

Natura Impact Statement Report for Proposed Development at 20 Riverside, Woodquay, Galway.

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Document Control

Project Title:	Natura Impact Statement Report for a Proposed development at Riverside, Woodquay, Galway, Co. Galway
Project Reference No:	25-138
Project Description:	Natura Impact Statement Report for a Proposed development at Riverside, Woodquay, Galway, Co. Galway
Status:	FINAL
Client Details:	Clodagh Ni Bhric and Reinier Van der Maat
Issued By:	Coyle Environmental Ltd., 1st & 2nd Floor Kilmurry House, Castlerea, Co. Galway F45 DK58.

Document Production & Approval

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Revision History

Rev	Status	Date
0	Draft	13/10/25
1	Final	03/12/25

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1. Introduction

1.1. Requirement for an Appropriate Assessment

All plans and projects are required to be screened for potential impacts upon Special Areas of Conservation (SACs) or Special Protection Areas (SPAs) under Article 6 of the EU Habitat's Directive (Council Directive 92/43/EEC). The aim of this screening process is to establish whether a full Appropriate Assessment of the plan or project is necessary.

Consideration of likely significant effects should be based on the Source – Pathway – Receptor (S-P-R) risk assessment principle. If there is no ecological pathway or functional link between the proposed development and the European site, there is no potential for impact and the project can be screened out. Ecological pathways can be physical, for example, water or air in the case of airborne pollutants (e.g. ammonia from intensive agricultural installations). Functional pathways occur, for example, where the application site is used as foraging for a Qualifying Interest of a SAC or SPA.

1.2. The Aim of the Report

This Natura Impact Statement (NIS) has been prepared in accordance with the current guidance on the Appropriate Assessment (AA) process, produced by the European Commission (EC, 2001; 2018) which was used to produce the guidance documents Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DEHLG, 2009) and Office of the Planning Regulator; Appropriate Assessment Screening for Development Management (2021).

In June 2025 Coyle Environmental Ltd was appointed on behalf of Clodagh Ni Bhric and Reinier Van der Maat to provide the necessary information to allow the competent authority (in this case Galway County Council) to conduct an Article 6 (3) Appropriate Assessment for a proposed development in Riverside, Woodquay, Galway. This information is being submitted as a Natura Impact Statement (NIS).

The purpose of this NIS is to provide the information required to determine if the project along or in-combination with other plans and projects could undermine the conservation objectives of the European sites and give rise to likely significant effects in the absence of mitigation measures.

2. Regulatory Context

2.1. Relevant Legislation

The EU Habitats Directive (92/43/EEC) provides legal protection for habitats and species of European importance. It sets up the Natura 2000 network, a European network of important ecological sites comprising of Special Areas of Conservation (SACs) designated under Member

States under this directive and Special Protection Areas (SPAs) classified under the Birds Directive (Directive 2009/147/EC).

The Birds Directive seeks to conserve all wild birds, protecting birds, their eggs, nests and habitats. The Directive (Directive 2009/147/EC) requires that Member States take measures to classify the most suitable areas as Special Protection Areas (SPAs) for the conservation of bird species listed in Annex 1 of the Directive. SPAs are selected for threatened and migratory bird species (listed in Annex I of the Birds Directive). SPA areas are of international importance for these migratory birds.

The EU Habitats Directive (92/43/EEC) also requires that protection is given to sites (Special Areas of Conservation) which are made up of, or support, particular habitats and species listed in annexes to this Directive.

To protect this network, Articles 6(3) and 6(4) of this Directive also call for the undertaking of an Appropriate Assessment on any plan or project, not directly connected or necessary for the management of which is likely to have a significant effect on any European designated sites in view of the conservation objectives.

Articles 6(3) and 6(4) of the Habitats Directive sets out the decision-making tests for plans or projects affecting Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment:

“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.”

Article 6(4) deals with the steps that should be taken when it is determined, as a result of appropriate assessment, that a plan/project will adversely affect a European site. Issues dealing with alternative solutions, imperative reasons of overriding public interest and compensatory measures need to be addressed in this case.

Article 6(4) states:

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

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

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

3. Methodology

3.1. Appropriate Assessment Screening and NIS

This AA Screening and NIS has been prepared with reference to the following:

- European Commission (2018). Managing Natura 2000 Sites: The Provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC.
- European Commission (2021). Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission (2006). Nature and Biodiversity Cases: Ruling of the European Court of Justice.
- European Commission (2007). Clarification of the Concepts of: Alternative Solution, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.
- Department of Environment, Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities.
- Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management.
- NPWS (2019). The Status of EU Protected Habitats and Species in Ireland.
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

In complying with the obligations set out in Articles 6(3) and following the guidelines described above, this screening statement has been structured as a stage-by-stage approach as follows:

- Description of the proposed project.
- Identification of the Natura 2000 sites close to the proposed development.

- Identification and description of any individual and cumulative impacts on the Natura 2000 sites likely to result from the project.
- Assessment of the significance of the impacts identified above on the site integrity.
- Exclusion of sites where it can be objectively concluded that there will be no significant effects.

3.2. Statement of Competency

This AA Screening and NIS report was carried out by Catherine Howarth. Catherine Howarth has a BSc (Honours) in Conservation Biology and Ecology from the University of Exeter and a Certificate in Ecological Consultancy. Catherine Howarth has over 17 years' experience in habitat monitoring and surveying. Catherine Howarth is a Consultant Ecologist at Coyle Environmental and is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

3.3. Desk Studies & Consultation

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

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

3.4. Assessment Methodology

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

For significant effects to arise there must be a potential impact from a Source, i.e., a development, to a Receptor, i.e., a European site via an Ecological pathway e.g. a water course. If there is no ecological pathway or functional link between the proposed development and the European site, there is no potential for impact and the project can be screened out.

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

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

The conservation status of a habitat is defined in Article 1 of the Directive. The conservation status of a natural habitat will be taken as favourable 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:

- The 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.

Natura 2000 sites within 15km of the proposed works and those greater than 15km away with a direct pathway and biodiversity connections to the works location, must be considered when performing the Appropriate assessment Screening for this project, in accordance with Appropriate Assessment guidance (OPR 2021), CIEEM Guidance 2018 and complying with the requirements of Article 6(3) and Article 6(4) of the EU Habitats Directive. This 15km zone is a starting point when identifying the ZOI, which may vary from project to project due to the nature of the project, environmental receptors and the potential for in-combination effects.

When considering potential impacts such as direct disturbance, the potential ZOI may be much less than 15km. Likewise for hydrological impacts, the ZOI can be greater than 15km. If a hydrological pathway exists between works and a Natura 2000 site, the conservation objectives of

protected sites beyond 15km should be considered. Where site-specific conservation objectives (SSCOs) have been prepared for a European site, these include a series of specific attributes and targets against which effects on conservation condition, or integrity, can be measured. Where potential significant effects are identified, then these SSCO should be considered in detail.

The potential impacts of the works on these protected sites have been assessed using the Source-Pathway-Receptor model. If a pollution pathway exists between source (development site) and receptor (protected area Qualifying Interests and Special Conservation Interests), there is a potential environmental risk. A hydrological pathway allows for potential pollutants and contaminants to travel to downstream receptors using water as a transport medium. In this case the proposed development is the potential source, the local watercourses are the potential pathway and the Qualifying Interests (QIs), and Special Conservation Interests (SCIs) of downstream Natura 2000 are the receptors of concern.

4. Appropriate Assessment Screening

4.1. Development Description

Clodagh Ni Bhric and Reinier Van der Maat are applying to Galway County Council for full planning permission for development which consists of: for change of design of previously approved Planning Reference Number 23112. Changes include the alteration of layout and elevations plus the construction of a new third floor dormer extension with roof terrace and all associated site works. An extract from the Site Layout is shown in Figure 1.

Wastewater and surface water

The proposed development uses the existing connections to public mains water supply and foul sewer.

Surface water will be directed to a system of water storage vessels (water butts) with controlled outlet flow to an existing soak pit.

4.2. Site Location and Surrounding Environment

The site is approximately 0.015 hectares and is located at 20 Riverside, Woodquay, Galway City, Co. Galway. The site is located 20m from the River Corrib.

The land use classification within the site, as defined by the 2018 CORINE landcover dataset, is classified as 'Artificial Surfaces'.

Site location maps are shown in Figures 2 and 3, an aerial photograph of the site and its surrounding landscape is shown in Figure 4.

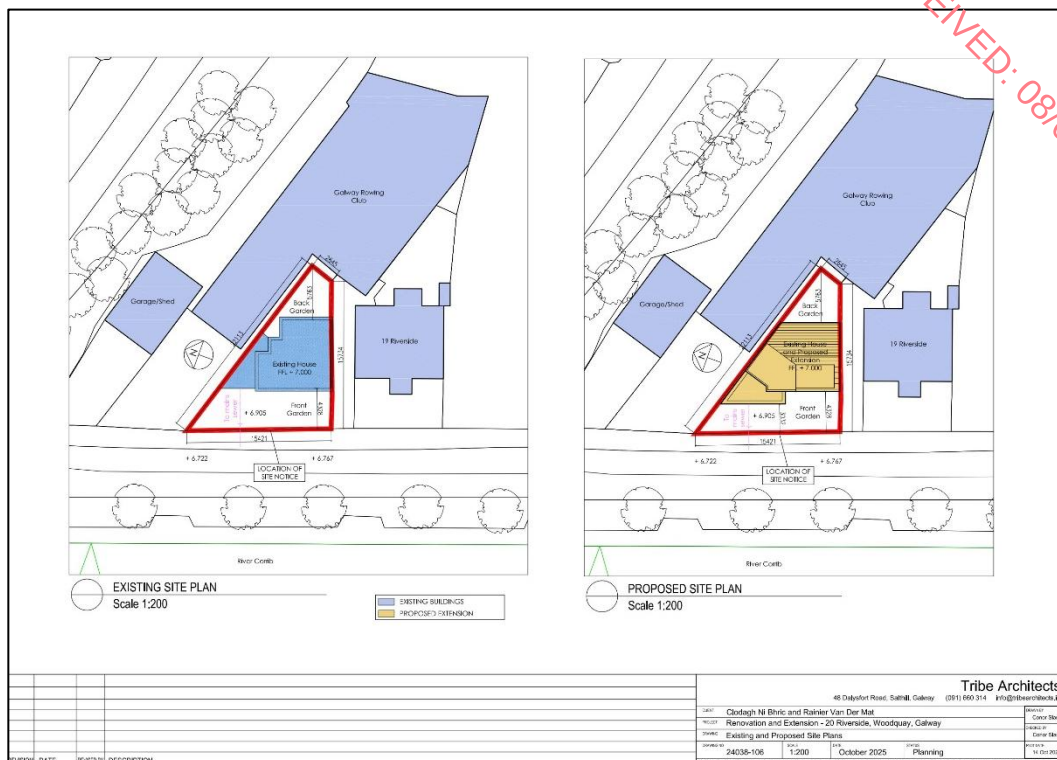


Figure 1 – Extract from Site layout (Tribe Architects)

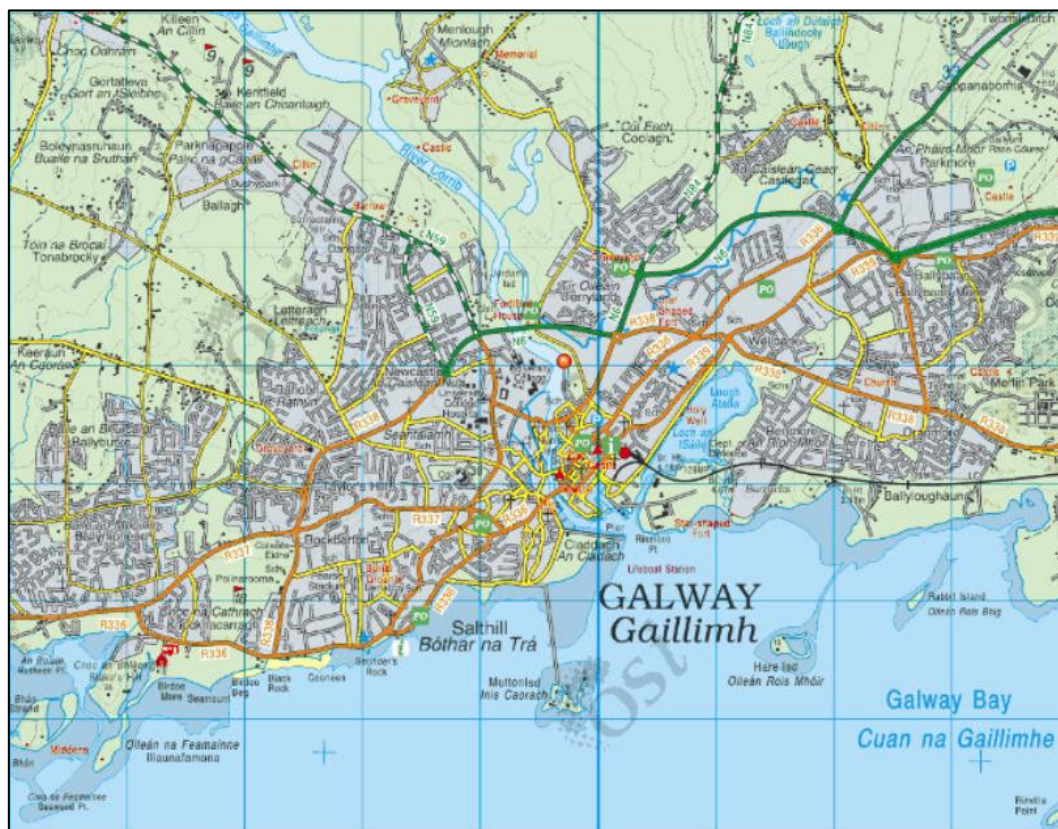


Figure 2 – Site Location Map with Site Pinned (NPWS)

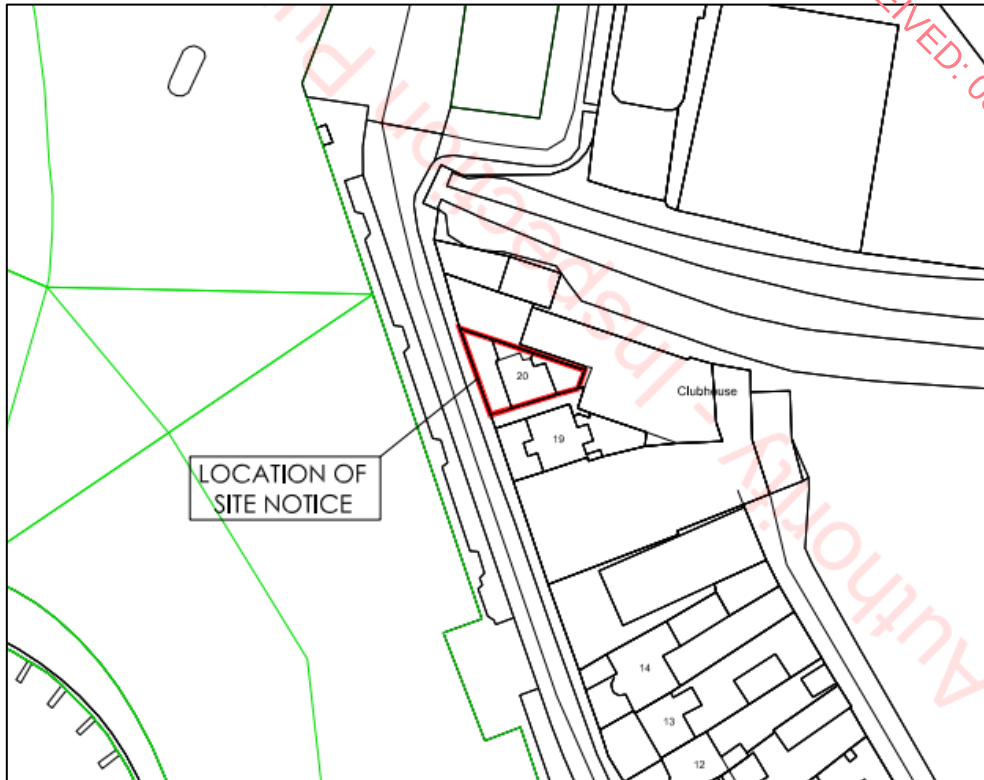


Figure 3 – Site Location Map with Site Outlined in Red



Figure 4 – Aerial Photograph of site and surrounding landscape

4.3. Habitats within the Site

No part of the development site lies within an area that has been designated for nature conservation purposes. No qualifying habitats of Lough Corrib SAC were present within the site boundaries when assessed by ecologist Aisling Walsh of Ash Ecology in 2023. The habitats within the site are described in greater detail below.

The main habitats on the site are 'Buildings and Artificial Surfaces' (BL3) and 'Amenity Grassland' (GA2). The west site boundary is adjacent to Riverside road and the banks of the River Corrib. The boundaries are currently defined by walls. Figure 5 shows the habitat map.

4.3.1. Notable habitats and species

A check of the National Biodiversity Data Centre records of the 1 km square M2925, within hectad M22, showed 29 protected species recorded within 1km of the proposed development and 3 listed Invasive plant species:

Wildlife Acts; Birds of Conservation Concern – Red List:

- Black-headed Gull (*Chroicocephalus ridibundus*)
- Herring Gull (*Larus argentatus*)
- Lapwing (*Vanellus vanellus*) (EU Birds Directive Annex II)

Wildlife Acts; Birds of Conservation Concern – Amber List:

- Common Gull (*Larus canus*)
- Cormorant (*Phalacrocorax carbo*)
- Great Black-backed Gull (*Larus marinus*)
- House Sparrow (*Passer domesticus*)
- Kingfisher (*Alcedo atthis*) (EU Birds Directive Annex I)
- Lesser Black-backed Gull (*Larus fuscus*)
- Little Grebe (*Tachybaptus ruficollis*)
- Mute Swan (*Cygnus olor*)
- Sand Martin (*Riparia riparia*)
- Starling (*Sturnus vulgaris*)
- Swallow (*Hirundo rustica*)
- Swift (*Apus apus*)
- Woodcock (*Scolopax rusticola*) (EU Birds Directive Annex II & III)

Wildlife Acts, EU Birds Directive Annex II:

- Mallard (*Anas platyrhynchos*)
- Rock Dove (*Columba livia*)
- Woodpigeon (*Columba palumbus*)

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Flora Protection Order:

- Liverwort *Marchantia polymorpha* subsp. *Montivagans*

Wildlife Acts:

- Common Lizard (*Zootoca vivipara*)
- Hedgehog (*Erinaceus europaeus*)

EU Habitats Directive Annex II & IV:

- Otter (*Lutra lutra*)

EU Habitats Directive Annex II & V:

- Harbour Seal (*Phoca vitulina*)

EU Habitats Directive Annex IV:

- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Daubenton's Bat (*Myotis daubentonii*)
- Leisler's Bat (*Nyctalus leisleri*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)

EU Habitats Directive Annex V:

- Pine Marten (*Martes martes*)

Invasive plant species S.I. 477:

- Canadian Waterweed (*Elodea canadensis*)
- Giant-rhubarb (*Gunnera tinctoria*)
- Japanese Knotweed (*Fallopia japonica*)

There are no protected or invasive species recorded within or in the direct vicinity of the application site.

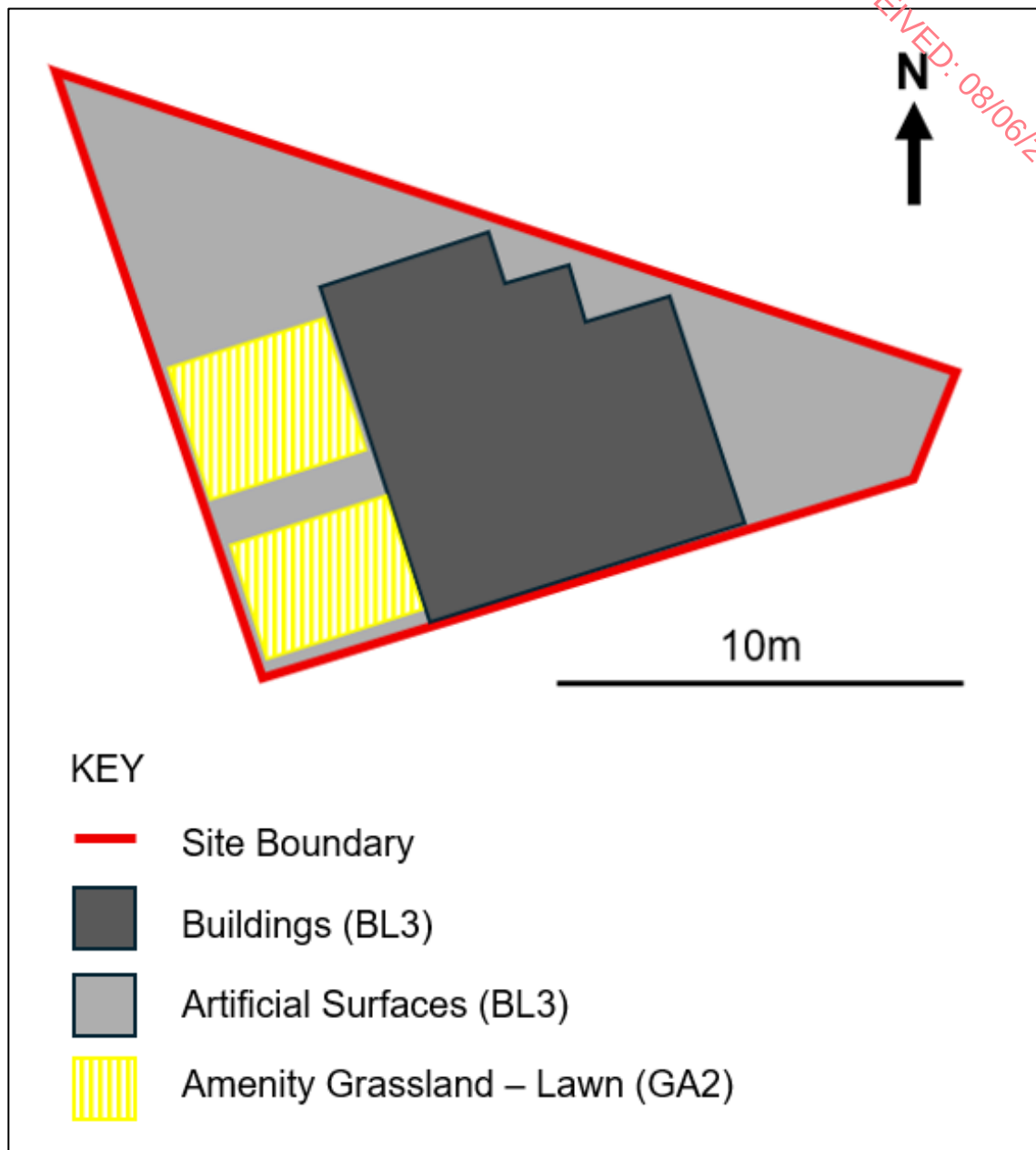


Figure 5 – Habitat Map with Fossitt codes and description.

4.4. Water Features and Quality

The application site is located within the Corrib Catchment (30), and the Corrib_SC_010 Sub-Catchment (30_18). The site is within the Clare-Corrib (IE_WE_G_0020) Groundwater Body and the status of this groundwater body is good. The closest watercourse is the River Corrib which is 20m from the west boundary of the site. There is high groundwater vulnerability, and the site is located on a (Rkc) Regionally Important Aquifer – Karstified (conduit) to the northeast and (PI) Poor Bedrock Aquifer to the southwest.

4.5. Natura 2000 Sites Identified

In accordance with the Appropriate Assessment guidance (OPR 2021) and Inland Fisheries Ireland Guidance Notes for AA Screenings in the vicinity of watercourses (IFI 2018), a list of Natura 2000 sites within 15km of the proposed development have been identified and described according to their site synopses, qualifying interests and conservation objectives. In addition, any other sites further than this, but potentially within its zone of interest were also considered. The ZOI may be determined by an assessment of the connectivity or pathway between the application site (source) and the designated areas (receptors) by virtue of hydrological connectivity, atmospheric emissions, flight paths, ecological corridors etc.

The proposed works are within 15km of six SACs and three SPAs that have been designated under the EU Habitats Directive and the EU Birds Directive. Maps showing the locations of Natura 2000 sites relative to the application site are shown in Figures 6 and 7. These designated areas, their closest points to the development and QIs are outlined in Table 1. A full description of these sites can be read on the website of the National Parks and Wildlife Service (npws.ie).

Each of these 9 Natura 2000 sites will be evaluated following the Source-Pathway-Receptor model and screened in or out accordingly. In this case the proposed development is the potential source, the most likely significant pathway is hydrological, in this instance the Corrib River and the Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of downstream Natura 2000 are the receptors of concern. Figure 7 shows the location of Natura 2000 sites in the ZOI of the application site.

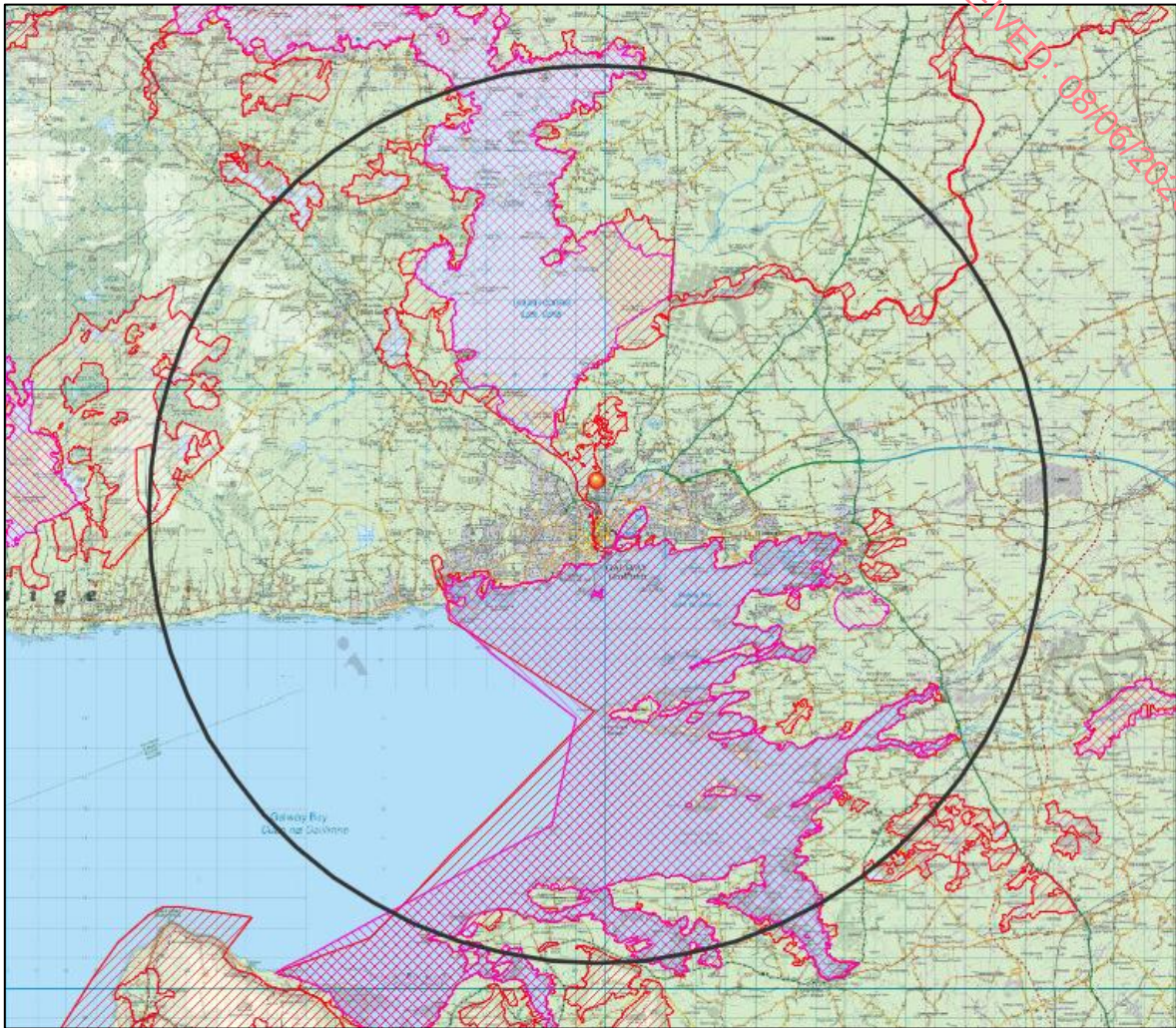


Figure 6 – The Application Site in relation to the Natura 2000 Sites within 15km (Red/Pink). (NPWS Maps)

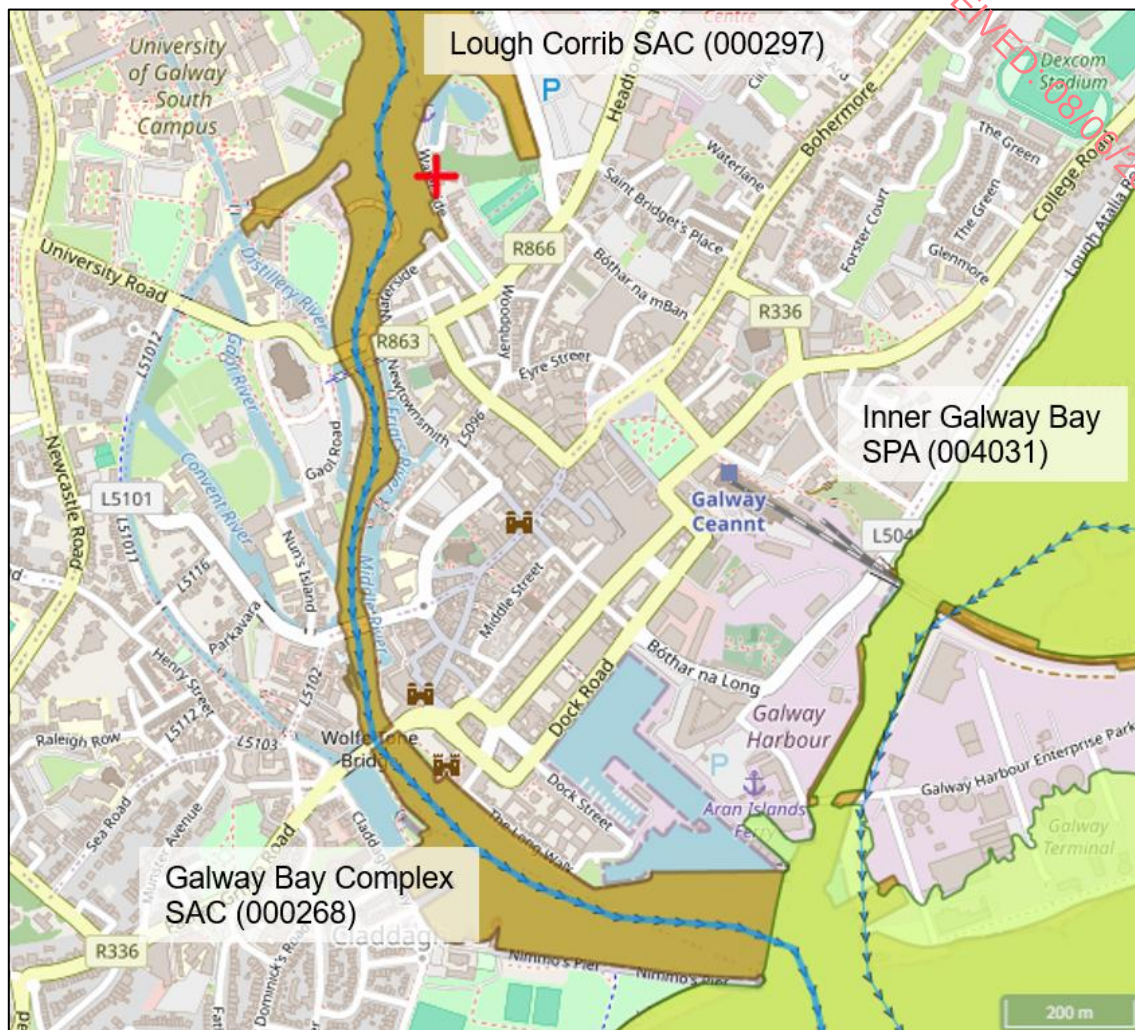


Figure 7 – The Application Site (Red) in relation to SACs and SPAs (Orange/Yellow). (EPA Maps)

Table 1 – Natura 2000 sites within 15km of the site.

Site Name & Code	Distance	Qualifying Interests	Screened In / Out
Lough Corrib SAC SAC 000297	0.15km	Habitats 3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) 3130 Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletalia uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> 3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. 3260 Water courses of plain to montane levels with the <i>Ranunculum fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	Screened In – There is a direct hydrological and ecological pathway from the application site to the SAC and the potential for significant effects upon this SAC and its QIs arising from constructional and operational impacts cannot be ruled out and further assessment is required.

Site Name & Code	Distance	Qualifying Interests	Screened In / Out
		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 8240 Limestone pavements* 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles 91D0 Bog woodland* Species 1029 Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>) 1092 White-clawed Crayfish (<i>Austropotamobius pallipes</i>) 1095 Sea Lamprey (<i>Petromyzon marinus</i>) 1096 Brook Lamprey (<i>Lampetra planeri</i>) 1106 Salmon (<i>Salmo salar</i>) 1303 Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) 1355 Otter (<i>Lutra lutra</i>) 1833 Slender Naiad (<i>Najas flexilis</i>) 6216 Slender Green Feather-moss (<i>Hamatocaulis vernicosus</i>)	
Galway Bay Complex SAC SAC 000268	0.85km	Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1150 Coastal lagoons* 1160 Large shallow inlets and bays 1170 Reefs 1220 Perennial vegetation of stony banks 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glaucopuccinellietalia maritimae)	Screened In – There is a direct hydrological and ecological pathway from the application site to the SAC and the potential for significant effects upon this SAC and its QIs arising from constructional and operational impacts cannot be ruled out and further assessment is required.

Site Name & Code	Distance	Qualifying Interests	Screened In / Out
		1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 3180 Turloughs* 5130 <i>Juniperus communis</i> formations on heaths or calcareous grasslands 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) 7210 Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>* 7230 Alkaline fens 8240 Limestone pavements* Species 1355 Otter (<i>Lutra lutra</i>) 1365 Harbour Seal (<i>Phoca vitulina</i>)	
Connemara Bog Complex SAC SAC 002034	12.70km	Habitats 1150 Coastal lagoons* 1170 Reefs 3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) 3130 Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> 3160 Natural dystrophic lakes and ponds 3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation 4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> 4030 European dry heaths 6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) 7130 Blanket bogs (* if active bog) 7140 Transition mires and quaking bogs 7150 Depressions on peat substrates of the <i>Rhynchosporion</i> 7230 Alkaline fens 91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles Species 1065 Marsh Fritillary (<i>Euphydryas aurinia</i>) 1106 Salmon (<i>Salmo salar</i>) 1355 Otter (<i>Lutra lutra</i>) 1833 Slender Naiad (<i>Najas flexilis</i>)	Screened Out - There is no significant hydrological or ecological connectivity between the application site and this SAC, and significant effects upon this SAC will not arise.

Site Name & Code	Distance	Qualifying Interests	Screened In / Out
Ross Lake and Woods SAC SAC 001312	13.67km	Habitats 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. Species 1303 Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>)	Screened Out - There is no significant hydrological or ecological connectivity between the application site and this SAC, and significant effects upon this SAC will not arise.
Lough Fingall Complex SAC SAC 000606	14.08km	Habitats 3180 Turloughs* 4060 Alpine and Boreal heaths 5130 Juniperus communis formations on heaths or calcareous grasslands 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* 8240 Limestone pavements* Species 1303 Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>)	Screened Out - There is no significant hydrological or ecological connectivity between the application site and this SAC, and significant effects upon this SAC will not arise.
East Burren Complex SAC SAC 001926	14.36km	Habitats 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. 3180 Turloughs* 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation 4060 Alpine and Boreal heaths 5130 Juniperus communis formations on heaths or calcareous grasslands 6130 Calaminarian grasslands of the Violetalia calaminariae 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) 7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae* 7220 Petrifying springs with tufa formation (Cratoneurion)* 7230 Alkaline fens 8240 Limestone pavements* 8310 Caves not open to the public 91E0 Alluvial forests with Alnus glutinosa and	Screened Out - There is no significant hydrological or ecological connectivity between the application site and this SAC, and significant effects upon this SAC will not arise.

Site Name & Code	Distance	Qualifying Interests	Screened In / Out
		Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* Species 1065 Marsh Fritillary (<i>Euphydryas aurinia</i>) 1303 Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) 1355 Otter (<i>Lutra lutra</i>)	
Inner Galway Bay SPA SPA 004031	0.91km	Birds A002 Black-throated Diver (<i>Gavia arctica</i>) A003 Great Northern Diver (<i>Gavia immer</i>) A017 Cormorant (<i>Phalacrocorax carbo</i>) A028 Grey Heron (<i>Ardea cinerea</i>) A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A050 Wigeon (<i>Anas penelope</i>) A052 Teal (<i>Anas crecca</i>) A069 Red-breasted Merganser (<i>Mergus serrator</i>) A137 Ringed Plover (<i>Charadrius hiaticula</i>) A140 Golden Plover (<i>Pluvialis apricaria</i>) A142 Lapwing (<i>Vanellus vanellus</i>) A149 Dunlin (<i>Calidris alpina</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A160 Curlew (<i>Numenius arquata</i>) A162 Redshank (<i>Tringa totanus</i>) A169 Turnstone (<i>Arenaria interpres</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) A182 Common Gull (<i>Larus canus</i>) A191 Sandwich Tern (<i>Sterna sandvicensis</i>) A193 Common Tern (<i>Sterna hirundo</i>) Habitats A999 Wetlands	Screened In - There is a direct hydrological pathway from the application site to the SPA and the potential for significant effects upon this SPA and its QIs arising from constructional and operational impacts cannot be ruled out and further assessment is required.

Site Name & Code	Distance	Qualifying Interests	Screened In / Out
Lough Corrib SPA SPA 004042	2.99km	Birds A051 Gadwall (<i>Anas strepera</i>) A056 Shoveler (<i>Anas clypeata</i>) A059 Pochard (<i>Aythya ferina</i>) A061 Tufted Duck (<i>Aythya fuligula</i>) A065 Common Scoter (<i>Melanitta nigra</i>) A082 Hen Harrier (<i>Circus cyaneus</i>) A125 Coot (<i>Fulica atra</i>) A140 Golden Plover (<i>Pluvialis apricaria</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) A182 Common Gull (<i>Larus canus</i>) A193 Common Tern (<i>Sterna hirundo</i>) A194 Arctic Tern (<i>Sterna paradisaea</i>) A395 Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) Habitats A999 Wetlands	Screened Out - The SPA is upstream from the application site and the tidal extent of the River Corrib does not reach the boundaries of this SPA. Therefore, there is no pollution pathway between the application site and this SPA, and significant effects upon this SPA will not arise. There will be no loss of habitat or disturbance to the protected species within Lough Corrib SPA and no loss or deterioration of wetland habitat as a result of the development.
Cregganna Marsh SPA SPA 004142	8.43km	Birds A395 Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>)	Screened Out - There is no hydrological or ecological connectivity between the application site and this SPA, and significant effects upon this SPA will not arise.

4.6. Potential Pressures and Threats to Habitats and Species in Natura 2000 sites

The main threats and impacts to the qualifying habitats and species of Lough Corrib SAC, Galway Bay Complex SAC and Inner Galway Bay SPA as per the relevant Natura 2000 Forms have been considered including:

- Habitat loss
- Habitat fragmentation
- Disturbance and/or displacement of species
- Changes in population density
- Changes in water quality
- Introduction of invasive species
- Climate change impacts

4.6.1. *Habitat loss*

There will be no direct loss of habitat of qualifying habitats associated with any Natura 2000 site. The habitat on the application site is of low ecological value, buildings and artificial surfaces and a small area of amenity grassland – lawn. There is a 15m buffer zone between the site boundary and the Corrib River, part of Lough Corrib SAC.

4.6.2. *Habitat fragmentation*

Habitat fragmentation is the reduction and isolation of patches of natural environment. As there will be no habitat loss it is not considered that habitat fragmentation will arise as a result of the proposed development.

4.6.3. *Disturbance and/or displacement of species*

The construction works are small-scale and localised in nature. Any potential impacts during construction, such as noise pollution, are likely to be temporary and short-term. Of the Annex II species screened in, Otter has been recorded in the closest proximity to the development site. The works will take place in daylight hours and Otter is a largely nocturnal species and unlikely to be affected. It is considered that there will be no significant disturbance or displacement of species caused as a result of the proposed development.

4.6.4. *Changes in population density*

It is not expected that the proposed development works will cause any reduction in the baseline population of any species.

4.6.5. *Changes in water quality*

The proposed development site is 15m from the Corrib River, part of the Lough Corrib SAC and with hydrological connectivity to both Galway Bay Complex SAC and Inner Galway Bay SPA. There is the potential for Atlantic Salmon, Sea Lamprey, Brook Lamprey and Harbour Seal to be present within the aquatic environment of the Corrib River.

There will be additional surface water run-off generated from construction which may get washed into the river without appropriate mitigation measures to protect water quality. During the operation phase there is the potential for pollution to groundwater quality as the site is within a flood zone. A Flood Risk Assessment accompanies this NIS.

4.6.6. *Introduction of invasive species*

Invasive species are considered to be one of the greatest threats to biodiversity second only to direct habitat destruction. No invasive species were recorded on the application site or in the direct vicinity of the site. A search of the of the National Biodiversity Data Centre records of the 1 km square M2925, within hectad M22, showed 3 Invasive plant species listed on S.I. 477 recorded within 1km of the proposed development:

- Canadian Waterweed (*Elodea canadensis*)
- Giant-rhubarb (*Gunnera tinctoria*)
- Japanese Knotweed (*Fallopia japonica*)

There exists a potential risk of introduction of invasive species onto the site by construction machinery and materials with the potential to spread to Lough Corrib SAC without appropriate mitigation measures to ensure biosecurity.

4.6.7. Climate change impacts

The proposed development will have temporary localised emissions. Given the small scale of the works these are likely to be negligible and short-term. The operational phase will not result in any additional greenhouse gas emissions to air.

4.7. Identification of Potential Effects

The proposed development at Riverside, Woodquay, Galway has a direct hydrological link to Lough Corrib SAC (000297), Galway Bay Complex SAC (000268) and Inner Galway Bay SPA (004031). In this regard the potential impacts regarding negative impacts, affecting these designated sites, given its proximity will be addressed in detail in Section 5.

There are no expected impacts from the proposed works on the other designated sites listed in Table 1 as there are no direct hydrological connection or the distance is deemed far enough away that any disturbance emanating from the proposed works would be both temporary and on a negligible scale so as not to have an impact. Accordingly, these sites will not be discussed regarding potential impact.

The development is not directly connected with or necessary for the management of the designated site. In the absence of any mitigation, impacts upon these designated sites arising from the operation of this proposed development cannot be ruled out. Therefore, taking a conservative approach, in a worst-case scenario and in the absence of mitigation, an accidental pollution event of a sufficient magnitude during construction or operation, either alone or in-combination with other pollution sources, could potentially affect the surface water quality in these local watercourses to an extent that undermines the conservation objectives of certain qualifying interests of Lough Corrib SAC (000297), Galway Bay Complex SAC (000268) and Inner Galway Bay SPA (004031). A reduction in water quality locally has the potential to affect the aquatic habitats and natural conditions that are required to maintain or achieve the specific attributes and targets of the qualifying interests associated with Lough Corrib SAC, Galway Bay Complex SAC and Inner Galway Bay SPA and the conservation objectives that have been set for these QIs.

Therefore, following an evaluation of the relevant information including the characteristics of the proposed development and the likelihood of significant effects on the sites and with regards to the tenets of the precautionary principal, it is considered in the opinion of this author that, on the basis

of objective information, it is not possible to exclude that the proposed development, either individually or in combination with other plans or projects, will have a likely significant effect on the above European sites.

Only those features of the development that have the potential to affect the integrity and conservation objectives of the identified Natura sites and protected species have been considered. Several factors were examined at this stage and dismissed or carried forward for Appropriate Assessment as relevant. The following areas were examined in relation to potential impacts and subsequent effects from the proposed development on the Natura 2000 sites identified:

- Deterioration of water quality in designated areas resulting from pollution from surface water run-off during site preparation, construction and operation.
- Introduction of invasive species such as Japanese knotweed during the construction phase
- Cumulative impacts with other proposed/existing developments.

4.7. Screening Conclusions

This section considers the list of sites identified in Section 3.3. It can be considered that all sites, except for Lough Corrib SAC, Galway Bay Complex SAC and Inner Galway Bay SPA can be excluded from the remainder of the Appropriate Assessment process. This is based on their distance from the proposed development and the fact that it is outside of the Zone of Influence of these sites and that no impacts are likely to arise. The remaining concerns will therefore focus upon the protected habitats and species of the Lough Corrib SAC (000297), Galway Bay Complex SAC (000268) and Inner Galway Bay SPA (004031).

The proposed development is not directly connected with or necessary to the nature conservation management of the designated site. Therefore, following the precautionary principal in consideration of likely significant effects on Lough Corrib SAC, Galway Bay Complex SAC and Inner Galway Bay SPA in relation to the proposed development at Riverside, Woodquay, Galway and the potential impacts that may occur, this project must proceed to the next stage of Appropriate Assessment, the Natura Impact Assessment.

5. Stage II – Natura Impact Statement

5.1. Introduction

The main objective of this stage (Stage 2, Natura Impact Statement) in the Appropriate Assessment process is to determine whether the development of the proposed planning application at Riverside, Woodquay, Galway (either alone or in combination with other plans, programmes and projects) will result in significant adverse impacts to the integrity of the Natura 2000 sites identified with respect to these site's structures, species, functions and/or conservation objectives. This stage also outlines the mitigation measures that should be taken to avoid any negative impacts of this application, should it receive consent.

5.2. Site Specific Conservation Objectives

For the site that has been screened in the Site-Specific Conservation Objectives (SSCOs) were reviewed considering the proposed development and the potential impacts that might occur. These SSCO's aim to define the favourable conservation condition for the habitats or species at that site. They outline certain attributes such as distribution, population structure, water quality for different species and habitats with targets, which define favourable condition for a habitat or species at a particular site. The maintenance of habitats and species within the Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at national level. Where available, these SSCO's can be downloaded on the NPWS website. Any potential threats to the attributes and targets as defined in these SSCO's were assessed and where necessary, mitigated for.

For each Qualifying Interest of the SAC, the specific conservation objective is either to *maintain* or *restore* the favourable conservation condition of that interest, by defining a list of attributes and targets which are indicative of the conservation status of that interest. For habitats, the main attributes include habitat area; habitat and community distribution; vegetation structure/composition and physical structure. The main target is to ensure that the habitats are stable or increasing in area and that the other attributes are maintained or restored.

For the Annex II species of the SPA, the main attributes are population trend and distribution, whilst the targets aim to ensure that the long-term population trends of the species are stable or increasing and that there is no significant decrease in the numbers or range of areas used by the species, other than that occurring from natural patterns of variation.

5.3. Natura 2000 Sites Identified

A summary of the site screened in is presented below. Full details of these sites are available on the website of the National Parks and Wildlife Service.

5.3.1. Lough Corrib SAC (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 SAC 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 shallow, lime-rich waters of the southern basin of Lough Corrib support one of the most extensive beds of stoneworts (Charophytes) in Ireland. In contrast, the northern basin contains more oligotrophic and acidic waters, without *Chara* species.

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 southeast 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.

Limestone pavement occurs along much of the shoreline in the lower Corrib basin and supports a rich and diverse flora. Open areas of orchid-rich calcareous grassland are also found in association with the limestone exposures.

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. 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.

In 2017, the NPWS published Site Specific Conservation Objectives (SSCOs) for the Lough Corrib SAC. These SSCO's can be downloaded on the NPWS website. Any potential threats to the attributes and targets as defined in these SSCO's were assessed and where necessary, mitigated for.

5.3.2 Galway Bay Complex SAC (000268)

Situated on the west coast of Ireland, this site comprises the inner, shallow part of a large bay which is partially sheltered by the Aran Islands. The Burren karstic limestone fringes the southern sides and extends into the sublittoral. West of Galway city the bedrock geology is granite. There are numerous shallow and intertidal inlets on the eastern and southern sides, notably Muckinish, Aughinish and Kinvarra Bays. A number of small islands composed of glacial deposits are located along the eastern side. These include Eddy Island, Deer Island and Tawin Island. A diverse range of marine, coastal and terrestrial habitats, including several listed on Annex I of the E.U. Habitats Directive, occur within the site, making the area of high scientific importance.

Galway Bay South holds a very high number of littoral communities (12). They range from rocky terraces to sandy beaches with rock or sand dunes behind. The intertidal sediments of Galway Bay support good examples of communities that are moderately exposed to wave action.

Saltmarshes are frequent within this extensive coastal site, with both E.U. Habitats Directive types, 'Atlantic Salt Meadow' and 'Mediterranean Salt Meadow' well represented. Most of the saltmarshes are classified as the bay type, with the substrate being mud or mud/sand. There is one lagoon type and one estuary type. Lagoon saltmarshes are the rarest type found in Ireland. The best examples of saltmarsh are located in inner Galway bay, east of a line running between Galway city and Kinvarra. In this area the coastline is highly indented, thus providing the sheltered conditions necessary for extensive saltmarsh development.

Galway Bay is a very important ornithological site. The shallow waters provide excellent habitat for Great Northern Divers (35), Black-throated Divers (28), Scaup (39), Long-tailed Duck (27) and Red-breasted Merganser (232). (Figures given are peak average maxima over the 3 winters 1994/95 to 1996/97). All of these populations are of national importance. The intertidal areas and shoreline provides feeding and roosting habitat for wintering waterfowl, with Brent Goose (517) having a population of international importance and a further 11 species having populations of national importance. Four of the regular wintering species are listed on Annex I of the E.U. Birds Directive - Golden Plover, Bar-tailed Godwit and the two diver species. Breeding birds are also of importance, with significant populations of Sandwich Terns (81 pairs in 1995) and Common Terns (99 pairs in 1995), both also being listed on Annex I of the E.U. Birds Directive. A large Cormorant colony (approx. 300 pairs in 1989) occurs on Deer Island.

Fishing and aquaculture are the main commercial activities within the site. A concern is that sewage effluent and detritus of the aquaculture industry could be deleterious to benthic communities. Reef and sediment communities are vulnerable to disturbance or compaction from tractors accessing oyster trestles. The rare Purple Sea Urchin (*Paracentrotus lividus*) populations have been shown to be vulnerable to over-fishing. Extraction of maerl in Galway Bay is a threat. Owing to the proximity of Galway city, shoreline and terrestrial habitats are under pressure from urban expansion and recreational activities. Eutrophication is probably affecting some of the lagoons and is a continued threat. Drainage is a general threat to the turlough and fen habitats. Bird populations may be disturbed by aquaculture activities.

This large coastal site is of immense conservation importance, with many habitats listed on Annex I of the E.U. Habitats Directive, four of which have priority status (lagoon, *Cladium* fen, turlough and orchid-rich calcareous grassland). The examples of shallow bays, reefs, lagoons and saltmarshes found within this site are amongst the best in the country. The site supports an important Common Seal colony and a breeding Otter population (Annex II species), and six regular Annex I E.U. Birds Directive species. The site also has four Red Data Book plant species, plus a host of rare or scarce marine and lagoonal animal and plant species.

In 2013, the NPWS published Site Specific Conservation Objectives (SSCOs) for the Lough Corrib SAC. These SSCO's can be downloaded on the NPWS website. Any potential threats to the attributes and targets as defined in these SSCO's were assessed and where necessary, mitigated for.

5.3.3 Inner Galway Bay SPA (004031)

Inner Galway Bay SPA is a very large, marine-dominated site situated on the west coast of Ireland. The inner bay is protected from exposure to Atlantic swells by the Aran Islands and Black Head. Subsidiary bays and inlets (e.g. Poul-na-clough, Aughinish and Kinvarra Bays) add texture to the patterns of water movement and sediment deposition, which lends variety to the marine habitats and communities. The terraced Carboniferous (Viséan) limestone platform of the Burren sweeps down to the shore and into the sublittoral. The long shoreline is noted for its diversity, and comprises complex mixtures of bedrock shore, shingle beach, sandy beach and fringing salt marshes. Intertidal sand and mud flats occur around much of the shoreline, with the largest areas being found on the sheltered eastern coast between Oranmore Bay and Kinvarra Bay. A number of small islands and rocky islets in the Bay are included within the site.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Black-throated Diver, Great Northern Diver, Cormorant, Grey Heron, Light-bellied Brent Goose, Wigeon, Teal, Red-breasted Merganser, Ringed Plover, Golden Plover, Lapwing, Dunlin, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed Gull, Common Gull, Sandwich Tern and Common Tern. 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 Wetland & Waterbirds.

Inner Galway Bay supports an excellent diversity of wintering wetland birds, with divers, grebes, cormorants, dabbling duck, sea duck and waders all well represented. There are internationally important wintering populations of Great Northern Diver (88) and Light-Bellied Brent Goose (676) and nationally important wintering populations of an additional sixteen species i.e. Black-throated Diver (36), Cormorant (266), Grey Heron (102), Wigeon (1,168), Teal (700), Red-breasted Merganser (249), Ringed Plover (335), Golden Plover (2,030), Lapwing (3,969), Dunlin (2,155), Bar-tailed Godwit (447), Curlew (697), Redshank (505), Turnstone (182), Black-headed Gull (1,941) and Common Gull (1,066) - all figures given are five year mean peaks for the seasons 1995/96 to 1999/2000. Of note is that the populations of Red-breasted Merganser and Ringed Plover represent 6.8% and 2.3% of the respective all-Ireland totals. Other species which occur in notable numbers include Little Grebe (35), Long-tailed Duck (21), Scaup (44) and Herring Gull (216). In addition, the following species also use the site: Great Crested Grebe (16), Mallard (200), Common Scoter (87), Oystercatcher (576), Grey Plover (60), Black-tailed Godwit (46), Mute Swan (150) and Great Black-backed Gull (129). The site provides both feeding and roost sites for most of the species. Little Egret, a species which has recently colonised Ireland, also occurs at this site.

The site has several important populations of breeding birds, most notably colonies of Sandwich Tern (81 pairs in 1995) and Common Tern (98 pairs in 1995 on Green Island and 46 pairs in 2001 on Mutton Island). A large Cormorant colony occurs on Deer Island - this had 200 pairs in 1985 and 300 pairs in 1989. Inner Galway Bay SPA is of high ornithological importance with two wintering species having populations of international importance and a further sixteen wintering species having populations of national importance. The breeding colonies of Sandwich Tern, Common

Tern and Cormorant are also of national importance. Also of note is that six of the regularly occurring species are listed on Annex I of the E.U. Birds Directive, i.e. Black-throated Diver, Great Northern Diver, Golden Plover, Bar-tailed Godwit, Sandwich Tern and Common Tern. Inner Galway Bay is a Ramsar Convention site and part of the Inner Galway Bay SPA is a Wildfowl Sanctuary.

In 2013, the NPWS published Site Specific Conservation Objectives (SSCOs) for the Lough Corrib SAC. These SSCO's can be downloaded on the NPWS website. Any potential threats to the attributes and targets as defined in these SSCO's were assessed and where necessary, mitigated for.

5.4. Qualifying Interests of the Lough Corrib SAC

5.4.1. Qualifying Interests of the Lough Corrib SAC – Screened Out

Lough Corrib SAC is a complex and varied site. Certain qualifying interests of these sites will not be potentially impacted upon from this proposed development, either due to the distance involved or because they are features that are outside of the Zone of Influence of the site. These features and the reason for their screening out are listed in Table 2. In considering these QI features, the SSCO's of the site were referred to, along with the most recent Article 17 Reports on the status of protected habitats and species in Ireland (NPWS, 2019).

Table 2 – The Qualifying Interests of the Lough Corrib SAC (Screened Out)

Designated Feature & Code	Rationale for Screening Out
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 Isoetes-Nanojuncetea 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. 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	These habitats are not present within or adjacent to the proposed application site. There will be no loss or fragmentation of this habitat within the SAC, and significant effects upon it can be ruled out.

Designated Feature & Code	Rationale for Screening Out
(Cratoneurion)* 7230 Alkaline fens 8240 Limestone pavements* 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles 91D0 Bog woodland*	
Species 1029 Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>) 1092 White-clawed Crayfish (<i>Austropotamobius pallipes</i>) 1303 Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) 1833 Slender Naiad (<i>Najas flexilis</i>) 6216 Slender Green Feather-moss (<i>Hamatocaulis vernicosus</i>)	These species are not present within or adjacent to the proposed application site. There will be no loss or fragmentation of the species habitat within the SAC, and significant effects upon it can be ruled out.

5.4.2. Qualifying Interests of the Lough Corrib SAC – Screened In

Table 3 describes the qualifying interest of the Lough Corrib SAC that have the potential to be impacted upon from the proposed development, i.e., these QIs have been screened in, and potential effects have been considered in terms of the SSCOs that have been set.

Table 3 – The Qualifying Interests of the Lough Corrib SAC (Screened In)

Designated Feature & Code	Rationale for Screening In
3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	This habitat has the potential to be present in Corrib River, as such the SSCOs of this habitat will be considered in detail and mitigation measures outlined to protect this habitat.
1095 Sea Lamprey (<i>Petromyzon marinus</i>) 1096 Brook Lamprey (<i>Lampetra planeri</i>)	These species have been recorded in Galway Bay and may be present within the vicinity of the site. The species may be negatively impacted by a decrease in water quality of its habitats. As such the SSCOs of this species will be considered in detail and mitigation measures outlined to protect these species habitat.
1106 Salmon (<i>Salmo salar</i>) 1355 Otter (<i>Lutra lutra</i>)	These species have been recorded in Corrib River and may be present within the vicinity of the site. The species may be negatively impacted by a decrease in water quality of its habitats. As such the SSCOs of this species will be considered in detail and mitigation measures outlined to protect these species habitat.

5.4.3. SSCOS of the Lough Corrib SAC QI (Screened In)

Site specific conservation objectives for this site were prepared in 2017 (NPWS, 2017). These SSCOs can be downloaded on the NPWS website:

(https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000297.pdf).

These SSCOs are outlined in Tables 4 & 5.

Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]

The SSCO for this habitat is to maintain the favourable conservation 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:

Table 4 – Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]

Attribute	Measure	Target
Habitat area	Kilometres	Area stable or increasing, subject to natural processes
Habitat distribution	Occurrence	No decline, subject to natural processes
Hydrological regime: river flow	Metres per second	Maintain appropriate hydrological regimes
Hydrological regime: groundwater discharge	Metres per second	Maintain appropriate hydrological regimes
Substratum composition: particle size range	Millimetres	Maintain appropriate substratum particle size range, quantity and quality, subject to natural process
Water quality	Various	Maintain appropriate water quality to support the natural structure and functioning of the habitat
Vegetation composition: typical species	Occurrence	Typical species of the relevant habitat sub-type should be present and in good condition
Floodplain connectivity: area	Hectares be maintained	The area of active floodplain at and upstream of the habitat should be maintained
Riparian habitat: area	Hectares	Maintain the area and condition of fringing habitats necessary to support the habitat and its sub-types

Sea Lamprey (*Petromyzon marinus*) [1095]

The SSCO for this habitat is to restore the favourable conservation condition of Sea Lamprey (*Petromyzon marinus*) [1095] in Lough Corrib SAC, which is generally defined by the following list of attributes and targets:

Table 5 – Sea Lamprey [1095]

Attribute	Measure	Target
Distribution: extent of anadromy	Percentage of river accessible	Greater than 75% of main stem length of rivers accessible from estuary
Population structure of juveniles	Number of age/size groups	At least three age/size groups present

Attribute	Measure	Target
Juvenile density in fine sediment	Juveniles/m ²	Mean catchment juvenile density at least 1/ m ²
Extent and distribution of spawning habitat	M ² and occurrence	No decline in extent and distribution of spawning beds
Availability of juvenile habitat	Number of positive sites in 3 rd order channels (and greater) downstream of spawning areas	More than 50% of sample sites positive, with a minimum number of four positive sites in a catchment, which are at least 5km apart

Brook Lamprey (*Lampetra planeri*) [1096]

The SSCO for this habitat is to maintain the favourable conservation condition of Brook Lamprey (*Lampetra planeri*) [1096] in Lough Corrib SAC, which is generally defined by the following list of attributes and targets:

Table 6 – Brook lamprey [1096]

Attribute	Measure	Target
Distribution: extent of anadromy	Percentage of river accessible	Access to all watercourses down to first order streams
Population structure of juveniles	Number of age/size groups	At least three age/size groups present
Juvenile density in fine sediment	Ammocoetes/m ²	Mean catchment ammocoete density of brook/river lamprey at least 5/m ²
Extent and distribution of spawning habitat	M ² and occurrence	No decline in extent and distribution of spawning beds
Availability of juvenile habitat	Number of positive sites in 2 nd order channels (and greater) downstream of spawning areas	More than 50% of sample sites positive

Salmon (*Salmo salar*) [1106]

The SSCO for this habitat is to maintain the favourable conservation condition of Atlantic Salmon (*Salmo salar*) [1106] in Lough Corrib SAC, which is generally defined by the following list of attributes and targets:

Table 7 – Salmon [1106]

Attribute	Measure	Target
Distribution: extent of anadromy	Percentage of river accessible	100% of river channels down to second order accessible from the estuary
Adult spawning fish	Number	Conservation limit (CL) for each system consistently exceeded
Salmon fry abundance	Number of fry/5 minutes electrofishing	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling
Out-migrating smolt abundance	Number	No significant decline
Number and distribution of redds	Number and occurrence	No decline in number and distribution of spawning redds due to anthropogenic causes
Water quality	EPA Q value	At least Q4 at all sites samples by EPA

Otter (*Lutra lutra*) [1355]

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

Table 8 – Otter [1355]

Attribute	Measure	Target
Distribution	Percentage of positive survey sites	No significant decline
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 1,054ha along river banks/ lake shoreline/around ponds
Extent of freshwater (river) habitat	Kilometers	No significant decline. Length mapped and calculated as 314.2km
Extent of freshwater (lake) habitat	Hectares	No significant decline. Area mapped and calculated as 4,178ha
Couching sites and holts	Number	No significant decline
Fish biomass available	Kilograms	No significant decline
Barriers to connectivity	Number	No significant increase.

5.5. Qualifying Interests of the Galway Bay Complex SAC

5.5.1. Qualifying Interests of the Galway Bay Complex SAC – Screened Out

Galway Bay Complex SAC is a large and varied site. Certain qualifying interests of these sites will not be potentially impacted upon from this proposed development, either due to the distance involved or because they are features that are outside of the Zone of Influence of the site. These features and the reason for their screening out are listed in Table 9. In considering these QI features, the SSCOs of the site were referred to, along with the most recent Article 17 Reports on the status of protected habitats and species in Ireland (NPWS, 2019).

Table 9 – The Qualifying Interests of the Galway Bay Complex SAC (Screened Out)

Designated Feature & Code	Rationale for Screening Out
Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1150 Coastal lagoons* 1160 Large shallow inlets and bays 1170 Reefs 1220 Perennial vegetation of stony banks 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia)	These habitats are not present within or adjacent to the proposed application site. There will be no loss or fragmentation of this habitat within the SAC, and significant effects upon it can be ruled out.

Designated Feature & Code	Rationale for Screening Out
maritimae) 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 3180 Turloughs* 5130 <i>Juniperus communis</i> formations on heaths or calcareous grasslands 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) 7210 Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> * 7230 Alkaline fens 8240 Limestone pavements*)	

5.5.2. Qualifying Interests of the Galway Bay Complex SAC – Screened In

Table 10 describes the qualifying interest of the Galway Bay Complex SAC that have the potential to be impacted upon from the proposed development, i.e., these QIs have been screened in, and potential effects have been considered in terms of the SSCOs that have been set.

Table 10 – The Qualifying Interests of the Galway Bay Complex SAC (Screened In)

Designated Feature & Code	Rationale for Screening In
Species 1355 Otter (<i>Lutra lutra</i>) 1365 Harbour Seal (<i>Phoca vitulina</i>)	These species have been recorded in Corrib River within 1 km of the application site. The species may be negatively impacted by a decrease in water quality of its habitats. As such the SSCOs of this species will be considered in detail and mitigation measures outlined to protect these species habitat.

5.5.3. SSCOS of the Galway Bay Complex SAC QI (Screened In)

Site specific conservation objectives for this site were prepared in 2013 (NPWS, 2013). These SSCOs can be downloaded on the NPWS website:

(https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000268.pdf).

These SSCOs are outlined in Tables 11 & 12.

Otter (*Lutra lutra*) [1355]

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

Table 11 – Otter [1355]

Attribute	Measure	Target
Distribution	Percentage of positive survey sites	No significant decline
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 1,054ha along river banks/ lake shoreline/around ponds
Extent of freshwater (river) habitat	Kilometers	No significant decline. Length mapped and calculated as 314.2km
Extent of freshwater (lake) habitat	Hectares	No significant decline. Area mapped and calculated as 4,178ha
Couching sites and holts	Number	No significant decline
Fish biomass available	Kilograms	No significant decline
Barriers to connectivity	Number	No significant increase.

Harbour seal (*Phoca vitulina*) [1365]

The SSCO for this habitat is to maintain the favourable conservation condition of Harbour seal [1365] in Galway Bay Complex SAC, which is generally defined by the following list of attributes and targets:

Table 12 – Harbour Seal [1365]

Attribute	Measure	Target
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use.
Breeding behaviour	Breeding sites	Conserve breeding sites in a natural condition.
Moulting behaviour	Moult haul-out sites	Conserve moult haul-out sites in a natural condition.
Resting behaviour	Resting haul-out sites	Conserve resting haul-out sites in a natural condition.
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour seal population at the site

5.6. Qualifying Interests of the Inner Galway Bay SPA

5.6.1. Qualifying Interests of the Inner Galway Bay SPA – Screened Out

Certain qualifying interests of these sites will not be potentially impacted upon from this proposed development, either due to the distance involved or because they are features that are outside of the Zone of Influence of the site. These features and the reason for their screening out are listed in Table 13. In considering these QI features, the SSCOs of the site were referred to, along with the most recent Article 17 Reports on the status of protected habitats and species in Ireland (NPWS, 2019).

Table 13 – The Qualifying Interests of the Inner Galway Bay SPA (Screened Out)

Designated Feature & Code	Rationale for Screening Out
Birds A002 Black-throated Diver (<i>Gavia arctica</i>) A003 Great Northern Diver (<i>Gavia immer</i>) A017 Cormorant (<i>Phalacrocorax carbo</i>) A028 Grey Heron (<i>Ardea cinerea</i>) A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A050 Wigeon (<i>Anas penelope</i>) A052 Teal (<i>Anas crecca</i>) A069 Red-breasted Merganser (<i>Mergus serrator</i>) A137 Ringed Plover (<i>Charadrius hiaticula</i>) A140 Golden Plover (<i>Pluvialis apricaria</i>) A142 Lapwing (<i>Vanellus vanellus</i>) A149 Dunlin (<i>Calidris alpina</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A160 Curlew (<i>Numenius arquata</i>) A162 Redshank (<i>Tringa totanus</i>) A169 Turnstone (<i>Arenaria interpres</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) A182 Common Gull (<i>Larus canus</i>) A191 Sandwich Tern (<i>Sterna sandvicensis</i>) A193 Common Tern (<i>Sterna hirundo</i>)	This species is not present within or adjacent to the proposed application site. There will be no loss or fragmentation of this species habitat within the SPA. SSCO: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA
Habitats A999 Wetlands	This habitat is not present within or adjacent to the proposed application site. There will be no loss or fragmentation of this habitat within the SPA, and significant effects upon it can be ruled out.

5.6.2. Qualifying Interests of the Inner Galway Bay SPA– Screened In

Table 14 describes the qualifying interests of the Inner Galway Bay SPA that have the potential to be impacted upon from the proposed development, i.e., these QIs have been screened in, and potential effects have been considered in terms of the SSCOs that have been set. In considering these QI features, the SSCOs of the site were referred to, along with the most recent Article 17 Reports on the status of protected habitats and species in Ireland (NPWS, 2019).

Table 14 – The Qualifying Interests of the Inner Galway Bay SPA (Screened In)

Designated Feature/ Species, Code & Conservation Status	Rationale for Screening In
Birds A017 Cormorant (<i>Phalacrocorax carbo</i>) – Amber A142 Lapwing (<i>Vanellus vanellus</i>) - Red A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) - Amber A182 Common Gull (<i>Larus canus</i>) - Amber	These species have been recorded within 1km of the application site. There will be no loss or fragmentation of this species habitat within the SPA, however a deterioration in water quality could negatively affect the species.

5.6.3. SSCOS of the Inner Galway Bay SPA QI (Screened In)

Site specific conservation objectives for this site were prepared in 2013 (NPWS, 2013). These SSCOs can be downloaded on the NPWS website:

(https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004031.pdf).

These SSCOs are outlined in Tables 15-18.

Cormorant (*Phalacrocorax carbo*) [A017]

To maintain the favourable conservation condition of Cormorant in Inner Galway Bay SPA, which is defined by the following list of attributes and targets:

Table 15 - Cormorant [A017]

Attribute	Measure	Target
Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline
Productivity rate	Mean number	No significant decline
Distribution: breeding colonies	Number; location; area (hectares)	No significant decline
Prey biomass available	Kilogrammes	No significant decline
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase
Disturbance at breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding cormorant population
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by cormorant, other than that occurring from natural patterns of variation

Lapwing (*Vanellus Vanellus*) [A142]

To maintain the favourable conservation condition of Lapwing in Inner Galway Bay SPA, which is defined by the following list of attributes and targets:

Table 16 - Lapwing [A142]

Attribute	Measure	Target
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Number, range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by lapwing, other than that occurring from natural patterns of variation

Black-headed Gull (*Chroicocephalus ridibundus*) [A172]

To maintain the favourable conservation condition of Black-headed Gull in Inner Galway Bay SPA, which is defined by the following list of attributes and targets:

Table 17 - Black-headed Gull [A172]

Attribute	Measure	Target
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Number and range of areas used by waterbirds	There should be no significant decrease in the range, timing and intensity of use of areas used by black-headed gull other than that occurring from natural patterns of variation

Common Gull (*Larus canus*) [A182]

To maintain the favourable conservation condition of Common Gull in Inner Galway Bay SPA, which is defined by the following list of attributes and targets:

Table 18 - Common Gull [A182]

Attribute	Measure	Target
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Number and range of areas used by waterbirds	No significant decrease in the range, timing or intensity of use of areas by the common gull, other than that occurring from natural patterns of variation

5.7. Potential Significant Effects

5.7.1. Introduction

This section will establish whether the impacts of the proposed development at the Riverside, Woodquay, Galway site that were identified in the previous section, are likely to occur and whether they are significant. The identification of potential impacts and the assessment of their significance typically requires the identification of the type and magnitude of the impacts; whether impacts will be short term or long term, direct, indirect or cumulative and will they occur during construction or

operation. These potential impacts will be examined with respect to the conservation objectives of the Natura 2000 site identified.

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

1. Deterioration of water quality in designated areas resulting from pollution from surface water run-off during site preparation, construction and operation.
2. Introduction of invasive species such as Japanese knotweed during the construction phase
3. Cumulative impacts with other proposed/existing developments.

5.7.2. Deterioration of water quality in designated areas resulting from pollution from surface water run-off during site preparation, construction and operation.

The proposed development will involve the excavation of soil and pouring of concrete. Any additional surface water run-off, due to the construction works of the proposed works, has some limited potential to have a negative impact on the water quality of the adjacent Lough Corrib SAC and the waters downstream. The development must be constructed and operated in accordance with best practice guidelines and follow recommended mitigation advice listed in section 6.

The Flood Risk Assessment states that *“Stages 1, 2 and 3 of the flood risk assessment of proposed site have indicated that the site is not subject to flooding in low, medium or high probability exceedance events up to 0.1% AEP (1 in 1000 chance in any given year) with 30% climate change factor applied from pluvial, fluvial, coastal or groundwater sources.*

Proposed FFL at Existing House and Proposed Extension is 7.00 mOD, estimated 0.1% AEP water level at Existing House and Proposed Extension is 6.85 mOD, providing 0.15m freeboard over 0.1% AEP water level.

Any potential pluvial flood risk would be accommodated by proposed site drainage and will not result in a loss / reduction of pluvial flood water storage on site. The proposed site will not have an adverse impact or impede access to watercourses, floodplains or flood protections and management facilities.”

With the implementation of the mitigation measures to prevent contaminated surface waters run-off in section 6, a decline in ground water quality during construction or operation of the application site is not expected. As such there should be no significant negative direct or indirect impacts to the River Corrib, Lough Corrib SAC or any other designated sites downstream.

5.7.3. *Introduction of invasive species such as Japanese knotweed during the construction phase*

During the site preparation and construction phase there is a potential risk of introduction of highly invasive species onto the site by construction machinery and materials with the potential to spread to Lough Corrib SAC. The mitigation measures listed in section 6 must be adhered to in order to ensure biosecurity.

5.7.4. *Cumulative impacts with other proposed/existing developments*

This section of the NIS examines whether any other plans or projects have the potential to act cumulatively or in-combination with the proposed development to adversely affect the integrity of the Natura 2000 site identified.

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

In the past 10 years there have been 21 applications for planning permission approved within the direct vicinity of the site. A check of the Galway County Council Planning Application Maps found only small-scale one-off housing extensions, a pump house and changes to a field owned by the University of Galway permissions granted in the area. The closest project to the proposed development at Riverside was granted permission in 2017 for the Permission for alterations and extension to existing house to include, retention of existing two storey extension to rear, relocation of front door, demolition and reconstruction of existing sun room, single storey extension to rear, re-positioning and enlargement of access gate at rear of property and all associated site works and services (Planning Ref. 1732).

Any future application in the area that has the potential to impact upon these Natura 2000 sites will be subjected to Appropriate Assessment as required under Articles 6(3) of the Habitats Directive. Following mitigation, this current development will have no cumulative impacts upon the SAC identified when considered in combination with any other development that has been screened for no impacts themselves (Stage 1) or where potential impacts have been mitigated against (Stage 2 AA / NIS).

Finally, the Galway County Development Plan, 2022-2028 has been reviewed and considered for possible in-combination effects with the proposed project.

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

6. Mitigation Measures

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

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

6.1. General Good Practice and Initial Works

- Upon appointment of the construction contractor, this team will also be made aware of the sensitivity of the site and the mitigation measures required to protect habitats, groundwater and surface water quality. All measures will be undertaken from initial site works until the completion of all construction and landscaping works on site.
- Prior to the commencement of developments on site, the site engineer and the contractors must be made aware of the ecological sensitivity of the site and its proximity and connection to the Corrib River and Lough Corrib SAC.
- Guidelines in the following best practice documents should be adhered to:
 - Construction Industry Research and Information Association (CIRIA) (2005) *Environmental Good Practice on Site* (C692)
 - Construction Industry Research and Information Association (2001) *Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors* (C532)
 - Construction Industry Research and Information Association (2000) *Environmental Handbook for Building and Civil Engineering Projects* (C512)
 - Environmental Protection Agency (2015) *List of Waste and Determining if Waste is Hazardous or Non-Hazardous*
 - Environment Agency et al. (2015) *Guidance on the Classification and Assessment of Waste, Technical Guidance WM3*.
 - IFI (2016) *Guidelines on the Protection of Fisheries during Construction Works in and Adjacent to Water*

6.2. Management of Construction Waste and Soil

- All construction waste must be removed from site by a registered contractor to a registered site. Evidence of the movement and safe disposal of the construction waste must be retained and presented to Local Authority upon request.
- The applicants and construction contractors will be responsible for the safe removal of any construction waste generated on site. There must be no disposal of construction waste or topsoil in any designated site.

- All topsoil generated from site works should be stored within the application site until it is required for landscaping. It must not be stored outside the site boundaries, and it must not be used for the infilling of any area outside of the site. It must be stored at appropriate locations within the site, away from the river.
- If there is more topsoil than is needed for landscaping, it must be removed from site by a registered contractor for appropriate use elsewhere. The end location of the topsoil must be identified, and records presented to the local authority if requested.

6.3. Protection of Water Quality and Management of Pollutants

- Efficient construction practices and sequences should be employed on site, and this will minimise soil erosion and potential pollution of local watercourses with soil and sediment.
- Works within the site should be avoided during periods of heavy rainfall.
- It is vital that there is no deterioration in water quality in the nearby watercourses. This will protect both habitats and species that are sensitive to pollution. Therefore, strict controls of erosion, sediment generation and other pollutants associated with the installation process should be implemented, including the provision of attenuation measures, silt traps or geotextile curtains to reduce and intercept sediment release into any local watercourses.
- Silt fences and berms should be installed prior to the commencement of construction on site.
- The silt fences should be monitored daily to ensure that they remain functional throughout the construction of the proposed development. Maintenance of the fences should be carried out regularly. Fences should be inspected thoroughly after periods of heavy rainfall.
- Best practice concrete / aggregate management measures must be employed on site (these measures should be included where possible on a site plan). These will include:
 - Best practice in bulk-liquid concrete management should be employed on site addressing pouring and handling, secure shuttering, adequate curing times etc.
 - Stockpile areas for sands and gravel must be kept to a minimum size, well away from the drains (minimum 50m).
 - Where concrete shuttering is used, measures must be put in place to prevent against shutter failure and control storage, handling and disposal of shutter oils.
 - Activities which result in the creation of cement dust must be controlled by dampening down the areas.
 - Raw and uncured waste concrete must be disposed of by removal from the site;
 - Stockpile areas for sands and gravel will be kept to a minimum size, well away from the adjacent watercourse.
- Daily plant inspections must be completed by all plant operators on site to ensure that all plant is maintained in good working order. Where leaks are noted on these inspection sheets, the plant must be removed from operations for repairs as pollution control measures.
- No refuelling of plant equipment or vehicles should be conducted onsite.

- A spill kit should be kept on site during works, with a minimum of one person on site trained in its use.
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the construction site and disposed of in accordance with all relevant waste management legislation.

6.4. General Disturbance

- To ensure that impacts on species that might use the habitats close to the site do not arise from the noise generated on site, measures to control noise on site must be undertaken. The construction plant and tools used on-site must comply with the relevant Irish regulations in relation to noise and vibration requirements. It is recommended that all equipment used on site are newer models equipped with noise dampening systems and that the equipment is maintained in good condition and serviced regularly.
- Site management must also ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC. All plant and equipment should be fitted with appropriate mufflers or silencers of the type recommended by the manufacturer. Only plant and equipment that has been designed for that task should be used and all equipment should be shut down or set to minimum when not being used.
- Equipment and vehicles shall be shut down when not in use.
- No construction lighting will be left on after working hours.

6.5. Invasive Species Biosecurity

- Biodiversity protocols; All equipment and machinery being used adjacent to the river will be power washed and disinfected in advance. It will also be disinfected before leaving site.
- Biosecurity will be required for all equipment and machinery working in close proximity to the River Corrib pre and post works. This will involve:
- All PPE and machines will be power washed before entry to the site and sprayed with a suitable disinfectant (e.g., 1% virkon aquatic solution).
- Visually inspect all equipment for evidence of attached plant or animal material, or adherent mud or debris. This will be carried out before leaving the site.
- Remove any attached or adherent material (vegetation and debris) before leaving the site of operation.
- Ensure that all water is drained from any live wells and other water retaining compartments, tanks and other equipment before transportation elsewhere.
- High-pressure hot water cleaning, with water > 40 degrees C, is recommended for machinery that will be moved from one site to another. Many roadside garages provide these facilities. If it is not possible to steam clean the equipment, a normal power hose must be used. After cleaning visually inspect the equipment to ensure that all adherent material and debris has been removed.
- Apply disinfectant, to the undercarriage and wheels of the vehicle/machine

- Visual monitoring upstream and downstream (with photos) of each works stretch shall be carried out daily whilst the machinery is working
- Quarries supplying material for the project should provide written confirmation to the client that material provided is free of non-native invasive species and noxious weeds.

6.6. Biodiversity Management and Enhancement

There is the potential for a long-term slight positive impact on the biodiversity on site, if native species are planted for a pollinator friendly garden space and with the addition of bat and bird boxes.

- The lighting design should use lighting that reduces light pollution for the benefit of nocturnal species. Lighting shall be targeted to areas of human activity and for priority security areas. Motion-activated sensor lighting is preferable to reduce light pollution.
 - Dark corridor for movement of nocturnal species along the grounds of the site. Lighting shall be directed downwards and shall not illuminate vegetation.
 - All luminaires shall lack UV elements when manufactured and shall be LED
 - A warm white spectrum (ideally <2700 Kelvin) to reduce blue light component
 - Luminaires shall feature peak wavelengths higher than 550nm
- It is recommended that Irish provenance native planting is used in the landscaping.
- Bird and bat boxes should be placed on the walls and site boundaries at height with clear flight paths, in dark undisturbed areas.

7. NIS Conclusion

This current NIS has been undertaken to evaluate the potential impacts of the proposed development regarding the effects upon the conservation objectives and qualifying interests (including the habitats and species) of the Lough Corrib SAC, Galway Bay Complex SAC and Inner Galway Bay SPA. It is considered that following mitigation, that the proposed project does not have the potential to significantly affect the conservation objectives of these Natura 2000 sites, and the integrity of these sites will not be adversely impacted.

The qualifying interests of the site and their potential to be impacted upon from the potential development were listed in Section 5. It is considered that these potential impacts can be successfully mitigated against. With implementation of the mitigation measures there will be no deterioration in water quality or impacts upon any designated habitat or any species dependent on these designated habitats. The integrity of these sites will not be adversely affected. Table 19 follows the integrity of the SAC / SPA checklist, which shows that the integrity of the site would not be affected by the proposed development.

Table 19 – Integrity of Site Checklist (From NPWS, Information Checklist for AA, Box 6, EC (2002))

Conservation Objective: Does the project have the potential to:	Yes / No
Cause delays in progress towards achieving the conservation objectives of the site?	N
Interrupt progress towards achieving the conservation objectives of the site?	N
Disrupt those factors that help to maintain the favourable conditions of the site?	N
Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?	N
Other Objectives: Does the project have the potential to:	Yes / No
Cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?	N
Other Objectives: Does the project have the potential to:	Yes / No
Change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?	N
Interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?	N
Reduce the area of key habitats?	N
Reduce the population of key species?	N
Change the balance between key species?	N
Reduce diversity of the site?	N
Result in disturbance that could affect population size or density or the balance between key species?	N

Result in fragmentation?	N
Result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)	N

Considering the above, it is deemed that the integrity and conservation objectives of Lough Corrib SAC, Galway Bay Complex SAC and Inner Galway Bay SPA and other Natura 2000 sites will not be affected by the proposed works following the implementation of and adherence to the mitigation measures detailed in Section 6 of this NIS report. Following the implementation of these mitigation measures, no significant adverse effects on the integrity of Natura 2000 protected sites will occur as a result of the proposed development in Riverside, Woodquay and the conservation status of the Annex I habitats and Annex II species will not be compromised by the proposed works either directly, indirectly or cumulatively.



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RECEIVED: 08/06/2026

Appendix 1

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RECEIVED: 08/06/2026

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