats Directive on the proposed new open space area at the "Rising of the Waters" Cong, 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). The report was compiled and written by Dr. Karina Dingerkus, ecologist (see Appendix 5 for qualifications).

1.1 Overview of proposed new open space at Cong, Co. Mayo

The client proposes to create a new public space area at the area known as "The Rising of the Waters" in the village of Cong, Clonbur, Co Mayo.

The proposed new open space will include new paved areas, stone benches and trees. The site is 0.033 ha in size. The ITM Coordinates are 514674E 755459N.

Photograph 1: Site at Cong, Co. Mayo showing location of proposed new open space

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)
- Circular NPW 1/10 & PSSP 2/10 (March 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).

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:
1. 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.
2. 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:
1. Description of plan or project, and local site or plan area characteristics.
2. Identification of relevant Natura 2000 sites, and compilation of information qualifying interests and conservation objectives.
3. 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.
4. 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).

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: (www.mayo.ie/planning/search) 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 maps https://maps.biodiversityireland.ie/
- Environmental Protection Agency - https://gis.epa.ie/EPAMaps/

2.3 Field Survey

The site was visited on 29th January 2021. The site is located in Cong village opposite An Post office on Circular Road (R345) at the junction with the R345 going north out of the village. A Spar shop and petrol station are opposite the junction. Directly to the north is an arm of the river that forms a small pool. Water enters this pool under a private bridge/driveway leading to a house. The water exits the pool via ducts/low bridge eyes under a private building. The water then re-enters the river behind Circular Road.

The site is small in size (0.033ha) and runs along the side of the road, between the road and stone wall forming the boundary with the river. The site is roughly triangular is shape with the narrow end towards the junction (east) while the broader end (west) backs on to a narrow side garden of a private house. This boundary is a low (400mm) stone wall with garden shrubs between the wall and house. Towards the rear at the west end is a single storey house wall with a small window facing south. This building is the building that over-spans the rivers exit from the pool.

Presently there is a gravel mound running along the roadside of the proposed site. This is probably to stop vehicular access to this area (parking opposite the post office and close to the junction). Several small willow shrubs are beginning to colonise this mound. The rest of the site is gravel with some buddleia bushes towards the north-west corner and other small plants and moss with bare ground. Towards the back (north) is a large stone wall (1.2m high). This wall runs east from the building in the north-west corner to the road junction. At the corner is a small slipway giving access to the pool. Along this wall is a low stone planter with a few plants growing in it. There is another planter towards the eastern end but this is covered with flat stone. At the eastern, narrow end the gravel ends at a bank and the remaining area is asphalt/hardstanding. There are two rubbish bins here against the wall and a small wooden shed for Corrib Cruises. There is also an information sign here as well.

Behind the north stonewall, between the wall and waters edge, is an earth bank with a stone foot along the rivers edge. This bank (1.5 to 2m wide) has several large trees (conifer, chestnut and sycamore) growing in it. There are also small garden shrubs growing along this bank and a few spring bulbs coming up.

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).

3.1 Description of development

It is proposed to create a new open space in the village of Cong. It will include new paved areas, stone benches and trees. The site is 0.033 ha in size. The roughly triangular site is found at the junction of Circular Road (R345) and Main Street (R345). The roads forms the east and southern boundaries of the site. To the west there is a neighbouring dwelling house and to the north there is a wall behind which is water, which is linked to the Cong Canal.

It is proposed to pave the entire area. Two paving types will be used, one type of paving over most of the area and a second type over the inner area. On this inner area, five stone benches will be constructed. Bollards will be placed at regular intervals between the open space and the road. Existing trees will be retained, and additional trees will be planted along the western side of the site. The paving will extend beyond the existing hard standing around the corner where the paving will incorporate part of the existing road. In order to lay the paving it will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving will be laid on a new build-up of compacted sand, hardcore, and geotextile membrane.

A pedestrian crossing area will be placed at the top south western corner of the site. This will cross the road to the shops on the other side. Additional vehicular parking (eight spaces, including one disabled parking space) is proposed for this location.

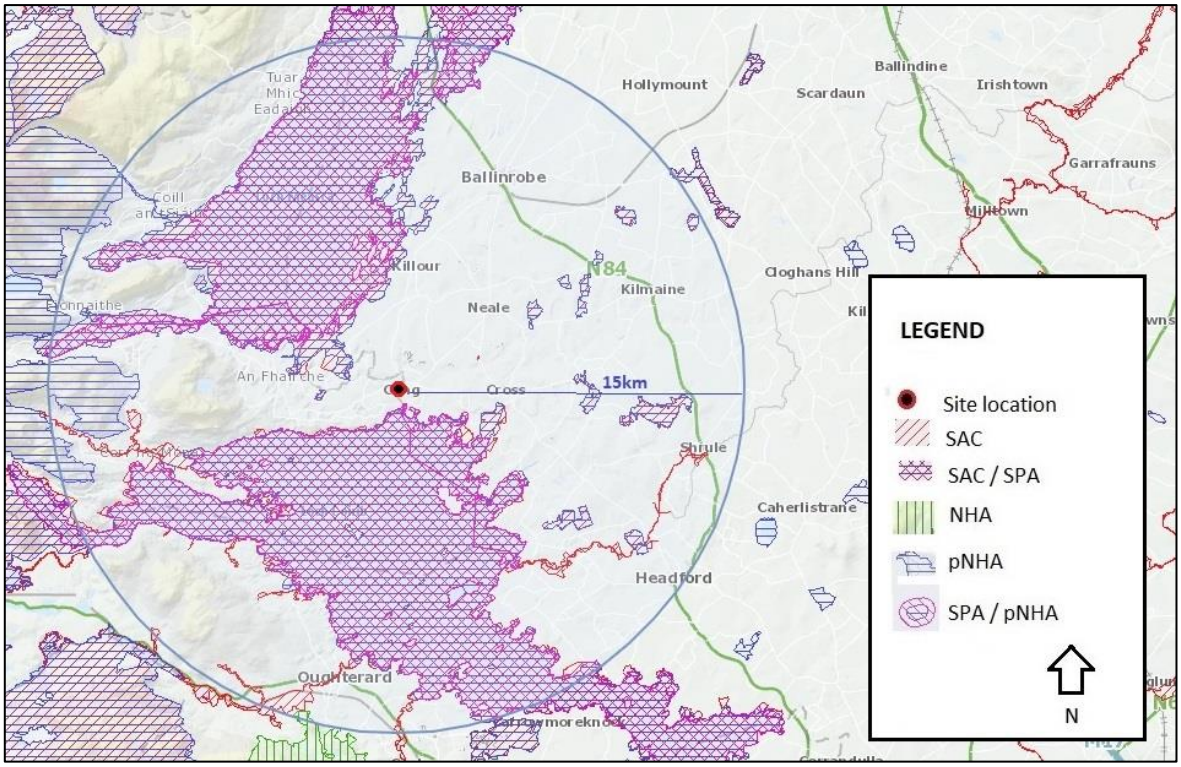
Site is flat, with no slope and is currently gravelled, hard standing or tarmac road surface..

Diagram 1: Site layout at Cong, Co. Mayo showing location of proposed new open space

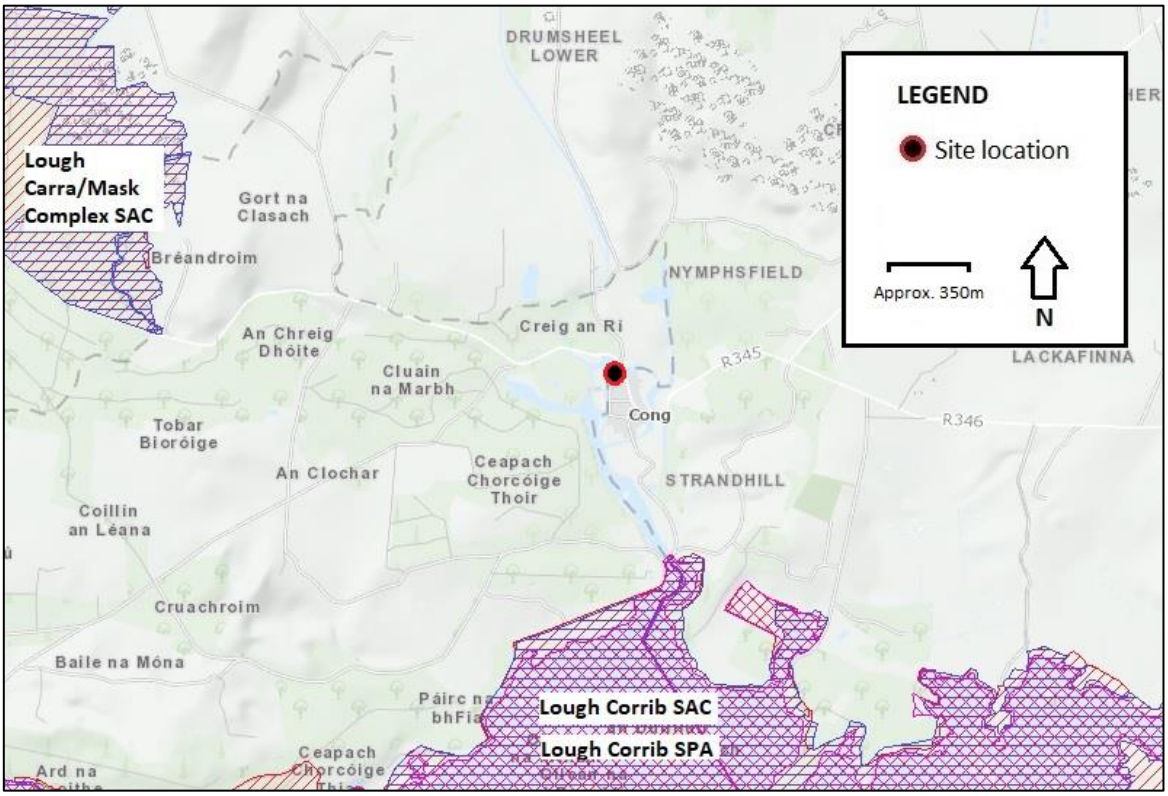
3.2 Description of Natura 2000 sites

All Natura 2000 sites occurring within 15km of the likely zone of influence of the plan or project need to be considered while conducting an assessment.

The site is lies approximately 833mm from the Lough Corrib SPA and 837m to Lough Corrib SAC. Thirteen other Natura 2000 sites (SACs and SPAs) fall within a 15km radius of the site, and a further three SAC lies just outside the 15km zone. See Table 1 below for details.



Map 1 Showing Natura 2000 sites within 15km radius of site
(Map source: http://dahg.maps.arcgis.com/apps/webappviewer)



Map 2. Showing section of Lough Corrib SAC and SPA and Lough Carra / Mask Complex SAC with site location at Cong
(Map source - https://www.npws.ie/maps-and-data)

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

Site Code	Site Name and brief site description	Distance To (m)	Connectivity / Comment
000297	**Lough Corrib SAC** Lough Corrib is the second largest lake in Ireland. The surrounding lands to the south and east are mostly pastoral farmland, while bog and heath predominate to the west and north. The rivers include the Clare, Grange, Abbert, Sinking, Dalgan and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen and Owenriff to the west. In addition to the rivers and lake basin, adjoining areas of conservation interest, including raised bog, woodland, grassland and limestone pavement, have been incorporated into the site. The site supports a number of rare plants. The lake is rated as an internationally important site for waterfowl. Atlantic Salmon use the lake and rivers as spawning grounds. A population of Freshwater Pearl Mussel and White-clawed Crayfish also occur. A summer roost of Lesser Horseshoe Bat is also found in the SAC.	837.26	The site abuts onto an area of open water linked to the Cong canal. The site is for the most part separated from the water by a stone wall. At the north eastern corner of the site there is a small slipway which enters the water. The Cong Canal is hydrologically linked downstream to this SAC. Hydrologically connection. Potential impacts
001774	**Lough Carra/Mask Complex SAC** This site comprises of two large lakes, Lough Mask and Lough Carra, and includes the smaller Cloon Lough. Lough Mask is the sixth largest lake in the country and is an excellent example of an oligotrophic lake. There is a variety of wetland habitats and significant amounts of deciduous woodland. Lough Carra, which is hydrologically linked to Mask, is one of the best examples in Ireland of a hard water marl lake. It is fringed by a diverse complex of limestone and wetland habitats. Areas of calcareous grassland, often orchid-rich, occur interspersed amongst the limestone. There are several rare plants is found at this site, e.g. Irish St. John's-wort and Irish Lady's-tresses. There is also a summer breeding site for the Lesser Horseshoe Bat. In 1993 more than 100 bats were counted, which makes it of international importance. The site has important bird interests. There are national important flocks of Greenland White-fronted Goose, Shoveler, Tufted Duck and Goldeneye. Other important species are Arctic Char and Whiteclawed Crayfish	2104.66	The site abuts onto an area of open water linked to the Cong canal. The site is for the most part separated from the water by a stone wall. At the north eastern corner of the site there is a small slipway which enters the water. The Cong Canal is hydrologically linked upstream to this SAC. Upstream hydrologically connection. No potential impacts envisaged as upstream connection.
000474	**Ballymaglancy Cave, Cong SAC** Ballymaglancy Cave is a linear stream cave which supports a population of Lesser	3156.04	There is no direct hydrological link, and the site lies over 3km from the SAC.

	Horseshoe Bat. This is a fairly extensive (>500 m) example of a natural limestone cave. Lesser Horseshoe Bats have been using the cave for many years. The numbers, however, vary with external temperature; during periods of sustained low temperatures, numbers in the cave may exceed 50 bats; when air temperature rises, numbers may drop to approximately 35 bats. Most of the bats hibernate within 20 m of the cave entrance.		As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.
002320	**Kildun Souterrain SAC** Kildun Souterrain contains an important hibernation site of the Lesser Horseshoe Bat. It is situated within an area of Hazel (*Corylus avellana*) and Ash (*Fraxinus excelsior*) woodland which grows over limestone. The number of bats using this site has been gradually increasing and in January 2001, 69 bats were counted here making it a roost of international importance.	3599.48	There is no direct hydrological link, and the site lies over 3.5km from the SAC. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.
000480	**Clyard Kettle-holes SAC** This site comprises several small lakes and turloughs developed between stony hillocks west of Kilmaine, Co. Mayo. Some of these lakes are connected with each other but others appear to fill and empty by subterranean means. The main plant community in the kettle-holes at Clyard townland is Cladium fen. To the north of Clyard, in Coolisduff townland, lies a turlough that floods in winter to an area of 12 ha. This turlough drains to a swallow hole in the north-west corner, with summer pools supporting stands of Great Fen-sedge. Another turlough lies just to the north, in Thomastown townland. Two further turlough areas occur to the west, at Cahernagry East, which floods to an area of 12 ha, and at Caherhemush – Ballywalter, which floods to over 25 ha.	6190.94	There is no direct hydrological link, and the site lies over 6km from the SAC. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.
001536	**Mocorha Lough SAC** Mocorha Lough comprises a shallow wetland complex. The predominant habitat on the site is fen, including Cladium Fens that is dominated by Great Fen-sedge (Cladium mariscus). Areas of dry calcareous grassland, wet grassland and Juniper (Juniperus communis) scrub also occur. Very little open water remains at the site. The scarce moss *Drepanocladus cossonii* has been recorded. The site supports locally important numbers of wetland birds, especially Snipe and Mallard.	7586.03	Mocorha Lough is hydrologically linked to Lough Corrib, but there is no direct hydrological link to site. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.

000479	**Cloughmoyne SAC** The site is a Special Area of Conservation selected for Limestone Pavement of the 'shattered' form. The limestone pavement supports a typical flora and is associated with areas of species-rich calcareous grassland and heath. Of particular note is the presence of the very rare and legally protected (Flora (Protection) Order, 1999) species Limestone Fern (*Gymnocarpium robertianum*). The site includes areas of species-rich dry grassland, which includes flora species including the scarce Dense-flowered Orchid (*Neotinea maculata*), Spring Gentian (*Gentiana verna*) and the rare and legally protected (Flora (Protection) Order, 1999) species, Wood Bitter-vetch (*Vicia orobus*). The site also includes some species-poor fen vegetation, dominated by Black Bog-rush (*Schoenus nigricans*).	8659.21	Cloughmoyne SAC is hydrologically linked to Lough Corrib, but there is no direct hydrological link to site. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.
000525	**Shrule Turlough SAC** Shrule Turlough is a large, highly oligotrophic turlough, with thick marl and peat deposits which makes it unusual in the general range of turloughs and gives it a very significant ecological value. There is no above-ground outflow from the turlough. Drainage attempts have been made by enlarging the swallow holes, but the turlough still floods regularly and appears to show little modification due to the drainage efforts. Shrule Turlough has a high level of physical and supports a diversity of plant communities including some species rare in turloughs.	9760.99	Shrule Turlough SAC is hydrologically linked to Lough Corrib, but there is no direct hydrological link to site. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.
000541	**Skealoghan Turlough SAC** Most of Skealoghan Turlough has a peaty soil. There is some semi-permanent standing water at the eastern end which is fed from natural ponds and ditches to the west. The southern part dries out completely in summer and is bordered by a woodland fringe. Several pairs of Lapwing breed at the site and some wintering waterfowl are likely to visit the turlough. Despite some intensive agriculture to the west of the site, the area remains quite oligotrophic. Skealoghan Turlough is of conservation interest for its diversity of vegetation types, particularly the oligotrophic sedge communities.	11929.77	Skealoghan Turlough SAC may be hydrologically linked to Lough Mask, but there is no direct hydrological link to site. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.
000461	**Ardkill Turlough SAC** Ardkill turlough is one of a group of five turloughs that occupy hollows in rolling	14277.49	There is no direct hydrological link, and the site lies over 14km from the SAC.

	countryside. It is set amongst low limestone knolls with drift around the south and east. Exposed limestone extends out across the northern part forming a central island with low cliffs.		As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.
002034	**Connemara Bog Complex SAC** The Connemara Bog Complex SAC is a large site encompassing a wide range of habitats, including extensive tracts of western blanket bog, and areas of heath, fen, woodlands, lakes, rivers and coastal habitats. Both oligotrophic and dystrophic lakes are found within the SAC. The rare species Slender Naiad (*Najas flexilis*) and Pillwort (*Pilularia globulifera*) have both been recorded from oligotrophic lakes at this site. Within this site, areas of transition mire occur mainly along the margins of lakes and bog streams. Four saline lake lagoons occur and support several lagoon specialist species. Seven other species protected under the Flora (Protection) Order, 2015, occur within this site: Forked Spleenwort (*Asplenium septentrionale*), Parsley Fern (*Cryptogramma crispa*), Bog Hair-grass (*Deschampsia setacea*), Slender Cottongrass (*Eriophorum gracile*), Bog Orchid (*Hammarbya paludosa*), Heath Cudweed (*Omalotheca sylvatica*), and Pale Dog-violet (*Viola lactea*). Rare and threatened species such as Dorset Heath (*Erica ciliaris*), Mackay's Heath (*Erica mackaiana*) and Green-winged Orchid (*Orchis morio*) also occur within this site. The Annex II species, Marsh Fritillary and Atlantic Salmon occur. The site is of national importance for wintering populations of Greenland White-fronted Goose. There is an internationally important breeding area for Cormorants at Lough Scannive. Another Annex I species known to be present in the site is Merlin, Common Terns and Choughs.	14764.01	There is no direct hydrological link, and the site lies over 14km from the SAC. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.
000504	**Kilglassan/Caheravoostia Turlough Complex SAC** This site is situated about 7 km east of Ballinrobe in Co. Mayo. It comprises two turloughs separated by a rise of land which includes a pond and a small floating fen. The surrounding topography is gently rolling, with limestone outcrop at the northern end of Kilglassan. Both turloughs occupy relatively flat basins that remain wet even in summer and have accumulated peat. The site is likely to attract wintering waterfowl but no data are available.	14856.70	Kilglassan/Caheravoostia Turlough Complex SAC is hydrologically linked to Lough Mask, but there is no direct hydrological link to site. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.

002008	**Maumturk Mountains SAC** The Maumturk Mountains are situated east of the Twelve Bens and west of the Maumtrasnas, between the Inagh Valley and the Leenaun/Maam road in Co. Galway. Most of the mountains exceed 600m in height. Wet heath, dry heath and blanket bog are all widespread. The lichen flora is locally abundant and includes the rare *Cladonia rangiferina*. Flushes occur in some areas of the bog. Oligotrophic lakes are well represented in this site, occurring mainly in the south-east near Maam Cross. The principal lakes are Lough Shindilla, Loughanillaun, Lough Nambrackboy, Lough Shannagrena, Maumwee Lough and Lehanagh Lough. Most of these are small to medium sized systems and are of good quality. Spawning salmon and trout occur in Maumwee Lough, and perhaps others. Arctic Char also occurs. Other habitats present include lowland blanket bog, siliceous quartzite scree, exposed rock, upland grassland on peaty and mineral substrates, river valleys and streams, lakes, and woodland on lake islands. The site supports a range of other scarce arctic-alpine/mountain plants. Several other Red Data Book plant species are also found on the site, including Slender Cottongrass (*Eriophorum gracile*) Purple Saxifrage (*Saxifraga oppositifolia)* and Slender Naiad (*Najas flexilis).*	15075.66	Maumturk Mountains SAC is hydrologically linked to Lough Corrib, but there is no direct hydrological link to site. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.
001271	**Gortnandarragh Limestone Pavement SAC** Gortnandarragh Limestone Pavement is located on the southern side of Lough Corrib. The site consists of an exposed limestone plateau which slopes down on its eastern side to cut-over fen and bog. Parts of the pavement exhibit a well-developed system of clints and grykes, while other parts are shattered, with much loose rock. The pavement forms a mosaic with heath, grassland and scrub. Much of the central part is open but the eastern side contains enclosures and is grazed by cattle. The site supports a typical flora of limestone pavement. It is the only known locality for the endemic fungus for *Entoloma jennyi.*	15194.01	Gortnandarragh Limestone Pavement SAC is hydrologically linked to Lough Corrib, but there is no direct hydrological link to site. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.
000503	**Greaghans Turlough SAC** Greaghans Turlough is located near to Ballinrobe in Co. Mayo. It is surrounded by grazing land and is itself moderately grazed. The turlough is somewhat uniform because of its topography but is valuable as an undrained turlough with a variety of well-developed vegetation communities. The rare Northern Yellow-cress occurs on site. The turlough is notable for its use in winter by Whooper Swans.	15589.72	Greaghans Turlough SAC is hydrologically linked to Lough Mask, but there is no direct hydrological link to site. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged.

004042	**Lough Corrib SPA** Lough Corrib can be divided into two parts: a relatively shallow basin in the south, which is underlain by Carboniferous limestone, and a larger, deeper basin to the north, which is underlain by more acidic granite, schists, shales and sandstones. The main inflowing rivers are the Black, Clare, Dooghta, Cregg, Owenriff and the channel from Lough Mask. The main outflowing river is the Corrib, which reaches the sea at Galway City. The shallow, lime-rich waters of the southern basin of the lake support extensive beds of Stoneworts (Charophytes), an important source of food for waterfowl. The northern basin contains more oligotrophic and acidic waters. Greenland White-fronted Goose, Gadwall, Shoveler, Pochard, Tufted Duck, Common Scoter, Hen Harrier, Coot, Golden Plover, Black-Headed Gull, Common Gull, Common Tern and Arctic Tern all occur.	833.23	The site abuts onto an area of open water linked to the Cong canal. The site is for the most part separated from the water by a stone wall. At the north eastern corner of the site there is a small slipway which enters the water. The Cong Canal is hydrologically linked downstream to this SAC. Hydrologically connection. Potential impacts
004062	**Lough Mask SPA** Lough Mask is a large lake. The main inflowing rivers are the Cloon and Robe, and the stream from Lough Carra to the north-east. The main outflow is to Lough Corrib to the south. The eastern part of the lake is edged by a low-lying shoreline which is subject to winter flooding. The water of the lake is moderately hard. There are several islands. Lough Mask is a nationally important site for breeding gulls including Black-headed Gull, Common Gull and Lesser Black-backed Gull. The lake is also a traditional breeding site for Common Tern. In winter the site supports a range of waterfowl, including a nationally important Tufted Duck population. It also supports Whooper Swan, Greenland White-fronted Goose, Mute Swan, Whooper Swan, Wigeon, Teal, Mallard, Pochard, Goldeneye, Red-breasted Merganser, Little Grebe, Cormorant, Coot, Lapwing and Curlew.	3485.56	The site abuts onto an area of open water linked to the Cong canal. The site is for the most part separated from the water by a stone wall. At the north eastern corner of the site there is a small slipway which enters the water. The Cong Canal is hydrologically linked upstream to this SAC. Upstream hydrologically connection. No potential impacts envisaged.
004051	**Lough Carra SPA** Lough Carra is one of the best examples in Ireland of a hard water marl lake. It is connected to Lough Mask via the Keel River. Lough Carra is classified as a mesotrophic system. There are well-developed stonewort communities. The lake is fringed by a diverse complex of limestone and wetland habitats. The islands in Lough Carra have traditionally supported nesting Common Gull (nationally important) and Black-headed Gull. The site also supports wintering populations of a several species.	12527.37	Lough Carra is hydrologically connected to Lough Mask but there is no direct hydrological link to site. As no complete source-pathway-receptor chain was identified and due the small scale of the project no potential impacts envisaged..

In addition to the above sites, **Galway Bay Complex SAC (000268**) and **Inner Galway Bay SPA (004031)** are also hydrologically linked to the project site. Both Natura sites lie over 42km from the project site. Based on the small scale of the project, the downstream hydrological distance of over 42km and the assimilative capacity of the intervening watercourses, there is no potential for significant effect on these downstream Natura 2000 sites.

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

Site Code	Proposed Natural Heritage Area	Approximate Distance from site (km)	Connectivity / comment
000735	Maumtrasna Mountain Complex pNHA	11.3	No direct or indirect connectivity
002431	Oughterard District Bog NHA	14.6	No direct or indirect connectivity

Table 3: Qualifying interests and documented threat to the Natura 2000 sites lying in a 15km radius of the proposed development site

Site Code	Site Name	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
000297	Lough Corrib SAC	**Habitats** 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 7110 Active raised bogs* 7120 Degraded raised bogs still capable of natural regeneration 7150 Depressions on peat substrates of the Rhynchosporion 7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae* 7220 Petrifying springs with tufa formation (Cratoneurion)* 7230 Alkaline fens	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000297.pdf	• Agricultural intensification • Invasive non-native species • Piers / tourist harbours or recreational piers • Continuous urbanisation • Forest planting on open ground • Infilling of ditches, dykes, ponds, pools, marshes or pits • Sand and gravel extraction • Abandonment of pastoral systems, lack of grazing • Diffuse pollution to surface waters due to household sewage and waste waters • Other human induced changes in hydraulic conditions

		8240 Limestone pavements* 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles 91D0 Bog woodland* **Species** 1096 Brook Lamprey *(Lampetra planeri)* 1092 White-clawed Crayfish *(Austropotamobius pallipes)* 1095 Sea Lamprey *(Petromyzon marinus)* 1393 Slender Green Feather-moss *(Drepanocladus vernicosus)* 1106 Salmon *(Salmo salar)* 1303 Lesser Horseshoe Bat *(Rhinolophus hipposideros)* 1355 Otter *(Lutra lutra)* 1029 Freshwater Pearl Mussel *(Margaritifera margaritifera)* 1833 Slender Naiad *(Najas flexilis)*		
001774	Lough Carra/Mask Complex SAC	**Habitats** 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. 4030 European dry heaths 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae* 7230 Alkaline fens 8240 Limestone pavements* 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001774.pdf	• Agriculture abandonment • Pollution of surface waters

		Species 1303 Lesser Horseshoe Bat *(Rhinolophus hipposideros)* 1393 Slender Green Feather-moss *(Drepanocladus vernicosus)* 1355 Otter *(Lutra lutra)*		
000474	Ballymaglancy Cave, Cong SAC	**Habitats** 8310 Caves not open to the public **Species** 1303 Lesser Horseshoe Bat *(Rhinolophus hipposideros)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000474.pdf	• Speleology • Disturbance • Outdoor recreation
002320	Kildun Souterrain SAC	**Species** 1303 Lesser Horseshoe Bat *(Rhinolophus hipposideros)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002320.pdf	• Disturbance
000480	Clyard Kettle-holes SAC	**Habitats** 3180 Turloughs* 7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000480.pdf	• Intensive cattle Grazing • Diffuse groundwater pollution due to agricultural and forestry activities • Nutrient enrichment • Fertilization • Agricultural intensification
001536	Mocorha Lough SAC	**Habitats** 7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001536.pdf	• Competition • Hunting • Grazing • Non intensive cattle grazing • Fertilisation • Infilling of ditches, dykes, ponds, pools, marshes or pits • Disposal of household / recreational facility waste
000479	Cloughmoyne SAC	**Habitats** 8240 Limestone pavements*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000479.pdf	• Agricultural activities • Reclamation of limestone pavement • Fertilization

000525	Shrule Turlough SAC	**Habitats** 3180 Turloughs*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000525.pdf	• Grazing • Restructuring agricultural holdings • Fertilization • Agricultural intensification
000541	Skealoghan Turlough SAC	**Habitats** 3180 Turloughs*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000541.pdf	• Diffuse groundwater pollution due to agricultural and forestry activities • Cultivation • Stock feeding • In-appropriate grazing regime • Nutrient enrichment • Fertilisation
000461	Ardkill Turlough SAC	**Habitats** 3180 Turloughs*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000461.pdf	• Intensive cattle grazing • Diffuse groundwater pollution due to agricultural and forestry activities • Nutrient enrichment • Agricultural intensification • Fertilisation
002034	Connemara Bog Complex SAC	**Habitats** 1150 Coastal lagoons* 1170 Reefs 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea 3160 Natural dystrophic lakes and ponds 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002034.pdf	• Peat cutting • Over-grazing • Afforestation • Land drainage • Reclamation • Fertilization • Quarrying • Dumping

		4010 Northern Atlantic wet heaths with Erica tetralix 4030 European dry heaths 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 7130 Blanket bogs (* if active bog) 7140 Transition mires and quaking bogs 7150 Depressions on peat substrates of the Rhynchosporion 7230 Alkaline fens 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles **Species** 1833 Slender Naiad *(Najas flexilis)* 1106 Salmon *(Salmo salar)* 1065 Marsh Fritillary *(Euphydryas aurinia)* 1355 Otter *(Lutra lutra)*		
000504	Kilglassan/Caheravoostia Turlough Complex SAC	**Habitats** 3180 Turloughs*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000504.pdf	• Intensive cattle grazing • Nutrient enrichment • Fertilisation • Mowing / cutting of grassland • Stock feeding • Agricultural intensification • Diffuse groundwater pollution due to agricultural and forestry activities • Diffuse pollution to surface waters due to agricultural and forestry activities
002008	Maumturk Mountains SAC	**Habitats** 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 4010 Northern Atlantic wet heaths with *Erica tetralix* 4060 Alpine and Boreal heaths	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002008.pdf	• Over-grazing • Peat cutting • Afforestation • Sports and Leisure • Fencing

		7130 Blanket bogs (* if active bog) 7150 Depressions on peat substrates of the Rhynchosporion 8220 Siliceous rocky slopes with chasmophytic vegetation **Species** 1106 Salmon *(Salmo salar)* 1833 Slender Naiad *(Najas flexilis)*		• Invasive species • Paths / tracks • Diffuse pollution • Mountaineering
001271	Gortnandarragh Limestone Pavement SAC	**Habitats** 8240 Limestone pavements*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001271.pdf	• Over-grazing • Land reclamation • Quarrying
000503	Greaghans Turlough SAC	**Habitats** 3180 Turloughs*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000503.pdf	• In-appropriate grazing regime • Nutrient enrichment • Diffuse pollution to surface waters due to agricultural and forestry activities • Stock feeding • Agricultural intensification • Fertilisation
004042	Lough Corrib SPA	**Birds** A395 Greenland White-fronted Goose *(Anser albifrons flavirostris)* A194 Arctic Tern *(Sterna paradisaea)* A082 Hen Harrier *(Circus cyaneus)* A061 Tufted Duck *(Aythya fuligula)* A051 Gadwall *(Anas strepera)* A059 Pochard *(Aythya ferina)* A140 Golden Plover *(Pluvialis apricaria)* A179 Black-headed Gull *(Chroicocephalus ridibundus)* A182 Common Gull *(Larus canus)* A125 Coot *(Fulica atra)* A065 Common Scoter *(Melanitta nigra)* A193 Common Tern *(Sterna hirundo)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004042.pdf	• Fishing • Boating • Fertilization • Forestry • Hunting • Grazing

		A056 Shoveler *(Anas clypeata)* **Habitats** Wetlands		
004062	Lough Mask SPA	**Birds** A179 Black-headed Gull *(Chroicocephalus ridibundus)* A193 Common Tern *(Sterna hirundo)* A061 Tufted Duck *(Aythya fuligula)* A182 Common Gull *(Larus canus)* A395 Greenland White-fronted Goose *(Anser albifrons flavirostris)* A183 Lesser Black-backed Gull *(Larus fuscus)* **Habitats** Wetlands	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004062.pdf	• Leisure fishing • Fertilisation • Forestry • Restructuring agricultural land
004051	Lough Carra SPA	**Birds** A182 Common Gull *(Larus canus)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004051.pdf	• Restructuring agricultural land holding • Fertilisation • Forestry • Leisure fishing

3.3 Assessment of Likely Effects

The proposed development 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 Lough Corrib SAC and the Lough Corrib SPA and list the potential pathway and potential threat source and whether it is likely to have a significant effect on the qualifying habitats or species.

Table 4: Lough Corrib SAC – Screening analysis (using source-pathway-receptor model) to identify SAC qualifying habitats and any "Likely Significant Effects" of impacts on Natura 2000 site, based on current project proposals. Conservation objectives can be found in Appendix 5.

Qualifying habitat and code (P*otential receptors*)	**Conservation objectives**	**Pathway / Comment**	**Source of Potential Threats/Pressures**	**Likelihood of significant**
Oligotrophic Waters containing very few minerals 3110	To restore the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Habitat area stable or increasing, subject to natural processes • No decline in habitat distribution, subject to natural processes • Typical species present, in good condition, and demonstrating typical abundances and distribution • Vegetation composition: All characteristic zones should be present, correctly distributed and in good condition • Restore maximum depth of vegetation distribution, subject to natural processes • Maintain appropriate natural hydrological regime necessary to support the habitat • Restore appropriate lake substratum type, extent and chemistry to support the vegetation • Water quality: Restore appropriate Secchi transparency. There should be no decline in Secchi depth/transparency • Restore the concentration of nutrients in the	Surface water pathway.	Sediment or pollution run-off from proposed works to nearby waterbodies, changes in natural hydrology	The distribution of lake habitat 3110 in Lough Corrib SAC has not been fully surveyed. As a nutrient-poor habitat, oligotrophic and Water Framework Directive (WFD) 'high' status targets apply. Potential 3110 habitat lies approximately 900m downstream. Potential impact if sediment gets washed into river.

	water column to sufficiently low levels to support the habitat and its typical species • Phytoplankton biomass: Restore appropriate water quality to support the habitat, including high chlorophyll a status • Phytoplankton composition: Maintain appropriate water quality to support the habitat, including high phytoplankton composition status • Restore/maintain trace/absent attached algal biomass (<5% cover) and high phytobenthos status • Maintain high macrophyte status • Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes • Restore/maintain appropriate water colour to support the habitat • Restore/maintain appropriate organic carbon levels to support the habitat • Restore/maintain appropriate turbidity to support the habitat • Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3110			
Oligotrophic to Mesotrophic Standing Waters 3130	To restore the favourable conservation condition of Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoëto-Nanojuncetea in Lough Corrib SAC, which is defined by the following list of attributes and targets:	Surface water pathway. .	Sediment or pollution run-off from proposed works to nearby waterbodies, changes in natural hydrology	The full distribution and characteristics of lake habitat 3130 in Lough Corrib SAC have not been mapped. Lake habitat 3130 is associated with high water quality, and naturally low algal growth.

	• Habitat area stable or increasing, subject to natural processes • No decline in habitat distribution, subject to natural processes • Typical species present, in good condition, and demonstrating typical abundances and distribution • Vegetation composition: All characteristic zones should be present, correctly distributed and in good condition • Restore maximum depth of vegetation, subject to natural processes • Maintain appropriate natural hydrological regime necessary to support the habitat • Restore appropriate substratum type, extent and chemistry to support the vegetation • Restore appropriate Secchi transparency. There should be no decline in Secchi depth/transparency • Restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species • Restore appropriate water quality to support the habitat (phytoplankton biomass), including high chlorophyll a status • Maintain appropriate water quality to support the habitat, including high phytoplankton composition status • Restore/maintain trace/absent attached algal biomass (<5% cover) and high phytobenthos status • Maintain high macrophyte status			Potential 3130 habitat lies approximately 900m downstream. Potential impact if sediment gets washed into river.

	• Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes • Restore/maintain appropriate water colour to support the habitat • Restore/maintain appropriate organic carbon levels to support the habitat • Restore/maintain appropriate turbidity to support the habitat • Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3130			
Hard Water Lakes 3140	To restore the favourable conservation condition of Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Habitat area stable or increasing, subject to natural processes • No decline in habitat distribution, subject to natural processes • Typical species present, in good condition, and demonstrating typical abundances and distribution • Vegetation composition: All characteristic zones should be present, correctly distributed and in good condition • Vegetation distribution: Restore maximum depth of vegetation, subject to natural processes • Maintain appropriate natural hydrological	Surface water pathway.	Sediment or pollution run-off from proposed works to nearby waterbodies, changes in natural hydrology, invasive species	The hard water lake habitat (3140) is found in Lough Corrib, notably the southern basin. Its exact distribution and area have not been mapped however, and it is likely to also extend along the eastern side of the northern basin. Lake habitat 3140 is typically associated with high water quality, including low dissolved nutrients. Potential 3140 habitat lies approximately 900m downstream. Potential impact if sediment gets washed into river.

	regime necessary to support the habitat • Restore appropriate lake substratum type, extent and chemistry to support the vegetation • Restore appropriate Secchi transparency. There should be no decline in Secchi depth/transparency • Restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species—phytoplankton biomass Maintain appropriate water quality to support the habitat, including high chlorophyll a status • Maintain appropriate water quality to support the habitat, including high phytoplankton composition status • Restore/maintain trace/absent attached algal biomass (<5% cover) and high phytobenthos status • Restore high macrophyte status • Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes • Restore/maintain appropriate water colour to support the habitat • Restore/maintain appropriate organic carbon levels to support the habitat • Restore/maintain appropriate turbidity to support the habitat • Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3140			
Floating River	To maintain the favourable conservation	Surface water	Nutrient enrichment,	Little is known about the distribution

Vegetation 3260	condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Habitat area stable or increasing, subject to natural processes • No decline in habitat distribution, subject to natural processes • Maintain appropriate hydrological regimes including river flow • Maintain appropriate hydrological regimes – groundwater discharge • Maintain appropriate substratum particle size range, quantity and quality, subject to natural process • Maintain appropriate water quality to support the natural structure and functioning of the habitat • Vegetation composition: Typical species of the relevant habitat sub-type should be present and in good condition • The area of active floodplain at and upstream of the habitat should be maintained • Maintain the area and condition of fringing habitats necessary to support the habitat and its sub-types	pathway.	agricultural pollution	of the habitat and its sub-types in this SAC. Maintaining appropriate water quality to support the natural structure and functioning of the habitat. Potential 3260 habitat lies approximately 900m downstream. Potential impact if sediment gets washed into river.
Orchid-rich Calcareous Grassland* 6210	To maintain the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	Land/Air pathway	Overgrazing, supplementary feeding	Habitat occurs mainly as small areas and in association with other habitats in this SAC.

	in Lough Corrib SAC in owing list of attributes and targets: • Habitat area stable or increasing, subject to natural processes • No decline in habitat distribution, subject to natural processes • At least seven positive indicator species present, including two "high quality" species • Negative indicator species collectively not more than 20% cover, with cover by an individual species not more than 10% • Cover of non-native species not more than 1% • Cover of woody species (except certain listed species) and bracken (Pteridium aquilinum) not more than 5% cover • Broadleaf herb component of vegetation between 40% and 90% • At least 30% of sward between 5cm and 40cm tall • Litter cover not more than 25% • Not more than 10% bare Soil • Area showing signs of serious grazing or other disturbance less than 20m^2			As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.
Molinia Meadows 6410	To maintain the favourable conservation condition of Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) in Lough Corrib SAC, which is defined by the following list of attributes and targets:	Land/Air pathway	Overgrazing, afforestation, Drainage, Intensification of agricultural	Habitat not fully mapped for SAC. As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.

	• Habitat area stable or increasing subject to natural processes • No decline in habitat distribution, subject to natural processes • At least seven positive indicator species present, including one "high quality" species • Negative indicator species collectively not more than20% cover, with cover by an individual species not more than 10% • Cover of non-native species not more than 1% • Hair mosses (*Polytrichum* spp.) not more than 25% cover • Cover of woody species and bracken (Pteridium aquilinum) not more than5% • Broadleaf herb component of vegetation between 40% and 90% • At least 30% of sward between 10cm and 80cm tall • Litter cover not more than 25% • Not more than 10% bare Soil • Area showing signs of serious grazing or other disturbance less than 20m^2			
Raised Bog (Active)* 7110	To restore the favourable conservation condition of Active raised bogs* in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Restore the area of active raised bog to 78.8ha, subject to natural processes • Restore the distribution and variability of active raised bog across the SAC	Land/Air pathway	Drainage and afforestation of surrounding habitat	There are two raised bogs for which Active Raised Bog (ARB) has been selected in Lough Corrib SAC: Addergoole Bog and Lough Tee Bog. As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.

	• No decline in extent of high bog subject to the conservation requirements of the SAC. • Restore appropriate water levels throughout each site • Restore, where possible, appropriate high bog topography, flow directions and slopes. • Restore adequate transitional areas (including cut over) to support/protect the raised bog ecosystem and the services it provides • Restore 39.4ha of central ecotope/active flush/soaks/bog woodland as appropriate • Restore adequate cover of high quality microtopographical features • Restore adequate cover of bog moss (Sphagnum) species to ensure peat forming capacity • Restore, where appropriate, typical active raised bog flora • Restore, where appropriate, typical active raised bog fauna • Maintain features of local distinctiveness, subject to natural processes • Negative physical features absent or insignificant • Native negative indicator species at insignificant levels • Non-native invasive species at insignificant levels and not more than 1% cover • Air quality surrounding the bogs close to natural reference conditions. The total nitrogen deposition should not exceed 5kg N/ha/yr			

	• Water quality on the high bog and in transitional areas close to natural reference conditions			
Degraded Raised Bog 7120	The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Lough Corrib SAC	Land/Air pathway	Drainage and afforestation of surrounding habitat	As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.
Rhynchosporion Vegetation 7150	The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Lough Corrib SAC	Land/Air pathway	Drainage and afforestation of surrounding habitat	As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.
Cladium Fens* 7210	To maintain the favourable conservation condition of Calcareous fens with Cladium mariscus and species of the Caricion davallianae in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Habitat area stable or increasing, subject to natural processes • No decline in habitat distribution, subject to natural processes	Land/Air pathway	Hydrology Drainage	Has not been mapped for this SAC. As any potential habitat lies over 1km from project site there is no potential for impact.

	• Maintain appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat • Maintain appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat • Maintain active peat formation, where appropriate • Maintain appropriate water quality, particularly nutrient levels, to support the natural structure and functioning of the habitat • Maintain vegetation cover of typical species including brown mosses and vascular plants • Cover of non-native species less than 1% • Cover of scattered native trees and shrubs less than 10% • Cover of disturbed bare ground not more than 10%. Where tufa is present, disturbed bare ground not more than 1% • Areas showing signs of drainage as a result of drainage ditches or heavy trampling not more than 10% • No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat			
Petrifying Springs* 7220	To maintain the favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion)* in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Habitat area stable or increasing, subject to natural processes	Land/Air pathway	Pollution	Has not been mapped for this SAC but does not occur within project area. As any potential habitat lies over 1km from project site there is no potential for impact.

	• No decline in habitat distribution, subject to natural processes • Maintain appropriate hydrological regimes, e.g. water table height and water flow • No increase from baseline nitrate level and less than 10mg/l • No increase from baseline phosphate level and less than 15µg/l • At least three positive/high quality indicator species as listed in Lyons and Kelly (2016) and no loss from baseline number • Potentially negative indicator species should not be Dominant or Abundant; invasive species should be absent • Field layer sward height between 10cm and 50cm (except for bryophyte-dominated ground <10cm) • Trampling/dung: Cover should not be Dominant or Abundant			
Alkaline Fens 7230	To maintain the favourable conservation condition of Alkaline fens in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Habitat area stable or increasing, subject to natural processes • No decline in habitat distribution, subject to natural processes • Maintain soil nutrient status within natural range • Maintain active peat formation, where appropriate	Land/Air pathway	Pollution	Has not been mapped for this SAC but does not occur within site. As any potential habitat lies over 1km from project site there is no potential for impact.

	• Maintain appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat • Maintain appropriate water quality, particularly nutrient levels, to support the natural structure and functioning of the habitat • Maintain variety of vegetation communities, subject to natural processes • Number of brown moss species present at each monitoring stop is at least one • Number of positive vascular plant indicator species present at each monitoring stop is at least two for small-sedge flushes and at least three for black bog-rush (Schoenus nigricans) flush and bottle sedge (Carex rostrata) fen • Total cover of brown moss species and positive vascular plant indicator species at least 20% for small-sedge flushes and at least 75% cover for black bog-rush (Schoenus nigricans) flush and bottle sedge (Carex rostrata) fen • Total cover of negative indicator species less than 1% • Cover of non-native species less than 1% • Cover of scattered native trees and shrubs less than 10% • Total cover of soft rush (*Juncus effusus*) and common reed (*Phragmites australis*) less than 10% • Proportion of live leaves and/or flowering shoots of vascular plants that are more than 5cm above the ground surface should be at least 50%			

	• Cover of disturbed bare ground less than 10% • Area showing signs of drainage as a result of drainage ditches or heavy trampling less than 10% • Disturbed proportion of vegetation cover where tufa is present is less than 1% • No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat			
Limestone Pavement* 8240	To maintain the favourable conservation condition of Limestone pavements* in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Habitat area stable or increasing, subject to natural processes • No decline in habitat distribution, subject to natural processes. • Vegetation composition: At least seven positive indicator species present • Bryophyte cover at least 50% on wooded pavement • Collective cover of negative indicator species on exposed pavement not more than 1% • Cover of non-native species not more than 1% on exposed pavement; on wooded pavement not more than 10% with no regeneration • Scrub cover no more than 25% of exposed pavement • Bracken (*Pteridium aquilinum*) cover no more than 10% on exposed pavement	Land/Air pathway	Overgrazing Invasive species	As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.

	• Canopy cover on wooded pavement at least 30% • Sufficient quantity of dead wood on wooded pavement to provide habitat for saproxylic organisms • No evidence of grazing pressure on wooded pavement • Indicators of local distinctiveness are maintained			
Old Oak Woodlands 91A0	To maintain the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum in the British Isles in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Habitat area stable or increasing, subject to natural processes • No decline in habitat distribution. • Size of woodland area stable or increasing. Where topographically possible, "large"; woods at least 25ha in size and “small” woods at least 3ha in size • Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and well-developed herb layer • Woodland structure: Maintain diversity and extent of community types • Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy • At least 30-cubmetres-/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both	Land/Air pathway	Invasive species	Occurs mainly along shores of Lough Corrib. As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.

	categories should include stems greater than 40cm diameter • No decline in veteran trees • No decline in indicators of local distinctiveness • No decline in native tree cover - not less than 95% • A variety of typical native species present, depending on woodland type, including oak (*Quercus petraea*) and birch (*Betula pubescens*) • Negative indicator species, particularly non-native invasive species, absent or under control			
Bog Woodland* 91D0	To maintain the favourable conservation condition of Bog woodland* in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Habitat area stable or increasing, subject to natural processes. At least 1.22ha • No decline in habitat distribution, subject to natural processes. • Birch (*Betula pubescens*), bog moss (*Sphagnum*) species and at least five other indicator species present • Both native and non-native invasive species absent or under control. Total cover should be less than 10% • A minimum 30% cover of birch (*Betula pubescens*) with a median canopy height of 4m • Dwarf shrub cover not more than 50% • Ling (*Calluna vulgaris*) cover not more than 40%	Land/Air pathway	Invasive species	Occurs mainly along shores of Lough Corrib. As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.

	• Bryophyte cover at least 50%, with bog moss (*Sphagnum* spp.) cover at least 25% • Each tree size class present • Senescent or dead wood present			
Freshwater Pearl Mussel (*Margaritifera margaritifera* 1029	To restore the favourable conservation condition of Freshwater Pearl Mussel in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Distribution - Maintain at 9.1km • Restore Owenriff population to at least one million adult mussels • Restore to at least 20% of population no more than 65mm in length; and at least 5% of population no more than 30mm in length • No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution • No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution • Restore condition of suitable habitat • Restore water quality - macroinvertebrates: EQR greater than 0.90 (Q4-5 or Q5); phytobenthos: EQR greater than 0.93 • Restore substratum quality - filamentous algae: absent or trace (less than 5%); macrophytes: absent or trace (less than 5%) • Restore substratum quality - stable cobble and gravel substrate with very little fine material; no artificially elevated levels of fine	Surface water pathway. Land/Air pathway	Pollution, sedimentation	Widespread in the Owenriff catchment, found in the lower reaches of the Glengawbeg River, from Lough Agraffard to just upstream of the mouth of Lough Corrib in the Owenriff, and in the Derrygauna tributary. High water quality with very low nutrient concentrations important for this species. Potential for impact if water quality is impacted.

	sediment • Restore to no more than 20% decline from water column to 5cm depth in substrate • Restore appropriate hydrological regimes • Maintain sufficient juvenile salmonids to host glochidial larvae • Maintain the area and condition of fringing habitats necessary to support the population			
White-clawed Crayfish (*Austropotamobius pallipes*) 1092	To maintain the favourable conservation condition of White-clawed Crayfish in Lough Corrib SAC, which is defined by the following list of attributes and targets: • No reduction from baseline in distribution (rivers). • No reduction from baseline in distribution – Lough Corrib • Juveniles and/or females with eggs in all occupied tributaries and occupied parts of Lough Corrib • No alien crayfish species • No instances of disease • At least Q3-4 at all sites sampled by EPA • No decline in habitat heterogeneity or habitat quality	Surface water pathway. .	Water pollution, disturbance, poor substrate quality	The distribution of crayfish in Lough Corrib is uncertain. It occurs in three 1km squares in the northern section of the lower basin (M2341, M2342, M2941) and is probably more widely distributed. National biodiversity database records over 9km from site. Potential indirect impact if water quality is impacted.
Sea Lamprey (*Petromyzon marinus*) 1095	To restore the favourable conservation condition of Sea Lamprey in Lough Corrib SAC, which is defined by the following list of attributes and targets: Extent of Anadromy: Greater than 75% of main stem length of rivers accessible from estuary	Surface water pathway.	Water pollution	Records from lower section of River Corrib. Unlikely to be impact due to distance from site and intervening assimilation capacity of the lake.

	• At least three age/size groups present • Mean catchment juvenile density at least 1/m2 • No decline in extent and distribution of spawning beds • More than 50% of sample sites positive, with a minimum of four positive sites in a catchment, which are at least 5km apart			
Brook Lamprey (*Lampetra planeri*) 1096	To maintain the favourable conservation condition of Brook Lamprey in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Access to all watercourses down to first order streams • At least three age/size groups of brook/river lamprey present • Mean catchment ammocoete density of brook/river lamprey at least 5/m2 • No decline in extent and distribution of spawning beds • More than 50% of sample sites positive	Surface water pathway.	Water pollution	No records close to site. Potential indirect impact if water quality is impacted.
Atlantic Salmon (*Salmo salar*) 1106]	To maintain the favourable conservation condition of Atlantic Salmon in Lough Corrib SAC, which is defined by the following list of attributes and targets: • 100% of river channels down to second order accessible from estuary • Adult spawning fish: Conservation limit (CL) for each system consistently exceeded • Maintain or exceed 0+ fry mean catchment-	Surface water pathway. Small river lies approximately 140m from house development site. This river flows into	Pollution, sedimentation	Lough and rivers support salmon populations. Potential indirect impact if water quality is impacted.

	wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling • No significant decline in out-migrating smolt abundance • No decline in number and distribution of spawning redds due to anthropogenic causes • Water quality: At least Q4 at all sites sampled by EPA	Lough Corrib.		
Lesser Horseshoe Bat (*Rhinolophus hipposideros* 1303	To restore the favourable conservation condition of Lesser Horseshoe Bat in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Minimum number of 100 bats for summer roost (roost id. 217 in NPWS database) • No decline in Summer roost • No decline in number of auxillary roosts • No decline in extent of potential foraging habitat • No significant loss of linear features, within 2.5km of qualifying roosts. • No significant increase in artificial light intensity adjacent to named roost or along commuting routes within 2.5km of the roost	Land/Air pathway	Disturbance, destruction of roost sites	Closest records are within 1km^2 in which project site occurs. There will be no impact on foraging habitat or commuting routes. Therefore, there is no potential for impact.
Otter (*Lutra lutra*) 1355	To maintain the favourable conservation condition of Otter in Lough Corrib SAC, which is defined by the following list of attributes and targets: • No significant decline in distribution • No significant decline in extent of terrestrial habitat. Area mapped and calculated as 1,054	Surface water pathway.	Sediment or pollution run-off from proposed works to nearby waterbodies, disturbance, destruction of holts	Closest records within 400m of project site. Potential indirect impact if water quality is impacted. Unlikely that disturbance will be issue due to location of proposed project.

	ha along river banks/ lake shoreline/around ponds • No significant decline in extent of freshwater (river) habitat. Length mapped and calculated as 314.2km • No significant decline in extent of freshwater (lake) habitat. Area mapped and calculated as 4,178ha • No significant decline in couching sites and holts • No significant decline in fish biomass available • No significant increase in barriers to connectivity.			
Slender Green Feather-moss (*Drepanocladus vernicosus*) 1393 Note that *Drepanocladus vernicosus* has been reclassified as *Hamatocaulis vernicosu*	To maintain the favourable conservation condition of Slender Green Feather-moss (Shining Sickle-moss) in Lough Corrib SAC, which is defined by the following list of attributes and targets: No decline in distribution of populations, subject to natural processes. • No decline in population size, subject to natural processes • Mean percentage cover of slender green feather-moss (*Hamatocaulis vernicosus*) should be at least 45% • No decline in area of suitable habitat, subject to natural processes • Maintain suitable hydrological conditions • Mean percentage tree cover should be less than 15%	Land/Air pathway	Destruction to habitat	The known population of slender green feather-moss in Lough Corrib SAC occurs at NW of Gortachalla Lough in transition mire which is bounded to the west by acid bog. Closest records lie over 7km from site. No potential for impact.

	• Mean percentage shrub cover should be less than 20% • Mean percentage grass species cover should be less than 25% • Mean percentage bryophyte cover should be more than 50% • Mean percentage cover of *Calliergonella cuspidata* should be less than 15% • Mean vegetation height should not exceed 40cm			
Slender Naiad (*Najas flexilis*) 1833	To restore the favourable conservation condition of Slender Naiad in Lough Corrib SAC, which is defined by the following list of attributes and targets: • Restore the spatial extent of *Najas flexilis* within the lake, subject to natural processes. • Restore the depth range of *Najas flexilis* within the lake, subject to natural processes • Restore plant fitness, subject to natural processes • Restore the cover abundance of *Najas flexilis*, subject to natural processes • Restore species distribution to at least the north-western bay, subject to natural processes • Restore habitat extent, subject to natural processes • Maintain appropriate natural hydrological regime necessary to support the habitat for the species • Restore appropriate substratum type, extent	Surface water pathway.	Sediment or pollution run-off from proposed works to nearby waterbodies	*Najas flexilis* has been recorded on one occasion from one location in Lough Corrib. The record was in the north-western bay of the lake. This species is typically associated with high water quality. Potential indirect impacts on water quality

	and chemistry to support the population of the species • Restore appropriate water quality to support the population of the species • Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the population of *Najas flexilis*, subject to natural processes • Restore/maintain appropriate water colour to support the population of *Najas flexilis*. • Restore appropriate associated species and vegetation communities to support the population of *Najas flexilis*. • Maintain the area and condition of fringing habitats necessary to support the population of *Najas flexilis*			

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

Qualifying species and code *(potential receptors)*	**Conservation objectives**	**Pathway / Comment**	**Source of potential threats**	**Likelihood of significant**
Arctic Tern *Sterna paradisaea* A194	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Breeding evidence within 10km square (M15)	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur.
Black-headed gull *Chroicocephalus ridibundus* A179	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Breeding evidence within 10km square (M15)	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur.

Common Gull *Larus canus* A182	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Confirmed breeding evidence within 10km square (M15)	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur.
Common Scoter *Melanitta nigra* A065	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Possible breeding in 10km square from older breeding atlas (1988-91)	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur
Common Tern *Sterna hirundo* A193	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Possible breeding evidence in 10km square (M15)	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur

Coot *Fulica atra* A125	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Winter records and possible breeding evidence within 10km square (M15)	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur.
Gadwall *Anas Strepera* A051	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Winter records from adjacent 10km square (M14)	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur.
Golden Plover *Pluvialis apricaria* A140	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Winter records from adjacent 10km square (M14)	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur

Greenland White fronted Goose *Anser albifrons flavirostris* A395	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways No records in 10km square or adjacent squares	Sediment or pollution run-off from proposed works to nearby waterbodies Noise disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality unlikely
Hen Harrier *Circus cyaneus* A082	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Probable breeding records in 10km square (M24) from 1988-91 Atlas	Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact unlikely.
Pochard *Aythya ferina* A059	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Winter records within 10km square (M15) from 1981-94 Wintering bird atlas	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur

Shoveler *Anas clypeata* A056	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Winter from adjacent 10km square (M14)	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur
Tufted Duck *Aythya fuligula* A061	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways Winter records and breeding within 10km square (M15)	Sediment or pollution run-off from proposed works to nearby waterbodies Disturbance	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance from project area to SPA. Indirect impact due to impact on water quality may occur
Wetland and Waterbirds [A999]	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for Lough Corrib SPA.	Water and land/air pathways	Sediment or pollution run-off from proposed works to nearby waterbodies	Project area lies just over 800m from SPA. Potential impact

There are fifteen natura 2000 sites within a 15km radius of the proposed project, twelve SACs and three SPAs. There are three additional Natura 2000 sites just outside the 15km zone and two more sites hydrologically connected to the site. The proposed project is not situated within any of the SACs or SPAs, therefore, no direct impacts will occur through habitat loss or fragmentation of habitats or species. The site does lie within 833m of the shore of Lough Corrib. Lough Corrib is classed as 'under review' in the Lake Waterbodies Risk assessment (WFD).

While numerous qualifying species are recorded for the SACs and SPAs there are no existing records of them occurring within the site boundary. The work is far enough from the Lough Corrib SPA so there is no potential for disturbance of bird species listed as Special Conservation Interests for the SPA.

The nearest Lesser Horseshoe bat record is 200m from site. As there will be no impact on foraging or breeding habitat no impacts are envisaged. The nearest otter records are 400m downstream of the site. The project will not involve any alteration of the lakeshore or river-banks so no direct impacts are envisaged. Disturbance is not likely to be issues as location is urban.

After construction, there should be no detrimental impact on water quality.

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 8 below lists other proposed plans accesses through the Mayo and Galway County Council planning database.

Table 6: **Planning application near proposed development site** (Myplan.ie accessed on 3rd February 2021)

Planning Application Number	**Description**	**Is there a risk of significant impact or in combination effects from the plans**
20746 Nymphsfield, Cong.	Revisions to previously approved 10/546. Development will consist of minor plan and elevational alterations and increased floor area from 245.8sqm to 297.1sqm along with all associated site works to plot no. 10 - house type 1 from originally granted 10/546 and extension of duration 10/5460.	Planners Report states due to nature of project (revision to plan previously granted permission further assessment is not required.
20492 Nymphsfield, Cong.	Change of house type from previously approved 10/546 and associated extension of duration 10/5460, together with all associated site works. Change of house design	Small scale change. No impact.

	relates to house no. 12 only known as house type 1 in p10/546.	
20631 Nymphsfield, Cong.	Revisions to previously approved p10/546 and extension of duration p10/5460. minor plan and elevational alterations and increased floor area from 245.8sqm to 297.1sqm along with all associated site works plot no. 10 house type 1 from originally granted under p10/546	Small scale change. No impact.
201042 Nymphsfield, Cong	Alterations/revisions to previously granted p10/546 & p10/5460 to include; relocation of house no. 4 (house type 2) from previously granted location; replacement of creche/office building with 8 no. apartments (gfa 1292m2); enlarged plot sizes to house no's 1, 2, 3,7, 8 & 11; relocation of house no's 1 & 7 on enlarged plot sizes; change of house types for house no's 3, 8 & 11 to house type 2; change of house type for house no. 2 to house type 1; revised/relocated garages to house no's 1,2,4.7,8 & 11; relocated garage to house no. 2; revision to roads/paths to accommodate said alterations; 2. omission of playground, 3. 8 no garages to service said apartments, 4. a communal bins compound to service said apartments, together with all associated site works.	Small scale change. No impact.
20298 Cooslughoga, Cong.	Construct dwelling house with connection to existing services.	Planners report state AA is required but is not requested in FI
2056 Strandhill, Lisloughrey, Cong.	Erect a total of 44 flood lights over the training pitch and warm up area and walkway within the grounds.	Pending. Subject to planning permission
2037 Roach pond, Lisloughrey, Cong.	Demolition of existing wooden pier and reconstruction of a new replacement cast-in-situ reinforced concrete pier, together with all associated site works.	Planners report, plan and construction must follow guidelines/mitigation measures as stated in revised NIS. No impact
201873 Breandrim.	Construction of a new dwelling house, garage, sewage treatment unit and percolation area. Gross floor space of proposed works: 310 sqm.	Pending. Subject to planning permission
20872 Ardaun West	To construct a private dwelling house, proprietary effluent treatment system, percolation area and domestic garage along with all	Pending. Subject to planning permission

	associated services. Gross floor space of proposed works: 242.6 sqm.	
201674 Carrowbaun	For the construction of a new 2 storey dwelling house, the construction of a new proprietary effluent treatment system and percolation area and all associated site works. Gross floor space of proposed works: 198.07sqm. Extension of duration to previously granted planning 15912.	Planning report says screening carried out under original planning.
20487 Dooroy.	For development consisting of alterations to existing house with provision of new staircase structure to the rear of the house and the construction of a new two storey extension to the side of the house. Gross floor space of proposed works: 101.32 sqm. Conditional,	Planners report state AA not required.

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 7: Other plans and possible impacts

Plan	Summary objectives	Possible impacts from plans	Is there a risk of significant in combination effects from the plans
Mayo County Development Plan 2014-2020 Volume 1, 2014	1: To promote rural sustainability by encouraging more people to live in Rural Areas through the promotion of sustainable rural communities and economic development. 2: To attract investment and people into the County. 3: To ensure a sustainable economy. 4: To adopt 'green principles' that promote a high quality of life. 5: To create attractive settlements that promote a high quality of life. 6: To maintain and provide	No negative impacts envisaged	Mayo County Development Plan 2014-2020 Volume 1, 2014

	additional services for our citizens, investors and visitors. 7: To protect and enhance our natural environment. 8: To offer visitors, from Ireland and overseas, a range of high quality experiences.		
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

3.4 Stage 1 Screening Conclusion and Statement

The Screening process identified fifteen Natura 2000 sites within a 15km radius of the proposed project, twelve SACs and three SPAs. The proposed project is not situated within any of the SACs or SPAs. See also Screening Matrix in Appendix 1.

The screening exercise concludes that potential significant effects on the Lough Corrib SAC and Lough Corrib SPA are likely or uncertain. Therefore, the project must proceed to Stage 2 (AA).

See also Screening Matrix in Appendix 1.

SECTION 2

4.0 Stage 2: Natura Impact Statement to inform Appropriate Assessment

4.1 Introduction

At Stage 2, 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 the Lough Corrib SPA and the Lough Corrib SAC to be affected by the proposed project (see Table 1 and Section 5.1 above), due to the potential for sediment run-off from the site into the Cong Canal and from there to Lough Corrib and potential indirect impact on water quality on birds. Therefore, a Stage 2 Appropriate Assessment is required.

4.2 Conservation Objectives of the Lough Corrib SAC (00297) and Lough Corrib SPA (004042)

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.

See also Tables 4 and 5 above for detailed conservation objectives.

4.3 Impact Prediction

It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the new paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small possibility that if work is carried out during periods of heavy rainfall, there could potentially be silt / sand / sediment run-off from the site into the nearby watercourse via the existing slipway. Similarly, there could be an accidental discharge of polluting materials (e.g. fuel or oil from vehicles etc.) into the watercourse. The water course is connected via the Cong Canal to Lough Corrib. The site lies approximately 900 m upstream of the Lough. Lough Corrib is classed as 'under review' in the Lake Waterbodies Risk assessment (WFD).

Habitat impacts could include adverse effects on water quality. Species (aquatic species and birds) impacts could include indirect impact, for example, that which could be potentially caused by pollution and/or sedimentation of the watercourses. During the construction phase of the project, construction activity has the potential to increase runoff into nearby watercourse. Therefore, mitigation measures will be required to reduce any threat to water quality.

The work is far enough from the Lough Corrib SPA so there is no potential for disturbance of bird species listed as Special Conservation Interests for the SPA.

The nearest Lesser Horseshoe bat record is 200m from site. As there will be no impact on foraging or breeding habitat no impacts are envisaged.

The nearest otter records are 400m downstream of the site. The project will not involve any alteration of the lakeshore or riverbanks so no direct impacts are envisaged. Disturbance is not likely to be issues as location is within a small town.

After construction, there should be no detrimental impact on water quality.

See also Tables below 8 and 9 below.

Table 8: Natura 2000 site subject to Stage 2 Appropriate Assessment - Lough Corrib SAC qualifying interests - assessment of potential impacts

Qualifying Interests / Habitats **(* denotes a priority habitat)**	**Assessment**	**Potential threats**	**If the potential for an adverse effect on this QI / SCI exists, are mitigation required to prevent impact**
Oligotrophic Waters containing very few minerals 3110	The distribution of lake habitat 3110 in Lough Corrib SAC has not been fully surveyed. As a nutrient-poor habitat, oligotrophic and Water Framework Directive (WFD) 'high' status targets apply. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic habitat, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Oligotrophic to Mesotrophic Standing Waters 3130	The full distribution and characteristics of lake habitat 3130 in Lough Corrib SAC have not been mapped. Lake habitat 3130 is associated with high water quality, and naturally low algal growth. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane.	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic habitat, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.

	There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.		
Hard Water Lakes 3140	The hard water lake habitat (3140) is found in Lough Corrib, notably the southern basin. Its exact distribution and area has not been mapped however, and it is likely to also extend along the eastern side of the northern basin. Lake habitat 3140 is typically associated with high water quality, including low dissolved nutrients. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic habitat, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Floating River Vegetation 3260	Little is known about the distribution of the habitat and its sub-types in this SAC. Maintaining appropriate water quality to support the natural structure and functioning of the habitat. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic habitat, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.

	membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.		
Orchid-rich Calcareous Grassland* 6210	Habitat occurs mainly as small areas and in association with other habitats in this SAC. Terrestrial habitat will not be impacted by development which will occur only within project site boundary.	Due to distance to habitat no threats envisaged	No mitigation required as there is no possibility of significant effect.
Molinia Meadows 6410	Habitat not fully mapped for SAC. As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.	Due to distance to habitat no threats envisaged	No mitigation required as there is no possibility of significant effect.
Raised Bog (Active)* 7110	There are two raised bogs for which Active Raised Bog (ARB) has been selected in Lough Corrib SAC: Addergoole Bog and Lough Tee Bog. As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.	Due to distance to habitat no threats envisaged	No mitigation required as there is no possibility of significant effect.
Degraded Raised Bog 7120	As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.		No mitigation required as there is no possibility of significant effect.
Rhynchosporion Vegetation 7150	As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.		No mitigation required as there is no possibility of significant effect.

Cladium Fens* 7210	Has not been mapped for this SAC but does not occur within site. As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.		No mitigation required as there is no possibility of significant effect.
Petrifying Springs* 7220	Has not been mapped for this SAC but does not occur within site. As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.		No mitigation required as there is no possibility of significant effect.
Alkaline Fens 7230	Has not been mapped for this SAC but does not occur within site. As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.		No mitigation required as there is no possibility of significant effect.
Limestone Pavement* 8240	As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.		No mitigation required as there is no possibility of significant effect.
Old Oak Woodlands 91A0	As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.		No mitigation required as there is no possibility of significant effect.
Bog Woodland* 91D0	As habitat is terrestrial in nature and any potential habitat lies over 1km from project site there is no potential for impact.		No mitigation required as there is no possibility of significant effect.
Freshwater Pearl Mussel (*Margaritifera margaritifera* 1029	Widespread in the Owenriff catchment, found in the lower reaches of the Glengawbeg River, from Lough Agraffard to just upstream of the mouth of Lough Corrib in the Owenriff, and also in the Derrygauna tributary. Lie over 6km from site. Limited potential for impact.	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic habitat, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.

White-clawed Crayfish (*Austropotamobius pallipes*) 1092	The distribution of crayfish in Lough Corrib is uncertain. It is probably widely distributed. National biodiversity database records over 9km from site. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic habitat, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Sea Lamprey (*Petromyzon marinus*) 1095	Records from lower section of River Corrib. Limited potential for impact. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic habitat, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Brook Lamprey (*Lampetra planeri*) 1096	No records close to site. It will be necessary to excavate to a depth of	• Release of sediment to receiving waters.	To protect this aquatic habitat, mitigation measures are required in order to ensure

	approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	• Release of chemicals (fuels, hydraulic oils) into watercourses.	no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Atlantic Salmon (*Salmo salar*) 1106]	Lough and rivers support salmon populations. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic habitat, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Lesser Horseshoe Bat (*Rhinolophus hipposideros* 1303	Closest records are within 1km^2 in which project site occurs. There will be no impact on foraging habitat or commuting routes.	None envisaged.	No mitigation required as there is no possibility of significant effect.
Otter (*Lutra lutra*) 1355	Closest records within 400m of project site. Potential indirect impact if water quality is impacted. Disturbance will be not be an issue as work being carried out at already busy location.	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic habitat, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving

			area during construction works will prevent any sediment run-off into the water.
Slender Green Feather-moss (*Drepanocladus vernicosus*) 1393	The known population of slender green feather-moss in Lough Corrib SAC occurs at NW of Gortachalla Lough in transition mire which is bounded to the west by acid bog. Closest records lie over 7km from site.	None envisaged	No mitigation required as there is no possibility of significant effect.
Slender Naiad (*Najas flexilis*) 1833	*Najas flexilis* has been recorded on one occasion from one location in Lough Corrib. The record was in the north-western bay of the lake. This species is typically associated with high water quality. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic habitat, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.

Table 9: Natura 2000 site subject to Stage 2 Appropriate Assessment - Lough Corrib SPA qualifying interests - assessment of potential impacts

Qualifying Interests **Birds**	**Assessment**	**Potential threats**	**If the potential for an adverse effect on this QI / SCI exists, are mitigation required to prevent impact**
Arctic Tern *Sterna paradisaea* A194 Breeding evidence within 10km square (M15)	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	Indirect impact due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Black-headed gull *Chroicocephalus ridibundus* A179 Breeding evidence within 10km square (M15)	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to	Indirect impact due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.

	sediment run-off from the site into the nearby watercourse.		
Common Gull *Larus canus* A182 Confirmed breeding evidence within 10km square (M15)	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	Indirect impact due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Common Scoter *Melanitta nigra* A065 Possible breeding in 10km square from older breeding atlas (1988-91)	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	Indirect impact due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.

Common Tern *Sterna hirundo* A193 Possible breeding evidence in 10km square (M15)	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	Indirect impact due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Coot *Fulica atra* A125 Winter records and possible breeding evidence within 10km square (M15)	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	Indirect impact due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Gadwall *Anas Strepera* A051	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA.	Indirect impact due to impact on water quality may occur.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters.

Winter records from adjacent 10km square (M14)	It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	• Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Golden Plover *Pluvialis apricaria* A140 Winter records from adjacent 10km square (M14)	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	Indirect impact due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Greenland White fronted Goose *Anser albifrons flavirostris* A395 No records in 10km square or adjacent squares	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA.	Impacts unlikely	

Hen Harrier *Circus cyaneus* A082 Probable breeding records in 10km square (M24) from 1988-91 Atlas	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA.		
Pochard *Aythya ferina* A059 Winter records within 10km square (M15) from 1981-94 Wintering bird atlas	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	Indirect impact due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Shoveler *Anas clypeata* A056 Winter from adjacent 10km square (M14)	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential	Indirect impact due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels,	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.

	for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	hydraulic oils) into watercourses.	
Tufted Duck *Aythya fuligula* A061 Winter records and breeding within 10km square (M15)	Project area lies just over 800m from SPA. Disturbance will not be factor due to distance (over 800m) from project area to SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	Indirect impact due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.
Wetland and Waterbirds [A999]	Project area lies just over 800m from SPA. It will be necessary to excavate to a depth of approximately 250mm below existing ground level as the paving needs to be laid on a new build-up of compacted sand, hardcore, and geotextile membrane. There is a small potential for impact if work is carried out during periods of heavy rainfall, which could potentially lead to sediment run-off from the site into the nearby watercourse.	Direct and indirect impacts due to impact on water quality may occur. • Release of sediment to receiving waters. • Release of chemicals (fuels, hydraulic oils) into watercourses.	To protect this aquatic species, mitigation measures are required in order to ensure no release of silt/sediment or chemicals to receiving waters. A silt-fence and or straw bales placed between the slipway and the new paving area during construction works will prevent any sediment run-off into the water.

4.4 Measures to Mitigate Potential Adverse Impacts

Mitigation refers to all works required to comply with legislation during development within protected areas or on sites occupied by protected species. Generally, there are two elements to this process:

- Mitigation - refers to practices, which reduce or remove damage.
- Compensation – which refers to works, which offset the damage caused by the development.

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, including that relating to invasive species.
- 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.

4.4.1 Habitat Loss

No area of habitat will be lost from Natura 2000 sites, so no mitigation is proposed.

4.4.2 Fragmentation

No direct mitigation is proposed as no fragmentation of Natura 2000 sites will occur.

4.4.3 Disturbance

Birds of qualifying interest will not be impacted as there is no suitable nesting habitat on the project site and the site is over 800m from the Lough Corrib SPA, the impact of disturbance will not be significant. Disturbance to otters will not be significant. Once complete the project should cause no disturbance to the protected qualifying species.

4.4.4 Species impact

No direct mitigation is proposed as no species will suffer significant direct impact due to the proposed project. For mitigation for potential indirect impact due to water quality see 4.4.6 below.

4.4.5 Water Resource

No direct mitigation is proposed as water resource will not be impacted.

4.4.6 Water Quality

Caution is advised during construction to prevent the discharge of polluting materials (e.g. fuel or oil from vehicles etc.) and the mobilisation of silts and sediments into watercourses.

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

Construction site setup

Sediment control measures

During construction, the installation of a silt fence is recommended (see details and layout map in Appendix 4) to prevent any silt running down the slipway into the adjacent water and from there into the Cong Canal and into the lake.

Soil movement on site

Ground works involving soil movement should not occur during heavy rainfall.

Concrete usage

In addition, standard good building practices should always be followed with extra care given to following:

- Concrete usage should be monitored carefully to ensure no accidental discharge.

Hydrocarbon use

Hydrocarbon use (e.g. fuel) during construction may lead to potential pollution of adjacent water source. Examples of potential threats include spillages during re-fuelling operations, leaks in poorly maintained plant and machinery.

- Re-fuelling and lubrication of plant should not occur within 50m of the water. 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.

Site decommissioning

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

- Any contaminated materials should be removed from the site and disposed of in the appropriate manner.
- No construction materials, plant or machinery should be left on site following completion of works.

4.4.7 Visual Impact

No direct mitigation is proposed as the development will be no visual impact on the Natura 2000 site.

4.5 Conclusions

Screening for Appropriate Assessment of the proposed development has been carried out. Potential impacts to the integrity of the Natura 2000, Lough Corrib SPA and Lough Corrib SAC were highlighted. These were namely potential impact on water quality from sediment run-off and potential impact on habitats and species.

The risks to the safeguarding and integrity of the qualifying interests and conservation objectives of the Natura 2000 site have been addressed by the inclusion of mitigation measures (see 4.5 above) that will reduce and eliminate the potential impacts.

It is therefore considered that with the implementation of the mitigation measures outlined above, the proposed development will not affect the integrity of the Natura 2000 network.

5.0 References

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6.0 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 that potential significant effects on Lough Corrib SPA and SAC are likely or uncertain if sediment or pollution accidentally enters water adjacent to project site.
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 to the integrity of the Lough Corrib SPA and SAC. This was the potential to impact water quality.
	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 sites are the Lough Corrib SPA and SAC which lie just over 800 m from the site. There are thirteen 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.
	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 Disturbance will be minimal and only caused by noise during the construction phase of project. The work is far enough away from the SACs and SPAs, and the work is of short enough duration not to have an adverse impact on qualifying species.
	Habitat or species fragmentation

	None
	Reduction in species density None for qualifying species.
	Changes in key conservation indicators Unlikely
	Climate change Minimal 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 once mitigations measures outlined in NIS are implemented
Explain why these effects are not considered significant.	There are fifteen Natura 2000 sites within a 15km radius of the proposed project, twelve SACs and three SPAs. The proposed project is not situated within any of the SACs or SPAs, therefore, no direct impacts will occur through habitat loss or fragmentation of habitats or species. Disturbance will be minimal and only caused during the construction phase of the project. Lough Corrib lies approximately 830m from the site, so sediment run off to lake is unlikely but possible, if precautionary measures not taken (i.e. installation of silt fence). The proposed project will have no visual impact on the Natura 2000 sites.
List of agencies consulted and responses, if applicable	-

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/GalwayCC/searchexact 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 – Biodiversity Records

Table 10: National Biodiversity Record Centre showing sample records in vicinity of site

Species	Date	Grid Reference	Distance to site (km)	Database
Lesser Horseshoe Bat *(Rhinolophus hipposideros)*	2010	M146556*	0.2	National Lesser Horseshoe Bat Database
Freshwater White-clawed Crayfish (*Austropotamobius pallipes*)	2015	M168648	9.58	River Biologists' Database (EPA)
Otter *(Lutra lutra)*	2010	M147551	0.4	Atlas of Mammals in Ireland 2010-2015
Varnished Hook-moss (*Hamatocaulis vernicosus*)	2009	M062630**	11.4	Bryophytes of Ireland

* Roost not disclosed but within 1km square. Many records from area.
** Western shore of Lough Mask, upstream

Table 11: National Biodiversity Record Centre showing sample bird records in vicinity of site

Species	Date of record	Within 10km^2	Grid Reference	Data Set
Arctic Tern *Sterna paradisaea* A194	16/6/2000	Yes Confirmed breeding evidence	M15	Bird Atlas 2007 - 2011
Black-headed gull *Chroicocephalus ridibundus* A179	2007-2011	Yes Possible breeding evidence	M15	Bird Atlas 2007 - 2011
Common Gull *Larus canus* A182	2007-2011	Yes Confirmed breeding evidence	M15	Bird Atlas 2007 - 2011
Common Scoter *Melanitta nigra* A065	1988-91	Yes Possible breeding evidence	M15	2nd Atlas of Breeding Bird 1988-91
Common Tern *Sterna hirundo* A193	2007-2011	Yes Possible breeding evidence	M15	Bird Atlas 2007 - 2011
Coot *Fulica atra* A125	2007-2011	Yes Winter and possible breeding evidence	M15	Bird Atlas 2007 - 2011
Gadwall *Anas Strepera* A051	2007-2011	Yes Winter records from adjacent 10km square	M14	Bird Atlas 2007 - 2011

Golden Plover *Pluvialis apricaria* A140	2007-2011	Yes Winter records from adjacent 10km square	M14	Bird Atlas 2007 - 2011
Greenland White fronted Goose *Anser albifrons flavirostris* A395	2007-2011	Yes Winter records from adjacent 10km square	M24	Bird Atlas 2007 - 2011
Hen Harrier *Circus cyaneus* A082	1988-91	Yes Probable breeding records in adjacent 10km square	M24	2nd Atlas of Breeding Bird 1988-91
Pochard *Aythya ferina* A059	1981-94	Yes Winter records from 10km square	M15	Winter Bird Atlas 1981-94
Shoveler *Anas clypeata* A056	2007-2011	Yes Winter records from adjacent 10km square	M14	Bird Atlas 2007 - 2011
Tufted Duck *Aythya fuligula* A061	2007-2011	Yes Winter and breeding evidence	M15	Bird Atlas 2007 - 2011

Appendix 3 - SITE SYNOPSIS - Lough Corrib SPA and Lough Corrib SAC

SITE NAME: LOUGH CORRIB SPA
SITE CODE: 004042

Lough Corrib is the largest lake in the country and is located, for the most part, in County Galway, with a small section in the north extending into County Mayo. The lake can be divided into two parts: a relatively shallow basin in the south, which is underlain by Carboniferous limestone, and a larger, deeper basin to the north, which is underlain by more acidic granite, schists, shales and sandstones. The main inflowing rivers are the Black, Clare, Dooghta, Cregg, Owenriff and the channel from Lough Mask. The main outflowing river is the Corrib, which reaches the sea at Galway City. The shallow, lime-rich waters of the southern basin of the lake support one of the most extensive beds of Stoneworts (Charophytes) in Ireland. These Chara beds are a very important source of food for waterfowl. In contrast, the northern basin contains more oligotrophic and acidic waters. Large areas of reedswamp vegetation, dominated by varying mixtures of Common Reed (*Phragmites australis*) and Common Club-rush (*Scirpus lacustris*) occur around the margins of the lake.

The lake has numerous islands, which range from relatively bare rocky islets to larger islands with grassland or woodland. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Greenland White-fronted Goose, Gadwall, Shoveler, Pochard, Tufted Duck, Common Scoter, Hen Harrier, Coot, Golden Plover, Black-Headed Gull, Common Gull, Common Tern and Arctic Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetlands & Waterbirds.

Lough Corrib is an internationally important site that regularly supports in excess of 20,000 wintering waterbirds including an internationally important population of wintering Pochard (10,107) – except where indicated all figures are five year mean peaks for the period 1995/96 to 1999/2000. The site also supports nationally important populations of wintering Greenland White-fronted Goose (160 - five year mean peak for the period 1994/95 to 1998/99), Gadwall (48), Shoveler (90), Tufted Duck (5,486), Coot (14,426) and Golden Plover (1,727). Other species which occur include Mute Swan (182), Whooper Swan (35), Wigeon (528), Teal (74), Mallard (155), Goldeneye (74), Lapwing (2,424) and Curlew (114). In winter nationally important numbers of Hen Harrier (8 - four year mean peak count between 2006 and 2009) also utilise the site as a communal roost.

Lough Corrib is also a traditional breeding site for gulls and terns, with various islands being used for nesting each year. There are important colonies of Common Tern (37 pairs in 1995) and Arctic Tern (60 pairs in 1995). The site supports substantial colonies of Black-headed Gull (431 pairs in 2000) and Common Gull (186 pairs in 2000), these representing 3% and 11% of the respective all-Ireland totals. Small numbers of Lesser Black-backed Gull, Great Black-backed Gull and Herring Gull have also been recorded breeding within the site. The site supports approximately half of the national population of nesting Common Scoter (30 pairs in 1995); Lough Corrib was colonised by this rare, Red Data Book species only as recently as the late1970s/early1980s. Lough Corrib SPA is an internationally important site which supports in excess of 20,000 wintering waterbirds, including a population of Pochard that is, itself, of international importance. A further six species of wintering waterfowl have populations of national importance. The site also contains a nationally important communal roost site for Hen Harrier. Lough Corrib is the most important site in the country for breeding Common Scoter. Its populations of breeding gulls and terns are also notable, with nationally important numbers of Black-headed Gull, Common Gull, Common Tern and Arctic Tern occurring. It is of note that several species which regularly occur are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Greenland White-fronted Goose, Hen Harrier, Golden Plover, Common Tern and Arctic Tern. Lough Corrib is a Ramsar Convention site.

Site Name: Lough Corrib SAC
Site Code: 000297

Lough Corrib is situated to the north of Galway city and is the second largest lake in Ireland, with an area of approximately 18,240 ha (the entire site is 20,556 ha). The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south, and a larger, deeper basin, underlain by more acidic granite, schists, shales and sandstones to the north. The surrounding lands to the south and east are mostly pastoral farmland, while bog and heath predominate to the west and north. A number of rivers are included within the cSAC as they are important for Atlantic Salmon. These rivers include the Clare, Grange, Abbert, Sinking, Dalgan and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen and Owenriff to the west. In addition to the rivers and lake basin, adjoining areas of conservation interest, including raised bog, woodland, grassland and limestone pavement, have been incorporated into the site.

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):

[3110] Oligotrophic Waters containing very few minerals
[3130] Oligotrophic to Mesotrophic Standing Waters
[3140] Hard Water Lakes
[3260] Floating River Vegetation
[6210] Orchid-r ich Calcareous Grassland*
[6410] Molinia Meadows
[7110] Raised Bog (Active)*
[7120] Degraded Raised Bog
[7150] Rhynchosporion Vegetation
[7210] Cladium Fens*[7220] Petrifying Springs*
[7230] Alkaline Fens
[8240] Limestone Pavement*
[91A0] Old Oak Woodlands
[91D0] Bog Woodland*
[1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*)
[1092] White-clawed Crayfish (*Austropotamobius pallipes*)
[1095] Sea Lamprey (*Petromyzon marinus*)
[1096] Brook Lamprey (*Lampetra planeri*)
[1106] Atlantic Salmon (*Salmo salar*)
[1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*)
[1355] Otter (*Lutra lutra*)
[1393] Slender Green Feather-moss (*Drepanocladus vernicosus*)
[1833] Slender Naiad (*Najas flexilis*)

The shallow, lime-rich waters of the southern basin of Lough Corrib support one of the most extensive beds of stoneworts (Charophytes) in Ireland, with species such as *Chara aspera*, *C. hispida, C. delicatula, C. contraria* and *C. desmacantha* mixed with submerged pondweeds (*Potamogeton perfoliatus, P. gramineus* and *P. lucens*), Shoreweed (*Littorella uniflora*) and Water Lobelia (*Lobelia dortmanna*). These Charabeds are an important source of food for waterfowl. In contrast, the northern basin contains more oligotrophic and acidic waters, without Chara species, but with Shoreweed, Water Lobelia, Pipewort (*Eriocaulon aquaticum*), Quillwort (*Isoetes lacustris*), Alternate Water-milfoil (*Myriophyllum alternifolium*) and Slender Naiad (*Najas flexilis*). The last-named is listed under the Flora (Protection) Order, 2015, and is an Annex II species under the E.U. Habitats Directive

Large areas of reedswamp vegetation, dominated by varying mixtures of Common Reed (*Phragmites*

australis) and Common Club-rush (*Scirpus lacustris*), occur around the margins of the lake. Reedswamp usually grades into species-rich marsh vegetation characterised by Slender Sedge (*Carex lasiocarpa*), Water Mint (*Mentha aquatica*), Water Horsetail (*Equisetum fluviatile*) and Bogbean (*Menyanthes trifoliata*). Of particular note are the extensive beds of Great Fen-sedge (*Cladium mariscus*) that have developed over the marly peat deposits in sheltered bays, particularly in the south-east corner of the lake. Alkaline fen vegetation is more widespread around the lake margins and includes, amongst the typically diverse range of plants, the Slender Cottongrass (*Eriophorum gracile*), a species protected under the Flora (Protection) Order, 2015. Wet meadows dominated by Purple Moor-grass (*Molinia caerulea*) occur in seasonally flooded areas close to the lake shore. These support species such as Sharp-flowered Rush (*Juncus acutiflorus*), Jointed Rush (*J. articulatus*), Carnation Sedge (*Carex panicea*), Devil's-bit Scabious (*Succisa pratensis*), Creeping Bent (*Agrostis stolonifera*) and Tormentil (*Potentilla erecta*), amongst others.

This large site contains four discrete raised bog areas and is selected for active raised bog, degraded raised bog, Rhynchosporion and bog woodland. Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (Sphagnum spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, Sphagnum lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), sundews (*Drosera spp.),* Deergrass (*Scirpus cespitosus*) and Carnation Sedge.

At Addergoole, on the eastern shores of Lough Corrib, there is an important area of western raised bog. This bog area is one of the most westerly, relatively intact raised bogs in the country. There are also other substantial areas of raised bog along various tributaries of the Corrib in east Co. Galway, namely Slieve Bog, Lough Tee Bog and Killaclogher bog. The active parts of these bogs mostly correspond to the wettest areas, where there are well-developed surface features with hummocks, lawns and pools. It is in such areas that Rhynchosporion vegetation is best represented. The dominant species is the aquatic bog moss *Sphagnum cuspidatum*, which is usually accompanied by Bogbean, White Beak-sedge, Bog Asphodel, Common Cottongrass (*Eriophorum angustifolium*), Bog Sedge (*Carex limosa*) and Great Sundew (*Drosera anglica*). Brown Beak-sedge, a locally rare plant of wet bog pools, has been recorded from a number of the bog areas within the site. At Addergoole a substantial bog lake or soak occurs and this is infilling with large rafts of Rhynchosporion vegetation at present. This area is associated with an important area of wet bog woodland dominated by Downy Birch (*Betula pubescens*).

The largest part of the uncut high bog comprises degraded raised bog. Degraded bog is dominated by a raised bog flora which tends to be rather species-poor because of disturbance and/or drying-out. The most conspicuous vascular plant species are usually Carnation Sedge, Heather(*Calluna vulgaris*), Cottongrasses, Cross-leaved Heath(*Erica tetralix*), Bog Asphodel and Deergrass. Bog-rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*), two species indicative of raised bog habitat, are frequent on both degraded and active areas of raised bog. Sphagnumcover is generally low within degraded areas due to a combination of drying-out and frequent burning.

Limestone pavement occurs along much of the shoreline in the lower Corrib basin, and supports a rich and diverse flora, including Herb-Robert (*Geranium robertianum*), Bloody Crane's-bill (*G. sanguineum*), Carline Thistle (*Carlina vulgaris*), Spring Gentian (*Gentiana verna*), Wild Thyme (*Thymus praecox*), Rustyback (*Ceterach officinarum*), Wood Sage (*Teucrium scorodonia*), Slender St. John's-wort (*Hypericum pulchrum*), Quaking-grass (*Briza media*) and Blue Moor-grass (*Sesleria albicans*). Areas of Hazel (*Corylus avellana*) scrub occur in association with exposed limestone pavement and these include species such as Hawthorn (*Crataegus monogyna*), Buckthorn (*Rhamnus catharticus*), Spindle (*Euonymus europaeus*), with occasional Juniper (*Juniperus communis*). Three Red Data Book species

are also found in association with limestone scrub - Alder Buckthorn (*Frangula alnus*), Shrubby Cinquefoil (*Potentilla fruticosa*) and Wood Bitter-vetch (*Vicia orobus*), the latter is also protected under the Flora (Protection) Order, 2015.

Open areas of orchid-rich calcareous grassland are also found in association with the limestone exposures. These can support a typically rich vegetation, including many orchids such as Pyramidal Orchid (*Anacamptis pyramidalis*), Common Spotted-orchid (*Dactylorhiza fuchsii*), Early-purple Orchid (*Orchis mascula*), Frog Orchid (*Coeloglossum viride*), Fragrant Orchid (*Gymnadenia conopsea*), Marsh Helleborine (*Epipactis palustris*), Greater Butterfly-orchid (*Platanthera chlorantha*) and Irish Lady's-tresses (*Spiranthes romanzoffiana*). The latter is protected under the Flora (Protection) Order, 2015.

The Hill of Doon, located in the north-western corner of the lake, is a fine example of a Sessile Oak (*Quercus petraea*) woodland. The understorey is dominated by Sessile Oak, Holly (*Ilex aquifolium*) and occasional Juniper. There are occasional Yew (*Taxus baccata*) and Ash (*Fraxinus excelsior*), and a well-developed ground layer dominated by Bilberry (*Vaccinium myrtillus*), Hard Fern (*Blechnum spicant*) and Wood Rush (*Luzula sylvatica*). Woodland also occurs on some of the islands in the lake.

A number of the rivers in the site support submerged and floating vegetation of the Ranunculion fluitantis and Callitricho-Batrachion, including mosses. For example, in the River Corrib species such as Shining Pondweed (*Potamogeton lucens*), Perfoliate Pondweed (*Potamogeton perfoliatus*), Small Pondweed (*P. berchtoldii*), Yellow Water-lily (Nuphar lutea), White Water-lily (*Nymphaea alba*) and stoneworts (*Chara* spp.) occur.

The rare and Annex II-listed Slender Green Feather-moss (D*repanocladus[Hamatocaulis] vernicosus*) is found at the fen at Gortachalla, north-east of Moycullen. Here it is widespread around the margins, and this constitutes a large and significant population in the national context. A very large population of another rare moss, *Pseudocalliergon trifarium*, is also found in this area.

The lake is rated as an internationally important site for waterfowl. Counts from 1984 to 1987 revealed a mean annual peak total of 19,994 birds. In the past a maximum peak of 38,281 birds was recorded. The lake supports internationally important numbers of Pochard (average peak 8,600) and nationally important numbers of the following species: Coot (average peak 6,756), Mute Swan (average peak 176), Tufted Duck (average peak 1,317), Cormorant (average peak 110) and Greenland White-fronted Goose (average peak 83). The latter species is listed on Annex I of the E.U. Birds Directive. The Coot population is the largest in the country and populations of Tufted Duck and Pochard are second only to Lough Neagh. Breeding pairs of Common Scoter on the lake number 30-41 (1995 data), as well as breeding populations of Arctic Tern and Common Tern. Other bird species of note recorded from or close to the lake recently include Hen Harrier, Whooper Swan, Golden Plover and Kingfisher. All of these species are listed on Annex I of the E.U. Birds Directive.

Otter and Irish Hare have been recorded regularly within this site. Both of these species are listed in the Red Data Book and are legally protected by the Wildlife Act, 1976. Otter is also listed on Annex II of the E.U. Habitats Directive. Lough Corrib is considered one of the best sites in the country for Otter, due to the sheer size of the lake and associated rivers and streams, and also the generally high quality of the habitats. Atlantic Salmon (*Salmo salar*) use the lake and rivers as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the E.U. Habitats Directive. Lough Corrib is also a well-known fishing lake with a very good Trout (*Salmo trutta*) fishery. The lake has a population of Sea Lamprey (*Petromyzon marinus*), a scarce, though probably under-recorded species listed on Annex II of the E.U. Habitats Directive. Brook Lamprey (*Lampetra planeri*), also listed on Annex II, are also known from a number of areas within the site.

A population of Freshwater Pearl Mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs within the site. White-clawed Crayfish (*Austropotamobius pallipes*),

also listed on Annex II, is well distributed throughout Lough Corrib and its in-flowing rivers over limestone. A summer roost of Lesser Horseshoe Bat, another Annex II species, occurs within the site - approximately 100 animals were recorded here in 1999.

The main threats to the quality of this site are from water polluting activities resulting from intensification of agricultural activities on the eastern side of the lake, uncontrolled discharge of sewage which is causing localised eutrophication of the lake, and housing and boating development, which is causing the loss of native lakeshore vegetation. The raised bog habitats are susceptible to further degradation and drying out due to drainage and peat cutting and, on occasions, burning. Peat cutting threatens Addergoole Bog and already a substantial area of it has been cut away. Fishing and shooting occur in and around the lake. Introduction of exotic crayfish species or the crayfish fungal plague (*Aphanomyces astaci*) could have a serious impact on the native crayfish population. The bat roost is susceptible to disturbance or development.

Despite these ongoing issues, however, Lough Corrib is one the best examples of a large lacustrine catchment system in Ireland, with a range of habitats and species still well represented. These include 15 habitats which are listed on Annex I of the E.U. Habitats Directive, six of which are priority habitats, and nine species which are listed on Annex II. The lake is also internationally important for birds and is designated as a Special Protection Area.

Version date: 01.12.2015

Appendix 4 – Silt fence details and location

SILT FENCING INSTALLATION GUIDELINES

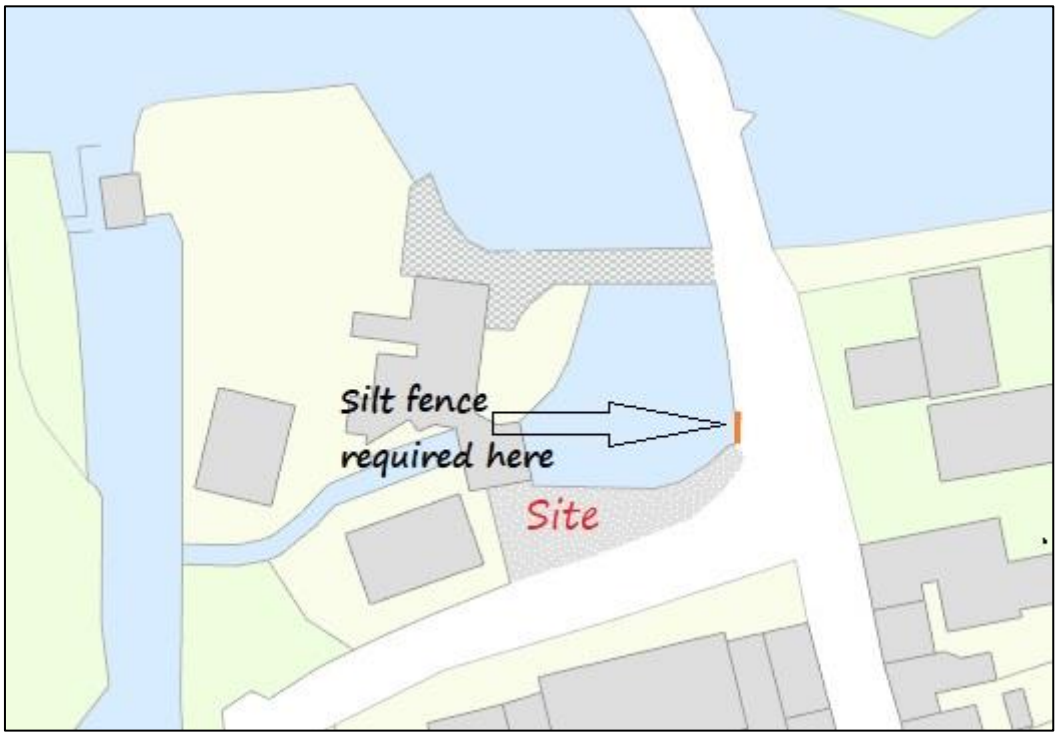
- Posts are placed every 3 to 5 m and a 1m high geotextile membrane is attached to this fence on the uphill side.
- Place about 600m of membrane on the post with the other 300mm loose at the bottom facing uphill.
- This membrane foot is then covered with soil / turf that is removed from the house plot area.
- The soil turfs should be bigger than the membrane foot, 400mm to 1000m 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.

Photographs showing examples of silt fence along river bank

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

Map Showing recommended placement of silt fence

A silt fence using geotextile membrane and / or straw bales should be place on slipway to prevent sediment running off into the water. See also photograph below.



Appendix 5 - Qualifications

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/publications_39_2350481956.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

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.