



Ecological Impact Assessment

Anglesea Terrace

Doherty Environmental Consultants Ltd

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Anglesea Terrace

Cork

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1.0 INTRODUCTION

Doherty Environmental Consultants (DEC) Ltd. has been commissioned by MH Planning on behalf of the Land Development Agency to undertake an ecological baseline assessment for a proposed development at Anglesea Terrace, Cork. The location of the proposed site is shown on Figure 1.1 while an aerial view of the proposed site is shown on Figure 1.2.

1.1 LEGISLATION

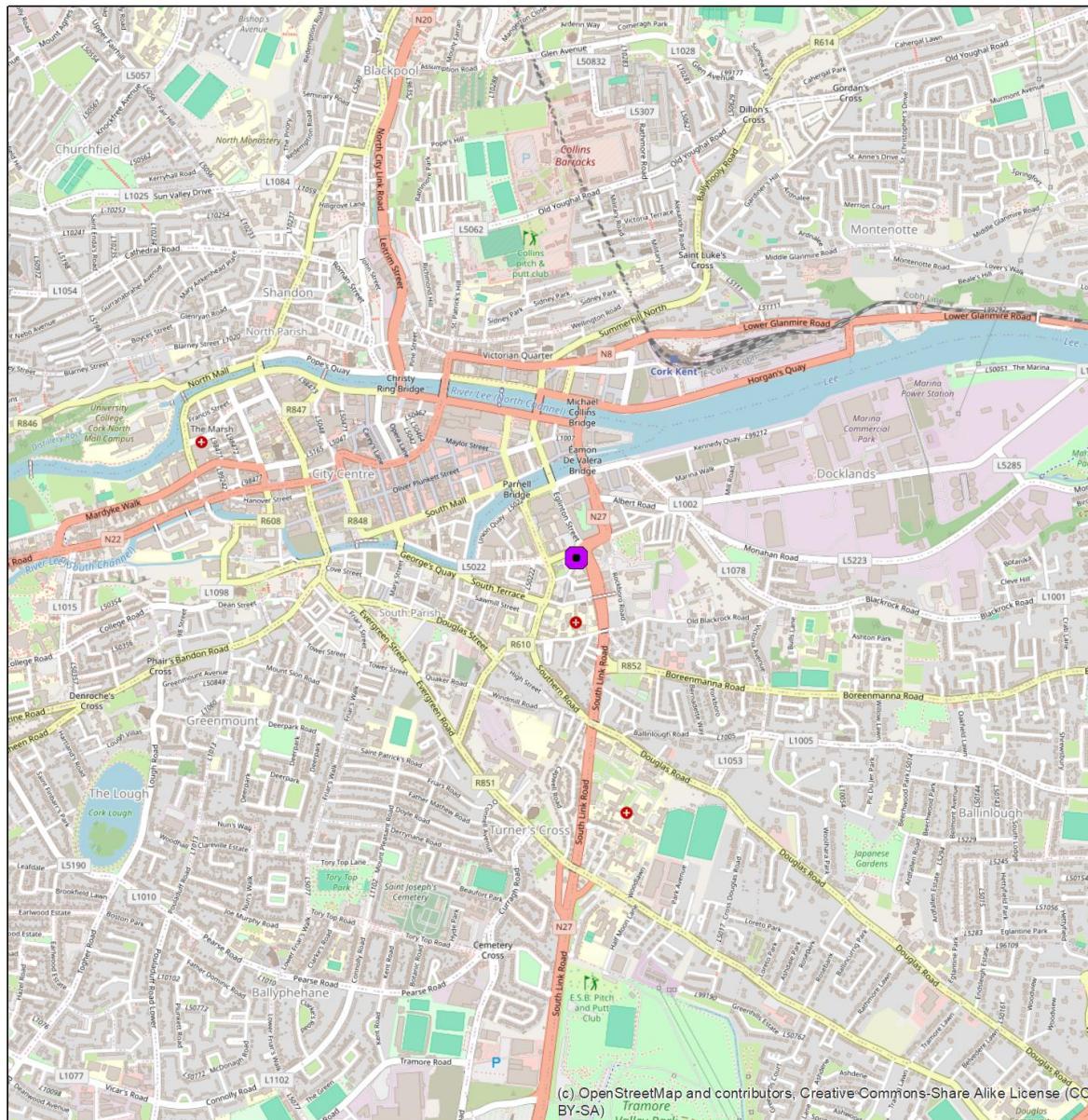
Flora and fauna in Ireland is protected at a national level by the Wildlife Act, 1976 and the Wildlife (Amendment) Act, 2000 and the Flora (Protection) Order, 1999 (SI 94/1999). They are also protected at a European level by the EU Habitats Directive (92/43/EEC) and the EU Birds Directive (79/409/EEC).

The transposition of the EU Habitats Directive by the European Communities (Natural Habitats) Regulations 1997 – 2011 (referred to as the Habitat Regulations) provides the legal basis for the protection of habitats and species of European importance in Ireland.

The legislative protection of habitats and species provided by the Habitats Directive has been implemented in Ireland and throughout Europe through the establishment of a network of designated conservation areas known as the Natura 2000 (N2K) network (with individual sites being referred to as Natura 2000 Sites). The N2K network includes sites designated as Special Areas of Conservation (SACs), under the EU Habitats Directive and Special Protection Areas (SPAs) designated under the EU Birds Directive. SACs are designated in areas that support habitats listed on Annex I and/or species listed on Annex II of the Habitats Directive. SPAs are designated in areas that support: 1% or more of the all-Ireland population of bird species listed on Annex I of the EU Birds Directive; 1% or more of the population of a migratory species; and more than 20,000 waterfowl. Under the National Habitat Regulations all designated Natura 2000 Sites are referred to as European Sites.

The Wildlife Act 1976 (as amended) also provides for the statutory designation of nature conservation areas. These areas are referred to under the Wildlife Acts as Natural Heritage Areas and are designated in areas that support habitats and/or species of national importance. Other relevant national legislation concerning the protection of flora, fauna and fisheries include the:

- Planning Act 2010;
- European Communities (Quality of Salmonid Waters) Regulations, 1988;
- The Freshwater Fish Directive 1978 (78/659/EEC); and
- The Surface Water Regulations, 2009.

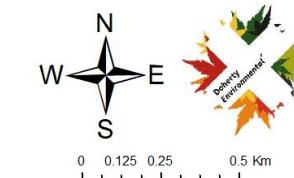


Anglesea Terrace

Figure 1.1

Site Location

■ Project Site



Drawn By	PD
Date	15/10/2024
Data Source	OSM

2.0 PROJECT DESCRIPTION

The development proposes the demolition of existing structures and construction of 147 no. residential units and 3 mixed-use units located at Anglesea Terrace, Old Station Road, Cork.

2.1 SURFACE WATER MANAGEMENT

The development is required to retain stormwater volumes predicted to be experienced during extreme rainfall events. This is defined as the volume of storm water generated during a 1-in-100-year storm event, increased by 20% for the predicted effects of climate change. In addition to this, based on the information received from Cork County Council's Drainage Department regarding the current capacity and constraints of the existing drainage network, the project engineers were informed that the design of the attenuation tanks is to cater for the possibility of tidal lock in duration of 6-hours. This additional storage provision is included within the design.

The Greater Dublin Strategic Drainage Study (GDSDS) recommends that runoff rates for a proposed development such as the current project are restricted to greenfield run-off rates or 2.0l/s/ha, whichever is greater. The calculated Q-Bar rate was determined to be 3.03 l/s/ha. However, as per the Engineering Services Report, provided under separate cover with the planning application documentation, given the provision of tidal lock storage, limitations of the site, and its size, it is proposed to restrict the run-off from the subject site to 1 l/sec.

The topography of the development site generally falls from the northeastern boundary to the southwestern boundary.

All storm water from the proposed development shall be collected in 2no. attenuation tanks located along the northern and southwestern boundary of the development site. The majority of the storm water volume shall be stored in the tank located along the northern boundary. The southwestern tank shall only cater for the western pathway and has only been proposed due to the site level constraints.

The storm water from the southwestern boundary shall be pumped via a rising main into the main attenuation tank located along the northern boundary of the development site. The storm

water from the main attenuation tank along the northern boundary shall be then discharged into an existing 450mm storm sewer along Old Station Road via gravity.

2.1.1 SuDS Measures

Sustainable Drainage Systems (SuDS) measures address challenges associated with urbanization, including flooding, water pollution and habitat loss. In essence, SuDS principles aim to mimic natural water management processes, promoting infiltration, storage, and evapotranspiration.

It is proposed to use the following SuDS measures for the proposed development:

- a) Green Roof: Green roofs will be provided on the proposed building's flat roof areas and terraces at levels 4 and 7. During typical low-intensity rainfall events, these will collect and retain most rainwater falling on the roof areas until it subsequently evaporates. This will reduce the volumes of rainwater discharging to the public sewer network, as well as mitigating peaks in run-off and reducing the potential for contaminants to be washed from the roof, decreasing the development's impact on the receiving environment. Green roofs also have secondary environmental benefits, providing a temperature control effect by absorbing less solar radiation and improving air quality by trapping airborne particulate matter.
- b) Permeable paving or porous asphalt – permeable paving such as western pathway and loading bay has been provided as part of the design of external hardstand areas.

An operational and maintenance schedule for the proposed attenuation tank, site manholes and drains, green roof, permeable paving is set out in Section 5.3 of the Engineering Services Report, provided under separate cover with the planning application documentation.

2.2 FOUL WATER DRAINAGE

A pre-connection inquiry connection was made to Uisce Éireann in 2024. Uisce Éireann has indicated that the foul drainage connection is feasible without upgrades to existing Uisce Éireann infrastructure in its Confirmation of Feasibility, reference CDS24005145, dated 7 November 2024.

2.2.1 Sources of Foul Effluent

2.2.1.1 Residential Units

The Uisce Éireann Code of Practice for Wastewater Infrastructure specifies an average foul effluent flow rate of 165 litres per person per day for domestic dwellings (150 litres per person per day, plus a 10% allowance for external infiltration) and an average occupancy of 2.7 persons per residential unit. The development's applicable design population is therefore 397 people, and the foul effluent to be generated by the proposed residential units may be calculated as:

- 165 l/person/day.
- Dry Weather Flow (DWF)
- $165 \text{ l/person/day} \times 397 \text{ people} = 65,505 \text{ l/day} = 0.758 \text{ l/sec.}$
- Peak Flow (6 times DWF)
- $6 \times 0.758 \text{ l/sec} = 4.54 \text{ l/sec.}$

2.2.1.2 Mixed Use Unit

The proposed development also includes 3no. mixed use units. It is intended that these units shall be used as café.

The *Uisce Éireann Code of Practice for Wastewater Infrastructure* specifies an effluent flow rate of 28 litres per person per day for Restaurants – pre-prepared catering (25 litres per person per day, plus a 10% allowance for external infiltration). It is assumed that a maximum of 50no. people shall be using the café on a daily basis. Therefore, the foul effluent generated by the proposed mixed-use units may be calculated as;

- 28 l/person/day.
- Dry Weather Flow (DWF)
- $28 \text{ l/person/day} \times 50 \text{ people} = 1,400 \text{ l/day} = 0.0162 \text{ l/sec.}$
- Peak Flow (6 times DWF)
- $6 \times 0.0162 \text{ l/sec} = 0.0972 \text{ l/sec}$

2.2.2 Proposed Foul Outfall

All foul generated by the proposed development shall be collected in separate foul pipes and discharged into the 300mm diameter combined sewer along Anglesea Terrace to the south via gravity.

In addition, a small basement is proposed within the development which comprises of sprinkler tanks, wet riser tanks, water and break tank room, and a pump room. The foul run-off from the basement shall be pumped via a rising main to the standoff manhole at the surface level and ultimately discharge into the existing combined sewer via gravity.

2.3 WATER SUPPLY

2.3.1 Residential units water demand

The proposed development comprises of 147no. apartment units.

The Uisce Éireann Code of Practice for Water Infrastructure specifies an average potable water demand of 150 litres per person per day for domestic dwellings, and an average occupancy of 2.7 persons per residential unit. The development's applicable design population is therefore 397 people, and the average potable water demand of the proposed development may be calculated as:

- 150 l/person/day.
- Average water demand
- $150 \text{ l/day} \times 397 \text{ people} = 59,550 \text{ l/person/day} = 0.689 \text{ l/sec}$
- Average day/peak week demand
- $0.689 \times 1.25 = 0.8612 \text{ l/s}$
- Peak water demand (5 times average water demand)
- $5 \times 0.8612 \text{ l/sec} = 4.3062 \text{ l/sec.}$

2.3.2 Mixed-use units water demand

The proposed development also includes 3no. mixed use units. It is intended that these units shall be used as café.

The *Uisce Éireann Code of Practice for Water Infrastructure* does not specify potable water consumption rates for non-domestic uses. On the principle that the development's water consumption shall not exceed its foul effluent generation, the foul generation rates used in sub-section 3.2 have therefore also been employed for calculating average potable water demand (omitting the 10% increase corresponding to foul drainage infiltration). It is assumed that a maximum of 50no. people shall be using the café on a daily basis. Therefore, the foul effluent generated by the café may be calculated as:

- 25 l/person/day.
- Average Water Demand
- $25 \text{ l/person/day} \times 50 \text{ people} = 1,250 \text{ l/day} = 0.0144 \text{ l/sec.}$
- Average day/peak week demand
- $0.0144 \times 1.25 = 0.0180 \text{ l/s}$
- Peak water demand (5 times average water demand)
- $5 \times 0.0180 \text{ l/sec} = 0.0904 \text{ l/sec.}$

2.3.3 Proposed Water main Connection Point

It is proposed to connect into the existing 100mm cast iron watermain running along Anglesea Terrace via a 100mm connection from the proposed development.

A Pre-Connection Enquiry (PCE) was submitted to Uisce Éireann for the proposed development. As a response to the PCE, a Confirmation of Feasibility (CoF) was issued by Uisce Éireann which states a water connection is feasible subject to upgrades:

'In order to accommodate the proposed connection, approximately 110m of local water network upgrades will be required to provide additional network capacity. Uisce Éireann does not currently have any plans to undertake these works, therefore the applicant will be required

to fund these local network upgrades. The fee for these works will be calculated at a connection application stage.'

It is proposed to upgrade the existing watermain to provide additional network capacity.

2.4 CONSTRUCTION PHASE

2.4.1 Construction Sequence

As set out in more detail below, the construction of the project will be carried out in the following phases:

- Phase 1: Site Preparation & Enabling Works.
- Phase 2: Substructure Works.
- Phase 3: The RC Superstructure Works, including all associated works.
- Phase 4: Public Realm & Landscaping Works.

The proposed works will be constructed in the following sequence.

- Demolition of existing building structures.
- The local excavation for the construction.
- The construction of the underground drainage and services.
- The installation of the first level of the superstructure reinforced concrete walls and columns.
- The installation of the insulation and waterproofing below the ground floor slab.
- The construction of the ground floor reinforced concrete floor slab.
- Erection of concrete stairs and lift cores to roof level. This core will be undertaken in concrete framed construction.
- Erection of the remaining reinforced concrete framed superstructure. The structure will consist of a concrete flat slab supported on internal/ perimeter columns and reinforced concrete cores.
- Construction of facades in accordance with the architect's drawings and specifications.

- Roof completions.
- Mechanical and electrical installations.
- Internal fitout works.
- The remaining tie in works to the substructure drainage.
- External works.

2.4.2 Site Hoarding

Within the Outline CEMP by CS Consulting, it indicates the proposed layout of the hoarding that will be required during the construction phase of the project. It is noted that the location of hoarding on the public street will be subject to a separate agreement and or licence between the main contractor and Cork City Council. However, for the purposes of this report, it should be noted that the hoarding measures proposed will consist of a 3.0m high hoarding along the edge of existing footpaths.

Signage will be provided on all hoarding in conjunction with adjoining traders to direct pedestrians and to convey that “business as usual” will continue during the construction process.

The hoarding will be removed on completion of the building facades & external paving works.

2.4.3 Site Access

An existing vehicular access to the site is located on Anglesea Terrace, at its southern boundary. This will serve for all demolition, clearance, piling, and excavation works on the site.

Security personnel will be present at the entrance/exit of the site to ensure all exiting traffic will do so safely. A self-contained wheel wash system will be installed at the exit from the site, to minimise dirt being carried out into the public road. Side baffles prevent the dispersal of washed dirt, and an inbuilt reservoir collects all runoff from the wheel wash system. Water is filtered and recirculated within the system, reducing water usage. All washed solids are segregated by settlement and are either reused on site or removed and disposed of in the same manner as other spoil material.

A road sweeper will be employed as required to keep public roads around the site clean.

2.4.4 Tower Crane

It is intended that at least one (or more) tower crane(s) will be erected for the construction of the superstructure. The tower cranes will be required for the erection of the building frame and super structure and, given the scale of the building, a Heavy-Duty Tower Crane will be provided and will be located centrally within the site.

2.4.5 Piling

The structure will be supported on reinforced concrete piles. There will be some limited dewatering works required for the basement of this development. The dewatering will be undertaken in localised areas and will be used to drop the water table locally during the construction of the foundations. It is proposed to pump the ground water to the onsite settlement and filtration treatment train prior to discharge to the existing sewer network. The piles will be installed from the existing ground level using the concrete hardstanding as a piling matt for the scheme.

A low-noise-and-vibration piling rig will be used for all piling works.

2.4.6 Excavation

The construction works will involve the excavation of approximately 4,417m³ of material from the site.

All excavated material will need to be removed offsite for appropriate reuse, recovery and/or disposal. If material is removed off-site it could be reused as a by-product (and not as a waste). If this is done, it will be done in accordance with Regulation 27 of the European Communities (Waste Directive) Regulations 2011, as amended, which requires that certain conditions are met and that by-product notifications are made to the EPA via their online notification form. Excavated material should not be removed from site until approval from the EPA has been received. The potential to reuse material as a by-product will be confirmed during the course of the excavation works, with the objective of eliminating any unnecessary disposal of material. Clean inert material may be used as fill material in other construction projects or engineering fill for waste licensed sites. Beneficial reuse of surplus excavation material as engineering fill

may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end use.

Site investigations at the proposed development site collected 22 no. samples from six boreholes. The samples were analysed and characterised to be non-hazardous waste. In the event that contaminated material is encountered and subsequently classified as hazardous, this material will be stored separately to any non-hazardous material. It will require off-site treatment at a suitable facility or disposal abroad via Transfrontier Shipment of Wastes (TFS). Any such material temporarily stored on site, prior to collection and removal to a suitably licenced facility, will be done so under cover to prevent runoff.

In the event that Asbestos Containing Materials (ACMs) are found within the excavated material, the removal will only be carried out by a suitably permitted waste contractor, in accordance with the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010 and the Best Practice Guidance for Handling Asbestos (2023) 20. All asbestos will be taken to a suitably licensed or permitted facility.

2.4.7 Construction Sequence – Further Details

As stated above, the construction of the proposed development will be carried out in the following phases:

- Phase 1: Site Preparation & Enabling Works.
- Phase 2: Substructure Works.
- Phase 3: The RC Superstructure Works, including all associated works.
- Phase 4: Public Realm Works.

2.4.7.1 Phase 1

A site compound will be co-ordinated by the main contractor on appointment and will be positioned within the boundary of the project site.

2.4.7.2 Phase 2

The piling for the substructure will be carried out from the existing ground level that is currently a concrete slab. Much of the substructure will be constructed at the existing ground level, thereby reducing the volume of excavation and soil to be removed off site.

The reinforcement concrete pile caps and the ground beams will be constructed below the lower ground floor level with RC retaining walls to ground floor level at the perimeter.

2.4.7.3 Phase 3

The main structural Frame will be completed following from the execution of the substructure works and ground floor slab.

The cores will be undertaken in concrete-framed construction; construction of concrete columns and upper floor concrete slabs; construction of glazing and stone facades; roof completions; mechanical and electrical installations; internal apartment fit out works; and external drainage and services.

On completion of the building structure, the building envelope will be completed and will include glazing and other façade elements, roof finishes and other completions.

During Phase 3 ready-mixed concrete will be brought to the proposed development site by truck and the pouring of concrete shall take place within a designated area to prevent concrete run-off into the soil / groundwater media. Washout of concrete transporting vehicles shall take place at an appropriate facility, offsite or where onsite wash out will be captured, for disposal off-site.

2.4.7.4 Phase 4

The public realm and landscaping works, including boundary treatments are to be completed in this final phase.

2.4.8 Site Compound

As part of the development programme, the construction compound and staging area will be located within the project site.

All materials will be stored within the site compound. Any temporary stockpiles stored onsite will be covered to prevent runoff.

2.4.9 Work on Public Roads

Works on public roads outside the site will be co-ordinated and will be co-ordinated with Cork City Council and the adjoining businesses and residents. These works include: footpath replacement and/or repair works; public lighting; and improved public realm works. Any existing dropped kerbs, not intended to serve as a vehicle access route or pedestrian crossing, are to be removed and replaced with full height kerbs.

Secure site hoarding will be installed around any works outside of the site, with controlled access points.

2.4.10 Hours of Work

Construction operations on site will generally be subject to planning permission and conditions. However, it may be necessary for some construction operations to be undertaken outside these times, for example, service diversions and connections, concrete finishing and fit-out works. Deliveries of materials to site will generally be between the hours of 07:00 and 18:00, Monday to Friday, and 08:00 to 14:00 on Saturdays. There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times. Any such deliveries will be made with the advance agreement of CCC.

2.4.11 Demolition

The demolition stage will involve the demolition and removal of 4 no. existing buildings on site. The demolition areas are identified in the planning drawings provided with this application. The anticipated demolition waste and rates of reuse, recycling / recovery and disposal are shown in Table 3.1, below.

Table 2.1: Estimated off-site reuse, recycle and disposal rates for demolition waste

Waste Type	Tonnes	Reuse		Recycle / Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Glass	0.8	0	0.0	85	0.7	15	0.1
Concrete, Bricks, Tiles, Ceramics	87.1	30	26.1	65	56.6	5	4.4
Plasterboard	4.8	30	1.4	60	2.9	10	0.5
Asphalts	9.5	0	0.0	25	2.4	75	7.1
Metals	34.8	5	1.7	80	27.9	15	5.2
Slate	1.6	0	0.0	85	1.3	15	0.2
Timber	19.0	10	1.9	60	11.4	30	5.7
Asbestos	0.8	0	0.0	0	0.0	100	0.8
Total	158.4		31.2		103.2		24.0

2.4.12 Construction Phase Water Management

During piling and excavation works groundwater is expected to be encountered.

Groundwater pooling in piling bores and/or excavations and surface water runoff collected onsite will be treated by settlement and filtration prior to discharge to the existing combined sewer. Total Suspended Solids (TSS) and colour will be monitored daily by a hand held multi parameter water quality probe.

Any groundwater encountered in excavations and run off generated within the project site during the construction phase will be directed to an onsite settlement pond and/or tank. Runoff will be filtered and treated to remove hydrocarbons and sediment. Total Suspended Solids (TSS), pH/Electrical Conductivity and colour will be monitored daily by a hand held multi parameter water quality probe. In addition, the outlet from the settlement pond will incorporate a turbidity monitor with alarm at high level. In the event that treated water discharging from the settlement pond/tank fails to meet the required standards, as set out in the discharge licence, water will be recirculated to the inlet of the settlement pond to provide further time for settlement. A penstock will be provided on the outlet from the settlement pond to control discharge from the site.

Dewatering of all working areas during and at the end of each working day will be undertaken using pumps. A back-up pump and generator will be provided onsite. If necessary transport of

water off-site in tankers (to appropriately licensed facilities) will be undertaken if volumes prevent effective settlement and treatment onsite prior to discharge.

Contaminated groundwater, if encountered on site in excavated areas, could result in contaminated groundwater being directed to the onsite water treatment train and discharged from the construction site. It is noted that the results of site investigations did not identify the presence of any contaminated ground within the site, indicating that ground at the project site is uncontaminated. Notwithstanding the results of the baseline site investigations a comprehensive suite of site investigation will be completed prior to the commencement of construction to confirm the absence of contaminated ground from the site, as indicated by the baseline site investigations. In the event that contaminated ground is identified the extent will be established during the pre-construction site investigations and the ground will be excavated and removed offsite for disposal as per the approach set out in Section 2.4.6 above. The removal of such contaminated material from the site will eliminate the potential source of future contamination to groundwater.

Where groundwater is struck during the pre-construction site investigations at locations of contaminated ground, groundwater samples will be collected and analysed for contaminant concentrations. Where concentrations exceed environmental quality standards for the specific contaminants present, then the groundwater will be collected by a suitably licenced contractor during excavation of the contaminated ground and disposed of offsite at a suitably licenced treatment facility. Where no environment quality standards for specific contaminants are exceeded, the groundwater arising from the excavation of contaminated ground will be directed to the onsite settlement and filtration treatment train prior to discharge to the existing sewer network.

There shall be no direct pumping of contaminated water from the works to the public drainage at any time.

A self-contained wheel wash will be provided on site as per Section 3.5.3 above.

In addition to the above the following suite of standard and generic construction measures will be put in place to protect against the generation of contaminated waters at the project site during the construction phase:

- Storage – all equipment, materials and chemicals will be stored a minimum distance of 25m away from any surface water body (i.e. the River Lee). Chemical, fuel and oil stores will be sited on impervious bases and within a secured bund of 110% of the storage capacity, within the lay down area.
- The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall also be tested and demonstrated.
- All fuel oil fill areas will have an appropriate spill apron and spill kits will be provided on site.
- Vehicles and refuelling – standing machinery will have drip trays placed underneath to prevent oil and fuel leaks causing pollution. Where practicable, refuelling of vehicles and machinery will be carried out on an impermeable surface in designated areas, well away from any surface waterbody.
- Maintenance – maintenance to construction plant will not be permitted on site, unless vehicles have broken down necessitating maintenance at the point of breakdown. All necessary pollution prevention measures will be put in place prior to commencement of maintenance in this instance;
- Concrete - Wet concrete operations will be carried out in dry conditions. Runoff from wastewaters or contaminated surface water runoff will be directed to construction phase surface water drainage system to be installed on site;
- Mess, sanitation and welfare facilities will be required during construction and will be located at the construction compound. Foul effluent will make use of chemical facilities with periodic removal for offsite disposal.

3.0 ECOLOGICAL BASELINE ASSESSMENT METHODS

3.1 DESKTOP REVIEW

A range of scientific site investigations have been completed to inform the preparation of this ecological baseline assessment.

Desk-based investigations were completed to identify pathways connecting the proposed project to European Sites. Datasets used to assist with the desk-based investigations include:

- NPWS European Sites and site-specific conservation objectives datasets;
- EPA Rivers and Lakes dataset;
- EPA surface water catchment and sub-catchment datasets;
- NPWS Article 17 Habitats and Species Reports datasets;
- OSI Geohive and OSI Historic townlands online mapping portal;
- National Biodiversity Data Centre (NBDC) online mapping portal; and
- NPWS Protected Species Dataset for the proposed development site and surrounding area.

3.2 MULTIDISCIPLINARY SURVEY

Multidisciplinary ecological surveys of the project site were undertaken by DEC Ltd during August 2024.

The methodology used during this survey was based on the Heritage Councils *Best Practice Guidance for Habitat Survey and Mapping* (2011). The classification of habitats recorded during the field survey is based on the Heritage Council's *A Guide to Habitats in Ireland*.

The *Guide to Habitats in Ireland* classifies habitats according to a hierarchical framework with Level 1 habitats representing broad habitat groups, Level 2 representing habitat sub-groups and Level 3 representing individual habitat types. The Phase I Field Survey focused on identifying habitats to Level 3 of the *Guide to Habitats in Ireland*.

The annotation of vegetation occurring within sites was undertaken using the DAFOR scale. This scale refers to plant species in terms of dominance, abundance, frequency, occasional and rare (DAFOR). Plant nomenclature in this report follows Webb (1996) for vascular plants and Smith (2004) for mosses.

All bird species seen using the site (as opposed to simply flying over it) were recorded.

An appraisal of habitats occurring within the project site for their potential to support bat species was completed during the field surveys. These appraisals involved the inspection of buildings on site for field signs indicating the presence of bats, roost emergence surveys and bat activity surveys on site.

Dedicated bat activity surveys were completed on site. This involved a manual roost emergence and pre-dawn re-entry survey completed on the 26th and 27th August, 2024.

The manual bat detector survey was completed using a hand held Echometer Touch Pro bat detector. A position was taken up within the internal courtyard of the project site to complete the survey. The dusk survey commenced 30 minutes prior to sunset and continued for 90 minutes after sunset. The pre-dawn survey commenced 90 minutes before dawn and terminated 15 minutes after sunrise.

Any bat calls recorded during the bat roost survey were analysed using Kaleidoscope Pro (v. 5.6.8) software. Kaleidoscope automatic bat identification software was used to assign bat calls to species level. Bat calls assigned to Myotis species were grouped together under the Myotis genus.

3.3 ECOLOGICAL EVALUATION

Commentary on the ecological value of habitats is provided in Section 4 of this report.

The nature conservation value of habitats and ecological sites occurring within the proposed site are based upon an established geographic hierarchy of importance as outlined by the National Roads Authorities (NRA, 2009). The outline of this geographic hierarchy is provided below and this has been used to determine ecological value in line with the ecological valuation examples provided by the NRA (see NRA, 2009). The geographic evaluation hierarchy is as follows:

- International Sites (Rating A);
- National Importance (Rating B);
- County Importance (Rating C);
- Local Importance (higher value) (Rating D); and
- Local Importance (lower value) (Rating E)

The evaluation of bat activity recorded during static monitoring surveys follows the approach outlined by Kepel (2011) who assigned bat activity based on bat passes per hour as follows:

Pipistrelle species and Leisler's bat: Low = <3.5 passes per hour; Moderate = 3.6 – 6.5 passes per hour; High = >6.5 passes per hour

All Other Bat species: Low = <4.0 passes per hour; 4.1 to 10 passes per hour; high = >10 passes per hour.

These categories are apply to the median bat pass per hour per night recorded during monitoring. The median bat pass per hour per night has been recommended by Lintott & Matthews (2018) as the most accurate representation of bat activity as bat activity levels between nights can be highly variable.

4.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT

4.1 OVERVIEW

The project site is situated within the centre of Cork City. It is representative of made ground.

4.2 REVIEW OF HISTORICAL MAPS

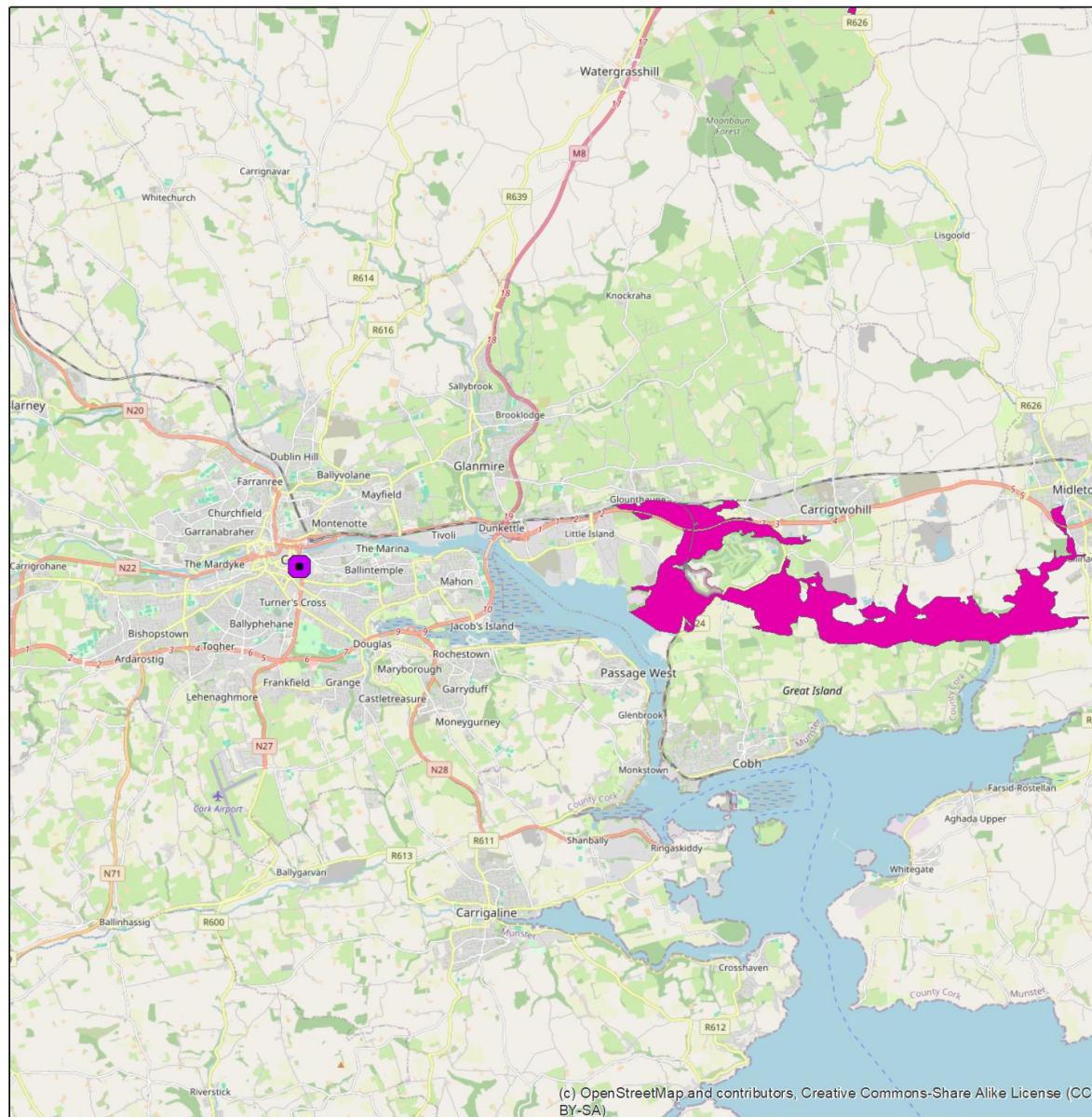
A review of historical mapping (6-inch colour map 1829 to 1842; 6 inch Cassini, 1830's) and the 25 inch map, 1888 to 1913) has been completed.

The 6 inch historical map indicates that the site was surrounded by Lime and Salt Works to the South; Gas Works to the East, Haymarket to the North and Buildings to the west. The 25 inch historical map indicates that the site was surrounded by railway line to the east, buildings to the south; haymarket to the north and an asylum to the west.

4.3 GEOLOGY OVERVIEW

The bedrock underlying the site is dominated by massive, unbedded lime-mudstone of the Waulsortian Formation. The subsoils consist of made ground.

Groundwater vulnerability underlying the subject lands is predominantly classified at high to extreme vulnerability.



Anglesea Terrace

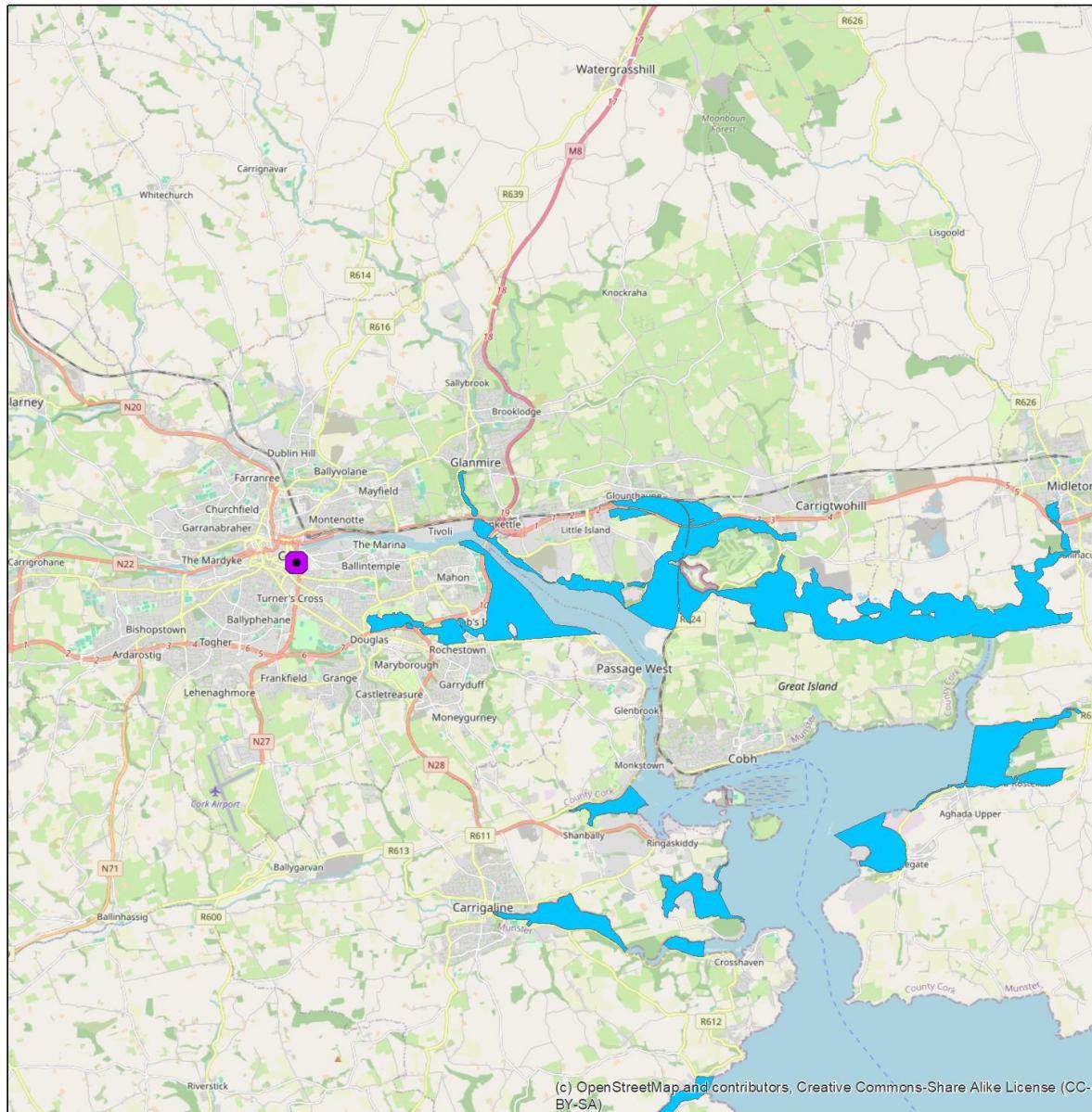
Figure 4.1

SACs in the wider surrounding area

Project Site
Great Island Channel SAC



Drawn By	PD
Date	15/10/2024
Data Source	Bing

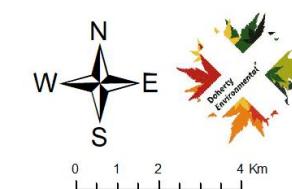


Anglesea Terrace

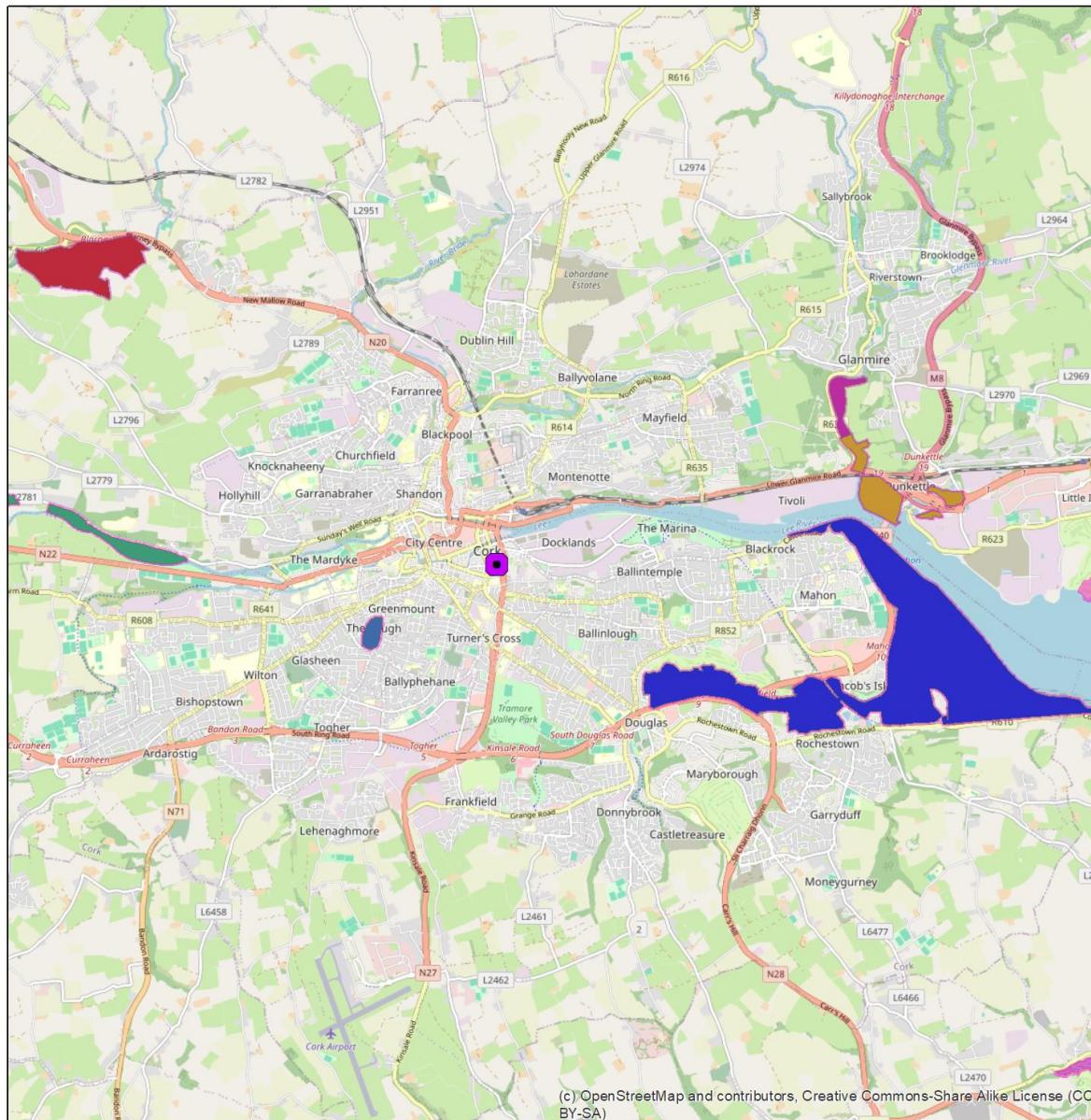
Figure 4.2

SPAs in the wider surrounding area

- Project Site
- Cork Harbour SPA



Drawn By	PD
Date	15/10/2024
Data Source	Bing



Anglesea Terrace

Figure 4.3

pNHAs in the wider surrounding area

SITE_NAME

- Blarney Bog
- Cork Lough
- Douglas River Estuary
- Dunkettle Shore
- Glanmire Wood
- Lee Valley
- Other pNHA
- Project Site



Drawn By	PD
Date	15/10/2024
Data Source	Bing

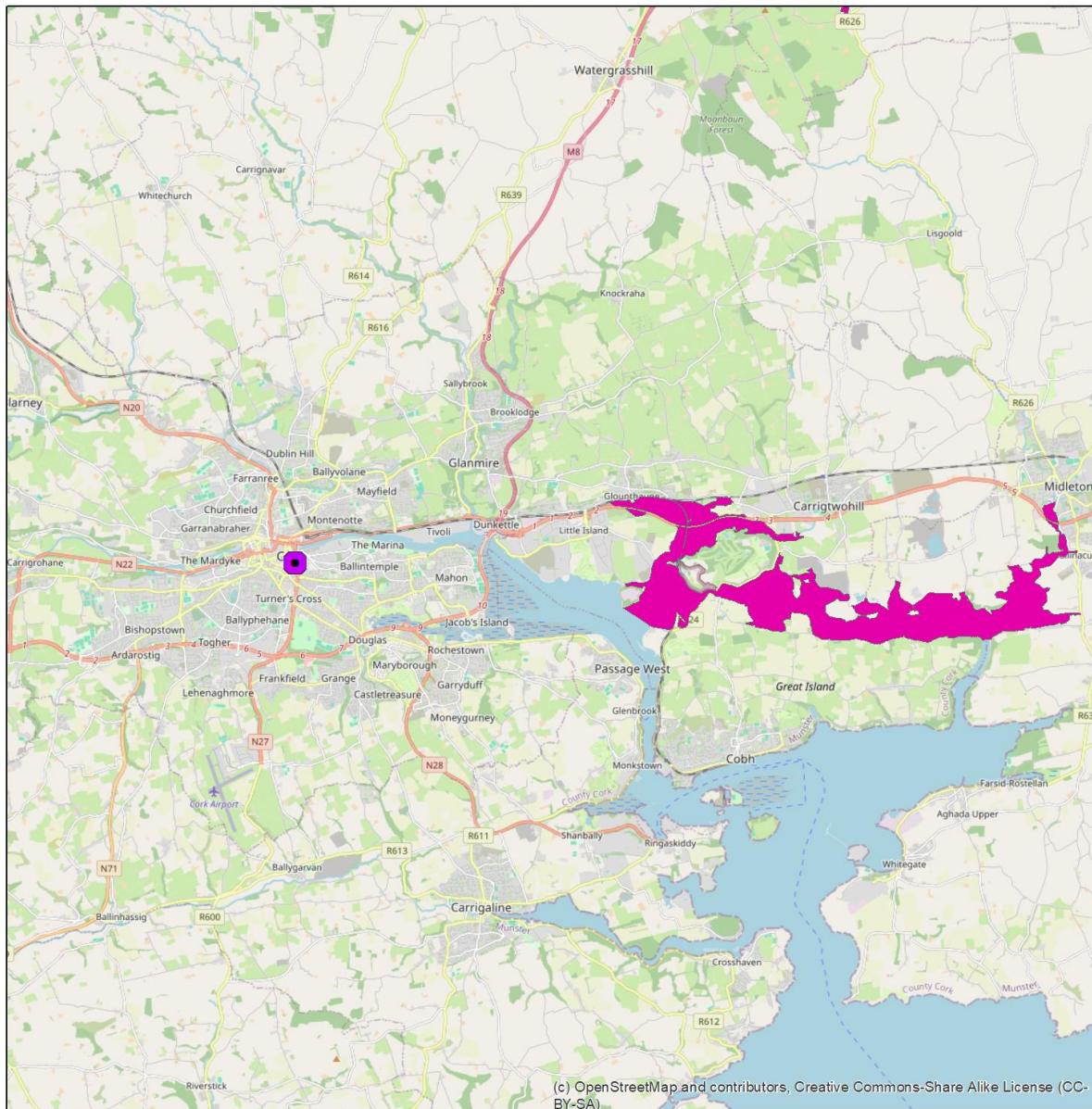
4.4 HYDROLOGY

The project site is separated from the south channel of the River Lee. This section of the River Lee to the north of the project site is tidal and forms part of the Lee Estuary Lower transitional waterbody (Water Framework Directive (WFD) Code IE_SW_060_0900).

4.5 DESIGNATED CONSERVATION AREAS

The project site is not subject to any statutory designations for nature conservation. The spatial relationship between the project site and SACs, SPAs and NHAs/pNHAs occurring in the wider area surrounding the project site are shown on **Figure 4.1** to **4.3** below. The nearest European Site to the project site is the Cork Harbour SPA, located approximately 2.3km to the southeast. The River Lee, located approximately 250m to the north of the project site drains to the Cork Harbour SPA. The nearest SAC to the project site is the Great Island Channel SAC, located within areas of Cork Harbour approximately 8km to the east.

There are no natural pathways connecting the project site to any European Sites or NHAs/pNHAs occurring in the surrounding area. The management of surface water and wastewater will require consideration with respect to potential connectivity to European Sites i.e. Cork Harbour SPA and Great Island Channel SAC, occurring in the wider surrounding area.



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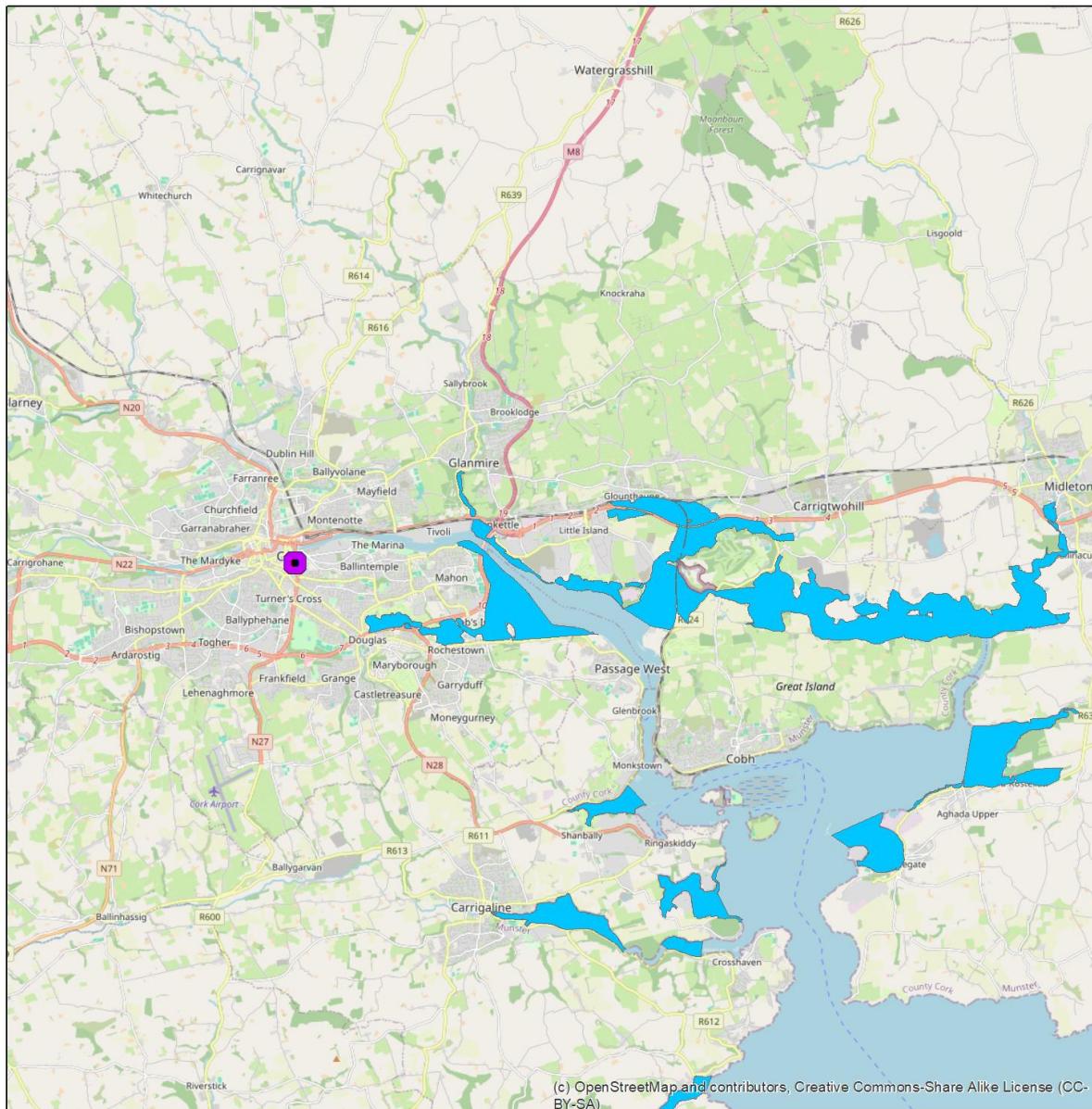
Figure 4.1

SACs in the wider surrounding area

- Project Site
- Great Island Channel SAC



Drawn By	PD
Date	15/10/2024
Data Source	Bing



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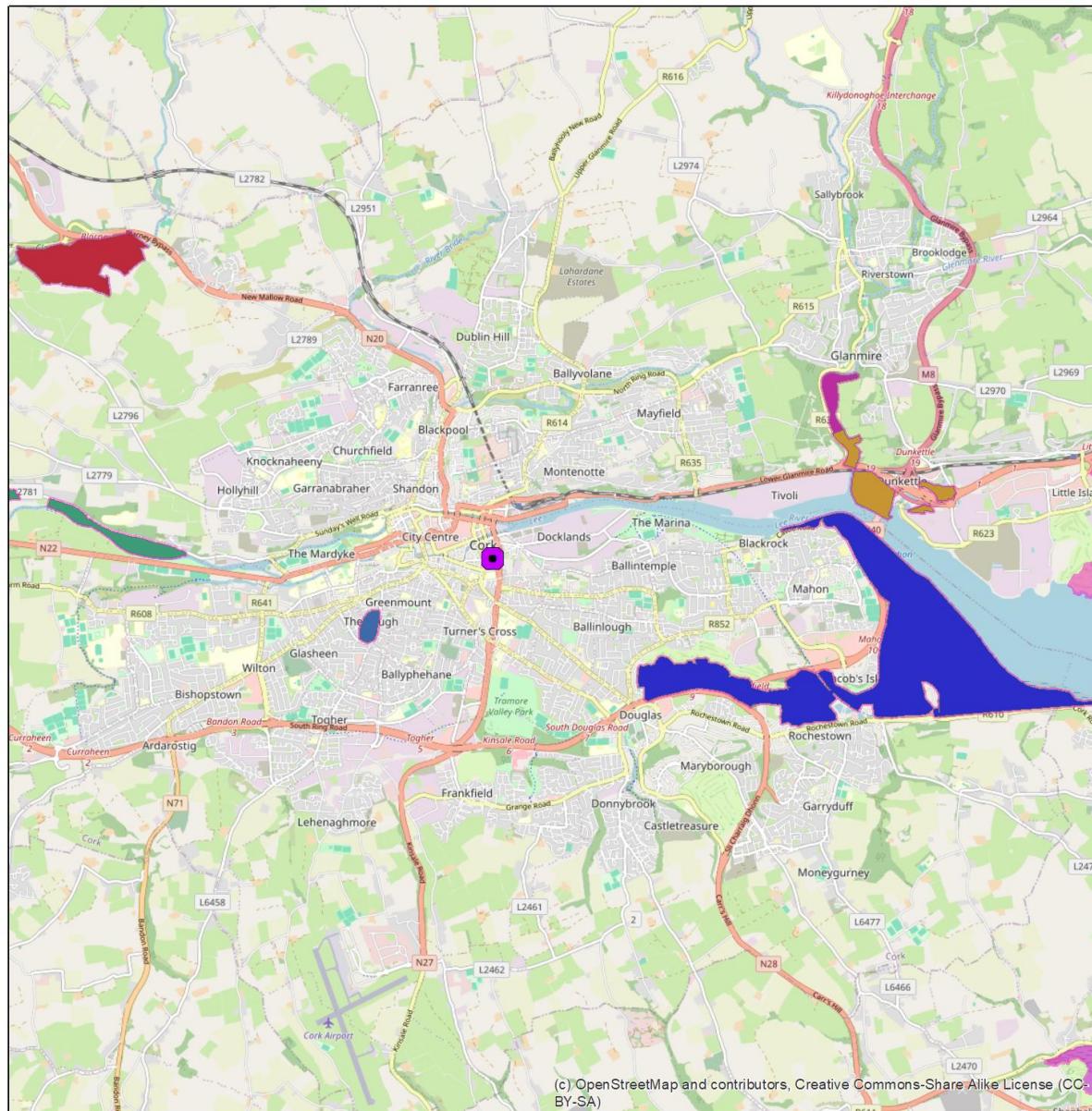
Figure 4.2

SPAs in the wider surrounding area

- Project Site
- Cork Harbour SPA



Drawn By	PD
Date	15/10/2024
Data Source	Bing



Anglesea Terrace

Figure 4.3

pNHAs in the wider surrounding area

SITE_NAME

- Blarney Bog
- Cork Lough
- Douglas River Estuary
- Dunkettle Shore
- Glanmire Wood
- Lee Valley
- Other pNHA
- Project Site



Drawn By	PD
Date	15/10/2024
Data Source	Bing

4.5.1 Protected Species Records

A search of the National Biodiversity Data Centre (NBDC) for records of rare and/or threatened species previously identified within the 1km square W3740, within which the project is located (see **Figure 4.4**) was completed in October 2024.

Figure 4.4: Polygon Area (shown in red) searched for records of Rare, Threatened and/or Protected Species



No records for rare, threatened or protected species are held for the area of search as shown on Figure 4.4.

4.6 SURVEY RESULTS

4.6.1 Habitats

The following Sub-Sections describe the habitats occurring within and immediately adjacent to the project site. Each habitat described below has been identified to Level 3 of Fossitt's *Guide to Habitats in Ireland*. The alpha-numeric code for each habitat is also provided alongside the habitat name (e.g. hedgerow WL1). The locations and extent of each habitat described below are illustrated in **Figure 4.5: Habitat Map**.

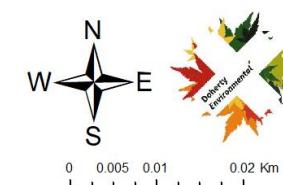


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Figure 4.5

Habitat Map surrounding area

Buildings/Artificial Surfaces BL3



Drawn By	PD
Date	15/10/2024
Data Source	Bing

The habitat at the project site comprised of buildings and artificial surfaces. The site is devoid of vegetation and does not support semi-natural habitats or areas of greenfield/vegetated ground cover. No non-native invasive plant species were observed on site during field surveys

4.7 FAUNA

4.7.1 *Non-volant mammals*

No protected non-volant mammals were observed on site during field surveys. Furthermore, the project site does not offer suitable habitat for supporting resting or breeding places for protected non-volant mammals

4.7.2 *Bats*

The buildings within the project site were inspected during August 2024 for their potential to function as roost sites for bats and for the presence of roosting bats.

The buildings on site are of low potential for supporting roosting bats.

No roosting bats were observed on site during a roost emergence survey completed at the project site in August 2024.

Bat activity was very low during the night time roost survey completed on site with only one no. bat pass recorded of a Leisler's bat flying high overhead.

4.7.3 *Birds*

A survey of the project site for the presence of birds and nest sites was completed in August 2024. No occupied nests were identified on site. An unoccupied song bird nest was observed in the former laboratory. No evidence of use of the nest during the 2024 breeding season was observed. The only species observed on site during the survey was feral pigeon, roosting on the rafters of the storage buildings.

5.0 NATURE CONSERVATION VALUE

The project site is dominated by artificial habitat in the form of buildings and artificial surfaces. This habitat is of low nature conservation value (Rating E).

The project site does not play a role in supporting rare, threatened or protected fauna species. It is considered to be of low nature conservation value (Rating E) for populations of native fauna.

6.0 IMPACT ASSESSMENT

6.1 CONSTRUCTION PHASE

6.1.1 *Designated Conservation Areas*

The potential for the project to result in likely significant effects to the Cork Harbour SPA and the Great Island Channel SAC has been examined as part of a Screening Report for Appropriate Assessment. This examination has concluded that the project will not have the potential to result in likely significant effects to these or any other European Sites, alone or in-combination with other plans or projects. The Screening Report for Appropriate Assessment is provided under separate cover with the planning application documentation.

No NHAs occur within the wider area surrounding the project site and there are no pathways that could connect the project site to NHAs. As such there will be no potential for the project to result in negative impacts to NHAs.

There will be no direct impacts to pNHAs occurring in the wider area surrounding the project site. The nearest designated conservation area to the project site are the Douglas Estuary and the Dunkettle Shore located approximately 3.5 and 4.5km (respectively) downstream from the project site. The Great Island Channel pNHA is also located downstream of the project site within Cork Harbour. All of the above pNHAs overlap with the Cork Harbour SPA and the Great Island Channel SAC.

Tenuous hydrological pathways connect these pNHAs to the project site. As per the findings of the Screening Report for Appropriate Assessment there will be no potential for the project to result in likely significant effects to these pNHAs.

6.1.2 *Habitat Loss*

The project will result in the alteration of buildings and artificial surfaces but will not result in any land cover change or loss of habitat within or adjacent to the project site. As such the proposed development will represent a neutral impact to habitats occurring within the footprint of the proposed development during the construction phase.

6.1.3 *Disturbance to/Loss of Habitat for Terrestrial Fauna*

The project site does not support any ground dwelling or volant mammal fauna. In addition no nesting birds were identified at the project site, with only presence of feral pigeon roosting within the storage building noted during surveys. The proposed development site does not have potential to support other fauna of nature conservation value and none were identified during baseline surveys at the project site. The demolition of the existing structures on site and the construction of new structures will not have the potential to result in any negative impacts to mammals and birds. As such the proposed development will represent a neutral impact to habitats occurring within the footprint of the proposed development during the construction phase.

6.2 OPERATION PHASE

6.2.1 *Designated Conservation Areas*

As per the findings of the Screening Report for Appropriate Assessment the operation phase of the project, will not, alone or in-combination with other projects, have the potential to result in likely significant effects to European Sites. The findings of the Screening Report for Appropriate Assessment are also applicable to the pNHAs occurring in the wider surrounding area and as such no potential for likely significant effects to these sites are anticipated to arise as a result of the operation phase of the proposed development.

6.2.2 Habitat Loss

The operation phase of the development will not result in further habitat loss within the project site. The project has been designed to include green infrastructure features such as green roofs,

6.2.3 Impacts to Terrestrial Fauna

The operation phase of the project is not predicted to have the potential to result disturbance to protected terrestrial mammals or bird species. This is due to the absence of any evidence of protected terrestrial non-volant mammals within the project site during field surveys and the low value habitats within the project site for bird species.

6.2.4 Impact to Aquatic Fauna

The operation phase will result in the generation of surface water runoff and wastewater both of which will be respectively discharged to the existing public sewer network and River Lee to the north of the project site and to the Lough Mahon section of Cork Harbour via the Carrigrennan WWTP.

The project has been designed to ensure that only unpolluted and treated surface water is discharged from the project site to the existing public sewer network and on to the River Lee. Also given that no car parking is proposed as part of the project there will be no potential for surface water to interact with project car parking areas. For instance the CIRIA c753 Simple Index approach assigns a pollution hazard ranking to surface water generated from residential sites with no car parking as very low.

The provision of these design measures will ensure that the project will not pose a risk to the water quality of the River Lee and associated fauna that rely upon it.

Wastewater generated during the construction and operation phase will be directed to the Carrigrennan Wastewater Treatment Plant, prior to release to Lough Mahon. A review of the 2024 Annual Environmental Report (AER) (Uisce Éireann, 2023) for the Carrigrennan wastewater treatment plant has been completed. The 2024 AER concluded that the discharge from the wastewater treatment plant does not have an observable impact on the water quality of the receiving waterbody and that the discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

It is further noted that Uisce Éireann have confirmed that there is sufficient capacity at the Carrigrennan wastewater treatment plant to treat additional wastewater loads generated by the project.

In view of the above it is found that the wastewater generated by the project will not have the potential to negatively affect the water quality of the receiving waterbody and on this basis no potential for significant effects to water quality and aquatic fauna are identified.

7.0 MITIGATION MEASURES

The recommendations outlined in the following sections aim to ensure that all potential negative impacts associated with the project are avoided or minimised to an insignificant level.

7.1 MANAGEMENT OF WASTEWATER

All wastewater generated during the operation phase will be directed to the Irish Water sewer network and then to the existing Irish Water Wastewater Treatment Plant (WWTP). Irish Water and Cork County Council have confirmed that sufficient capacity is available at the WWTP to treat any additional loads generated by the project.

7.2 MEASURES TO PROTECT SURFACE WATER

In order to minimise the potential for pollution to storm waters generated on site and the discharge of polluted water to the River Lee via the existing public sewer network all design measures and best practice construction phase measures set out in Section 2.1 and 2.4.12 above will be implemented in full. The measures set out in Section 2.4.12 form part of the Outlined Construction Environmental Management Plan (OCEMP) prepared for the project and the appointed contractor will be required to implement OCEMP during the construction phase.

7.3 GREEN INFRASTRUCTURE

The design of the project provides for green infrastructure in the form of a green roof and ground cover vegetation mixes. The provision of these features will increase the cover of green space and vegetation within the project site and have the potential to result in slight positive impacts for biodiversity for the surrounding area.

In addition to the above further biodiversity enhancement elements that have been incorporated into the design of the scheme comprise the provision of swift boxes and invertebrate shelter in the form a bee hotels.

7.3.1 *Swift Boxes*

The specifications for the swift boxes to be provided as part of the biodiversity enhancement measures has been informed by Swift Conservation Ireland 2025 guideline “Which Swift Nest Box”. The following specifications have been incorporated into the design:

- Schwegler type 17A (triple) nest boxes are to be provided. See link here for more information: <https://www.nhbs.com/no-17a-schwegler-swift-nest-box-triple-cavity>. These are triple cavity ‘bricks/boxes’. Three sets of triple boxes will be used and will be aligned along the inside parapet wall above the flat roof level. Figure 7.1 shows the proposed location of the swift boxes;
- The boxes will be integrated into the external fabric of the building. Built-in boxes have shown more success than externally fitted nest boxes;
- Boxes have not be placed at any of the following locations;
 - on top of each other- rather they should be placed side by side or staggered horizontally;
 - near bright spotlights;
 - near plate glass windows to minimise collision risks;
 - above obstructions including ledges, vegetation, flags, etc. as swifts drop before taking flight and can collide with obstacles near nest entrances;
- A south facing aspect would be most ideal but if for some reason not available they can be placed facing east or west with north being the least desirable option;
- The design has positioned boxes high on a building – in excess of 5m above the ground;



Figure 7.1: View of the proposed location for Swift Boxes

- A smaller entrance hole size is required for swift boxes to prevent other species using the boxes. An entrance size of 29mm is required for the boxes – the product code for this Schwegler product is Product Code 613-IRL;
- An attraction call system will be used to increase the likelihood of the Schwegler boxes being used. The call system helps swifts locate the boxes and increase the chance of successful use – see page 5 of the Swift Conservation Ireland 2025 guideline “Which Swift Nest Box”.

7.3.2 Bee Hotel

A bee hotel will be provided as an invertebrate shelter and to provide habitat for pollinators within the project site. The bee hotel will be located to the southwest of the project site adjacent to an area of hedgerow planting. Figure 7.1 indicates the location of the bee hotel and an example of the bee hotel feature to be provided.

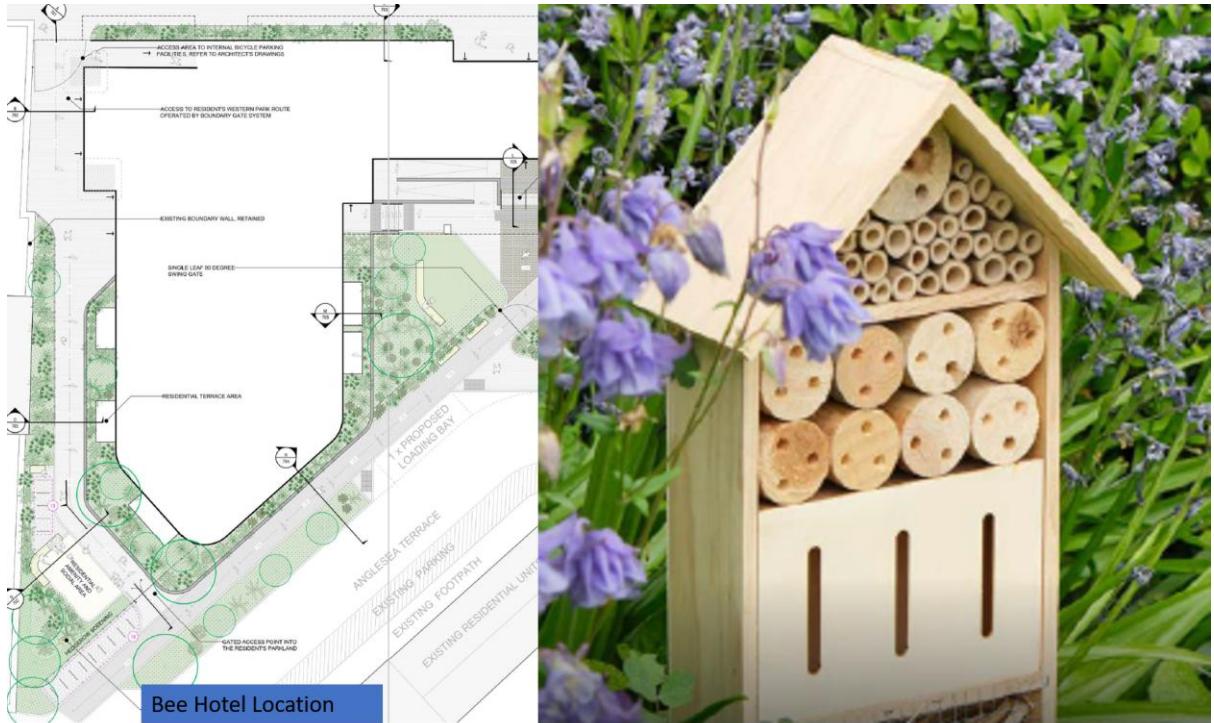


Figure 7.2: Location and type of Bee Hotel to be provided on site

10.7 Residual Impacts

The measures outlined above for the construction and operation phase of the project are taken from established best practice guidelines that have been successfully implemented for a wide range of project-level infrastructural developments. These measures have undergone extensive and rigorous monitoring for their effectiveness at development sites where they have previously been applied to ensure adverse environmental impacts are avoided.

It is further noted that the range of measures outlined in this report to manage and treat waters generated at the project site and thereby avoid disturbance to protected fauna supported by the River Lee have been successfully implemented for a range of other development projects with the vicinity of the city quays and the River Lee. Examples of these projects include One Albert Quay, Navigation Square, Elysian Development, Half Moon St, St. Patrick Street and Beasley Street Projects.

The results of monitoring at these and other development sites and the recommendation of these measures as standard best practice guidelines is based upon their high degree of success in ensuring negative environmental impacts are avoided.

The best practice guidance that have informed the measures for water management in this assessment and that will be adhered to throughout the construction and operation of the proposed development include:

Objective 9.5, Objectives 9.6 and Objectives 9.7 of the Cork City Development Plan 2022 – 2028

The Good Practice Guidance notes proposed by EA/SEPA/EHS:

PPG1: General Guide to the Prevention of Water Pollution

PPG4: The disposal of sewage where no Main Drainage is Available

PPG5: Works In, Near or Liable to Affect Watercourses

PPG10: Working at Construction and Demolition Sites.

PPG21: Pollution Incident Response Planning

PPG26: Dealing with Spillages on Highways

CIRIA Environmental Good Practice on Site.

CIRIA Control of Water Pollution from Construction Sites. Technical Guidance C648.

CIRIA SuDS Manual Technical Guidance C697.

Development on Unstable Land. Department of Environment (DOE), UK.

Based on the above the project site will not result in any residual impacts to designated conservation areas.

As outlined in the baseline and impact assessment sections above no high-value habitat receptors have been identified within the project site and the proposed development will not result in any negative impacts to habitats. The landscape design features proposed for the project will increase the footprint of green infrastructure and vegetated surface within the local area and will have the potential to result in a slight positive impact for biodiversity at the local scale.

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