Proposed Social Housing Scheme at Keeraun, Ballymoneen Road, Galway City, Co. Galway

Screening for Appropriate Assessment

Version (12-5-21)

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SUMMARY

The proposed development comprises a Social Housing Scheme at a site in Keeraun, Ballymoneen Road in Galway City, Co. Galway. The proposed development comprises a total of 71 housing units, including social houses, Traveller Appropriate Accommodation (TAA) houses as well as apartments. This report assesses whether the proposed development is likely to have a significant effect on the Natura 2000 site network. Effects upon the conservation objectives and qualifying interests (including habitats and species) within the affected designated areas are considered. This version of the screening is the second update following receipt of further information about the development.

The proposed development does not lie within the boundary of any Natura 2000 site. The site is located c. 1.8km and c. 1.9km north of the Galway Bay Complex SAC and the Inner Galway Bay SPA respectively. No direct impacts were identified due to the separation from the site and the Natura 2000 network. Using the Source-Pathway-Receptor model, potential pathways for significant effects have been identified. Two pathways for potential significant indirect and cumulative effects have been identified; via the drain on site and via Galway WwTP. These pathways have the potential to result in significant impacts resulting from the following sources: construction phase impacts and run-off and foul water treatment.

The receptors for these potential significant effects have been identified as Mudflats and sandflats not covered by seawater at low tide, Large shallow inlets and bays, Reefs, Atlantic salt meadows, Mediterranean salt meadows, Otters and Harbour seal for the SAC, and the bird species and Wetland and Waterbirds habitats of the SPA.

Earth works and levelling will be required at the site as well as culverting the existing drain. With construction machinery and workers on site, this also adds to the potential for pollution run-off, suspended solids and accidental spillages of oils / fuels, which could enter the SAC and SPA via the drain, in the absence of any mitigation.

The proposed development will require a connection to the Galway WwTP, which discharges into the SAC and SPA. This provides a pathway for operational phase impacts. There is some uncertainty surrounding the effectiveness of treatment for the plant. Nonetheless, even without uncertainty, this does provide a potential pathway for operational phase impacts on water quality relating to foul water treatment. A full assessment and detailed examination of the Galway WwTP, expected discharge from the site, and calculations, is required. This cannot be carried out at the pre-assessment Screening stage.

DoEHLG (2010) notes that if effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). In Kelly –v- An Bord Pleanála 2013/802 High Court Judgement Ruling it is stated that the *'possibility of there being a significant effect on the site will generate the need for an appropriate assessment for the purposes of Article 6(3)'.* As demonstrated in case C-323/17 People Over Wind and Peter Sweetman v Coillte, mitigation measures are not be taken into account at the screening stage of Appropriate Assessment. This includes for mitigation by a third party, which in this case would be foul water treatment by the Mutton Island plant. Mitigation is also required for the construction phase.

Taking the above into account, the proposed development site at Keeraun, Co. Galway therefore requires an Appropriate Assessment (NIS).

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1. INTRODUCTION

The proposed development comprises a Social Housing Scheme at a site in Keeraun, Ballymoneen Road in Galway City, Co. Galway. The proposed development comprises a total of 71 housing units, including social houses, Traveller Appropriate Accommodation (TAA) houses as well as apartments. The current report provides a Screening for Appropriate Assessment for the proposed development.

The current version of this screening is the second major update to the report following receipt of further information regarding the proposed development. The original screening was completed on the 4th of March 2021. At this time a Geophysical Report was available, as well as a house layout drawing of the proposed houses for the site. At the time of writing the original report no AER was available for the Galway Wastewater Treatment Plant, which indeed was uploaded to the EPA's website later the same day on the 4th of March 2021. Following this, the screening report was updated to include the AER. Furthermore, a Civil & Structural Report was then received, completed by RPS Consulting. This report included baseline information for the proposed development regarding storm, foul and water services, as well as access and traffic engineering and a preliminary flood risk assessment. The appendices of this report included further information, such as a Ground Investigations Report, Topographical Survey and Storm, Foul and Water Distribution drawings which were not previously made available. The current version of the report (dated 12-5-21) has been updated to include this further information regarding the development.

The Natura 2000 network is a network of nature protection areas across the European Union, comprising of Special Areas of Conservation which are designated under the EU Habitats Directive and Special Protection Areas which are designated under the EU Birds Directive. This report assesses whether the proposed social housing development at Keeraun is likely to have a significant effect on the Natura 2000 site network. Effects upon the conservation objectives and qualifying interests (including habitats and species) within the affected designated areas are considered.

The purpose of the Screening for Appropriate Assessment is to identify any such Natura 2000 sites in the locality of proposed plans / projects that are likely to be significantly impacted by the proposed plan / project and / or require mitigation to prevent such impacts. If the proposed plan is found by the Screening to be likely to significantly affect any Natura 2000 site, it will then be subject to a further stage of Appropriate Assessment whereby a Natura Impact Statement is prepared.

Appropriate Assessment is required under Article 6 of the Habitats Directive (92/43/EEC), in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (1992) or the Birds Directive (2009). The current document meets this requirement by providing a Screening Assessment of the development and follows the guidance for screening published by the Department of the Environment, Heritage and Local Government (DoEHLG 2010) *'Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities'.*

According to DoEHLG (2010), screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the EU Habitats Directive:

> (1) Whether a plan or project is directly connected to or necessary for the management of the site, and;
> (2) Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

Screening is a pre-assessment procedure which considers whether an assessment (i.e. appropriate assessment) is required or not. A project or plan may only pass at the Screening stage if there is no reasonable scientific doubt remaining as to the absence of impacts on the Natura 2000 network. The current screening therefore sets out to determine whether the proposed project, alone or in combination with other plans and projects, is likely to have significant effects on any Qualifying Interests of the Natura 2000 sites within the study area. If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). When assessing the significance of potential effects, DoEHLG (2010) recommends that *"a precautionary approach is fundamental and, in cases of uncertainty, it should be assumed the effects could be significant".*

1.1 Legislative context

Part XAB of the 2000 Act and SI. No 477 of 2011 transpose into Irish law, Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the Birds Directive) and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). These Directives require Ireland to establish protected sites as part of a European wide network of sites (known in Ireland as European sites) for habitats and species that are of international importance for conservation. In Ireland, European sites include Special Areas of Conservation (SACs, including candidate SACs) and Special Protection Areas (SPAs)". Article 6, paragraphs 3 and 4 of the EC 'Habitats' Directive (1992) state that:

The 1997 Regulations were updated in 1998 by The European Communities (Natural Habitats) (Amendment) Regulations 1998 (S.I. No. 233/1998) to include Council Directive 97/62/EC which served to update Council Directive 92/43/EEC, adapting it to technical and scientific progress made in the intervening years.

The 1997 Regulations were again updated in 2005, by The European Communities (Natural Habitats) (Amendment) Regulations 2005 (S.I. No. 378/2005). This amendment served to consolidate the main nature conservation legislation enacted in Ireland, meaning The Wildlife Act 1976, The Wildlife (Amendment) Act 2000, The European Communities (Natural Habitats) Regulations 1997, The European Communities (Natural Habitats) (Amendment) Regulations 1998, and to draw direct reference upon Council Directive (2009/147/EC) on the conservation of wild birds – '*The Birds Directive'*.

The Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs) whereas the Habitats Directive does the same for habitats and other species groups with Special Areas of Conservation (SACs). It lists certain rare habitats (Annex I) and species (Annex II) whose conservation is of community interest. It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected areas throughout the European Community.

Article 6, paragraphs 3 and 4 of the Habitats Directive state that:

'6(3) 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.

6(4) 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 State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

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

In case C-323/17 People Over Wind and Peter Sweetman v Coillte, the Court of Justice of the European Union (CJEU) ruled that mitigation measures could not be taken into account when undertaking a screening for Appropriate Assessment (AA). If mitigation measures are required to reduce or avoid a significant adverse effect, then Appropriate Assessment is required.

1.2 Consultation

The following bodies provided information for this report, via publicly available sources:

- National Parks and Wildlife Service (NPWS);
- National Biodiversity Data Centre (NBDC);
- Environmental Protection Agency (EPA).

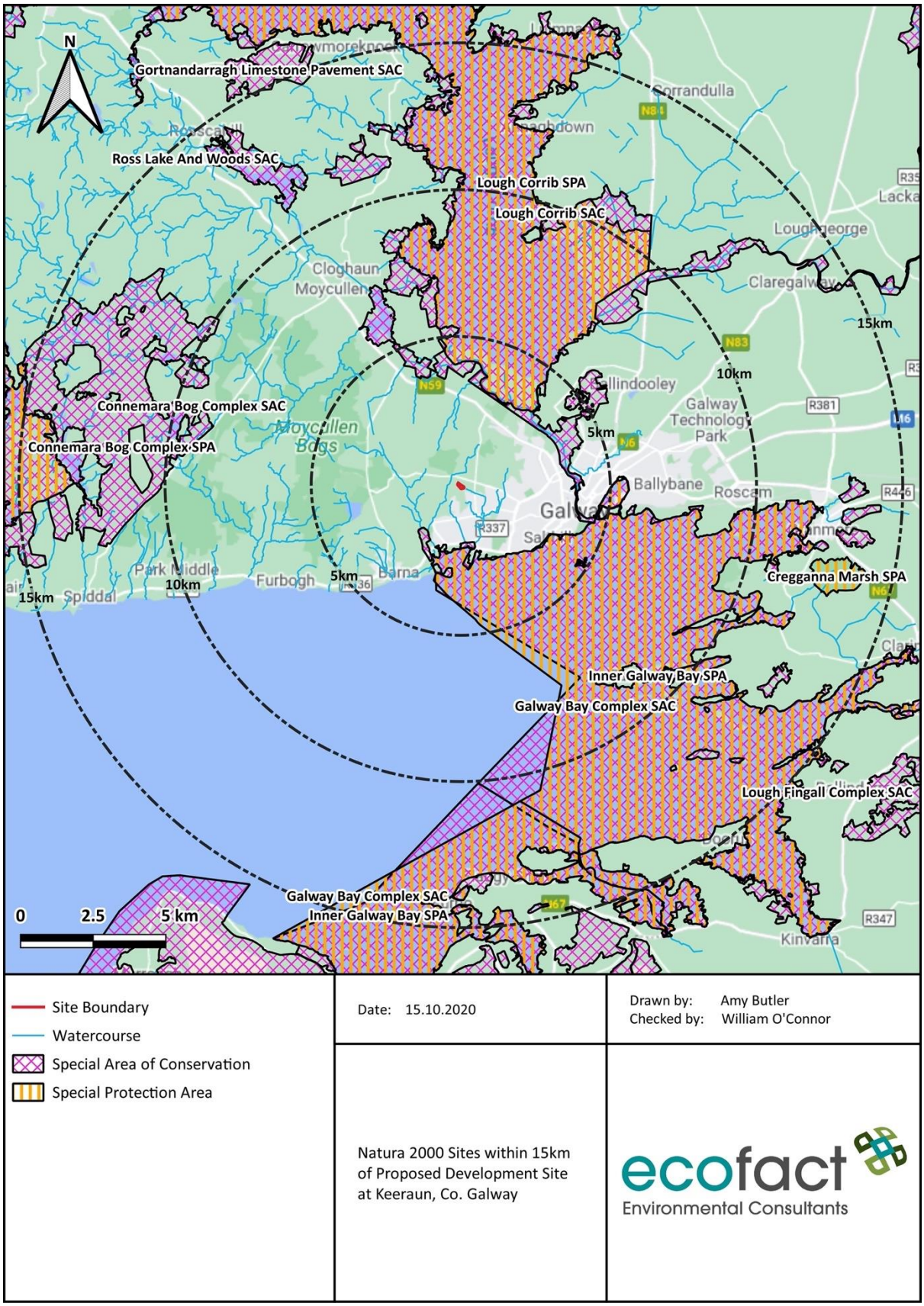

Figure 1 Natura 2000 Sites within 15km of Proposed Development Site at Keeraun, Co. Galway.

2. METHODOLOGY

2.1 Desk study

A desktop study was undertaken to identify the extent and scope of the potentially affected designated Natura 2000 sites within the current study area in relation to the development site. The desktop study identified the qualifying interests (species and habitats) relevant to the designated sites within the area.

Information sources reviewed as part of the current assessment included NPWS site synopses, as well as protected species data held on the NPWS/NBDC online databases. Protected habitats, Annex I habitat layers from NPWS and NBDC, and results of NPWS national surveys were also accessed to gain an understanding of the site and study area. This included Limestone pavement distribution, National Juniper Survey, Article 17 Habitat Grid Squares, Semi-natural Grassland Survey and more. Scientific data on water quality and waterbodies relevant to the subject site was obtained from the websites of the EPA and catchments.ie. The conservation objectives documents as well as the conservation objectives supporting documents relevant to the Natura 2000 site affected were also reviewed on the NPWS website. A full bibliography of information sources reviewed is given in the reference section. Online aerial imagery was accessed to characterise the nature of proposed works locations near the Natura 2000 network.

2.2 Assessment Methodology

The European Commission Guidance 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 prescribes a staged process, as set out below, the need for each stage being dependent on the outcomes of the preceding stage.

1. Screening for Appropriate Assessment
2. Appropriate Assessment
3. Assessment of Alternative Solutions
4. Assessment where no alternative solutions exist and adverse impacts remain, i.e. the Imperative Reasons of Overriding Public Interest test, and compensatory measures

The current report is a Screening Report and therefore makes Stage One assessment only.
According to DoEHLG (2010), screening can result in the following possible conclusions or outcomes:

> **AA is not required.** Screening establishes that the plan or project is directly connected with or necessary to the nature conservation management of the site.
>
> **No potential for significant effects/AA is not required.** Screening establishes that there is no potential for significant effects and the project or plan can proceed as proposed. However, no changes may be made after this as this will invalidate the findings of screening. Documentation of the AA screening process, including conclusions reached and how decisions were made, must be kept on file**.**
>
> **Significant effects are certain, likely or uncertain.** The plan or project **must either proceed to Stage 2 (AA), or be rejected**. Rejection of a plan or project that is too potentially damaging and/or inappropriate ends the process and negates any need to proceed to Stage 2 (AA).

The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. Thus, in line with the precautionary principle, it is unacceptable to fail to undertake an appropriate assessment on the basis that it is not certain that there are significant effects.

The approach to screening is likely to differ somewhat for plans and projects, depending on scale and on the likely effects. It is stated in DoEHLG (2010) that any Natura 2000 site within or adjacent to the proposed development area as well as any Natura 2000 sites within the likely zone of impact should be included for assessment. A distance of 15km is currently recommended by DoEHLG (2010) to loosely define the zone of impact in the case of plans but the distance could be much less than 15km, and in some cases less than 100m: this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects. In the case of the current project any Natura 2000 sites in close proximity and / or those with downstream hydrological connectivity have been considered.

When doing a screening it is ***merely necessary to determine that there may be such an effect. '****The threshold at the first stage of Article 6(3) is a very low one. It operates merely as a trigger, in order to determine whether an appropriate assessment must be undertaken on the implications of the plan or project for the conservation objectives of the site.' (Finlay Geoghegan J. in Kelly -v- An Bord Pleanála 2013/802 JR).* A significant effect is defined as "*any effect that may reasonably be predicted as a consequence of a plan or project that may affect the conservation objectives of the features for which the site was designated, but excluding de minimis or inconsequential effects*" (EHS, 2002; English Nature, 2004 & 2006; Scottish Natural Heritage, 2006). Where the potential for a significant impact is identified, or if there is any uncertainty regarding an impact, then an Appropriate Assessment must be completed to assess if this effect would cause an integrity level impact. At Appropriate Assessment (NIS) stage mitigation can also be specified to reduce or avoid this effect. A screening assessment cannot replace the requirement of Appropriate Assessment so if any potential impact on qualifying interests or their habitats (e.g. siltation from works area during construction phase) is identified then Appropriate Assessment is required. Screening must be approached on a precautionary basis with the safeguards set out in Article 6(3) and (4) of the Habitats Directive triggered not by certainty - but by the possibility of significant effects.

3. DESCRIPTION OF PROJECT CHARACTERISTICS

The proposed development comprises a Social Housing Scheme at a site in Keeraun, Ballymoneen Road in Galway City, Co. Galway. The proposed development comprises a total of 71 housing units (mix of 1-4 bed housing units), including social houses, Traveller Appropriate Accommodation (TAA) houses as well as Apartments. Enabling Works have already been undertaken at the proposed development site.

A Civil and Structural Design Report has been completed for the development by RPS Engineering (2021). This report details that there are main foul and surface water services crossing the site, with a watermain owned by Irish Water located on the Ballymoneen Road. There is an existing foul water pipe along the access road within the site with several manholes and is noted in the report to have the ability to facilitate a foul water connection (RPS Consulting, 2021). The proposal includes for a diversion to this network to accommodate the layout of houses for the site. Foul water pipe layout drawings are provided Appendix E of the RPS report. No pre-connection letter from Irish Water has been received.

Storm water is detailed to be directed to an onsite attenuation tank and is aligned with Sustainable Urban Drainage Systems (SuDS) requirements, with a petrol interceptor included. There is also an existing storm water pipe on the site that will have to be diverted. Drawings of the Storm Water network layout are provided in Appendix E of the RPS Report. This report also notes that the drainage ditch on the site will have to be diverted due to the layout of houses, and it is proposed to culvert the drain along its full length. No detailed drawings of the proposed culvert have been provided and the route has yet to be confirmed, according to drawings in Appendix E of the RPS report. The report further notes that a Stage 1 Flood Risk Assessment will be carried out but there are no indications from an initial assessment that the site is subject to flooding (RPS Consulting, 2021). The Stage 1 Flood Risk Assessment has not been completed at the time of writing the current report.

Due to the location of the site, it is considered likely that the proposed development will be connected to the Galway Wastewater Treatment Plant (WwTP) which is located on Mutton Island and discharges directly into both the Galway Bay Complex SAC and the Inner Galway Bay SPA. It appears that this WwTP was upgraded in 2017 to 170, 000 P.E. The most recent available Annual Environmental Report (AER) at the time of writing (4th May 2021) is from 2019. This AER indicates that the discharge at this time was compliant and the annual mean and maximum hydraulic loading is less than the peak Treatment Plant Capacity. The remaining capacity of the plant is given as 67,722 for 2019 and the AER notes that the capacity will not be exceeded in the next three years. The AER also notes upgrades planned at the plant to completed with many noted to be at the planning stage (Irish Water, 2019). An Taisce completed a report in August 2020 on the Mutton Island treatment plant (An Taisce, 2020). This report raises serious concerns over the regular release of raw sewage during high overflow events, backed by testing, coupled with restrictions on swimming in nearby beaches issued by the EPA for ‘Poor’ bathing water quality and therefore challenges that the current capacity of the Mutton Island plant has already been exceed, there is strong uncertainty regarding the adequacy of this plant (An Taisce, 2020).

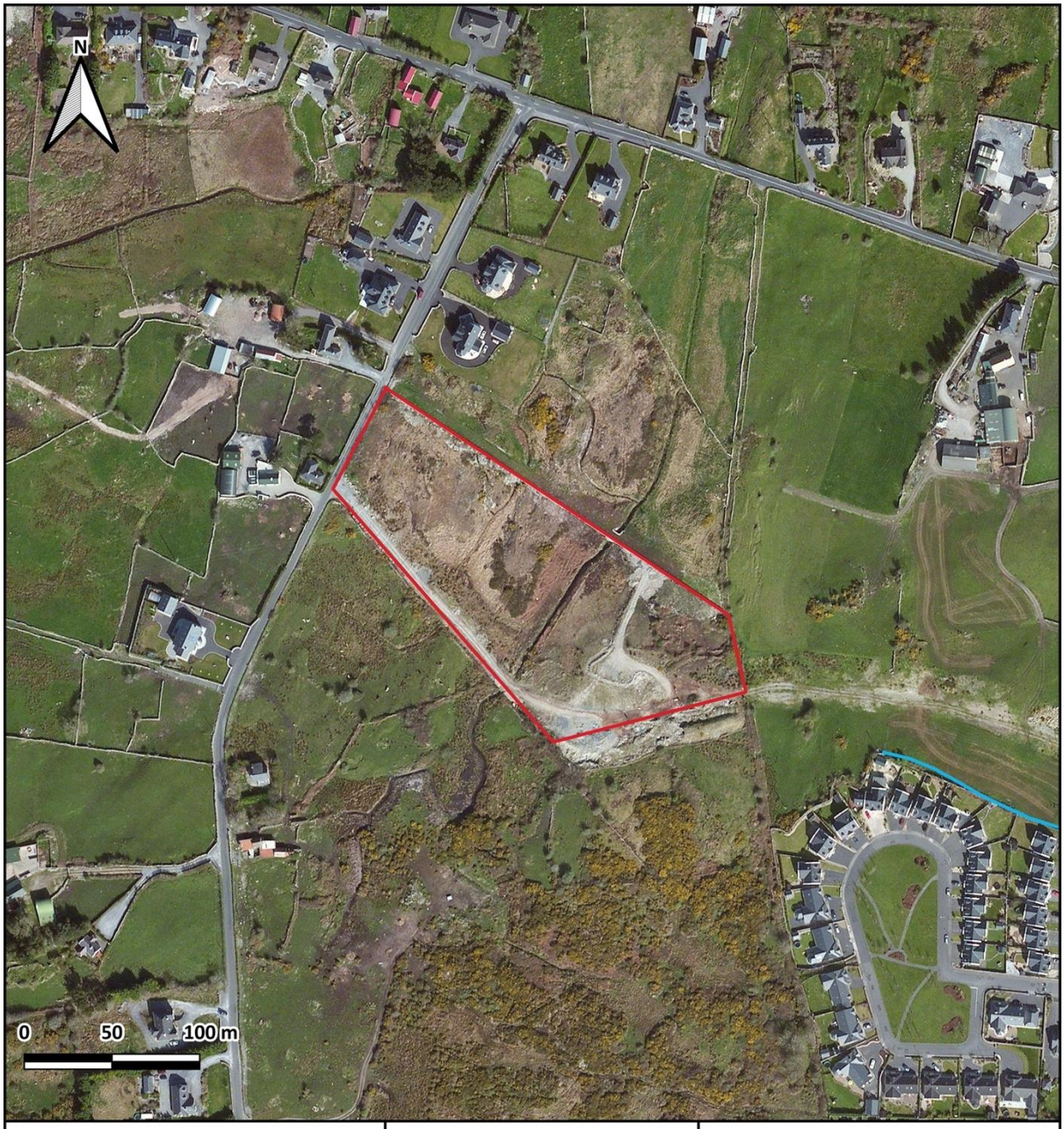

Figure 2 Location of Proposed Development Site at Keeraun, Co. Galway.

4. IDENTIFICATION OF RELEVANT NATURA 2000 SITES

4.1 Rationale for Appropriate Assessment Screening

Article 6 assessments are required under the Habitats Directive (92/43/EEC), in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (Special Areas of Conservation, here after referred to as SACs) or the Birds Directive (Special Protection Areas, here after referred to as SPAs).

Following the guidelines set out by DoEHLG (2010) Screening for Appropriate Assessment is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3); i.e. whether a plan or project can be excluded from Appropriate Assessment requirements because it is directly connected with or necessary to the management of the site; and the potential effects of a project or plan, either alone or in combination with other projects or plans, on a Natura 2000 site in view of its conservation objectives, and considering whether these effects will be significant.

According to DoEHLG (2010), screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the EU Habitats Directive:

> (1) Whether a plan or project is directly connected to or necessary for the management of the site, and;
> (2) Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

The proposed social housing development at Keeraun does not comply with the first screening test (i.e. the proposed works are not directly connected to or necessary for the management of any Natura 2000 site). The current Screening Assessment therefore sets out to determine whether the development, alone or in combination with other plans and projects, is likely to have significant effects on the Natura 2000 sites within the study area.

4.2 Natura 2000 sites considered for the Proposed Development

The location of the proposed social housing development at Keeraun in Co. Galway in the context of the Natura 2000 network is indicated in Figure 2. Special Areas of Conservation (SAC's) are sites of international importance because of the presence of habitats or species that are of European importance, listed on the EU Habitats Directive (1992). Special Protection Areas (SPA's) for birds are designated based on the presence of internationally significant populations of bird species, listed in Annex I of the EU Birds Directive (2009).

Special Areas of Conservation (SAC) and Special Protection Areas (SPAs) considered in the current screening are listed in Table 1. The closest Natura 2000 sites to the proposed development are the Galway Bay Complex SAC (000268) and the Inner Galway Bay SPA (004031). The Galway Bay Complex SAC is located c. 1.8km south and the Inner Galway Bay SPA is located c. 1.9km south.

In relation to other Natura 2000 sites within 15km of the proposed development, the Lough Corrib SAC (000297) is located c. 3.6km east, the Lough Corrib SPA (004042) is located c. 3.1km north-east, the Connemara Bog Complex SAC (002034) is located c. 9.1km west, the Ross Lake and Woods SAC (001312) is located c. 10.9km north, the Creggana Marsh SPA (004142) is located c. 12.1km east, the

Connemara Bog Complex SPA (004181) is located c. 13.1km west, the East Burren Complex SAC (001926) is c. 14.7km south of the site, and the Gortnadarragh Limestone Pavement SAC (001217) is located c. 14.5km north.

4.2.1 Galway Bay Complex SAC

4.2.1.1 Qualifying Habitats

The Galway Bay Complex SAC is located on the west coast of Ireland, where the Burren karstic limestone fringes the southern sides and extends into the sublittoral. West of Galway city the bedrock geology is granite. The site is designated for a diverse range of marine, coastal and terrestrial habitats, making the area of high scientific importance. The proposed development is located c. 1.8km north of this SAC, and it is assumed the residential development will be connected to the Galway WwTP, located on Mutton Island and discharges directly into the Galway Bay Complex SAC.

Mudflats and sandflats not covered by sea water at low tide are mapped in the conservation objectives for the Galway Bay Complex SAC. Map 3 of the conservation objectives show that this habitat is present c. 1.8km south of the site and adjacent to Mutton Island (NPWS, 2013a).

Coastal lagoons are mapped in the conservation objectives, with the closest locations being Lough Atalia and Renmore Lough south of Galway City (NPWS, 2013a). Map 4 of the conservation objectives shows that this habitat is not located downstream of the proposed development, at Mutton Island or the coast south of the site (NPWS, 2013a).

Large shallow inlets and bays in this SAC are illustrated in Map 5 of the conservation objectives and are shown to be present c. 1.8km south of the proposed development site (NPWS, 2013a). This habitat is also located south of Mutton Island, c. 800m from the WwTP discharge (NPWS, 2013a).

Reefs in this SAC are illustrated in Map 6 of the conservation objectives and are shown to be present c. 1.8km south of the proposed development site (NPWS, 2013a). They are also mapped surrounding Mutton Island, where the location of the Galway WwTP discharge is (NPWS, 2013a).

Perennial vegetation of stony banks are mapped in the conservation objectives for the Galway Bay Complex SAC. Map 8 of the conservation objectives show that this habitat is present c. 1.8km south of the site (NPWS, 2013a).

Salicornia mud habitats are mapped in the conservation objectives for the Galway Bay Complex SAC. Map 9 of the conservation objectives show that this habitat is not located in the vicinity of Mutton island or c. 1.8km south of the proposed development site (NPWS, 2013a). This habitat is located on Tawin island (NPWS, 2013a).

Atlantic salt meadows are illustrated in Map 9 of the conservation objectives and are shown to be present c. 1.8km south of the proposed development site (NPWS, 2013a). This habitat is not located at Mutton Island (NPWS, 2013a).

Mediterranean salt meadows are illustrated in Map 9 of the conservation objectives and are shown to be present c. 1.8km south of the proposed development site (NPWS, 2013a). This habitat is not located at Mutton Island (NPWS, 2013a).

Turloughs are mapped in the conservation objectives, with the closest location being Ballinacourty Turlough, west of Tawin island (NPWS, 2013a). Map 10 of the conservation objectives shows that this habitat is not located downstream of the proposed development, at Mutton Island or the coast south of the site (NPWS, 2013a).

Juniper scrub habitats in the SAC are mapped in the conservation objectives, with the closest location being Rocklands Juniper Formation east of Galway City (NPWS, 2013a). Map 10 of the conservation objectives shows that this habitat is not located downstream of the proposed development, at Mutton Island or the coast south of the site (NPWS, 2013a).

Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*) (*important orchid sites) are not mapped in the conservation objectives but it does note that the extent in the SAC is currently unknown (NPWS, 2013a). It further notes that this habitat is likely to be small and often in a mosaic with other habitats such as limestone pavement and scrub (NPWS, 2013a).

Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* habitat is not mapped in the conservation objectives but it does note that the extent in the SAC is currently unknown (NPWS, 2013a). It further notes that this habitat occurs in wetland in Oranmore, as well as in Ballindereen Lough, usually found in a mosaic of other habitats (NPWS, 2013a).

Alkaline fens habitat is not mapped in the conservation objectives but it does note that the extent in the SAC is currently unknown (NPWS, 2013a). It further notes that this habitat occurs in wetland in Oranmore, as well as in Ballindereen Lough, usually found in a mosaic of other habitats (NPWS, 2013a).

4.2.1.2 Qualifying Species

The Galway Bay Complex SAC is located on the west coast of Ireland, where the Burren karstic limestone fringes the southern sides and extends into the sublittoral. West of Galway city the bedrock geology is granite. The site is designated for the conservation of two protected species within the SAC.

Otter commuting habitat in the SAC is mapped in Map 11 of the conservation objectives, which shows commuting habitat c. 1.8km south of the proposed development and surrounding Mutton Island, where the Galway WwTP is located (NPWS, 2013a).

Harbour seal breeding, moulting and resting and general habitat is mapped in Map 12 of the conservation objectives for the SAC (NPWS, 2013a). This map shows that there is general habitat both c. 1.8km south of the proposed development and at Mutton Island, but no known breeding, resting or moulting sites are located here (NPWS, 2013a).

4.2.2 Inner Galway Bay SPA

4.2.2.1 Qualifying Habitats

The only habitat designated as part of the Inner Galway Bay SPA is the Wetland and waterbirds habitat that the bird species utilise. This habitat comprises the extent of wetlands habitats within the boundary of the SPA. Therefore, this habitat is present both at Mutton Island and c. 1.9km south of the proposed development site (NPWS, 2013b).

4.2.2.2 Qualifying Species

The bird species in the Inner Galway Bay SPA are protected using the ecological characteristics and distributions informed by the supporting documents for the SPA. These supporting documents examine waterbird distributions recorded during the 2009/10 waterbird survey programme, drawing also on data from NPWS monitoring programmes (e.g. benthic surveys) and the Irish Wetland Bird Survey (I-WeBS) (NPWS, 2013c).

Light-bellied Brent Goose are shown in the dot density diagrams for the 2009/10 waterbird surveys to both forage and roost in small numbers c. 1.9km south of the proposed development site and at Mutton Island, in the subtidal zones (NPWS, 2013c). During the winter the site regularly supports 1% or more of the biogeographical population of Light-bellied Brent Goose, with the mean peak number within the SPA during the baseline period (1995/96 – 1999/00) being 676 individuals (NPWS, 2013c).

Red-breasted Merganser are shown in the dot density diagrams for the 2009/10 waterbird surveys to both forage and roost in small numbers c. 2.1km south of the proposed development site and forage Mutton Island, in the subtidal zones (NPWS, 2013c). During the winter the site regularly supports 1% or more of the All-Ireland population of Red-breasted Merganser, with the mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) being 249 individuals (NPWS, 2013c).

Great Northern Diver are shown in the dot density diagrams for the 2009/10 waterbird surveys to forage in small numbers c. 2km south of the proposed development site and also forage at Mutton Island, in the subtidal zones (NPWS, 2013c). During the winter the site regularly supports 1% or more of the biogeographical population of Great Northern Diver, with the mean peak number within the SPA during the baseline period (1995/96 – 1999/00) being 94 individuals (NPWS, 2013c).

Cormorant are shown in the dot density diagrams for the 2009/10 waterbird surveys to both forage and roost c. 1.9km south of the proposed development site and Mutton Island, in the subtidal zones (NPWS, 2013c). During winter the site regularly supports 1% of more of the all-Ireland population of Cormorant, with the mean peak number within the SPA during the baseline period (1995/96 – 1999/00) being 266 individuals (NPWS, 2013c). In 2000, as part of the Seabird 2000 survey, 200 pars of Cormorant (based on apparently occupied nests0 were estimated on Deer Island; exceeding the All-Ireland 1% threshold and making the site of national importance for this species (NPWS, 2013c).

Grey Heron are shown in the dot density diagrams for the 2009/10 waterbird surveys to forage in small numbers c. 2km south of the proposed development site and also forage at Mutton Island, in the subtidal zones (NPWS, 2013c). During the winter the site regularly supports 1% or more of the All-Ireland population of Grey Heron, with the mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) being 102 individuals (NPWS, 2013c).

Ringed Plover are shown in the dot density diagrams for the 2009/10 waterbird surveys to forage in c. 2km south of the proposed development site and also at Mutton Island, in the subtidal zones (NPWS, 2013c). During the winter the site regularly supports 1% or more of the All-Ireland population of Ringed Plover, with the mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) being 335 individuals (NPWS, 2013c).

Bar-tailed Godwit are shown in the dot density diagrams for the 2009/10 waterbird surveys to forage in c. 1.9km south of the proposed development site and also forage at Mutton Island, in the subtidal zones (NPWS, 2013c). During the winter the site regularly supports 1% or more of the All-Ireland population

of Bar-tailed Godwit, with the mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) being 447 individuals (NPWS, 2013c).

Turnstone are shown in the dot density diagrams for the 2009/10 waterbird surveys to forage in c. 1.9km south of the proposed development site and also forage at Mutton Island, in the subtidal zones (NPWS, 2013c). During the winter the site regularly supports 1% or more of the All-Ireland population of Turnstone, with the mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) being 182 individuals (NPWS, 2013c).

Wigeon are shown in the dot density diagrams for the 2009/10 waterbird surveys to forage in c. 1.9km south of the proposed development site and also forage at Mutton Island, in the subtidal zones (NPWS, 2013c). For the baseline period surveys of the site (1995/96 – 1999/00) numbers of Wigeon recorded were of All-Ireland importance (NPWS, 2013c).

Teal are shown in the dot density diagrams for the 2009/10 waterbird surveys to forage in c. 2.1km south of the proposed development site and also forage at Mutton Island, in the subtidal zones (NPWS, 2013c). For the baseline period surveys of the site (1995/96 – 1999/00) numbers of Teal recorded were of All-Ireland importance (NPWS, 2013c).

Golden Plover are shown in the dot density diagrams for the 2009/10 waterbird surveys, but based on these surveys do not forage or roost either c. 1.9km south of the proposed development site or at Mutton Island. Instead, these birds are primarily found at Oranmore Bay and Tawin island (NPWS, 2013c). For the baseline period surveys of the site (1995/96 – 1999/00) numbers of Golden Plover recorded were of All-Ireland importance (NPWS, 2013c).

Lapwing are shown in the dot density diagrams for the 2009/10 waterbird surveys to forage in small numbers c. 2km south of the proposed development site in the subtidal zones, but are primarily found in Oranmore Bay and Tawin island (NPWS, 2013c). For the baseline period surveys of the site (1995/96 – 1999/00) numbers of Lapwing recorded were of All-Ireland importance (NPWS, 2013c).

Dunlin are shown in the dot density diagrams for the 2009/10 waterbird surveys to forage in c. 1.9km south of the proposed development site and also forage at Mutton Island, in the subtidal zones (NPWS, 2013c). For the baseline period surveys of the site (1995/96 – 1999/00) numbers of Dunlin recorded were of All-Ireland importance (NPWS, 2013c).

Curlew are shown in the dot density diagrams for the 2009/10 waterbird surveys to forage in small numbers c. 2km south of the proposed development site and also forage at Mutton Island, in the subtidal zones (NPWS, 2013c). For the baseline period surveys of the site (1995/96 – 1999/00) numbers of Curlew recorded were of All-Ireland importance (NPWS, 2013c).

Redshank are shown in the dot density diagrams for the 2009/10 waterbird surveys to both forage and roost c. 1.9km south of the proposed development site and Mutton Island, in the subtidal zones (NPWS, 2013c). For the baseline period surveys of the site (1995/96 – 1999/00) numbers of Redshank recorded were of All-Ireland importance (NPWS, 2013c).

Black-headed Gull are shown in the dot density diagrams for the 2009/10 waterbird surveys to both forage and roost c. 1.9km south of the proposed development site and Mutton Island, in the subtidal zones (NPWS, 2013c). For the baseline period surveys of the site (1995/96 – 1999/00) numbers of Black-headed Gull recorded were of All-Ireland importance (NPWS, 2013c).

Common Gull are shown in the dot density diagrams for the 2009/10 waterbird surveys to both forage and roost c. 1.9km south of the proposed development site and Mutton Island, in the subtidal zones (NPWS, 2013c). For the baseline period surveys of the site (1995/96 – 1999/00) numbers of Common Gull recorded were of All-Ireland importance (NPWS, 2013c).

Black-throated Diver are not mapped as part of the dot density diagrams for the 2009/10 waterbird surveys (NPWS, 2013c). However, the conservation objectives supporting document does note that 36 individuals were recorded for the baseline data period (1995/96-1999/00) and the site average (2004/05-2008/09) was 14 individuals (NPWS, 2013c).

Sandwich Tern are not mapped as part of the dot density diagrams for the 2009/10 waterbird surveys (NPWS, 2013c). However, the conservation objectives supporting document does note that in 1995 as part of the All-Ireland Tern Survey, the breeding population of Inner Galway Bay was surveyed and 81 pairs were recorded, which exceeds the 1% threshold for this Annex I species (NPWS, 2013c).

Common Tern are not mapped as part of the dot density diagrams for the 2009/10 waterbird surveys (NPWS, 2013c). However, the conservation objectives supporting document does note that in 1995 as part of the All-Ireland Tern Survey, 98 pairs of Common Tern were recorded at Green island in Ballyvaughan Bay in Co Clare. The Seabird 2000 survey recorded 46 pairs on Mutton Island in Co. Galway in 2001, with both of these counts exceeding the 1% threshold for this Annex I species (NPWS, 2013c).

Table 1 Designated Natura 2000 Sites and associated Qualifying Interests within 15km of the proposed social housing development at Keeraun, Ballymoneen Road, Galway City, Co. Galway.

Natura 2000 Site	Qualifying Interest	Distance (km)
Galway Bay Complex SAC (000268)	Mudflats and sandflats not covered by seawater at low tide [1140]	c. 1.8km South
	Coastal lagoons [1150]	
	Large shallow inlets and bays [1160]	
	Reefs [1170]	
	Perennial vegetation of stony banks [1220]	
	Salicornia and other annuals colonising mud and sand [1310]	
	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	
	Mediterranean salt meadows (*Juncetalia maritimi*) [1410]	
	Turloughs [3180]	
	Juniperus communis formations on heaths or calcareous grasslands [5130]	
	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]	
	Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210]	
	Alkaline fens [7230]	
	Limestone pavements [8240]	
	Lutra lutra (Otter) [1355]	
	Phoca vitulina (Harbour Seal) [1365]	
Inner Galway Bay SAC (004031)	Black-throated Diver (*Gavia arctica*) [A002]	c. 1.9km South
	Great Northern Diver (*Gavia immer*) [A003]	
	Cormorant (*Phalacrocorax carbo*) [A017]	
	Grey Heron (*Ardea cinerea*) [A028]	
	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]	
	Wigeon (*Anas penelope*) [A050]	
	Teal (*Anas crecca*) [A052]	

Natura 2000 Site	Qualifying Interest	Distance (km)
	Red-breasted Merganser (*Mergus serrator*) [A069]	
	Ringed Plover (*Charadrius hiaticula*) [A137]	
	Golden Plover (*Pluvialis apricaria*) [A140]	
	Lapwing (*Vanellus vanellus*) [A142]	
	Dunlin (*Calidris alpina*) [A149]	
	Bar-tailed Godwit (*Limosa lapponica*) [A157]	
	Curlew (*Numenius arquata*) [A160]	
	Redshank (*Tringa totanus*) [A162]	
	Turnstone (*Arenaria interpres*) [A169]	
	Black-headed Gull (*Chroicocephalus ridibundus*) [A179]	
	Common Gull (*Larus canus*) [A182]	
	Sandwich Tern (*Sterna sandvicensis*) [A191]	
	Common Tern (*Sterna hirundo*) [A193]	
	Wetland and Waterbirds [A999]	
Lough Corrib SAC (000297)	Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]	c. 3.6km east
	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]	
	Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	
	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]	
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]	
	Active raised bogs [7110]	
	Degraded raised bogs still capable of natural regeneration [7120]	
	Depressions on peat substrates of the Rhynchosporion [7150]	
	Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae [7210]	
	Petrifying springs with tufa formation (*Cratoneurion)* [7220]	
	Alkaline fens [7230]	
	Limestone pavements [8240]	
	Old sessile oak woods with *Ilex* and *Blechnu*m in the British Isles [91A0]	
	Bog woodland [91D0]	
	Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	
	Austropotamobius pallipes (White-clawed Crayfish) [1092]	
	Petromyzon marinus (Sea Lamprey) [1095]	
	Lampetra planeri (Brook Lamprey) [1096]	
	Salmo salar (Salmon) [1106]	
	Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	
	Lutra lutra (Otter) [1355]	
	Najas flexilis (Slender Naiad) [1833]	
	Hamatocaulis vernicosus (Slender Green Feather-moss) [6216]	
Lough Corrib SPA (004042)	Gadwall (*Anas strepera*) [A051]	c. 3.1km north-east
	Shoveler (*Anas clypeata*) [A056]	
	Pochard (*Aythya ferina*) [A059]	
	Tufted Duck (*Aythya fuligula*) [A061]	
	Common Scoter (*Melanitta nigra*) [A065]	
	Hen Harrier (*Circus cyaneus*) [A082]	
	Coot (*Fulica atra*) [A125]	

Natura 2000 Site	Qualifying Interest	Distance (km)
	Golden Plover (*Pluvialis apricaria*) [A140]	
	Black-headed Gull (*Chroicocephalus ridibundus*) [A179]	
	Common Gull (*Larus canus*) [A182]	
	Common Tern (*Sterna hirundo*) [A193]	
	Arctic Tern (*Sterna paradisaea*) [A194]	
	Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	
	Wetland and Waterbirds [A999]	
Connemara Bog complex SAC (002034)	Coastal lagoons [1150]	c. 9.1km West
	Reefs [1170]	
	Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]	
	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]	
	Natural dystrophic lakes and ponds [3160]	
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	
	Northern Atlantic wet heaths with *Erica tetralix* [4010]	
	European dry heaths [4030]	
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]	
	Blanket bogs (* if active bog) [7130]	
	Transition mires and quaking bogs [7140]	
	Depressions on peat substrates of the Rhynchosporion [7150]	
	Alkaline fens [7230]	
	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	
	Euphydryas aurinia (Marsh Fritillary) [1065]	
	Salmo salar (Salmon) [1106]	
	Lutra lutra (Otter) [1355]	
	Najas flexilis (Slender Naiad) [1833]	
Ross Lake and Woods SAC (001312)	Lesser Horseshoe bat *Rhinolophus hipposideros* [1303]	c. 10.9km north
	Hard Oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	
Creggana Marsh SPA (004142)	Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	c. 12.1km east
Connemara Bog Complex SPA (004181)	Cormorant (*Phalacrocorax carbo*) [A017]	c. 13.1km west
	Merlin (*Falco columbarius*) [A098]	
	Golden Plover (*Pluvialis apricaria*) [A140]	
	Common Gull (*Larus canus*) [A182]	
East Burren Complex SAC (001926)	Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	c. 14.7km South
	Turloughs [3180]	
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	
	Alpine and Boreal heaths [4060]	
	Juniperus communis formations on heaths or calcareous grasslands [5130]	
	Calaminarian grasslands of the *Violetalia calaminariae* [6130]	
	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]	
	Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) [6510]	
	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]	

Natura 2000 Site	Qualifying Interest	Distance (km)
	Petrifying springs with tufa formation (*Cratoneurion*) [7220]	
	Alkaline fens [7230]	
	Limestone pavements [8240]	
	Caves not open to the public [8310]	
	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]	
	Euphydryas aurinia (Marsh Fritillary) [1065]	
	Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	
	Lutra lutra (Otter) [1355]	
Gortnadarragh Limestone Pavement SAC (001217)	Limestone pavements [8240]	c. 14.5km north

5. ASSESSMENT OF EFFECTS

Table 2 below outlines the locations of the Qualifying Interests of Natura 2000 Sites within 15km of the proposed development, as well as potential pathways for impacts.

Table 2 Designated Natura 2000 Sites within 15km of the proposed works, the potential location of Q.I.s in relation to the proposed works, potential pathways for impacts and potential impacts arising from the proposed works.

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
Galway Bay Complex SAC (000268)	Mudflats and sandflats not covered by seawater at low tide [1140]	c. 1.8km south of the site and adjacent to Mutton Island where Galway WwTP located – according to Map 3 of the conservation objectives (NPWS, 2013a).	Yes	Yes – Two potential pathways for effects – via the drain on site and the Tonabrocky Stream (c. 2.5rkm upstream of the SAC) and the Galway WwTP at Mutton Island which discharges directly into the SAC
	Coastal lagoons [1150]	Located at Lough Atalia and Renmore lough south of Galway City – not downstream or in the vicinity of the proposed development or Mutton island – according to conservation objectives Map 4 (NPWS, 2013a).	No	No – no potential pathway for impacts – no downstream hydrological connection with this habitat in the SAC
	Large shallow inlets and bays [1160]	c. 1.8km south of the site and c. 800m south of Mutton island where Galway WwTP located – according to Map 5 of the conservation objectives (NPWS, 2013a).	Yes	Yes – Two potential pathways for effects – via the drain on site and the Tonabrocky Stream (c. 2.5rkm upstream of the SAC) and the Galway WwTP at Mutton Island which discharges directly into the SAC
	Reefs [1170]	c. 1.8km south of the site and at Mutton Island where Galway WwTP located – according to Map 6 of the conservation objectives (NPWS, 2013a).	Yes	
	Perennial vegetation of stony banks [1220]	c. 1.8km south of the site – according to Map 8 of the conservation objectives (NPWS, 2013a).	No	No – no potential pathway for impacts – terrestrial habitat with no connection with the proposed development site
	Salicornia and other annuals colonising mud and sand [1310]	Located on Taiwin Island – not downstream or in the vicinity of the proposed development or Mutton island – according to conservation objectives Map 9 (NPWS, 2013a).	No	No – no potential pathway for impacts – no downstream hydrological connection with this habitat in the SAC
	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	c. 1.8km south of the site – according to Map 9 of the conservation objectives, but not at Mutton island (NPWS, 2013a).	Yes	Yes – Two potential pathways for effects – via the drain on site and the Tonabrocky Stream (c. 2.5rkm upstream of the SAC) and the Galway WwTP at

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
	Mediterranean salt meadows (*Juncetalia maritimi*) [1410]	c. 1.8km south of the site – according to Map 9 of the conservation objectives, but not at Mutton island (NPWS, 2013a).	Yes	Mutton Island which discharges directly into the SAC
	Turloughs [3180]	Located west of Tawin Island at Ballinacourty Lough (closest example) – not located downstream of proposed development or at Mutton island (NPWS, 2013a)	No	No – no potential pathway for impacts – no downstream hydrological connection with this habitat in the SAC
	Juniperus communis formations on heaths or calcareous grasslands [5130]	Located at Rocklands Juniper formations east of Galway city (closest example) – not located downstream of proposed development or at Mutton island (NPWS, 2013a)	No	No – no potential pathway for impacts – terrestrial habitat with no connection with the proposed development site
	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]	Extent unknown – terrestrial habitat – SAC boundary c. 1.8km south of the site at its closest point (NPWS, 2013a).	No	
	Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210]	Extent unknown – present in wetlands at Oranmore and Ballindereen lough - terrestrial habitat – SAC boundary c. 1.8km south of the site at its closest point (NPWS, 2013a).	No	No – no potential pathway for impacts – no downstream hydrological connection with this habitat in the SAC
	Alkaline fens [7230]	Extent unknown – present in wetlands at Oranmore and Ballindereen lough - terrestrial habitat – SAC boundary c. 1.8km south of the site at its closest point (NPWS, 2013a).	No	
	Limestone pavements [8240]	Extent unknown – terrestrial habitat – SAC boundary c. 1.8km south of the site at its closest point (NPWS, 2013a).	No	No – no potential pathway for impacts – terrestrial habitat with no connection with the proposed development site
	Lutra lutra (Otter) [1355]	Commuting buffer in Map 11 of the conservation objectives includes the area of the coast c. 1.8km south of the site and at Mutton island (NPWS, 2013a).	Yes	Yes – Two potential pathways for effects – via the drain on site and the Tonabrocky Stream (c. 2.5rkm upstream of the SAC) and the Galway WwTP at Mutton Island which discharges directly into the SAC
	Phoca vitulina (Harbour Seal) [1365]	Map 12 of the conservation objectives shows general habitat c. 1.8km south of the site and at Mutton island but no known breeding, resting or moulting sites located here (NPWS, 2013a).	Yes	

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
Inner Galway Bay SAC (004031)	Black-throated Diver (*Gavia arctica*) [A002]	Not mapped in dot density diagrams – so precautionary principle could use the SPA extent c. 1.9km south of the site and at Mutton island (NPWS, 2013a).	Yes	Yes – Two potential pathways for effects – via the drain on site and the Tonabrocky Stream (c. 2.5rkm upstream of the SAC) and the Galway WwTP at Mutton Island which discharges directly into the SAC
	Great Northern Diver (*Gavia immer*) [A003]	Forage in small numbers c.1.9km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Cormorant (*Phalacrocorax carbo*) [A017]	Forage and roost c.1.9km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Grey Heron (*Ardea cinerea*) [A028]	Forage in small numbers c.1.9km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]	Forage and roost in small numbers c.1.9km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Wigeon (*Anas penelope*) [A050]	Forage in small numbers c.1.9km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Teal (*Anas crecca*) [A052]	Forage c.2.1km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Red-breasted Merganser (*Mergus serrator*) [A069]	Forage and roost in small numbers c.2.1km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Ringed Plover (*Charadrius hiaticula*) [A137]	Forage c.2km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
	Golden Plover (*Pluvialis apricaria*) [A140]	Do not forage or roost at SPA extent either c.1.9km south of the proposed development or at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c). However, do forage at Oranmore Bay and Taiwin Island south of Mutton Island (NPWS, 2013c).	Yes	
	Lapwing (*Vanellus vanellus*) [A142]	Forage in small numbers c.2km south of the proposed development but primarily found at Oranmore bay and Tawin island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Dunlin (*Calidris alpina*) [A149]	Forage c.1.9km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Bar-tailed Godwit (*Limosa lapponica*) [A157]	Forage c.1.9km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Curlew (*Numenius arquata*) [A160]	Forage in small numbers c.2km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Redshank (*Tringa totanus*) [A162]	Forage and roost c.1.9km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Turnstone (*Arenaria interpres*) [A169]	Forage c.1.9km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Black-headed Gull (*Chroicocephalus ridibundus*) [A179]	Forage and roost c.1.9km south of the proposed development and at Mutton island, according to dot density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).	Yes	
	Common Gull (*Larus canus*) [A182]	Forage and roost c.1.9km south of the proposed development and at Mutton island, according to dot	Yes	

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
		density diagrams for 2009/10 waterbird surveys (NPWS, 2013c).		
	Sandwich Tern (*Sterna sandvicensis*) [A191]	Not mapped in dot density diagrams – so precautionary principle could use the SPA extent c. 1.9km south of the site and at Mutton island (NPWS, 2013a).	Yes	
	Common Tern (*Sterna hirundo*) [A193]	Not mapped in dot density diagrams – so precautionary principle could use the SPA extent c. 1.9km south of the site and at Mutton island (NPWS, 2013a).	Yes	
	Wetland and Waterbirds [A999]	Located at SPA extent c 1.8km south of the site and at Mutton island (NPWS, 2013a).	Yes	
Lough Corrib SAC (000297)	Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – no downstream hydrological connection with this habitat in the SAC
	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-*	c. 3.6km east of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial habitat with no connection with the proposed development site

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
	Brometalia) (* important orchid sites) [6210]			
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]	c. 3.6km east of the proposed development at its closest point	No	
	Active raised bogs [7110]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – no downstream hydrological connection with this habitat in the SAC
	Degraded raised bogs still capable of natural regeneration [7120]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Depressions on peat substrates of the Rhynchosporion [7150]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae [7210]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Petrifying springs with tufa formation (*Cratoneurion)* [7220]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Alkaline fens [7230]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Limestone pavements [8240]	c. 3.6km east of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial habitat with no connection with the proposed development site
	Old sessile oak woods with *Ilex* and *Blechnu*m in the British Isles [91A0]	c. 3.6km east of the proposed development at its closest point	No	
	Bog woodland [91D0]	c. 3.6km east of the proposed development at its closest point	No	
	Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – no downstream hydrological connection with this species in the SAC
	Austropotamobius pallipes (White-clawed Crayfish) [1092]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
	Petromyzon marinus (Sea Lamprey) [1095]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Lampetra planeri (Brook Lamprey) [1096]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Salmo salar (Salmon) [1106]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	c. 3.6km east of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial species with no connection with the proposed development site
	Lutra lutra (Otter) [1355]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – no downstream hydrological connection with this species in the SAC
	Najas flexilis (Slender Naiad) [1833]	c. 3.6km east of the proposed development at its closest point, not located downstream	No	
	Hamatocaulis vernicosus (Slender Green Feather-moss) [6216]	c. 3.6km east of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial species with no connection with the proposed development site
Lough Corrib SPA (004042)	Gadwall (*Anas strepera*) [A051]	c. 3.1km north-east of the proposed development at its closest point	No	No – no potential pathway for impacts – significant separation from the proposed development site - no downstream hydrological connection with this species in the SPA
	Shoveler (*Anas clypeata*) [A056]	c. 3.1km north-east of the proposed development at its closest point	No	
	Pochard (*Aythya ferina*) [A059]	c. 3.1km north-east of the proposed development at its closest point	No	
	Tufted Duck (*Aythya fuligula*) [A061]	c. 3.1km north-east of the proposed development at its closest point	No	
	Common Scoter (*Melanitta nigra*) [A065]	c. 3.1km north-east of the proposed development at its closest point	No	
	Hen Harrier (*Circus cyaneus*) [A082]	c. 3.1km north-east of the proposed development at its closest point	No	
	Coot (*Fulica atra*) [A125]	c. 3.1km north-east of the proposed development at its closest point	No	
	Golden Plover (*Pluvialis apricaria*) [A140]	c. 3.1km north-east of the proposed development at its closest point	No	
	Black-headed Gull (*Chroicocephalus ridibundus*) [A179]	c. 3.1km north-east of the proposed development at its closest point	No	
	Common Gull (*Larus canus*) [A182]	c. 3.1km north-east of the proposed development at its closest point	No	

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
	Common Tern (*Sterna hirundo*) [A193]	c. 3.1km north-east of the proposed development at its closest point	No	
	Arctic Tern (*Sterna paradisaea*) [A194]	c. 3.1km north-east of the proposed development at its closest point	No	
	Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	c. 3.1km north-east of the proposed development at its closest point	No	
	Wetland and Waterbirds [A999]	c. 3.1km east of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – no downstream hydrological connection with this habitat in the SPA
Connemara Bog complex SAC (002034)	Coastal lagoons [1150]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – significant separation from the proposed development site - no downstream hydrological connection with this habitat in the SAC
	Reefs [1170]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
	Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
	Natural dystrophic lakes and ponds [3160]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
	Northern Atlantic wet heaths with *Erica tetralix* [4010]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
	European dry heaths [4030]	c. 9.1km West of the proposed development at its closest point	No	

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]	c. 9.1km West of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial habitat with no connection with the proposed development site – significant separation
	Blanket bogs (* if active bog) [7130]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – significant separation from the proposed development site - no downstream hydrological connection with this habitat in the SAC
	Transition mires and quaking bogs [7140]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
	Depressions on peat substrates of the Rhynchosporion [7150]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
	Alkaline fens [7230]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	c. 9.1km West of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial habitat with no connection with the proposed development site – significant separation
	Euphydryas aurinia (Marsh Fritillary) [1065]	c. 9.1km West of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial species with no connection with the proposed development site – significant separation
	Salmo salar (Salmon) [1106]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – significant separation from the proposed development site - no downstream hydrological connection with this species in the SAC
	Lutra lutra (Otter) [1355]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
	Najas flexilis (Slender Naiad) [1833]	c. 9.1km West of the proposed development at its closest point, not located downstream	No	
Ross Lake and Woods SAC (001312)	Lesser Horseshoe bat *Rhinolophus hipposideros* [1303]	c. 10.9km north of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial species with no connection with the proposed development site – significant separation
	Hard Oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	c. 10.9km north of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – significant separation from the proposed development site - no downstream hydrological connection with this habitat in the SAC
Creggana Marsh SPA (004142)	Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	c. 12.1km east of the proposed development at its closest point	No	

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
Connemara Bog Complex SPA (004181)	Cormorant (*Phalacrocorax carbo*) [A017]	c. 13.1km west of the proposed development at its closest point	No	No – no potential pathway for impacts – significant separation from the proposed development site - no downstream hydrological connection with this species in the SPA
	Merlin (*Falco columbarius*) [A098]	c. 13.1km west of the proposed development at its closest point	No	
	Golden Plover (*Pluvialis apricaria*) [A140]	c. 13.1km west of the proposed development at its closest point	No	
	Common Gull (*Larus canus*) [A182]	c. 13.1km west of the proposed development at its closest point	No	
East Burren Complex SAC (001926)	Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	c. 14.7km South of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – significant separation from the proposed development site - no downstream hydrological connection with this habitat in the SAC
	Turloughs [3180]	c. 14.7km South of the proposed development at its closest point, not located downstream	No	
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	c. 14.7km South of the proposed development at its closest point, not located downstream	No	
	Alpine and Boreal heaths [4060]	c. 14.7km South of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial habitat with no connection with the proposed development site – significant separation
	Juniperus communis formations on heaths or calcareous grasslands [5130]	c. 14.7km South of the proposed development at its closest point	No	
	Calaminarian grasslands of the *Violetalia calaminariae* [6130]	c. 14.7km South of the proposed development at its closest point	No	
	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]	c. 14.7km South of the proposed development at its closest point	No	
	Lowland hay meadows (*Alopecurus pratensis,*	c. 14.7km South of the proposed development at its closest point	No	

Natura 2000 Site	Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Impacts (Yes/No)	Potential for Significant Impacts
	Sanguisorba officinalis) [6510]			
	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]	c. 14.7km South of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – significant separation from the proposed development site - no downstream hydrological connection with this habitat in the SAC
	Petrifying springs with tufa formation (*Cratoneurion*) [7220]	c. 14.7km South of the proposed development at its closest point, not located downstream	No	
	Alkaline fens [7230]	c. 14.7km South of the proposed development at its closest point, not located downstream	No	
	Limestone pavements [8240]	c. 14.7km South of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial habitat with no connection with the proposed development site – significant separation
	Caves not open to the public [8310]	c. 14.7km South of the proposed development at its closest point	No	
	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]	c. 14.7km South of the proposed development at its closest point	No	
	Euphydryas aurinia (Marsh Fritillary) [1065]	c. 14.7km South of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial species with no connection with the proposed development site – significant separation
	Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	c. 14.7km South of the proposed development at its closest point	No	
	Lutra lutra (Otter) [1355]	c. 14.7km South of the proposed development at its closest point, not located downstream	No	No – no potential pathway for impacts – significant separation from the proposed development site - no downstream hydrological connection with this species in the SAC
Gortnadarragh Limestone Pavement SAC (001217)	Limestone pavements [8240]	c. 14.5km north of the proposed development at its closest point	No	No – no potential pathway for impacts – terrestrial habitat with no connection with the proposed development site – significant separation

5.1 Assessment of potential direct impacts affecting Natura 2000 sites

5.1.1 Galway Bay Complex SAC

5.1.1.1 Construction Phase

The proposed development site is located c. 1.8km north of this SAC and outside the Natura 2000 network. None of the qualifying interests of the SAC occur on the proposed development site. There is therefore no potential for direct construction phase impacts to arise which could affect the conservation objectives of the SAC or the Natura 2000 network.

5.1.1.2 Operational Phase

The proposed development site is located c. 1.8km north of this SAC and outside the Natura 2000 network. None of the qualifying interests of the SAC occur on the proposed development site. There is therefore no potential for direct operational phase impacts to arise which could affect the conservation objectives of the SAC or the Natura 2000 network.

5.1.2 Inner Galway Bay SPA

5.1.2.1 Construction Phase

The proposed development site is located c. 1.9km north of this SPA. None of the qualifying interests of the SAC occur on the proposed development site. There is therefore no potential for direct construction phase impacts to arise which could affect the conservation objectives of the SPA.

5.1.2.2 Operational Phase

The proposed development site is located c. 1.9km north of this SAC. None of the qualifying interests of the SAC occur on the proposed development site. There is therefore no potential for direct operational phase impacts to arise which could affect the conservation objectives of the SPA.

5.2 Assessment of potential indirect impacts affecting Natura 2000 sites

Indirect (or secondary) impacts are defined as effects that are “caused by and result from the activity although they are later in time or further removed in distance, but still reasonably foreseeable” (Bowers-Marriott, 1997).

5.2.1 Galway Bay Complex SAC

5.2.1.2 Construction Phase

Using the Source-Pathway-Receptor model, there is a potential pathway for significant effects on the Galway Bay Complex SAC during the construction phase of the proposed development.

There is a drain on the site that flows towards the adjacent Tonabrocky Stream (EPA Code: 31T13), which flows into Galway Bay c. 2.5rkm downstream, where it is designated as both the Galway Bay Complex SAC and the Inner Galway Bay SPA. There is therefore, the potential pathway for indirect

construction phase impacts on water quality through this drain on site which is connected with the SAC. This could affect the following qualifying interests of the site: Mudflats and sandflats not covered by seawater at low tide; Large shallow inlets and bays; Reefs; Atlantic salt meadows; Mediterranean salt meadows; Otters and Harbour seal. These QIs are identified as potential receptors.

Earth works and levelling will be required at the site as well as culverting the existing drain. With construction machinery and workers on site this also adds to the potential for pollution run-off, suspended solids and accidental spillages of oils / fuels, which could enter the SAC via the drain, in the absence of any mitigation. Hydraulic fluids and oils can lead to significant mortality to aquatic, marine and coastal life at varying degrees. Concrete / cement in watercourses can significantly affect turbidity and alter pH levels, affecting habitats and the species that utilise them. Furthermore, sediment pollution and run-off can impact the natural sediment processes of the coastal habitats that occur in Galway Bay, as well as impacting species indirectly by degrading habitats.

The source of potential impacts has been identified as construction phase run-off and pollution as described above. The pathway for these potential impacts has been identified via the drain on the site which flows into the Tonabrocky Stream and into the SAC downstream. The receptors have been identified as QIs in the SAC that are sensitive to changes in water quality. Mitigation to protect water quality and the qualifying interests of the SAC will be required.

The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. A screening assessment cannot replace the requirement of Appropriate Assessment so if any potential impact on qualifying interests or their habitats (e.g. construction phase run off) is identified then Appropriate Assessment is required. Mitigation is also required to ensure no significant impacts occur - as demonstrated in case C-323/17 People Over Wind and Peter Sweetman v Coillte, mitigation measures are not be taken into account at the screening stage of Appropriate Assessment.

There is no potential for disturbance impacts, including noise and increased human activity, to arise affecting any of the qualifying interests of the SAC as the proposed development site is significantly separated from the habitats that these species utilise. There are also significant barriers of residential housing and roads in between the site and the SAC. Similarly, there is no potential for significant impacts relating to invasive species due to the significant separation between the proposed development site and the SAC. This has the potential to be a local issue but is not considered to have any potential to reach the Natura 2000 network.

5.2.1.2 Operational Phase

Using the Source-Pathway-Receptor model, there is a potential pathway for significant effects on the Galway Bay Complex SAC during the operational phase of the proposed development.

It is likely due to the location of the site that this will require a connection to the Galway Wastewater Treatment Plant, located on Mutton Island, which discharges directly into Galway Bay within the SAC boundary. There is some uncertainty surrounding treatment at the plant, as described in section 3. DoEHLG (2010) notes that if effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). Nonetheless even without uncertainty, this does provide a potential pathway for operational phase impacts on water quality relating to foul water treatment. At the Screening stage of Appropriate Assessment, it is merely necessary to determine that there may be such an effect, as per case 2013/802

JR Kelly -v- An Bord Pleanála. This could affect the following qualifying interests of the site: Mudflats and sandflats not covered by seawater at low tide; Large shallow inlets and bays; Reefs; Atlantic salt meadows; Mediterranean salt meadows; Otters and Harbour seal.

The source of potential significant effects is foul water production from the proposed development, the pathway is via the treatment plant Galway WwTP which discharges into the Galway Bay Complex SAC, and the receptors are the QIs of the SAC that are sensitive to water quality impacts outlined above.

The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. A screening assessment cannot replace the requirement of Appropriate Assessment so if any potential impact on qualifying interests or their habitats (e.g. construction phase run off) is identified then Appropriate Assessment is required. As demonstrated in case C-323/17 People Over Wind and Peter Sweetman v Coillte, mitigation measures are not be taken into account at the screening stage of Appropriate Assessment. This includes for mitigation by a third party, which in this case would be foul water treatment by the Mutton Island plant. A full assessment and detailed examination of the Galway WwTP, expected discharge from the site, and calculations, is required. This cannot be carried out at the pre-assessment Screening stage.

It is understood that due to the layout of residential housing on the site, the drain that is present will also be culverted, but no final designs are available for the culvert so some uncertainty remains. It is also noted that Surface Water Drainage will follow Sustainable Urban Drainage Systems designs, with an attenuation tank on site (RPS Consulting, 2021).

5.2.2 Inner Galway Bay SPA

5.2.2.1 Construction Phase

Using the Source-Pathway-Receptor model, there is a potential pathway for significant effects on the Inner Galway Bay SPA during the construction phase of the proposed development.

There is a drain on the site that flows towards the adjacent Tonabrocky Stream (EPA Code: 31T13), which flows into Galway Bay c. 2.5rkm downstream, where it is designated as both the Galway Bay Complex SAC and the Inner Galway Bay SPA. There is therefore, the potential pathway for indirect construction phase impacts on water quality through this drain on site which is connected with the SPA. This could affect the Wetlands and Waterbirds habitat that the bird species in the SPA utilise, as well as the bird species of the SPA.

The potential for water quality impacts affecting the Wetlands and Waterbirds habitat would be the same as those described above for construction phase impacts on the SAC in section 5.2.1.1. The source of potential impacts has been identified as construction phase run-off and pollution as described above. The pathway for these potential impacts has been identified via the drain on the site which flows into the Tonabrocky Stream and into the SPA downstream. The receptors have been identified as the Wetland and Waterbirds habitat which is sensitive to changes in water quality. Mitigation to protect water quality will be required.

The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. A screening assessment cannot replace the requirement of Appropriate Assessment so if any potential impact on qualifying interests or their habitats (e.g. construction phase run off) is identified then Appropriate Assessment is required. Mitigation is also

required to ensure no significant impacts occur - as demonstrated in case C-323/17 People Over Wind and Peter Sweetman v Coillte, mitigation measures are not be taken into account at the screening stage of Appropriate Assessment.

Regarding potential disturbance impacts on the bird species in the SPA, the proposed development site is significantly separated from the habitats that these species utilise, c. 1.9km north. There are significant barriers of residential housing and roads in between the site and the bird species of the SPA in the bay. There is therefore no potential for disturbance impacts, including noise and increased human activity, to arise affecting any of the qualifying interests of the SPA.

5.2.2.2 Operational Phase

Using the Source-Pathway-Receptor model, there is a potential pathway for significant effects on the Inner Galway Bay SPA during the operational phase of the proposed development.

It is likely that the proposed development will be connected to the Galway Wastewater Treatment Plant, located on Mutton Island, which discharges directly into Galway Bay within the SPA boundary. As described in detail above in section 3, there is some uncertainty regarding treatment at the Galway WwTP. DoEHLG (2010) notes that if effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). Nonetheless even without uncertainty, this does provide a potential pathway for operational phase impacts on water quality relating to foul water treatment. At the Screening stage of Appropriate Assessment, it is merely necessary to determine that there may be such an effect, as per case 2013/802 JR Kelly -v- An Bord Pleanála. This could affect the bird species of the SPA as well as the Wetland and Waterbirds habitat that they utilise. A full assessment and detailed examination of the Galway WwTP, expected discharge from the site, and calculations, is required. This cannot be carried out at the pre-assessment Screening stage.

It is understood that due to the layout of residential housing on the site, the drain that is present will also be culverted, but no final designs are available for the culvert so some uncertainty remains. It is also noted that Surface Water Drainage will follow Sustainable Urban Drainage Systems designs, with an attenuation tank on site (RPS Consulting, 2021).

3. Assessment of potential cumulative impacts affecting the Natura 2000 site

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first, through persistent additions or losses of the same materials or resource, and second, through the compounding effects as a result of the coming together of two or more effects (Bowers-Marriott, 1997).

5.3.1 Galway Bay Complex SAC

The standard data Natura 2000 form for the Galway Bay Complex SAC lists the threats and pressures currently having an impact on this protected site. The following are listed as having a high impact: diffuse pollution to surface waters due to agricultural and forestry activities; shipping lanes, ports, marine constructions; industrial ports; diffuse pollution to surface waters due to household sewage and waste waters and sea defence or coast protection works, tidal barrages (NPWS, 2019). The following are

listed as having a medium impact: Sand and gravel extraction; non intensive sheep grazing; Hunting, fishing or collecting activities not referred to above; reclamation of land from sea, estuary or marsh; agricultural intensification; removal of beach materials; pipe lines; non intensive cattle grazing; invasive species and Marine and Freshwater Aquaculture (NPWS, 2019).

The potential for cumulative impacts arising from the proposed development concern in-combination effects on water quality. There are existing background pressures on water quality in the area, and pollution to surface waters in particular is already listed as having a high impact on the SAC (NPWS, 2019). As described in section 5.2.1.2, there is the potential for impacts relating to foul water treatment and the Galway WwTP. The proposed development could therefore cumulatively add to loading on the plant, which in turn could increase the potential for water quality impacts from the discharge in Galway Bay. At the Screening stage of Appropriate Assessment, it is merely necessary to determine that there may be such an effect, as per case 2013/802 JR Kelly -v- An Bord Pleanála. A full assessment and detailed examination of the Galway WwTP, expected discharge from the site, and calculations, is required. This cannot be carried out at the pre-assessment Screening stage.

5.3.2 Inner Galway Bay SPA

The standard data Natura 2000 form for the Inner Galway Bay SPA lists the threats and pressures currently having an impact on this protected site. The following are listed as having a high impact: Discharges; Urbanised areas, human habitation and reclamation of land from sea, estuary or marsh (NPWS, 2018). The following are listed as having a medium impact: roads, motorways; Leisure fishing; Fertilisation; Industrial or commercial areas; nautical sports; Dykes, embankments, artificial beaches, general and walking, horse-riding and non-motorised vehicles (NPWS, 2018).

The proposed development does have a potential to act in-combination with existing background pressures on water quality, so cumulative impacts on the Inner Galway Bay SPA would be similar as those described above in section 5.3.1. Discharges are specifically listed as having a high impact on the SP (NPWS, 2018). There remains uncertainty surrounding cumulative impacts on water quality and as in DoEHLG (2010), if uncertainty remains regarding a potential impact, then Appropriate Assessment (Natura Impact Statement) is required. A full assessment and detailed examination of the Galway WwTP, expected discharge from the site, and calculations, is required. This cannot be carried out at the pre-assessment Screening stage.

Furthermore, by nature the proposed development which is for residential housing, will contribute to an increased in urbanised areas and human habitation. There are no buildings or artificial surfaces on the proposed development site currently. However, the site is removed from the SPA by c. 1.9km, with significant barriers present. Due to its location far from the site, and relatively small size in relation to the large urban area of Galway City, no significant cumulative impacts are likely to arise relating to increased urbanised areas and human habitation.

6. SCREENING STATEMENT WITH CONCLUSIONS

According to the guidance published by the DoEHLG (2010), Screening for Appropriate Assessment can either identify that an Appropriate Assessment is not required, where a project / proposal is directly related to the management of the site; or that there is no potential for significant effects affecting the Natura 2000 network; or that significant effects are certain, likely or uncertain (i.e., the project must either proceed to Stage 2 (AA) or be rejected).

Using the Source-Pathway-Receptor model, potential pathways for significant effects have been identified. Two pathways for potential significant effects have been identified; via the drain on site and via Galway WwTP. These pathways have the potential to result in significant impacts resulting from the following sources: construction phase impacts and run-off and foul water treatment. The receptors for these potential significant effects have been identified as Mudflats and sandflats not covered by seawater at low tide, Large shallow inlets and bays, Reefs, Atlantic salt meadows, Mediterranean salt meadows, Otters and Harbour seal for the SAC, and the bird species and Wetland and Waterbirds habitats of the SPA.

DoEHLG (2010) notes that if effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. A screening assessment cannot replace the requirement of Appropriate Assessment so if any potential impact on qualifying interests or their habitats (e.g. construction phase run off) is identified then Appropriate Assessment is required. Mitigation is also required to ensure no significant impacts occur - as demonstrated in case C-323/17 People Over Wind and Peter Sweetman v Coillte, mitigation measures are not be taken into account at the screening stage of Appropriate Assessment. This includes for mitigation by a third party, which in this case would be foul water treatment by the Mutton Island plant. A full assessment and detailed examination of the Galway WwTP, expected discharge from the site, and calculations, is required. This cannot be carried out at the pre-assessment Screening stage. Nonetheless, the potential pathways remain.

Two potential pathways for significant effects have been identified, and uncertainty remains. Furthermore, mitigation is also required. Further assessment of the Galway WwTP is also required. Taking the above into account, the proposed development site at Keeraun, Co. Galway therefore requires an Appropriate Assessment (NIS).

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APPENDIX 1 NPWS Site Synopses

SITE NAME: Galway Bay Complex SAC
SITE CODE: 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.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [1140] Tidal Mudflats and Sandflats; [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 Mud; [1330] Atlantic Salt Meadows; [1410] Mediterranean Salt Meadows; [3180] Turloughs*; [5130] Juniper Scrub; [6210] Orchid-rich Calcareous Grassland*; [7210] Cladium Fens*; [7230] Alkaline Fens; [8240] Limestone Pavement*; [1355] Otter (Lutra lutra); [1365] Common (Harbour) Seal (Phoca vitulina).

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. A well-defined talitrid amphipod zone in the upper shore gives way to an intertidal, mid shore zone with sparse epifauna or infauna. On the lower, flat part of the shore, the tubes of the deposit-feeding terebellid worm, Lanice conchilega, are common on the surface. Nereid and cirratulid polychaete worms (Hediste diversicolor, Arenicola marina), small crustaceans and bivalves (Angulus tenuis, Cerastoderma edule and Macoma balthica) are present. The area has the country's only recorded example of the littoral community characterized by Fucus serratus with sponges, ascidians and red seaweeds on tide-swept lower eulittoral mixed substrata. This community has very high species richness (85 species), as do the sublittoral fringe communities on the Finavarra reef (88 species). The rare Purple Sea Urchin Paracentrotus lividus and the foliose red alga Phyllophora sicula are present at Finavarra, whereas the red alga Rhodymenia delicatula and the rare brown alga, Ascophyllum nodosum var. mackii, occur in Kinvarra and Muckinish Bays. Sublittorally, the area has a number of distinctive and important communities. Of particular note is that Ireland's only reported piddock (bivalve mollusc) bed thrives in the shallows of Aughinish Bay. The rare sponge, Mycale contarenii, is also found here. There is further interest in an extensive maerl bed of Phymatolithon calcareum which occurs in the strong tidal currents of Muckinish Bay. There is also maerl off Finavarra Point and in Kinvarra Bay (Lithothamnion corallioides, Lithophyllum dentatum and Lithophyllum fasciculatum). An oyster bed in Kinvarra Bay and seagrass (Zostera spp.) beds off Finavarra Point are also important features. Other significant habitats which occur include secondary maerl beds and communities strongly influenced by tidal streams.

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. Common saltmarsh species include Thrift (Armeria maritima), Red Fescue (Festuca rubra), Common Scurvygrass (Cochlearia officinalis), Lax-flowered Sea-lavender (Limonium humile), Common Saltmarsh-grass (Puccinellia maritima), Saltmarsh Rush (Juncus gerardi) and Sea Rush (Juncus maritimus). On the lower levels of the saltmarshes and within pans there occurs Glasswort (Salicornia europaea agg.). A noteworthy feature of the saltmarsh habitat within this site is the presence of dwarfed brown seaweeds in the vegetation. These are also known as “turf fucoids” and typical species include Fucus spp., Ascophyllum nodosum and Pelvetia canaliculata. A number of locally rare vascular plant species also grow in saltmarsh areas within the site. These include Reflexed Saltmarsh-grass (Puccinellia distans) and Sea-purslane (Halimione portulacoides), which are both relatively rare in the western half of the country.

Shingle and stony beaches can be found throughout the site, with the best examples along the more exposed shores to the south and west of Galway city and to the north and east of Finavarra, Co. Clare. In general, these shingle shorelines are sparsely vegetated and frequently occur interspersed with areas of sandy beach and/or bedrock shore. The associated flora is dominated by plant species of frequently disturbed maritime habitats. To the south and west of Galway city, typical plants include Curled Dock (Rumex crispus), Common Couch (Elymus repens), Sea Sandwort (Honkenya peploides), Sea Beet (Beta vulgaris subsp. maritima), Sea Mayweed (Matricaria maritima), Silverweed (Potentilla anserina) and Oraches (Atriplex spp.). Two rare plant species are associated with the habitat: Henbane (Hyoscyamus niger), a threatened species listed in the Irish Red Data Book, grows on shingle beach to the south of Lough Atalia; there are also old records for the threatened plant species Sea- kale (Crambe maritima).

Soft coastal cliffs reaching heights in excess of 10m occur at Rusheen. These support coastal grassland with very sparse vegetation cover. Species recorded include Sea Plantain (Plantago maritima), Creeping Bent (Agrostis stolonifera), False Oat-grass (Arrhenatherum elatius), Cock’s Foot (Dactylis glomerata), Red Fescue, Common Bird’s- foot-trefoil (Lotus corniculatus), and the lichens Ramalina sp. and Xanthoria parietina. They are considered highly representative of the rarer soft type of sea cliffs in Ireland.

An excellent range of lagoons of different types, sizes and salinities occurs within the site. This habitat is given priority status on Annex I of the E.U. Habitats Directive. One unusual type of lagoon, karstic rock lagoon, is particularly well represented. This type of lagoon is common on the Aran Islands, but on mainland Ireland, all but one are confined to this site. Additionally, the best example of all karstic lagoons in the country, Lough Murree, is found at this site. The flora of the habitat is rich and diverse, reflecting the range of salinities in the different lagoons. It is typically brackish, with two species of Tasselweed (Ruppia spp.), two Red Data charophytes Chara canescens and Lamprothamnion papulosum, and Chaetomorpha linum, an alga (all lagoonal specialists). The fauna of the lagoon is also rich, diverse and lagoonal. At least 10 lagoonal specialist species were recorded in 1996 and 1998 from the combined habitat of all the lagoons, which is one of the highest number for any lagoonal habitat in the country. Many of the species appear to be rare. The lagoons within this site are excellent examples of the habitat type and of high conservation importance.

Other terrestrial habitats within this site which are of conservation importance include Great Fen-sedge (Cladium mariscus)-dominated fen and Black Bog-rush (Schoenus nigricans)-dominated alkaline fen at Oranmore, a turlough of moderate size at Ballinacourty, limestone pavement at Ballyconry, Gleninagh North and Newquay, dry calcareous grassland with orchids (best examples occurring west of Salthill), Juniper (Juniperus communis) scrub formations at Oranmore, wet grassland and an area of deciduous

woodland at Barna. The orchid-rich grassland occurs on a serious of small drumlin hills found to the west of Galway City, and is largely confined to the sides of the hills. Calcicole pecies such as Kidney Vetch (Anthyllis vulneraria), Harebell (Campanula rotundifolia), Spring Gentian (Gentiana verna), Common Spotted- orchid (Dactylorhiza fuchsii), Lesser Twayblade (Listera ovata), Pyramidal Orchid (Anacamptis pyramidalis), Yellow-wort (Blackstonia perfoliata) and Greater Knapweed (Centaurea scabiosa) are found here, among others. Juniper is also found in this area.

Areas of alkaline and Cladium fen as best represented near Oranmore, and species such as Great Fen-sedge, Common Reed (Phragmites australis), Purple Moor-grass (Molinia caerulea), Bogbean (Menyanthes trifoliata) and Long-stalked Yellow-sedge (Carex lepidocarpa) are found along with the usually dominant, Black Bog-rush. The turlough at Ballinacourty floods to about 25 ha in winter, and has vegetation with a typical zonation. Wetland species such as Amphibious Bistort (Polygonum amphibium), Common Marsh-bedstraw (Galium palustre) and Marsh Cinquefoil (Potentilla palustris) are found near the swallow-hole, with species of wet grassland close to the flood limit (e.g. Silverweed, Potentilla anserina, Water Mint, Mentha aquatica and Creeping Bent, Agrostis stolonifera). Sedges (Carex spp.) dominate in between.

Inner Galway Bay provides extensive good quality habitat for Common Seal (maximum count of 317 in the all-Ireland survey of 2003). This species is listed on Annex II of the E.U. Habitats Directive. The seals use a range of haul-out sites distributed through the bay - these include inner Oranmore Bay, Rabbit Island, St. Brendan's Island, Tawin Island, Kinvarra Bay, Aughinish Bay and Ballyvaughan. The site provides optimum habitat for Otter, also an Annex II-listed species.

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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 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.

SITE NAME: Inner Galway Bay SPA
SITE CODE: 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. Poulnaclough, 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.