



NATURA IMPACT STATEMENT

FOR
PROPOSED SOCIAL HOUSING
SCHEME
AT
KEERAUN, BALLYMONEEN
ROAD, GALWAY CITY, CO.
GALWAY

September 2021

ON BEHALF OF



Comhairle Cathrach na Gaillimhe
Galway City Council

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1 INTRODUCTION

1.1 Project Scope

Enviroguide Consulting was commissioned by Coady Architects acting on behalf of Galway City Council to carry out a review of an Appropriate Assessment Screening Report and subsequently prepare a Natura Impact Statement, for a Proposed Social Housing Scheme at Keeraun, Ballymoneen Road, Galway City.

1.2 Legislative Context

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protected Areas (SPAs). It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected sites throughout the European Community.

Member States are required to designate SACs and SPAs under the EU Habitats and Birds Directives, respectively. SACs and SPAs are collectively known as “Natura 2000” or “European” sites. SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the qualifying interests of the sites; from these the conservation objectives of the site are derived.

An ‘Appropriate Assessment’ (AA) is a required assessment to determine the likelihood of significant effects, based on best scientific knowledge, of any plans or projects on European sites.

An Appropriate Assessment is required under Article 6 of the Habitats Directive where a project or plan may give rise to significant effects upon a Natura 2000 site. Paragraph 3 states 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.”

These obligations in relation to Appropriate Assessment have been implemented in Ireland under Part XAB of the Planning and Development Act 2000, as amended (“the 2000 Act”), and in particular Section 177U and Section 177V thereof. The relevant provisions of Section 177U in relation to AA screening have been set out below:

“177U.— (1) A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.

(2)...

(3)...

(4) The competent authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is required if it cannot be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.

(5) The competent authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is not required if it can be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.”

1.3 Stages of AA

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

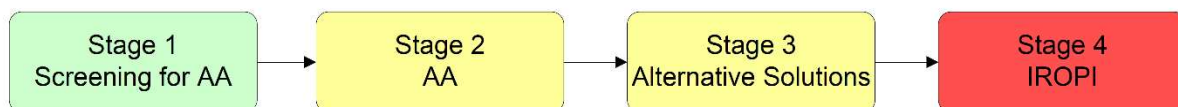


FIGURE 1. THE FOUR STAGES OF THE APPROPRIATE ASSESSMENT PROCESS (DEHLG, 2010 REVISION).

The four stages of an AA can be summarised as follows:

- Stage 1: *Screening*. The first stage of the AA process is to determine the likelihood of significant effects of the proposal.
- **Stage 2: *Natura Impact Statement (NIS)***. The second stage of the AA process assesses the effect of the proposal (either alone or in combination with other projects or plans) on the integrity of the European site, with respect to the conservation objectives of the site and its ecological structure and function. A Natura Impact Statement containing a scientific examination of the proposal is required and includes any mitigation measure to avoid, reduce or offset negative impacts.
- Stage 3: *Assessment of alternative solutions*. If the outcome of Stage 2 is negative, i.e. adverse impacts to the sites cannot be scientifically ruled out, despite mitigation, the plan or project should proceed to Stage 3 or be abandoned. This stage examines alternative solutions to the proposal.

- *Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain.* The final stage is the main derogation process examining whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project to adversely affect a European site, where no less damaging solution exists.

The Habitats Directive promotes a hierarchy of avoidance, mitigation, and compensatory measures. First the project should aim to avoid any negative effects on European sites by identifying possible effects early in the planning stage and designing the project to avoid such effects. Second, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects, and no further practicable mitigation is possible, a refusal for planning permission may be recommended. In this case, the project will generally only be considered where no alternative solutions are identified and the project is required for imperative reasons of overriding public interest (IROPI test), or, in the case of priority habitats, considerations of health or safety, or beneficial consequences of primary importance for the environment or to other imperative reasons of overriding public interest. Then compensation measures are required for any remaining adverse effects.

1.4 Guidance

This NIS has been undertaken in accordance with the following guidance:

- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, 2010 revision);
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.* Circular NPW 1/10 & PSSP 2/10;
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission, 2001);
- *Communication from the Commission on the precautionary principle* (European Commission, 2000); and,
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (European Commission, 2019).

2 STAGE 1: APPROPRIATE ASSESSMENT SCREENING

An Appropriate Assessment (AA) Screening Report was prepared for the Proposed Development by Ecofact Environmental Consultants.

It is noted in the AA Screening Report that the Proposed Development Site is located outside the Natura 2000 network, c. 1.8km north and c. 1.9km north of Galway Bay Complex SAC and the Inner Galway Bay SPA. None of the qualifying interests of the SAC or SPA occur on the Proposed Development Site. There is therefore no potential for direct construction phase or operational phase impacts to arise which could affect the conservation objectives of the Natura 2000 network.

However, the AA Screening report concluded that indirect impacts on European sites could not be ruled out, and as such the Proposed Development requires an Appropriate Assessment (Natura Impact Statement - NIS). The author lists two reasons for why a NIS is required, namely the identification of potential pathways for significant effects via the drain on site and via Galway Wastewater Treatment Plant (WwTP), and uncertainty surrounding the effectiveness of treatment at the WwTP.

The AA Screening Report states that *“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.”*

Foul water treatment is considered to be a mitigation measure by the authors of the report. The report states that *“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.”*

Having reviewed the AA Screening Report, Enviroguide Consulting is in agreement with Ecofact Environmental Consultants that the drain on the Site and foul waters from the Site (which are ultimately treated at Galway WwTP) provide potential pathways for significant effects on European sites in Galway Bay. However, it is the considered opinion of Enviroguide Consulting that the treatment of wastewater at the Galway WwTP during the Operational Phase does not constitute a mitigation measure in the context of the Appropriate Assessment Screening report, and that there is no possibility for significant effects on Galway Bay Complex SAC and the Inner Galway Bay SPA via foul waters generated at the Site. This conclusion is based on the following:

- The increase of a maximum load of 187 Population Equivalent (PE) at the Galway WwTP as a result of the Proposed Development, assuming each PE unit was not previously supported by the WwTP, is considered to be an insignificant increase in terms of the overall scale of the facility. This potential maximum increased load does

not have the capacity to alter the effluent released from the WwTP to such an extent as to result in likely significant effects on the SACs and SPAs connected hydrologically with Galway WwTP.

- The Galway WwTP was upgraded in 2017 to 170,000 P.E. The most recent available Annual Environmental Report (AER) of Galway WwTP indicates that discharge from the facility at the time (2019) 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 P.E 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).
- As stormwater will be handled separately to foul water, it can be concluded that any stormwater discharges from the Site will not lead to increased loading on any combined sewers in the Galway area or the Galway WwTP.
- Finally, the following measures incorporated into the design of the WwTP are highlighted as having “*a high certainty of effectiveness*” for protected intertidal and subtidal marine communities and the waters of Galway Bay during the operational phase of the WwTP in the Marine Ecology chapter of the EIAR for Galway WwTP¹:
 - Continued use of existing diffuser comprising 10 ports below 10m CD will dissipate energy of the flow and facilitate effective dispersion of the treated effluent.
 - Water quality standards will be maintained through compliance with the UWWTR standards and effective dilution and dispersion to maintain low levels of suspended sediment.
 - Design of the sewage treatment processes to achieve the UWWTR quality standards will prevent any significant adverse effects on the water quality of the receiving water. Standards are designed to be environmentally protective and to comply with the relevant legislation.

As such, this NIS will focus on the potential impacts of the construction phase (i.e., run-off which could enter via the drain on site) on **Galway Bay Complex SAC** and the **Inner Galway Bay SPA**. The Galway Bay Complex SAC is located c. 1.8km south and the Inner Galway Bay SPA is located c. 1.9km south.

¹ Galway City Council (2006) Mutton Island WWTP Upgrade. Environmental Impact Statement

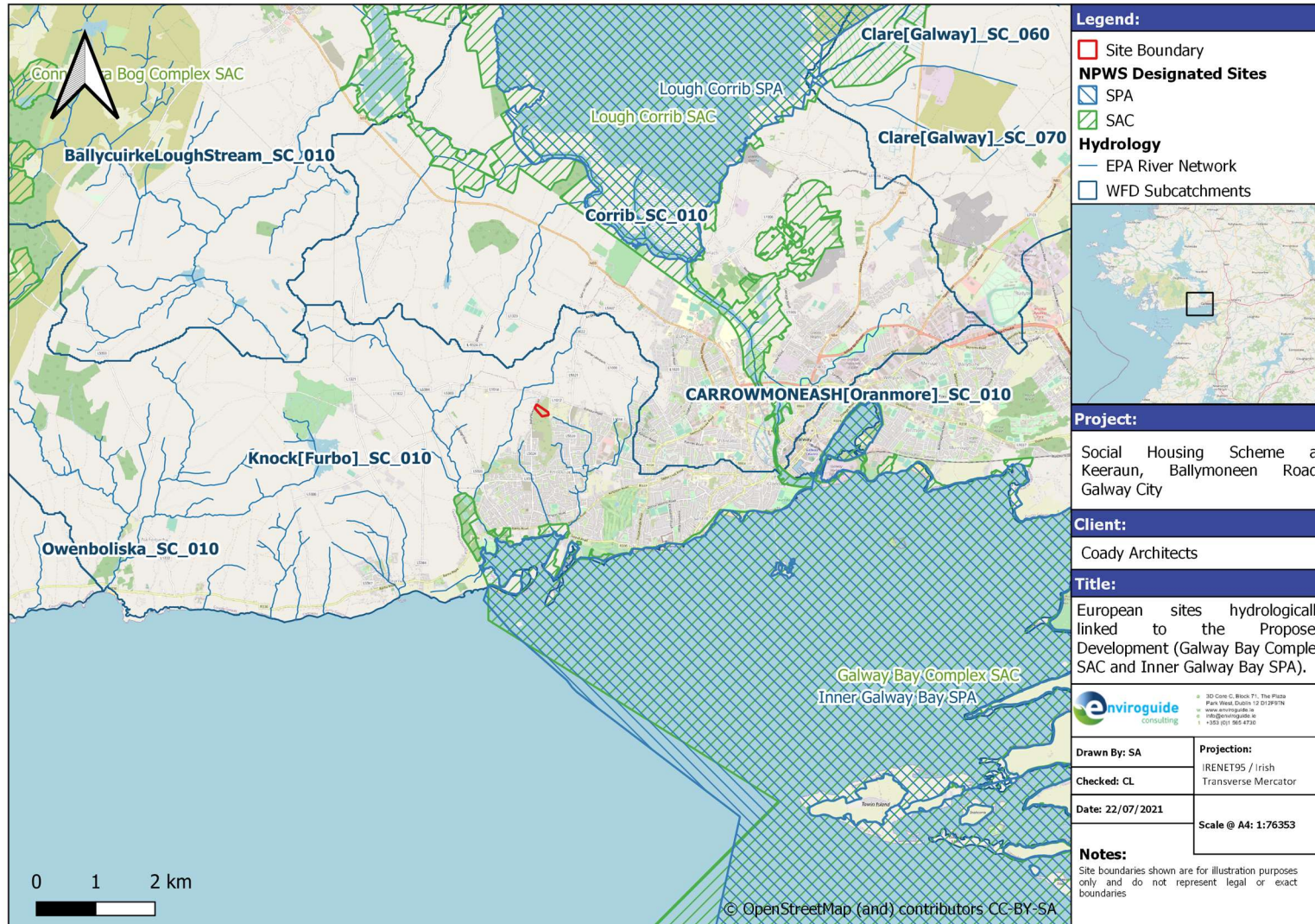


Figure 2. European sites hydrologically linked to the Proposed Development (Galway Bay Complex SAC and Inner Galway Bay SPA).

3 DESCRIPTION OF THE PROJECT

3.1 Description of the Development

3.1.1 Location and Size

The Proposed Development Site is located on the eastern side of Ballymoneen Road and is approximately 4.3km west of Galway City. The site is approximately 2.03 hectares / 5.02 acres developable area. The Site is bounded to the north by agricultural lands, to the east and south-east by agricultural lands, along which the future N6 Galway City Ring Road is planned, to the south by agricultural lands (subject to a live planning application for a private residential estate) and to the west by the Ballymoneen Road. The site is zoned Residential under the Galway City Council Development Plan 2017 – 2023. The project brief is in line with the zoning requirements.

3.1.2 Description

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.

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. There is a drain on Site which flows towards the Tonabrocky Stream. This drain is proposed to be infilled and piped along a diverted route.

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.

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.

3.1.2.1 Construction Phase

The following is extracted from the Construction Environmental Management Plan prepared by MKO (2021). The Construction Phase of the Proposed Development will entail the following:

Site establishment - A temporary construction compound is proposed for the construction phase of the proposed development, located inside the development footprint on the proposed hardstanding area. Construction stage access will be taken via the road frontage on Ballymoneen Road. Perimeter hoarding will be provided around the site to provide a barrier against unauthorised access from the public areas.

Site excavation - Soil stripping and temporary stockpiling of soils and subsoils will be required around the site as the proposed development progresses.

Culvert Installation - There is an existing stream which transverses through the proposed development site in the south to north direction. Due to the layout of the housing development, the existing stream must be diverted. The stream will also be piped along its full length.

Site Roads – Site road construction will require excavation until a competent stratum is reached. The competent stratum will be overlain with granular fill, a layer of geogrid/geotextile (if required), a final hard surface layer, and, prior to completion of the construction works on site, the finished tarmacadam road surface will be applied.

House Construction, Service and Utilities – House construction will involve the stripping of soil and overburden and removal to a nearby storage area for later use in landscaping; excavation and foundation installation, wall, floor slab and roof construction; window installation etc. and installation of services and connections to the residential units.

Landscaping Works - Prior to completion of works on the Development Site, the landscaping works will be carried out. The finishes include areas of amenity grassland and tree planting.



Figure 3. Stage 2 Site Layout (Coady Architects, 2021).

3.2 Existing Environment

The Site of the Proposed Development is within the Galway Bay North catchment and the Knock [Furbo]_SC_010 subcatchment. The Tonabrocky Stream (EPA Code: 31T13) is located to the south-east of the Proposed Development Site. This stream flows into the Inner Galway Bay North coastal waterbody c. 2.5km downstream, where it is designated as both the Galway Bay Complex SAC and the Inner Galway Bay SPA. There is a drain on the Site that flows towards the Tonabrocky Stream. There are no water quality monitoring stations on this waterbody.

The status of the Inner Galway Bay North coastal waterbody was classified as “unpolluted” during the 2018-2020 reporting period and has a WFD status of *Good* (EPA, 2021). The status of the Corrib Estuary transitional waterbody was also classified as “unpolluted” during the 2018-2020 reporting period and has a WFD status of *Good* (EPA, 2021). These waterbodies are *Not At Risk* of not achieving their status objectives under the Water Framework Directive (EPA, 2021).

The Site of the Proposed Development is situated on the Spiddal groundwater body, which has *Good* status and is *Not At Risk* of not meeting its WFD objectives. The Site is on a *Poor* bedrock aquifer (PI), *Bedrock which is Generally Unproductive except for Local Zones*. The groundwater rock units underlying the aquifer are classified as *Granites & other Igneous Intrusive rocks*. The subsoils at the Site are classified as *Till derived from granites and Bedrock*

outcrop or subcrop. Groundwater vulnerability in the area ranges between *Extreme and X-Rock at or Near Surface*.

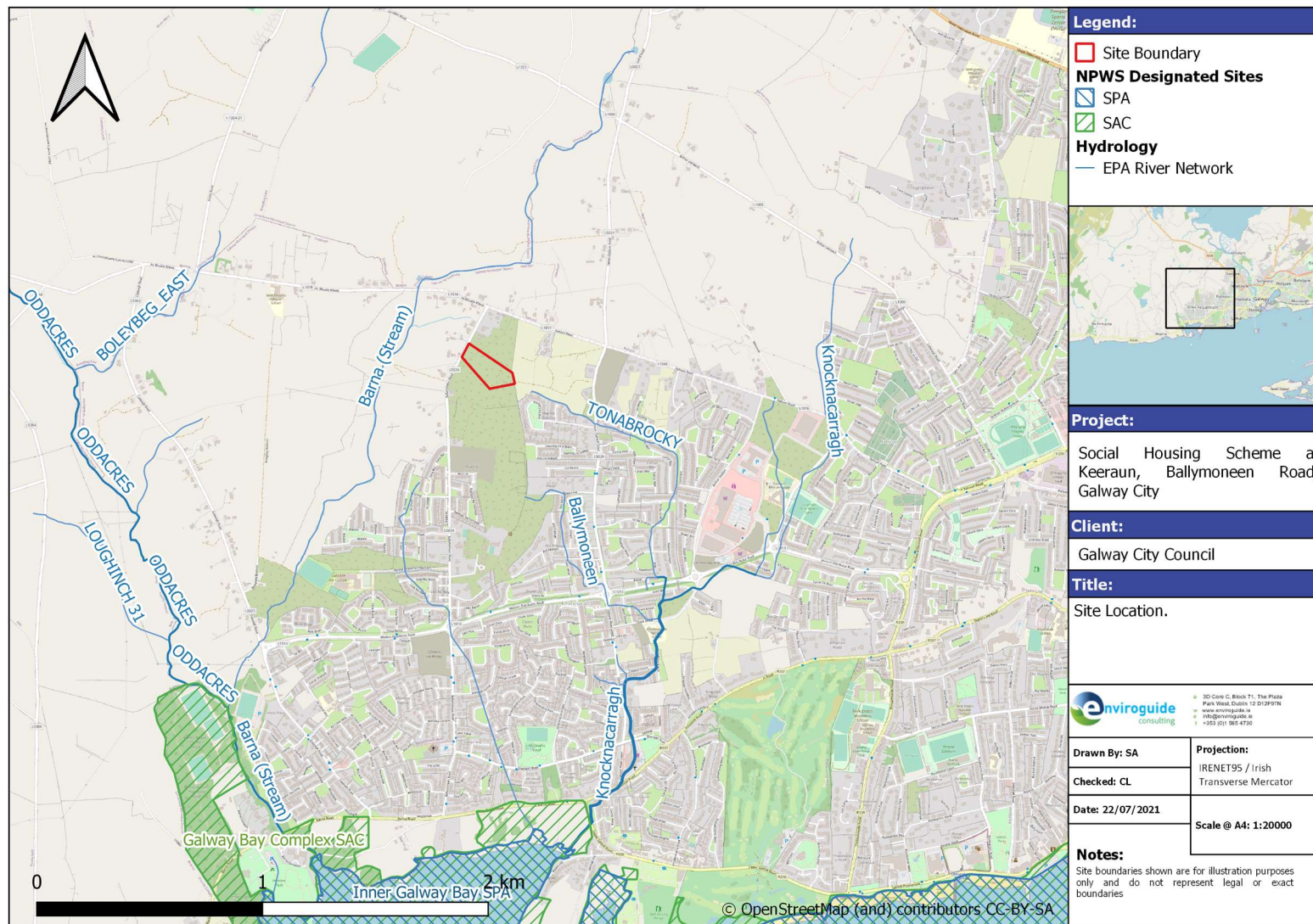


Figure 4. Site location.

4 METHODOLOGY

4.1 Desk Study

A desktop study was carried out to collate and review available information, datasets and documentation sources relevant for the completion of the Natura Impact Statement. The desktop study, completed in July 2021, relied on the following sources:

- Information on the network of European sites, relevant boundaries, qualifying interests and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at www.npws.ie;
- Information on the status of EU protected habitats and species in Ireland, obtained from the NPWS Article 17 reports;
- Text summaries of the relevant European sites taken from the respective Standard Data Forms and Site Synopses for each site, available at www.npws.ie
- Information on species records and distributions, obtained from the National Biodiversity Data Centre (NBDC) at www.maps.biodiversityireland.ie;
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at www.gis.epa.ie;
- Information on bedrock, groundwater, aquifers and their statuses, obtained from Geological Survey Ireland (GSI) at www.gsi.ie;
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe, Bing and Ordnance Survey Ireland;
- Information on the extent, nature and location of the Proposed Development, provided by the applicant and their design team.

A comprehensive list of all the specific documents and information sources consulted in the completion of this report is provided in Section 10, References.

4.2 Field Surveys

Field surveys were carried out by Ecofact Environmental Consultants to support the Biodiversity Assessment Report. The following is extracted from the Biodiversity Assessment Report:

“The proposed development site at Keeraun was visited in October 2020 for a site walkover survey. This site visit was conducted as a preliminary survey prior to the Site Enabling Works. There are a total of 10 habitats found at the site, recorded during the site survey prior to the site enabling works. The main habitats at the site are Recolonising Bare Ground, Scrub, Drainage Ditch and Wet grassland. However, there are also small sections and mosaics of other habitats at the site including Dense Bracken, Improved Agricultural Grassland, Exposed Siliceous Rock, Fen and Flush, Spoil and Bare Ground and Treelines. Some of the habitats present on the site do have potential links with Annex I habitats and further surveys are required. There are no records of invasive species for the site nor were any found during the site walkover. Some mammal trails were noted in the scrub and dense bracken on the site but no mammal dwellings were found. No potential bat roosting habitat was found but potential foraging areas were noted due to the presence of suitable insect breeding areas. Two Snipe were noted on the site during the survey, as well as other common passerine and corvid

species. It is likely that the proposed development will be connected to the Galway WwTP which provides a connection to the aquatic ecology present in Galway Bay. The drain on the site does provide suitable amphibian and reptile habitat, but is more likely to be suited to amphibians due to water depth. Common frog may breed on the site. Devil's bit scabious was noted on the site in very low abundance and there are records of Marsh fritillary in the 10km grid square which encompasses the site.

The potential for habitat loss, disturbance / displacement, water quality and invasive species impacts were identified in the current report. These impacts are noted to have the potential to affect the following Key Ecological Receptors identified for the site: designated areas, exposed siliceous rock, drainage ditch, fen and flush, treeline, terrestrial mammals, bats, aquatic ecology, reptiles and amphibians and terrestrial macroinvertebrates. The habitats present are not considered to be a significant ecological importance due to fragmentation and size, but are of some importance locally. Further surveys for potential Annex I habitat links are required. There will be direct habitat loss, water quality, disturbance and invasive species impacts on habitats and flora. Mammals are likely to be disturbed. Birds and bats may also be disturbed from the works. Disturbance was noted as likely to also occur during the operational phase. Displacement and mortality were also noted as potential impacts on amphibians and terrestrial invertebrates, in the absence of mitigation measures. Mitigation measures are provided to offset or reduce potential impacts on flora and fauna. These include measures including further surveying, to protect habitats, water quality, biosecurity mitigation, measures to reduce disturbance and following relevant guidelines. This includes works outside bird nesting season, common frog breeding season, and the marsh fritillary breeding season. A pre-construction mammal survey will be required. Surveys for potential Annex I habitat links and a species-specific Marsh Fritillary survey are required. A biodiversity area / pond is recommended to be included, as well as buffer zones around the site. Water quality mitigation will be outlined in detail in the NIS but likely measures are also listed in this report.

If mitigation is implemented, the proposed Social Housing Scheme at a site in Keeraun, Ballymoneen Road in Galway City, Co. Galway can be appropriately built and operated without significant adverse effects on designated areas, flora and fauna."

5 SUMMARY OF RELEVANT EUROPEAN SITES

The following is extracted from the Standard Natura data forms for each European site outlined below.

5.1 Galway Bay Complex SAC [000268]

The Galway Bay Complex is a very large, marine-dominated, site situated on the west coast of Ireland. The inner part of the south bay is protected from exposure to Atlantic swells by the Aran Islands and Black Head. Subsidiary bays and inlets (e.g. Poul-na-clough, Aughinish and Kinvara Bays) add texture to the patterns of water movement and sediment deposition, which lends variety to the marine habitats and communities. The terraced Carboniferous (Visean) limestone platform of the Burren sweeps down to the shore and into the sublittoral. West of Galway city, the bedrock geology is granite. The long shoreline is noted for its diversity, with complex mixtures of bedrock shore, shingle beach, sandy beach and fringing salt marshes. Other habitats which occur in small amounts include lagoon, fen, turlough, dry grassland, wet grassland and deciduous woodland.

The site has very important and good quality examples of large shallow inlets and bays, intertidal mud and sandflats, and reefs. 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 eu-littoral mixed substrata. Sublittorally, the area has Ireland's only reported piddock bed, an extensive maerl bed of *Phymatolithon calcareum*, an oyster bed, and seagrass beds. A host of rare marine organisms occur, including the sea urchin *Paracentrotus lividus*, the sponge *Mycale contarenii*, the red algae *Phyllophora sicula* and *Rhodomenia delicatula*. Lagoons are particularly well represented and varied in type, size and salinity. Of especial importance are the rare karstic rock lagoons, of which the site holds all but one of the examples known from the mainland of Ireland. Good quality salt marshes of both Atlantic and Mediterranean types are well represented and occur along with perennial vegetation of stony banks. A very good, though limited, example of calcareous grassland rich in orchids occurs, and there are examples of alkaline fen and *Juniperus communis* scrub of moderate quality. Two Red Data Book stoneworts occur, *Chara canescens* and *Lamprothamnium papulosum*, and also two Red Data Book vascular plants - *Crambe maritima* and *Hyoscyamus niger*. The site has one of the largest populations of *Phoca vitulina* in the country and provides optimum habitat for *Lutra lutra*. Galway Bay is a very important ornithological site, with an internationally important wintering population of *Branta bernicla hrota* and regular nationally important populations of a further 16 species, including *Gavia immer*, *Gavia arctica*, *Pluvialis apricaria* and *Limosa lapponica*. Breeding birds of note are *Phalacrocorax carbo*, *Sterna sandvicensis* and *Sterna hirundo*.

5.2 Inner Galway Bay SPA [004031]

Galway Bay SPA is a very large, marine-dominated, site situated on the west coast of Ireland. The inner bay is protected from exposure to Atlantic swells by the Aran Islands and Black Head. Subsidiary bays and inlets (e.g. Poul-na-clough, Aughinish and Kinvarra Bays) add texture to the patterns of water movement and sediment deposition, which lends variety to the marine habitats and communities. The terraced Carboniferous (Viséan) limestone platform of the Burren sweeps down to the shore and into the sublittoral. The long shoreline is noted for

its diversity, with 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. Seagrass beds lie off Finavarra Point. A number of small islands composed of glacial deposits are included, such as Deer Island, along with some rocky islets.

Galway Bay is one of the most important ornithological sites in the western region. It supports internationally important wintering populations of *Gavia immer* and *Branta bernicla hrota* and regularly occurring nationally important populations of an additional 16 species, most notably *Mergus serrator* (6.7% of national total), *Charadrius hiaticula* (3.3% of total), *Anas clypeata* (2.9% of total) and *Limosa lapponica* (2.5% of total). It supports the largest and the most regular population of *Gavia arctica* in the country. The bay is an important wintering site for gulls, and is of national significance for at least *Larus canus*. Breeding birds of note are *Phalacrocorax carbo*, *Sterna sandvicensis* and *Sterna hirundo*. The site provides both feeding and roost sites for most of the species, though some birds commute to areas outside of the site. The birds of Galway Bay have been monitored annually since 1980/81. The site has one of the largest populations of *Phoca vitulina* in the country.

6 IMPACT PREDICTION

6.1 Direct Effects

As noted in the AA Screening prepared by Ecofact Environmental Consultants, there is no potential for direct construction phase or operational phase effects to arise which could affect the conservation objectives of the Natura 2000 network.

6.2 Indirect Effects

There is potential for indirect effects on Galway Bay Complex SAC Inner Galway Bay SPA due to the potential hydrological pathway between the Site of the Proposed Development and the European sites in Galway Bay during the Construction Phase. The Construction Phase of the Proposed Development has the potential to result in run-off from the construction site into the Tonabrocky Stream. This stream flows into both the Galway Bay Complex SAC and the Inner Galway Bay SPA. The drain on Site flows towards the Tonabrocky Stream and is proposed to be infilled and piped along a diverted route. Potential pollutants from the Construction phase to this drain could include silt, hydrocarbons, cementitious material and other chemicals used in construction. It is noted that every effort was made to retain this watercourse for amenity and attenuation purposes. However, site levels and existence of bedrock at the Site, as well as the requirement to provide enclosed traditional gardens for all ground floor units, has resulted in the need to infill and pipe the stream.

6.3 In-combination Effects

A search of planning applications located within the vicinity of the Site of the Proposed Development was conducted using online planning resources such as the National Planning Application Database (NPAD) (MyPlan.ie) and Galway City Council's Planning Application Map. Any planning applications listed as granted or decision pending from within the last five years were assessed for their potential to act in-combination with the Proposed Development and cause likely significant effects on the relevant European Sites. Long-term developments granted outside of this time period were also considered where applicable.

It is noted that the majority of developments within the vicinity of the Site of the Proposed Development are applications granted more than 5 years ago and that have since been completed. **No developments** with the potential to result in likely significant in-combination effects to any European Site were identified. The larger, more recent applications are detailed below:

App no: 20/286. **Location:** Immediately south of the Proposed Development Site. **Planning Status:** Publication Required. **Decision Date:** n/a

Permission for development which will consist of the following: 1) Demolition of disused two storey house on the site ; 2) Construction of 58 no. residential units comprising ; 22 no. two storey four bedroom houses, 6 no. two storey three bedroom houses, 2 no. three storey apartment blocks comprising 3 no. one bedroom apts and 27 no. two bedroom apts; 3) Shared communal and semi private open space, car and bicycle parking, bin stores, site landscaping and public lighting ; 4) A new pedestrian and vehicular access from Ballymoneen Road ; 5)

Provision of all associated surface water and foul drainage services and all associated site development works. The application is accompanied by a Natura Impact Statement (NIS).

App no: 14/248; 20327 (E.O.D on PL Ref: 14/248) & amendments (7/296,18/68,18/69, 21108.). **Location:** Approx. 200m east of the Proposed Development Site. **Appeal Decision of original ref (14/248):** Granted (Conditional). **Appeal Decision Date:** 16/03/2016.

App no: **20327 (E.O.D on PL Ref: 14/248)**. **Decision:** Granted (Unconditional) **Decision Date:** 8/2/2021.

Permission for development which will consist of a total of 58 residential units made up of 32 no. 4 bedroom semi detached 2 and ½ storey houses, 12 no. 4 bedroom 2 and ½ storey detached houses, 2 no. 5 bedroom that is part 2 and ½ storey and part 2 storey detached house, 6 no. 4 bedroom 2 and ½ storey terraced houses and 6 no. 3 bedroom 2 and ½ storey terraced houses. Six of the residential units with on-site parking are proposed to have individual vehicular access directly from the Clybaun Road. Development also to include all associated communal and private open spaces, hard and soft landscaping, site development works and services including connection to the main sewer and proposed internal road layout with 1 new vehicular access to the site from the Clybaun Road, with new paths and new boundary walls and served by 102 shared surface parking as well as the realignment/widening of the Clybaun Road for part of the length of the proposed new development fronting onto the Clybaun Road as well as the provision of a new public footpath along the Clybaun and Ragoon Road.

An E.O.D on PL Ref: 14/248 was granted on the 08/02/2021. This application has also been subject to various amendments (7/296,18/68,18/69, 21108).

It is considered that there are no means for the Proposed Development to act in-combination with any plans or projects, that would cause any likely significant effects on any European sites.

The site is located adjacent to the proposed N6 Galway City Ring Road (GCRR) route. The GCRR will link the western side of Galway City to the eastern side from Bearna in the west, to the N6 junction at the Coolagh Roundabout to the east and vice versa through a newly constructed road which will bypass the city centre through a corridor to the north of the city. The GCRR forms part of the Galway Transport Strategy (GTS) which is the current adopted strategy for transport within Galway City. The GCRR is currently at planning stage being reviewed by An Bord Pleanála (APB). The Ballymoneen Road will form part of a connecting road to the GCRR and will junction it to the south of the proposed development site at a new signalised junction.

According to the project website, the scheme is currently at Phase 4 EIS/EAR and The Statutory Processes. The objective of Phase 4 EIS/EAR and The Statutory Processes is to complete an environmental assessment of the design developed in Phase 3, identify the potential impacts of the proposed development on the receiving environment and establish mitigation measures required.

Considering the absence of direct effects on European sites by the Proposed Development, the mitigation measures which are listed below to protect European sites from indirect effects and the mitigation measures which will be in place for the GCRR, there are no means for the

Proposed Development to act in-combination with the GCRR that would cause any likely significant effects on any European sites.

Table 1. The potential pathways for significant effects of the Proposed Development on the qualifying interests of Galway Bay Complex SAC and Inner Galway Bay SPA.

Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Significant Effects
Galway Bay Complex SAC (000268)		
Mudflats and sandflats not covered by seawater at low tide [1140]	Located c. 1.8km south of the site (NPWS, 2013a).	Yes – Potential pathways for effects via the drain on site and the Tonabrocky Stream (c. 2.5km upstream of the SAC)
Large shallow inlets and bays [1160]		
Reefs [1170]		
Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) [1330]		
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]		
Salicornia and other annuals colonising mud and sand [1310]	Small areas of this habitat located c. 1.8km south of the site.	Yes – Potential pathways for effects via the drain on site and the Tonabrocky Stream (c. 2.5km upstream of the SAC)
<i>Lutra lutra</i> (Otter) [1355]	Commuting buffer in Map 11 of the conservation objectives includes the area of the coast c. 1.8km south of the site (NPWS, 2013a).	
<i>Phoca vitulina</i> (Harbour Seal) [1365]	Map 12 of the conservation objectives shows general habitat c. 1.8km south of the site but no known breeding, resting or moulting sites located here (NPWS, 2013a).	
Coastal lagoons [1150]	Located at Lough Atalia and Renmore lough south of Galway City – not downstream or in the vicinity of the Proposed Development (NPWS, 2013a).	
Turloughs [3180]	Located at Ballinacourty Lough, Ballyvelaghan Lough, Lough Rask and Ballinderreen Lough – not located downstream of proposed development (NPWS, 2013a)	
Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i> [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 potential pathway for impacts – no downstream hydrological connection with this habitat in the SAC
Alkaline fens [7230]	Extent unknown - terrestrial habitat - SAC boundary is c. 1.8km south of the site at its closest point (NPWS, 2013a).	
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 potential pathway for impacts – terrestrial habitat with no connection with the Proposed Development Site
<i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130]	Located at Rocklands Juniper formations east of Galway city – not located downstream of Proposed Development (NPWS, 2013a)	
Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210]	Extent unknown - terrestrial habitat - SAC boundary is c. 1.8km south of the site at its closest point (NPWS, 2013a).	
Limestone pavements [8240]	Extent unknown - terrestrial habitat - SAC boundary is c. 1.8km south of the site at its closest point (NPWS, 2013a).	

Qualifying Interests	Location in relation to Proposed Development	Potential Pathway for Significant Effects
Inner Galway Bay SAC (004031)		
[A002] Black-throated Diver (<i>Gavia arctica</i>) [A003] Great Northern Diver (<i>Gavia immer</i>) [A017] Cormorant (<i>Phalacrocorax carbo</i>) [A028] Grey Heron (<i>Ardea cinerea</i>) [A046] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A050] Wigeon (<i>Anas penelope</i>) [A052] Teal (<i>Anas crecca</i>) [A056] Shoveler <i>Anas clypeata</i> [A069] Red-breasted Merganser (<i>Mergus serrator</i>) [A137] Ringed Plover (<i>Charadrius hiaticula</i>) [A140] Golden Plover (<i>Pluvialis apricaria</i>) [A142] Lapwing (<i>Vanellus vanellus</i>) [A149] Dunlin (<i>Calidris alpina</i>) [A157] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A160] Curlew (<i>Numenius arquata</i>) [A162] Redshank (<i>Tringa totanus</i>) [A169] Turnstone (<i>Arenaria interpres</i>) [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A182] Common Gull (<i>Larus canus</i>) [A191] Sandwich Tern (<i>Sterna sandvicensis</i>) [A193] Common Tern (<i>Sterna hirundo</i>)	Potential to forage in wetland habitat associated with the SPA, south of the Proposed Development. All species are included here as a precautionary measure.	Yes – Potential pathways for effects via the drain on site and the Tonabrocky Stream (c. 2.5rkm upstream of the SAC)
[A999] Wetland and Waterbirds	Located at SPA extent c 1.8km south of the site (NPWS, 2013a).	

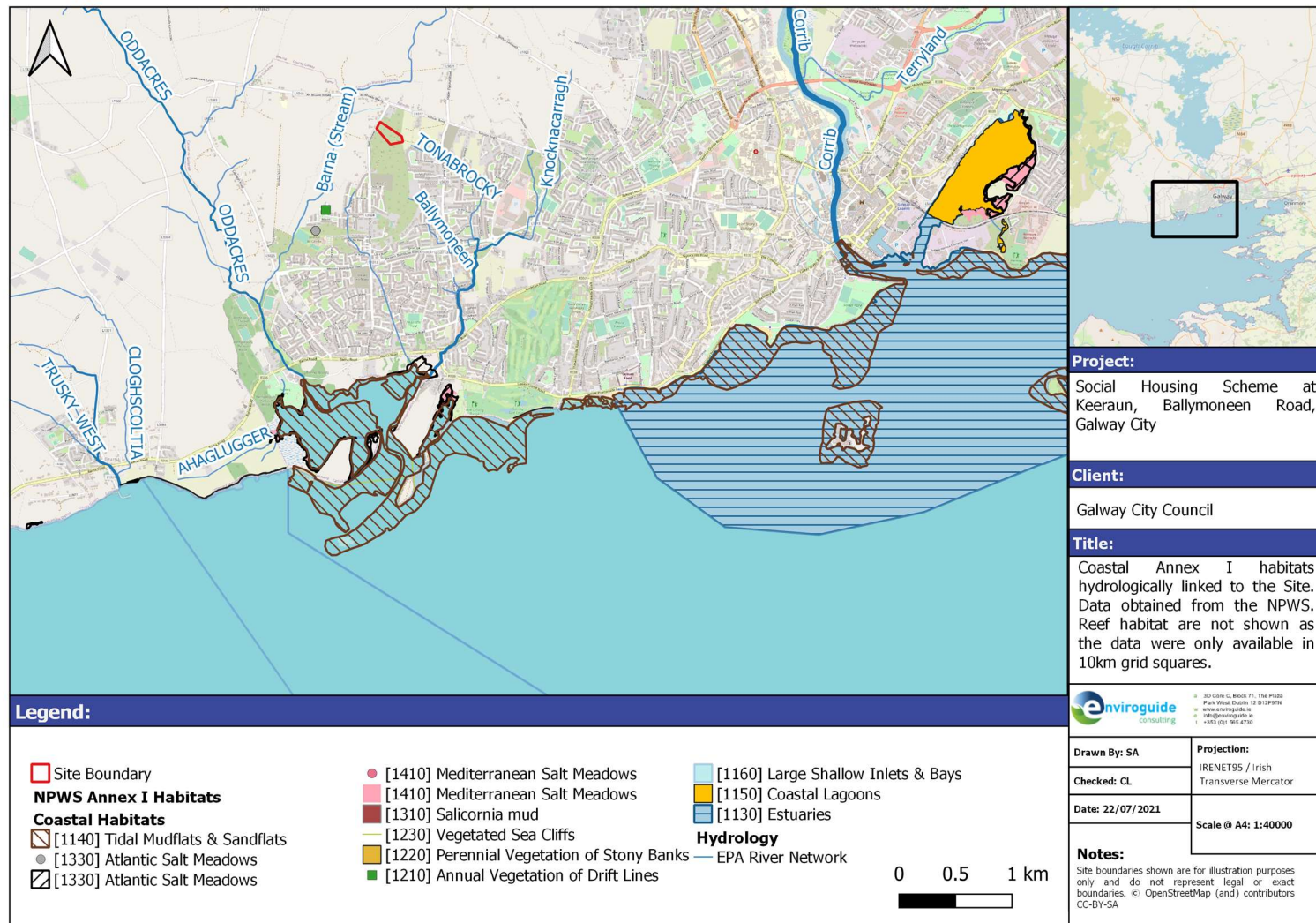


Figure 5. Coastal Annex I Habitats hydrologically linked to the Site. Data obtained from the NPWS. Reef habitat is not shown as the data were only available as 10km² grids.

7 CONSERVATION OBJECTIVES

7.1 Identified key habitats and species potentially at risk from the Proposed Development in European sites

Section 6 identified the qualifying interests and special conservation interests from the relevant European sites that could be affected by the Proposed Development.

As per the Habitats Directive, the focus of the AA at this second stage should be on the integrity of European sites *in light of their conservation objectives*. Site specific conservation objectives (SSCO) have been compiled for all the relevant European sites. Site-specific conservation objectives define the condition to be achieved by species and habitat types within the respective sites in order to maximise the contribution of the sites to achieving favourable conservation status at the appropriate level (e.g., national, biogeographical or European) (EC, 2012).

The “favourable conservation status” of a habitat or species is defined by Articles 1(e) and 1(i) of the Habitats Directive as follows:

“The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- *its natural range, and area it covers within that range, are stable or increasing, and*
- *the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and*
- *the conservation status of its typical species is favourable.*

The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as ‘favourable’ when:

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

7.2 Potential impacts of the Proposed Development on key habitats and species

Table 2 below outlines the attributes and targets associated with the site-specific conservation objectives for the relevant qualifying interests and Special Conservation Interest species for Galway Bay Complex SAC and Inner Galway Bay SPA. The potential significant effects of the Proposed Development on these attributes and targets are also assessed. The assessment outlined below does not consider mitigation measures that will be implemented as part of the project.

Table 2. Assessment of the potential impact of the Proposed Development on site specific conservation objectives of relevant QI habitats and species within Galway Bay Complex SAC and Inner Galway Bay SPA.

Attribute	Target	Assessment of likely significant effects
Galway Bay Complex SAC		
[1140] Mudflats and sandflats not covered by seawater at low tide		
Conservation Objective: To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:		
Habitat Area	The permanent habitat area is stable or increasing, subject to natural processes.	The Proposed Development will not have the potential to cause changes to the extent of the mudflats and sandflats not covered by seawater at low tide habitat in this SAC.
Community Distribution	Conserve the following community types in a natural condition: Intertidal sandy mud community complex; and Intertidal sand community complex.	<p>The intertidal sandy mud community complex and Intertidal sand community complex is located c. 2.5rkm downstream of the Proposed Development Site (Map 7 NPWS, 2013a).</p> <p>In the absence of pollution control/water attenuation measures during the Construction Phase, it cannot be excluded that surface water run-off/discharges from the Proposed Development will have a likely significant effect on the community distribution of the above listed complexes.</p> <p>As SuDS measures are proposed within the project design, no impacts during the Operational Phase are anticipated.</p>
[1160] Large shallow inlets and bays		
Conservation Objective: To maintain the favourable conservation condition of Large shallow inlets and bays in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:		
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	The Proposed Development will not have the potential to cause changes to the extent of the large shallow inlets and bays habitat in this SAC.
Community Extent	Maintain the extent of the <i>Zostera</i> -dominated community complex and the maërl-dominated community, subject to natural processes	<p>Small area of <i>Zostera</i>-dominated community located 2.5rkm downstream of the Proposed Development Site. Maërl-dominated communities are located remote from the Proposed Development Site north of Tawin Island.</p> <p>In the absence of pollution control/water attenuation measures during the Construction Phase, it cannot be excluded that surface water run-off/discharges from the Proposed Development will have a likely significant effect on the community extent of the <i>Zostera</i>-dominated community complex. It is unlikely that maërl-dominated community will be impacted by the Proposed Development as this marine community type is a significant distance from the outflow of the Tonabrocky stream (NPWS 2013a).</p> <p>As SuDS measures are proposed within the project design, no impacts during the Operational Phase are anticipated.</p>

Attribute	Target	Assessment of likely significant effects
Community structure: <i>Zostera</i> density	Conserve the high quality of <i>Zostera</i> -dominated communities, subject to natural processes	Potential for significant effects - See above.
Community Structure:	Conserve the high quality of the maërl-dominated community, subject to natural processes	No potential for significant effects - See above.
Community Distribution:	Conserve the following community types in a natural condition: Intertidal sandy mud community complex; Intertidal sand community complex; Fine to medium sand with bivalves community complex; Sandy mud to mixed sediment community complex; Mixed sediment dominated by Mytilidae community complex; Shingle; Fucoid-dominated community complex; Laminaria-dominated community complex; and Shallow sponge-dominated community complex.	Intertidal sandy mud community complex, Intertidal sand community complex, Sandy mud to mixed sediment community complex, Shingle, Fucoid-dominated community complex, <i>Laminaria</i> -dominated community complex and Shallow sponge-dominated community complex are located c. 2.5rkm downstream of the Proposed Development Site (Map 7 NPWS, 2013a). In the absence of pollution control/water attenuation measures during the Construction Phase, it cannot be excluded that surface water run-off/discharges from the Proposed Development will have a likely significant effect on the community distribution of the above listed complexes. It is unlikely that the fine to medium sand with bivalves community complex and mixed sediment dominated by Mytilidae community complex will be impacted by the Proposed Development as these marine community types are a significant distance from the outflow of the Tonabrocky stream (NPWS 2013a).
[1170] Reefs		
Conservation Objective: To maintain the favourable conservation condition of Reefs in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:		
Distribution	The distribution of reefs is stable or increasing, subject to natural processes.	The Proposed Development will not have the potential to cause changes to the distribution of the reef habitat in this SAC.
Habitat Area	The permanent habitat area is stable, subject to natural processes	The Proposed Development will not have the potential to cause changes to the area of the reef habitat in this SAC.
Community extent	Maintain the extent of the <i>Mytilus</i> -dominated reef	This intertidal mussel bed occurs on the northern shore of the bay at Roscam (NPWS, 2011). This marine community type is a significant distance from the outflow of the Tonabrocky stream.

Attribute	Target	Assessment of likely significant effects
	community, subject to natural processes	
Community structure: <i>Mytilus</i> density	Conserve the high quality of the <i>Mytilus</i> -dominated reef community, subject to natural processes	No potential for significant effects - See above.
Community structure	Conserve the following community types in a natural condition: Furoid-dominated community complex; <i>Laminaria</i> -dominated community complex; and Shallow sponge-dominated community complex	Furoid-dominated community complex; <i>Laminaria</i> -dominated community complex and Shallow sponge-dominated community complex are located c. 2.5rkm downstream of the Proposed Development Site (Map 7 NPWS, 2013a). In the absence of pollution control/water attenuation measures during the Construction Phase, it cannot be excluded that surface water run-off/discharges from the Proposed Development will have a likely significant effect on the community distribution of the above listed complexes.
[1330] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)		
Conservation Objective: To restore the favourable conservation condition of Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:		
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	The Proposed Development will not have the potential to cause changes to the habitat area of the Atlantic Salt Meadow habitat in this SAC.
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes	The Proposed Development will not have the potential to cause changes to the habitat distribution of the Atlantic Salt Meadow habitat in this SAC.
Physical structure: sediment supply	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions	In the absence of pollution control/water attenuation measures, it cannot be excluded that surface water run-off/discharges from the Proposed Development could have a likely significant effect on the sediment supply to this habitat. The Proposed Development could increase the sediment supply to this habitat.
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	The Proposed Development will not have the potential to cause changes to the creeks and pans of the Atlantic Salt Meadow habitat in this SAC.
Physical structure: flooding regime	Maintain natural tidal regime	The Proposed Development will not have the potential to cause changes to the tidal regime.
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of zonation of the Atlantic Salt Meadow habitat in this SAC.

Attribute	Target	Assessment of likely significant effects
	zones, subject to natural processes including erosion and succession	
Vegetation structure: vegetation height	Maintain structural variation within sward	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of vegetation height of the Atlantic Salt Meadow habitat in this SAC.
Vegetation structure: vegetation cover	Maintain more than 90% area outside creeks vegetated	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of vegetation cover of the Atlantic Salt Meadow habitat in this SAC.
Vegetation composition: typical species and subcommunities	Maintain range of subcommunities with typical species listed in SMP (McCorry and Ryle, 2009)	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of composition of the Atlantic Salt Meadow habitat in this SAC.
Vegetation structure: negative indicator species - <i>Spartina anglica</i>	There is currently no common cordgrass (<i>Spartina anglica</i>) in this SAC. Prevent establishment of cordgrass	The Proposed Development will not result in the introduction of common cordgrass to the Atlantic Salt Meadow habitat in this SAC.
[1410] Mediterranean salt meadows (<i>Juncetalia maritimi</i>)		
Conservation Objective: To restore the favourable conservation condition of Mediterranean salt meadows (<i>Juncetalia maritimi</i>) in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:		
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	The Proposed Development will not have the potential to cause changes to the habitat area of the Mediterranean Salt Meadow habitat in this SAC.
Habitat distribution	No decline, subject to natural processes	The Proposed Development will not have the potential to cause changes to the habitat distribution of the Mediterranean Salt Meadow habitat in this SAC.
Physical structure: sediment supply	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions	In the absence of pollution control/water attenuation measures, it cannot be excluded that surface water run-off/discharges from the Proposed Development could have a likely significant effect on the sediment supply to this habitat. The Proposed Development could increase the sediment supply to this habitat.
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	The Proposed Development will not have the potential to cause changes to the creeks and pans of the Mediterranean Salt Meadow habitat in this SAC.

Attribute	Target	Assessment of likely significant effects
Physical structure: flooding regime	Maintain natural tidal regime	The Proposed Development will not have the potential to cause changes to the tidal regime.
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of zonation of the Mediterranean Salt Meadow habitat in this SAC.
Vegetation structure: vegetation height	Maintain structural variation within sward	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of vegetation height of the Mediterranean Salt Meadow habitat in this SAC.
Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of vegetation cover of the Mediterranean Salt Meadow habitat in this SAC.
Vegetation composition: typical species and subcommunities	Maintain range of subcommunities with typical species listed in SMP (McCorry and Ryle, 2009)	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of composition of the Mediterranean Salt Meadow habitat in this SAC.
Vegetation structure: negative indicator species - <i>Spartina anglica</i>	There is currently no common cordgrass (<i>Spartina anglica</i>) in this SAC. Prevent establishment of cordgrass	The Proposed Development will not result in the introduction of common cordgrass to the Mediterranean Salt Meadow habitat in this SAC.
[1310] <i>Salicornia</i> and other annuals colonizing mud and sand		
Conservation Objective: To maintain the favourable conservation condition of <i>Salicornia</i> and other annuals colonizing mud and sand in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:		
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	The Proposed Development will not have the potential to cause changes to the habitat area of the <i>Salicornia</i> and other annuals colonizing mud and sand habitat in this SAC.
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes	The Proposed Development will not have the potential to cause changes to the habitat distribution of the <i>Salicornia</i> and other annuals colonizing mud and sand habitat in this SAC.

Attribute	Target	Assessment of likely significant effects
Physical structure: sediment supply	Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions	In the absence of pollution control/water attenuation measures, it cannot be excluded that surface water run-off/discharges from the Proposed Development could have a likely significant effect on the sediment supply of this habitat. The Proposed Development could increase the sediment supply to this habitat.
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	The Proposed Development will not have the potential to cause changes to the creeks and pans of the Salicornia and other annuals colonizing mud and sand habitat in this SAC.
Physical structure: flooding regime	Maintain natural tidal regime	The Proposed Development will not have the potential to cause changes to the tidal regime.
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of zonation of the Salicornia and other annuals colonizing mud and sand habitat in this SAC.
Vegetation structure: vegetation height	Maintain structural variation within sward	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of vegetation height of the Salicornia and other annuals colonizing mud and sand habitat in this SAC.
Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of vegetation cover of the Salicornia and other annuals colonizing mud and sand habitat in this SAC.
Vegetation composition: typical species and subcommunities	Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)	The Proposed Development will not have the potential to cause changes to the vegetation structure in terms of composition of the <i>Salicornia</i> and other annuals colonizing mud and sand habitat in this SAC.
Vegetation structure: negative indicator species - <i>Spartina anglica</i>	There is currently no common cordgrass (<i>Spartina anglica</i>) in this SAC. Prevent establishment of cordgrass	The Proposed Development will not result in the introduction of common cordgrass to the <i>Salicornia</i> and other annuals colonizing mud and sand habitat in this SAC.
[1355] Otter <i>Lutra lutra</i>		
Conservation Objective: To restore the favourable conservation condition of Otter in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:		
Distribution	No significant decline	The Proposed Development does not have the potential to decrease the distribution of Otter within the SAC.
Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 262ha	The Proposed Development will not result in a decline in the extent of terrestrial habitat for Otter.

Attribute	Target	Assessment of likely significant effects
	above high water mark (HWM); 14ha along river banks/ around ponds	
Extent of marine habitat	No significant decline. Area mapped and calculated as 2040ha	The Proposed Development does not have the potential to decrease the extent of the marine habitat in the SAC.
Extent of freshwater (river) habitat	No significant decline. Length mapped and calculated as 4 km	The Proposed Development does not have the potential to decrease the extent of the freshwater habitat in the SAC.
Extent of freshwater (lake/lagoon) habitat	No significant decline. Area mapped and calculated as 21ha	The Proposed Development does not have the potential to decrease the extent of the freshwater (lake/lagoon) habitat in the SAC.
Couching sites and holts	No significant decline	No suitable Otter habitat at the Site.
Fish biomass available	No significant decline	Although likely to be insignificant, in the absence of pollution control/water attenuation measures, surface water run-off/discharges from the Proposed Development may have the potential to impact the fish biomass within localised areas of the Bay.
Barriers to connectivity	No significant increase	The Proposed Development does not have the potential to result in barriers to the movement of otters within the SAC.
[1365] Harbour Seal <i>Phoca vitulina</i>		
Conservation Objective: To maintain the favourable conservation condition of Harbour Seal in Galway Bay Complex SAC, which is defined by the following list of attributes and targets:		
Access to suitable habitat	Species range within the site should not be restricted by artificial barriers to site use	The Proposed Development does not have the potential to affect the range of Harbour within the SAC.
Breeding behaviour	Conserve breeding sites in a natural condition	Map 12 of the conservation objectives shows general habitat c. 1.8km south of the site but no known breeding, resting or moulting sites are located here (NPWS, 2013a).
Moulting behaviour	Conserve moult haul-out sites in a natural condition	No potential for significant effects - See above.
Resting behaviour	Conserve resting haul-out sites in a natural condition	No potential for significant effects - See above.
Disturbance	Human activities should occur at levels that do not adversely affect	Although likely to be insignificant, in the absence of pollution control/water attenuation measures, surface water run-off/discharges from the Proposed Development may have the potential to disturb harbour seal within the Bay.

Attribute	Target	Assessment of likely significant effects
	the harbour seal population at the site	
Inner Galway Bay SPA		
<p>[A002] Black-throated Diver (<i>Gavia arctica</i>); [A003] Great Northern Diver (<i>Gavia immer</i>); [A017]; [A028] Grey Heron (<i>Ardea cinerea</i>); [A046] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>); [A003] [A050] Wigeon (<i>Anas penelope</i>); [A052] Teal (<i>Anas crecca</i>); [A056] Shoveler (<i>Anas clypeata</i>); [A069] Red-breasted Merganser (<i>Mergus serrator</i>); [A137] Ringed Plover (<i>Charadrius hiaticula</i>); [A140] Golden Plover (<i>Pluvialis apricaria</i>); [A142] Lapwing (<i>Vanellus vanellus</i>); [A149] Dunlin (<i>Calidris alpina</i>); [A157] Bar-tailed Godwit (<i>Limosa lapponica</i>); [A160] Curlew (<i>Numenius arquata</i>); [A162] Redshank (<i>Tringa totanus</i>); [A169] Turnstone (<i>Arenaria interpres</i>); [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>); [A182] Common Gull (<i>Larus canus</i>)</p> <p>Conservation Objective: To maintain the favourable conservation condition of the listed bird species in Inner Galway Bay SPA, which is defined by the following list of attributes and targets:</p>		
Population trend	Long term population trend stable or increasing	The Proposed Development will not affect the long-term population trend of the listed bird species.
Distribution	No significant decrease in the range, timing or intensity of use of areas by the aforementioned species, other than that occurring from natural patterns of variation	<p>In the absence of pollution control/water attenuation measures, surface water run-off/discharges from the Proposed Development may have the potential to negatively affect the status of habitats and foraging resources which these bird species rely on, during the Construction Phase of the Proposed Development. This may ultimately undermine this conservation objective target.</p> <p>As SuDS measures are proposed within the project design, no impacts during the Operational Phase are anticipated.</p>
<p>[A017] Cormorant (<i>Phalacrocorax carbo</i>); [A193] Common Tern <i>Sterna hirundo</i>; [A191] Sandwich Tern <i>Sterna sandvicensis</i></p> <p>Conservation Objective: To maintain the favourable conservation condition of the listed bird species in Inner Galway Bay SPA, which is defined by the following list of attributes and targets:</p>		
Breeding population abundance: apparently occupied nests (AONs)	No significant decline	<p>Common Terns breed on the coast as well as inland on freshwater lakes. Typical sandwich tern breeding sites are located on low-lying offshore islands or islets in bays or brackish lagoons on spits or remote mainland dunes. Cormorant colonies are usually sited on flat or rocky islets or sea stack tops, less often on cliffs. Deer Island is a traditional breeding colony in this SPA</p> <p>None of the above listed SCI species would utilise any nearby areas as <i>ex-situ</i> breeding habitat and therefore will not be affected by the Proposed Development.</p>
Productivity rate: fledged young per breeding pair	No significant decline	No potential for significant effects - See above.
Distribution: breeding colonies	No significant decline	No potential for significant effects - See above.

Attribute	Target	Assessment of likely significant effects
Prey biomass available	No significant decline	<p>In the absence of pollution control/water attenuation measures, surface water run-off/discharges from the Proposed Development may have the potential to negatively affect the status of habitats and foraging resources which these bird species rely on, during the Construction Phase of the Proposed Development. This may ultimately undermine this conservation objective target.</p> <p>As SuDS measures are proposed within the project design, no impacts during the Operational Phase are anticipated.</p>
Barriers to connectivity	No significant increase	The Proposed Development will not result in any barriers to connectivity.
Disturbance at breeding site	Human activities should occur at levels that do not adversely affect the breeding population	No potential for significant effects - See above.
Population trend (Cormorant Only)	Long term population trend stable or increasing	No potential for significant effects.
Distribution (Cormorant Only)	No significant decrease in the numbers or range of areas used by cormorant, other than that occurring from natural patterns of variation	<p>There is no suitable habitat for Cormorant at the Site. In the absence of pollution control/water attenuation measures, surface water run-off/discharges from the Proposed Development may have the potential to negatively affect the status of habitats and foraging resources which these bird species rely on, during the Construction Phase of the Proposed Development. This may ultimately undermine this conservation objective target.</p> <p>As SuDS measures are proposed within the project design, no impacts during the Operational Phase are anticipated.</p>
<p>[A999] Wetlands Conservation Objective: To maintain the favourable conservation condition of wetland habitat in Inner Galway Bay SPA as a resource for the regularly occurring migratory waterbirds that utilise it. This is defined by the following attribute and target:</p>		
Habitat area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 13,267 hectares, other than that occurring from natural patterns of variation	The Proposed Development will not have the potential to cause changes to the habitat area of the wetlands habitat in this SPA.

8 MITIGATION MEASURES

8.1 Construction Phase

The following mitigation measures will be in place for the duration of the Proposed Development.

8.1.1 *Surface Water*

Fuel and Chemical Storage

Appropriate storage facilities will be provided on Site. Areas of high risk include:

- Fuel and chemical storage;
- Refuelling Areas;
- Site Compound; and
- Waste storage areas.

There will be no washdown facilities for plant and equipment on the Proposed Development Site.

If required, fuel, oils and chemicals will be stored on an impervious base within a bund remote from any surface water ditches or locations.

All tank, container and drum storage areas shall be rendered impervious to the materials stored therein. Bunds shall be designed having regard to Environmental Protection Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (2904). All tank and drum storage areas shall, as a minimum, be bunded to a volume not less than the greater of the following:

- 110% of the capacity of the largest tank or drum within the bunded area; or
- 25% of the total volume of substance that could be stored within the bunded area.

Concrete mixer trucks will not be permitted to wash out on Site with the exception of cleaning the chute into a container which will be removed off Site to an authorised facility.

Water will not be discharged to open water courses.

General Protection Measures

All works carried out as part of the Proposed Development will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990 and the contractor will cooperate fully with the Environment Section of Galway City Council in this regard.

Personnel working on the Site will be trained in the implementation of environmental control and emergency procedures. The CEMP and the relevant documents produced will be formulated in consideration of standard best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors;
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005;
- BPGCS005, Oil Storage Guidelines;
- CIRIA 697, The SUDS Manual, 2007;
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004;
- Construction Industry Research and Information Association CIRIA C648: Control of water pollution from linear construction projects: Technical guidance (Murnane et al. 2006);
- CIRIA C648: Control of water pollution from linear construction projects: Site guide (Murnane et al. 2006); and
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

The following standard operational measures will protect surface waters during the Construction Phase of the Proposed Development:

- Run-off from the working site or any areas of exposed soil should be channelled and intercepted at regular intervals for discharge to silt-traps or lagoons with over-flows directed to land rather than to a watercourse.
- Pumping of concrete will be monitored to ensure that there is no accidental discharge;
- There will be no mixer washings or excess concrete discharged on Site. All excess concrete is to be removed from Site and all washout of concrete chutes to be captured in a tank which shall be removed offsite for disposal at an authorised wastewater treatment facility;
- Surface water run-off will be treated using silt trays/settlement ponds and temporary interceptors and traps will be installed until such time as permanent facilities are constructed. Straw bales or silt fences will be appropriately located near watercourses to help prevent untreated surface water run-off entering any watercourse. A buffer zone should remain between the silt trap and the watercourse with natural vegetation left intact.
- Any oil and lubricant changes and maintenance will take place offsite;
- Refuelling of plant and machinery on Site shall take place in a designated, impermeable area;
- All open water bodies adjacent to areas of proposed works will be protected by fencing including settlement ponds;
- A regular review of weather forecasts of heavy rainfall will be conducted and a contingency plan will be prepared for before and after such events to minimise any potential nuisances. As the risk of the break-out of silt laden run-off is higher during these weather conditions, no work will be carried out during such periods where possible;

- The developer will ensure that erosion control i.e. silt-traps, silt-fencing and swales are regularly maintained during the Construction Phase;
- Any imported materials will, as much as possible, be placed on Site in their proposed location and double handling will be avoided. Where this is not possible designated temporary material storage areas will be used;
- These temporary storage areas will be located at least 50m away from any surface water features/drainage ditches etc.; and will be surrounded with silt fencing to filter out any suspended solids from surface water arising from these materials if necessary.
- Temporary oil interceptor facilities will be installed and maintained where Site Works involve the discharge of drainage waters to nearby watercourses.
- All containment and treatment facilities will be regularly inspected and maintained.
- If cast-in-place concrete is required, all work must be carried out in the dry and effectively isolated from any water courses or drainage ditches.
- Refuelling of plant during the Construction Phase will only be carried out at designated refuelling station locations on site. Each station will be fully equipped for spill response and a specially trained and dedicated Environmental and Emergency Spill Response team will be appointed before the commencement of works on site.
- Only emergency breakdown maintenance will be carried out on site. Drip trays and spill kits will be available on site to ensure that any spills from vehicles are contained and removed off site;
- All personnel working on site will be trained in pollution incident control response. Emergency silt control & spillage response procedures contained within the CEMP will ensure that appropriate information will be available on site outlining the spillage response procedures and a contingency plan to contain silt during an incident;
- Any other diesel, fuel or hydraulic oils stored on site will be stored in bunded storage tanks- the bunded area will have a volume of at least 110% of the volume of the stored materials as per best practice guidelines (Enterprise Ireland, BPGCS005);
- Portaloos and/or containerised toilets and welfare units will be used to provide facilities for site personnel. All associated waste will be removed from site by a licenced waste disposal contractor;
- As this is a greenfield site, it is unlikely contaminated material will exist onsite. However, in the unlikely event material becomes contaminated, by for example a fuel spill onsite or a burst / leaking hydraulic hose, a documented procedure for contaminated material will be prepared and adopted by the appointed contractor prior to excavation works commencing on Site. These documents will detail how potentially contaminated material will be dealt with during the excavation phase.
- Temporary diversions may be used to facilitate working in the dry, the diversion channel should be formed in the dry, and arrangements should be made for authorised personnel to remove all fish from the natural channel before the flow is diverted if fish are present.

- Instream machine works should be minimised, and any machines working in the watercourse must be protected against leakage or spillage of fuels, oils, greases and hydraulic fuels.
- Instream earthworks must be executed so as to minimise the suspension of solids.
- When cofferdams are being kept dry by pumping, the discharge must be routed to an approved settlement facility before return to the river.
- Every care must be taken to insure against spillage of concrete or leakage of cement grout within cofferdams.

All wastewater generated on-site during the Construction Phase will be stored and disposed of appropriately by discharge to foul sewer or by tankering off site. Under no circumstances will any untreated wastewater generated onsite (from equipment washing, road sweeping etc.) be released into nearby ditches or watercourses.

Measures specific to culvert installation

- All in-stream works, including temporary stream crossings will be carried out in line with Inland Fisheries Ireland (2016) *Guidelines on the Protection of Fisheries During Construction Works in and Adjacent to Waters*.
- Precast concrete pipe shall be used to significantly minimise the need for the use of in-situ concrete for this element of the works.
- The Contractor shall plan the works to ensure works are carried out during dry spells and monitor daily weather forecasts accordingly.
- The culvert will be installed avoiding the need for in channel works in so far as possible.
- Material excavation shall be disposed of to an appropriate licenced facility or reused on site where the material is deemed suitable.
- Where water ingress in excavations is evident during the construction of the culverts, all dewatering flow will be passed through filtering dewatering bags to remove sediments.
- Once the culverts have been constructed and backfilled, the headwall to the open drains at the start (upstream) and end (downstream) of the diverted runs will be installed.
- The Contractor will adopt a water over pumping arrangement to manage the incoming water from upstream. The overpumped water shall pass through silt bags or other suitable measures before discharging to the previously constructed culverts at a downstream manhole.
- Once the overpumping arrangement is in place and the works area has been dried off, the installation of the headwalls will be completed. It is proposed that precast concrete concepts will be used to minimise the use of in-situ concrete in this element of works.
- The overpumping process will be repeated at the downstream headwall and on completion of both.

- the over pumping arrangement shall be discontinued which will allow the upstream open drain to connect to the newly constructed diverted culvert.

8.1.2 Groundwater

Measures set out in Section 8.1.1 Surface Water- Fuel and Chemical Storage will serve to protect soil and groundwater.

Groundwater may be encountered during the construction works. Where water must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA – C750) and regulatory consents.

Excavations and potentially contaminated stockpiled soils will be constructed/located/sheeted in a manner that ensures water is contained within the site boundary.

8.2 Operational Phase

8.2.1 Surface Water

As SuDS measures are proposed within the project design (swales, attenuation), no mitigation measures are proposed here.

The following SuDS measures are proposed:

Storm water generated from new hard landscaping and roofs on site will be directed to an onsite attenuation tank to align with the Sustainable Drainage Systems (SuDS) requirements. Terraced housing and apartment buildings will incorporate appropriately sized soakaways to rear gardens to capture storm water runoff. The soakaways are to be designed to BRE365 specifications and will infiltrate to ground.

All surface water from trafficked areas will be intercepted by a suitable petrol interceptor prior to entering the attenuation system. The attenuated storm water will then be discharged to the LA system at a suitable greenfield runoff rate, to be agreed with the LA.

The existing LA storm water network crossing the site will have to be diverted to accommodate the proposed dwellings along the southern boundary of the site.

The drainage design will adhere to the following planning requirements:

- Discharge from site restricted to 2l/s/Ha, the site is approx. 2 Ha. Note the allowable discharge to greenfield rate is 11.2l/s. However, following consultations with Galway City Council, a discharge rate of 2l/s was used for design purposes.
- The Hydrobrake can meet flow requirements of 4l/s at a design head of 0.815m
- Hydraulic modelling showing pipes designed for a 1 in 5-year storm return period.
- Hydraulic modelling showing no surcharge in the network catering for a 1 in 30-year storm return period.
- Hydraulic modelling showing no flooding in the network catering for a 1 in 100-year storm return period.

- Attenuation is to be designed to cater for the 1 in 100-year return period storms with an additional allowance of 20% for climate change.
- All pipe velocities to meet requirements as set out in sewers for adoption.

9 CONCLUSION

This Natura Impact Statement details the findings of the Stage 2 Appropriate Assessment conducted to further examine the potential direct and indirect effects of the Proposed Development at Keeraun, Ballymoneen Road, Galway City on the following European sites:

- Galway Bay Complex SAC
- Inner Galway Bay SPA

The above sites were identified by a screening exercise that assessed likely significant effects of a range of effects that may arise from the Proposed Development. The Appropriate Assessment investigated the potential direct and indirect impacts of the Proposed Works, both during Construction and Operation on the integrity and qualifying interests of the above European sites alone and in combination with other plans and projects, taking into account the site's structure, function and conservation objectives.

Where potentially significant effects were identified, a range of mitigation and avoidance measures have been suggested to help offset them. As a result of this Appropriate Assessment it has been concluded that, ensuring the avoidance and mitigation measures are implemented as proposed, the Proposed Development will not have a significant adverse effect on the above European sites.

As a result of the complete, precise and definitive findings in of this NIS, it has been concluded, beyond reasonable scientific doubt, that the Proposed Development will have no adverse effects on the qualifying interests, special conservation interests and on the integrity and extent of Galway Bay Complex SAC and Inner Galway Bay SPA. Accordingly, the Proposed Development will not adversely affect the integrity of any relevant European site.

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