PROPOSED RESIDENTIAL DEVELOPMENT, BLACKROCK AVENUE, EDEN, BLACKROCK, CORK CITY

ECOLOGICAL IMPACT ASESSMENT (EcIA) REPORT

June 2026

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1.0 Introduction

1.1 Background

Cork City Council is the statutory authority and main housing authority responsible for housing services within the administrative area of Cork City in southwest Ireland.

Ecosystem Services in Practice Ltd. was appointed by John Sisk & Son Ltd. to prepare an Ecological Impact Assessment (EcIA) report for the proposed construction and operation of Skehard Road Housing Development at Blackrock Avenue, Eden, Blackrock, Cork City (referred to herein as the 'proposed Project'). This EcIA report will be submitted to inform the Part 8 Planning Process.

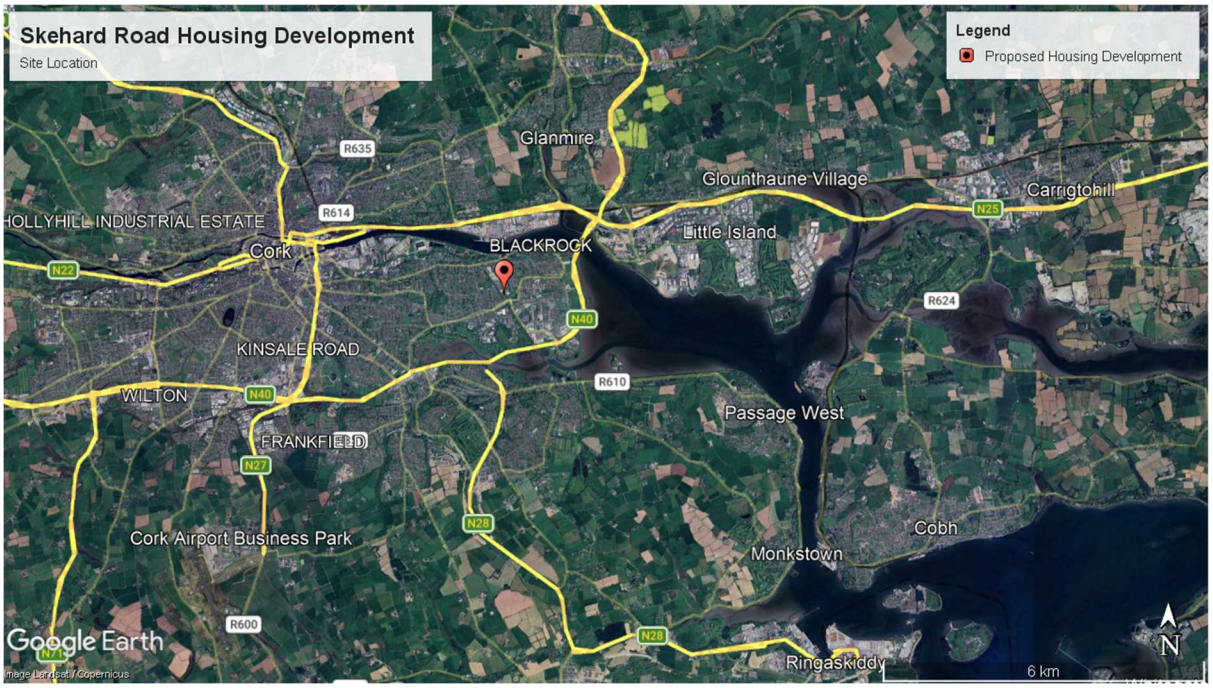

Figure 1.1 Location of proposed housing development (Source: Google Earth Pro)

The proposed housing development comprises of 114 no. residential apartment units (consisting of a mix of 1-bed and 2-bed units) split across 2 no. apartment blocks, which varies in height from three to five storeys over ground floor, together with all associated site development works including car parking, bicycle parking, private amenity spaces in the form of balconies and patios, and communal open spaces (McCutcheon Halley, 2026a Screening).

In this regard, the main objective of the proposed Project is:

- The construction and operation of a housing development to include 114 no. residential apartment units in the southeast suburbs of Mahon and Blackrock in Cork City in order to meet with the current demand for social and affordable housing.

Ecological Impact Assessment (EcIA) is a tool which is utilised to identify, estimate and evaluate the consequences of proposed actions on the ecological resources within the natural environment. It has been defined as "the process of identifying, quantifying and

evaluating the potential impacts of defined actions on ecosystems or their components" (Treweek, 1999).

This EcIA report has been prepared in accordance with a number of Irish and UK guideline documents including the 'Guidelines for Assessment of Ecological Impacts of National Road Schemes' Rev 2 (TII/NRA, 2009a), 'Guidelines for Preliminary Ecological Appraisal' (CIEEM, 2013) and the 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (CIEEM, 2016).

In the context of the Irish planning process, the aim of this EcIA report is to identify, quantify and evaluate the impacts of the proposed housing development on ecosystems and their components, including designated conservation areas, habitats, flora and fauna.

The purpose of this EcIA report is to:

- Provide an objective and transparent assessment of the potential ecological impacts of the proposed development for all interested parties, including planning authorities and the general public
- Facilitate objective and transparent determination of the consequences of the development in terms of national, regional, county and local policies relevant to ecology
- Propose the steps which will be taken to adhere to legal requirements relating to designated conservation areas and protected species (CIEEM, 2016).

The following sections detail the findings of the EcIA process for the proposed housing development at Blackrock Avenue, Eden, Blackrock, Cork City.

1.2 Authors & Contributors

Lisa Dolan

This EcIA report was completed by Lisa Dolan BSc. (Hons) Earth Science. Lisa is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Lisa has over 25 years' experience in the ecological consultancy sector working with state and semi-state bodies, local authorities and statutory bodies in a wide variety of sectors including clean and wastewater, flood relief, drainage maintenance, transport and recreational amenities in the area of ecological impact assessment and design. On the back of this experience, Lisa has co-authored a number of national guideline documents on behalf of state bodies. In 2014, Lisa was requested to prepare a set of guideline documents in respect of a national screening methodology for Appropriate Assessment, and on Source-Pathway-Receptor Analyses, for arterial drainage schemes and associated maintenance requirements on behalf of the OPW.

Paul Green

A botanical walkover was also undertaken by plant taxonomist Paul Green Vice County Recorder for Waterford and Wexford for the Botanical Society of the British Isles and Ireland (BSBI).

2.0 Description of the Project

2.1 General Details

Figure 2.1 Aerial Image of the Study Site (Source: Google Earth Pro)

The gross area of the site (including Blackrock Avenue) is 0.91ha, with the net development area (excluding Blackrock Avenue) totaling 7833m^2 or 0.78ha (see Figure 2.1).

In terms of the overall topography, the site slopes from northwest to southeast (see Figure 3.1) with a small escarpment along the southern boundary.

The partial clearance of amenity grassland, scrub and parkland trees was undertaken along the northern boundary of the site to facilitate the construction of the new adjacent Eden residential development.

The remainder and majority of the site is considered 'greenfield' dominated by intensively managed amenity grassland forming parkland with scattered trees, and scrub habitat along the small escarpment on the southern boundary, with patches of scrub on the western boundary. The site is currently in use as a public green open space.

The proposed housing development comprises of 114 no. residential apartment units (consisting of a mix of 1-bed and 2-bed units) split across 2 no. apartment blocks, which varies in height from three to five storeys over ground floor, together with all associated site development works (see Figure 2.2).

The site development works include the provision of 56 no. car parking spaces, 231 no. secure bicycle parking spaces (including secure internal storage), and private amenity spaces in the form of balconies and patios for each apartment. Associated ancillary works involve bin storage facilities, internal circulation routes, boundary treatments, public

lighting, landscaping, and all relevant services infrastructure.

The total footprint of the hard surfaces associated with the proposed housing development is approx. 4995.27m^2 or 0.5ha *i.e.*, with the housing development covering an area of 1885.75m^2 (Block A & B), while the car park spaces, footpaths, hard landscaping, play area and vehicular access routes total approx. 3109.52m^2, with green open space totalling 2837.73m^2. The green open spaces include approx. 697.8m^2 of communal open spaces and a centrally located public open space of approximately 1,701.5m^2 (McCutcheon Halley, 2026).

Figure 2.2 Proposed housing development (indicative)

Site development works also include the provision of vehicular and pedestrian access from Blackrock Avenue, along with a direct pedestrian connection to the Mahon Boreen Pathway (Ballinsheen Road), and all related localised road, footpath, and public realm works needed to support the proposed development.

The proposed housing development also includes surface water and foul drainage infrastructure, incorporating a Sustainable Urban Drainage Systems (SuDS) strategy featuring green roofs and rain gardens, along with all necessary connections to existing public services and utilities (McCutcheon Halley, 2026).

2.2 Advanced Contracts

2.2.1 Geotechnical Site Investigation

Geotechnical site investigations works were undertaken in April and May 2026 over a period of 2-3 no. days. The works involved digging or excavating exploratory holes in the form of trial pits and soakaways (see Causeway Geotech, 2026). Additional site investigation works will be required in the form of slit trenches, dynamic probes and boreholes *etc.* during construction stage. The use of bentonite (a cementitious material) is typically required in drilling fluid and to seal boreholes.

2.2.2 Advanced Vegetation Clearance

The partial clearance of amenity grassland, scrub and parkland trees along the northern boundary was required to facilitate the construction of the new adjacent Eden residential development.

Table 2.1 Extent of Works proposed under the Construction Stage

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- Removal and clearance of amenity grassland and scrub vegetation
- Felling of max. 8 no. trees (subject to micro-siting of the design and retention where practically feasible)
- Construction of 2 no. apartment blocks with 114 no. residential units, all associated car parking, internal vehicular and pedestrian access routes
- SuDs based engineering solutions to surface water management including green roof and rain gardens
- Connection to the existing public water main and foul water network
- Piling (auguring) to install 140 no. CFA piles
- Rock breaking approx. $20m^3$
- Landscaping/amenity areas with mostly native tree and shrub species including approx. 84 no. trees and interplanting with native hedgerow species along the western and southern boundary
- Installation of a permanent western boundary fence (permeable to small non-volant mammals) and bird/bat boxes within and adjacent to the site
- All associated ancillary site works

2.3 Construction Stage

The main construction stage of the proposed housing development is considered major in terms of scale and of a short-term duration, given that the construction stage programme has an estimated overall duration of 22-months (see Table 2.1).

Subject to the planning process, works are likely to commence in October/November 2026, if granted.

The appointed Contractor will be required to prepare a Construction Environmental Management Plan (CEMP) prior to the commencement of the installation of the site compound and vegetation removal.

This stage of the proposed Project involves the construction of 114 no. residential apartment units split across 2 no. apartment blocks, which varies in height from three to five storeys over ground floor, together with all associated site development and ancillary works (see Section 2.1).

2.3.1 Site Compound & Waste

Given the nature, duration and scale of the construction works, a site compound will be

required onsite in respect of the proposed Project.

The construction site compound will be required for the provision of site welfare facilities for construction workers, car parking, site offices, and a temporary storage area.

Within the site compound a dedicated temporary storage area will be required to facilitate the storage of plant machinery, equipment, construction materials, waste product storage/collection, the delivery of concrete, concrete washout areas for concrete skips *etc.*, refueling areas and wheel wash facilities.

There will be a requirement for the use of water for the cleaning of plant machinery and equipment, the mixing of disinfectant, chemical herbicide and plaster/render/concrete, and dust suppression.

Any water required to facilitate the works will be accessed via a connection to the public mains water supply, the closest hydrant on Blackrock Avenue, or a bowser filled from a commercial source off site. It will not be sourced from any local watercourse or surface waterbody.

The temporary storage area will be set back at least 50m from a watercourse or waterbody.

The selection of a suitable location for the site compound will be predetermined in agreement with Cork City Council in order to minimise impacts on the scrub habitat and trees to be retained.

The management of waste arising from the construction stage of the proposed Project will follow best practice. The disposal of waste will be carried out by a permitted waste handler and taken to a licensed waste facility, or recycled, as appropriate.

There will be a requirement for the use of water and disposal of wastewater from the temporary on-site welfare facilities. The on-site toilet facilities will be provided by a permitted waste handler and will be chemical based. They will be regularly serviced by the permitted waste handler. No disposal of wastewater will occur on-site; all wastewater generated will be disposed of offsite at a licensed waste facility.

Refueling or maintenance of plant machinery and equipment is to take place within the temporary storage area setback at least 50m from surface water bodies.

There is a requirement for temporary site lighting at the site compound/temporary storage area.

2.3.2 Vegetation Removal & Site Clearance

The majority of the site is considered 'greenfield' dominated by intensively managed amenity grassland forming parkland with scattered trees, and scrub habitat along the small escarpment on the southern boundary, with patches of scrub on the western boundary.

Site clearance will involve the removal of amenity grassland, and up to 8 no. trees. The scrub habitat on the escarpment on the southern end of the site and along the western boundary is to be retained (see Figure 2.3).

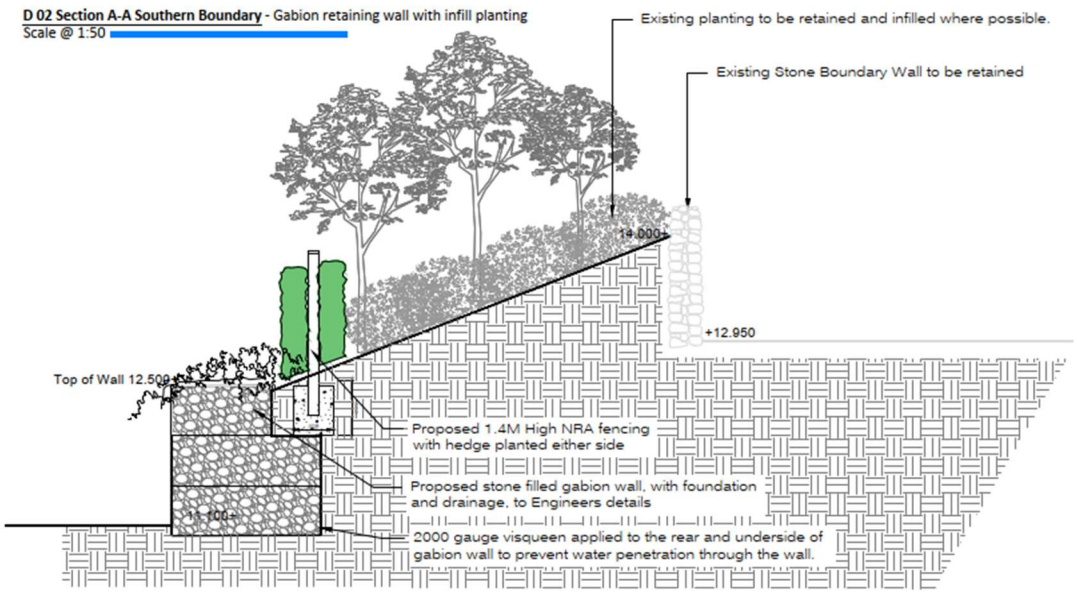

Figure 2.3 Cross section through southern boundary (Source: O' Mahony Pike, 2025a)

Further to the completion of an Arboricultural Impact Assessment (AIA) some of the 8 no. trees may need to be removed, in any event, for health and safety reasons i.e., are Category "U" = particularly poor quality, dangerous or diseased trees that offer no realistic sustainability. Micro-siting of the car park, hard landscaping and ancillary services *etc.* will be undertaken onsite, in consultation with the Arborist, with the intention of retaining as many trees as possible as part of the design where practically feasible.

Efforts will also be made to ensure that the trees (including the root protection zone) to be retained are not impacted during the construction stage. Trees and the scrub habitat to be retained will be separated or isolated from the construction works by way of a temporary structure *e.g.*, hoarding or similar barrier for the duration of the construction stage, to ensure that no accidental ingress or egress occurs including to the root protection zone of the trees.

Several invasive (and potentially invasive) non-native species were recorded within the site. However, the only 'regulated' species identified was Three-cornered garlic (*Allium triquetrum*), which was recorded outside the site along the southern stone wall boundary of Mahon Boreen Pathway. Three-cornered garlic is 'regulated' by National Legislation i.e. First Schedule: Part 1 of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024) and Third Schedule: Part 1 of the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.

None of the invasive species recorded require specialist intervention. Monitoring for Three-cornered garlic within the site will be undertaken during the construction stage.

Vegetation clearance will be undertaken outside of the bird nesting season and may include the felling of trees, and limb removal.

Site clearance works will not directly impinge on habitats considered to be greater than Higher Value Local Importance within the site (as per TII/NRA, 2008).

2.3.3 Temporary Access & Haul Roads

The construction of a temporary haul road may be required to facilitate access to plant machinery due to the nature of the ground conditions.

2.3.4 Construction Works

In terms of earthworks and the cut and fill balance, it is estimated that 4,516.6m^3 (7,226.6t with a conversion factor of 1.6t per m^3) of made ground (i.e., concrete, tarmac, paving, gravel) topsoil, subsoil and overburden material in the form of gravelly sand/clay/silt, will need to be removed during the construction stage to reach formation level in respect of the foundations of the proposed housing development, services, internal vehicular and pedestrian access routes and footpaths, car park and hard landscaping areas. There is potential for the recovery of contaminated soil during these works. Any contaminated soil will be disposed of offsite by a permitted waste handler and taken to a licensed waste facility. There will be a requirement to import up to 965.77m^3 of infill material.

Where required, any imported stone fill material will be sourced from a local quarry supplier and will be geochemically similar to the existing geological characteristics of the site following GSI/EPA guidance *i.e.,* Glennon et al. (2020) Geochemical Characterisation & Geochemically Appropriate Levels (GALs) for Soil Recovery Facilities.

There is no requirement for blasting or demolition activities under the proposed development.

Piling (auguring) activities may be required to install approx. 140 no. Continuous Flight Auger (CFA) piles to facilitate the construction of the apartment complex.

It is also envisaged that rock breaking activities (20m^3) will be required in order to reach formation level for the foundations of the apartment complex.

The construction works will require the use of approx. 1500m^3 of ready-mix concrete for the CFA piles, ground beams and ground floor slab (SISKs Design Team, pers. comm.).

Where required, a pre-earthworks drainage system will be installed prior to the commencement of construction.

A connection will be made to the public mains water supply and public foul water network.

A SuDs based system will be constructed comprising of green roofs, rain gardens, rainwater harvesting tanks, bio-retention tree pits, and an attenuation tank, along with green open spaces and the retention and enhancement of natural vegetation (Murphy Matson O' Sullivan, 2026 *Outline Civil & Structural Report*).

A bituminous and/or concrete surface will be laid to provide the internal vehicular and pedestrian access routes.

Other ancillary site works will include the installation of boundary treatments, native tree and shrub planting, and hard and soft landscaped areas.

As per the Landscape Design (Doyle O' Troitigh, 2026), it is proposed to retain trees where practically feasible, to interplant the scrub habitat on the southern boundary with native trees and shrubs, to interplant and create a native tree-lined hedgerow on the western

boundary, to plant mostly native trees and shrubs throughout the communal areas within the site, and to install bat and bird boxes both within the site and along the adjacent Passage Railway Greenway.

The temporary access and construction works for the proposed housing development will not directly impinge on any habitats considered to be greater than Higher Value Local Importance (as per TII/NRA, 2008) within the site.

The trees and scrub habitat to be retained will be separated from the works by way of a temporary structure *e.g.*, hoarding or similar barrier for the duration of the construction stage, to ensure that no accidental ingress or egress occurs including to the root protection zone of the trees.

2.3.5 Potential Contaminants

Aside from concrete, bentonite, bituminous materials and hydrocarbons (fuel, oils, greases or hydraulic fluids), no other potential contaminants will be utilised during the advanced contract and main construction stage with the exception of sealants, chemical disinfectant and chemical herbicide (to treat invasive species and noxious weeds as required). There is potential for silt-laden overland flows and ponding surface water (from rainfall and groundwater) in required excavations which may contain a high suspended solids loading.

It is estimated that 4,516.6m^3 of made ground (i.e., concrete, tarmac, paving, gravel, topsoil, subsoil) and overburden material in the form of gravelly clay/silt will need to be removed during the construction stage to reach formation level and that there will be a requirement to import up to 965.77m^3 of infill material.

Given the maximum depth of excavation for the foundations of the proposed housing development (circa 1.1m), and drainage network (ave. 1.0m with localised depth of 1.4m at interceptors), and the findings of the site investigation works, completed to date, with regards to the presence of a relatively low groundwater table i.e. groundwater was not recorded within the 3 no. trial pits excavated to a depth of 2.9m-4.5m bgl as per Causeway Geotech (2026) *Trial Pit Logs*, it is unlikely likely that groundwater will be struck during general groundworks. However, the water table may be encountered when driving the 140 no. CFA piles to a depth of 15m (depth of the piles is subject to the finalisation of the design).

While further site investigation works are required during the construction stage, a minimum depth of 2.9m to 4.5m bgl of overburden to the bedrock aquifer and groundwater table was recorded by Causeway Geotech (2026). Under the precautionary principle, there is potential for contaminants to gain entry to the bedrock aquifer beneath the site given the karstic nature and "vulnerability" of the aquifer (see Section 3.1.2). Where required, groundwater will be picked up by a pre-earthworks drainage system to be installed prior to the commencement of construction.

2.3.6 Aquatic Environmental Protection System (AEPS)

In accordance with industry best practice and standard construction guidance an Aquatic Environmental Protection System (AEPS) is to be installed to protect the water quality of the River Lee/Tramore River/Lough Mahon/Cork Harbour located approx. 0.6km from the site (at its closest point) prior to the commencement of vegetation removal, site clearance

and construction works.

The protection system will include a pre-earthworks drainage system to be installed prior to the commencement of construction, sealed double shuttering, concrete wash out areas for concrete skips *etc.*, and silt control devices.

The pre-earthworks drainage will pick up overland flows and groundwater.

The silt control devices are to be installed around the works areas and existing gullies on the adjacent hard surfaces of Blackrock Avenue, Mahon Boreen Pathway and Passage Railway Greenway *etc*. to prevent loose soil and run-off of silt, and the accidental spillage of bentonite during the site investigation stage and concrete during the construction stage from reaching overland flows and/or existing gullies associated with the surface water drainage system which discharges to the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor.

The sealed double timber shuttering/steel will strengthen the formwork for the various foundations including ground beams and ground floor slab, when pouring the concrete.

There is also potential for ponding surface water (from rainfall and to a lesser degree from groundwater) in the excavations. In the event of an accumulation of ponding surface water or groundwater baseflows/table is struck, a sump will be formed in one corner of the excavation and a submersible pump will be utilised to divert water to the AEPS to ensure silt settlement prior to discharge.

All pump heads will be fitted with screens/cages, and silt bags (where suspended solids are present) to minimise the uptake of silt during the drawdown of water.

Under the AEPS there is potential for temporary surface water abstraction i.e. pumping of ponding rainfall and groundwater from excavations followed by discharge to the existing foul or surface water drainage network on Blackrock Avenue, where required, and with the necessary approvals).

Under the AEPS additional equipment shall be put in place by the Contractor, to ensure settlement of silt prior to the release of water to the existing surface water drainage system which discharges to the River Lee/Tramore River, Lough Mahon/Cork Harbour via a hydrocarbon interceptor, where required, and in agreement with the Site Ecologist.

The Contractor shall submit a method statement which will include details of the AEPS; allowing for consultation with IFI, it will be submitted at least two weeks prior to commencing work on-site. The AEPS is to be in place for the duration of vegetation removal, site clearance and construction works.

2.3.7 Plant Machinery & Equipment

Geotechnical site investigation works typically involve the use of a drilling rig, dynamic probe rig and a 360-degree tracked excavator along with various types of survey equipment.

Based on the nature and scale of the proposed Project, the types of machinery which will be utilised during the construction stage of the proposed Project include 360-degree tracked excavators, dozer, dump trucks, dumpers, a "Loadall", crane, concrete saw, pneumatic and hydraulic breakers, wacker plate compacter and a roller.

In terms of vegetation clearance cutting equipment will include chain saws, tree shears, tree shears with grab or a mulcher mounted on an excavator.

A piling rig in the form of a Continuous Flight Auger (CFA) will be deployed to install the CFA piles required to provide foundations beneath the apartment complex.

There is no requirement for specific heavy demolition machinery/equipment.

There may be a requirement for the use of concrete saws, pneumatic or hydraulic rock breaker mounted on an excavator to assist with rock breaking and construction activities.

A dump truck or lorry will deliver quarried local stone material for the site compound and foundations, while a lorry will be required to deliver ready-mix concrete.

Where ponding surface or groundwater is encountered, a silent dewatering pump with a built-in and external interceptor drip tray, and silt settlement tanks may be required as part of the Aquatic Environmental Protection System (AEPS).

2.4 Operational & Maintenance Stage

The total footprint of the hard surfaces associated with the proposed housing development is approx. 4995.27m^2 or 0.5ha *i.e.*, with the housing development covering an area of 1885.75m^2 (Block A & B), while the car park spaces, footpaths, hard landscaping, play area and vehicular access routes total approx. 3109.52m^2, with green open space totalling 2837.73m^2.

The permanent structures and associated hard & soft landscaped areas proposed under the operational stage will not directly impinge on any habitats considered to be greater than Higher Value Local Importance (as per TII/NRA, 2008).

The development of the site will involve the removal of up to 8 no. trees. Further to the completion of an Arboricultural Impact Assessment (AIA) some of the 8 no. trees may need to be removed, in any event, for health and safety reasons i.e., are Category "U" = particularly poor quality, dangerous or diseased trees that offer no realistic sustainability. Micro-siting of the car park, hard landscaping and ancillary services *etc.* will be undertaken onsite, in consultation with the Arborist, with the intention of retaining as many trees as possible as part of the design where practically feasible.

As per the Landscape Design, it is proposed to retain trees where practically feasible, to interplant the scrub habitat on the southern boundary with native trees and shrubs, to interplant and create a native tree-lined hedgerow on the western boundary, to plant native trees and shrubs throughout the communal areas within the site, to install bat and bird boxes both within the site and along the adjacent Passage Railway Greenway.

Research indicates that birds do not recognise glass as a barrier and are therefore vulnerable to collisions with the transparent and reflective glass that is ubiquitous in the built environment. In this regard the use of glass façades (presence of large windows) in the design of the proposed housing development has the potential to lead to bird mortality through collision. The risk of bird collisions shall be reduced by placing visual markers on glass facades or the use of "bird-safe materials" such as etched, frosted or UV reflective glass in the design.

The proposed external lighting design for the housing development will incorporate

directional or shielded LED luminaires to minimise light pollution and overspill.

There is limited potential for air pollution from the heating system to be installed in respect of the proposed housing development.

Where required, any imported stone fill material will be sourced from a local quarry supplier and will be geochemically similar to the existing geological characteristics of the site following GSI/EPA guidance *i.e.,* Glennon et al. (2020) Geochemical Characterisation & Geochemically Appropriate Levels (GALs) for Soil Recovery Facilities.

In terms of wastewater, all foul water from the proposed housing development will discharge to the public foul water network on Blackrock Avenue.

The site is located approximately 0.6km from the River Lee/Tramore River/Lough Mahon/Cork Harbour (at its closest point). The potential risks of tidal, fluvial, pluvial, groundwater and infrastructure flooding have been examined. Based on the assessment, the site is not at risk of tidal, fluvial, pluvial or groundwater flooding. Furthermore, it has been found that the proposed housing development will not increase flood risk elsewhere (Murphy Matson O' Sullivan, 2026 *Outline Civil & Structural Report*).

A range of SuDs techniques are proposed, with the intention of managing surface water runoff within the site as close to source as possible. Where practically feasible, these SuDs features have been linked in a "Management Train" to facilitate the capture, conveyance and storage of surface water runoff as close to source as possible whilst delivering interception and pollutant risk management. Surface water runoff will be intercepted and treated in a SuDS system comprising of green roofs, rain gardens, rainwater harvesting tanks, bio-retention tree pits, green open spaces and retention and enhancement of natural vegetation along with a conventional attenuation tank (Murphy Matson O' Sullivan, 2026 *Outline Civil & Structural Report*) all offering a mix of interception, primary treatment, secondary treatment, and attenuation.

Excess surface water runoff from the SuDs system and attenuation tank will be released gradually to the existing surface water drainage network which discharges to the transitional/estuarine environment of the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor, subject to relevant permissions. The attenuation tank will be utilised to prevent flooding where other SuDS measures are not able to deal with peak water flows. In this regard, there will be an overflow from the attenuation tank to the existing surface water drainage network on Blackrock Avenue. Bypass interceptors designed to trap oil, fuel, and heavy silt from surface water runoff will be provided at all surface water discharge points of the development to prevent any deterioration of water quality in the downstream waterbodies (River Lee/Tramore River/Lough Mahon/Cork Harbour). Silt traps and sediment controls will also be included in the design of the SuDS system to prevent blockages, maintain infiltration efficiency and to ensure no silt discharge to the receiving transitional/estuarine environment (Murphy Matson O' Sullivan, 2026 *Outline Civil & Structural Report*).

There will be an impact on groundwater recharge from precipitation, as a result of hard surfaces. The slow rate of recharge identified during the percolation tests (as per Causeway Geotech (2026) *Soakaway Logs* has removed the possibility of incorporating more "traditional" measures such as permeable paving and soakaways into the SuDs

design, such that the SuDs system has been reduced to green roofs, rainwater harvesting tanks, rain gardens and bio-retention tree pits and a conventional attenuation tank. The attenuation tank will be utilised to prevent flooding where other SuDS measures are not able to deal with peak water flows.

Following the construction of the proposed housing development, maintenance may be necessary on an *ad hoc* basis going forward in terms of repairs. Regular maintenance of the gullies, silt traps and sediment controls, bypass interceptors, and SuDS measures will be required along with landscape maintenance of the hard and soft landscaped areas.

The disposal of hydrocarbons from the bypass interceptors will be carried out by a permitted waste handler and taken to a licensed waste facility.

The disposal of domestic waste from the proposed housing development will be carried out by a permitted waste handler and taken to a licensed waste facility.

It is not envisaged that substantial maintenance or repair works will be required within the next 15 years.

3.0 Methods

3.1 Study Site

The 0.91ha site, with a net development area (excluding Blackrock Avenue) totalling 7833m^2 or 0.78ha, is located on Blackrock Avenue, and accessed off the regional road R852 or Skehard Road in the southeast suburbs of Mahon and Blackrock in Cork City, approximately 4.35km to the southeast of Cork City Centre in the southwest of Ireland. The GPS coordinates at the approximate centre of the site are 51°53'29.60"N, 8°24'44.25"W (see Figure 3.1).

The site of the proposed housing development is bound to the south by Mahon Boreen Pathway (a raised pedestrian walkway) and green open space, to the west by the green corridor of Passage Railway Greenway on the former Cork to Passage West Railway Line, including a recently built access ramp, to the east by Blackrock Avenue and Blackrock Hall (a 4-storey mixed-use neighbourhood centre building), and a new apartment complex Eden residential development (with a 5-storey apartment/creche block, currently under construction to the north.

The boundaries of the site are dominated by an escarpment and stone wall on the southern boundary, an earth berm and railing along the greenway to the west, hoarding along the northern boundary due to the presence of an existing construction site, and the public footpath along Blackrock Avenue to the east.

Figure 3.1 Site boundary (Source: Google Earth Pro)

In terms of the overall topography, the site slopes from northwest to southeast (see Figure 3.1) with a small escarpment along the southern boundary.

The elevation levels slope from circa 14.21mO.D. at the northwest boundary to circa 9.64mO.D. at the southeast. Levels rise sharply ranging from 9.4mO.D. to 15.69mO.D. along a small escarpment on the southern boundary.

The site overlaps with the OS 10km grid square or hectad W77, the 2km grid square or tetrad W77A and 1km grid square W7171.

3.1.1 Geology & Soils

According to the Geohive Mapviewer, the bedrock beneath the site of the proposed housing development consists of Carboniferous limestone *i.e.,* '*Massive and crinoidal fine limestone*' of the Little Island Formation from the Dinantian Series.

It is described as '*Massive calcilutite limestones (mudbank facies) and crinoidal calcilutites'*. There is no fault line traversing the site on contemporary mapping (Geohive Mapviewer).

No exposed bedrock outcrops were recorded within the site during the walkover survey.

During site investigation works in 2026, limestone bedrock was not encountered up to a depth of 4.5m bgl (Causeway Geotech, 2026 *Trial Pit Logs*).

Subsoils

In terms of the quaternary sediments, the site of the proposed housing development is dominated by '*Till derived from Devonian sandstones*' (Geohive Mapviewer).

According to the National Subsoils Map the site is dominated by '*Sandstone Till (Devonian)'* (EPA Mapviewer) with a groundwater subsoil permeability classified as '*Moderate*' and '*Not mapped'* (Geohive Mapviewer).

Soils

According to the SIS National Soils Map the site is dominated by '*Urban – soil concreted over*' while the National Soils Hydrology Map classified the soils as "*Well Drained*" (EPA Mapviewer).

3.1.2 Ground Water Features

Further to the completion of site investigation works, groundwater was not encountered, with the deepest trial pit extending to 4.5m bgl (Causeway Geotech, 2026).

Groundwater Body

The site of the proposed housing development is underlain by the Ballinhassig Ground Water Body (IE_SW_G_002).

Aquifer Classification

The bedrock aquifer beneath the site is described as a Regionally Important Aquifer - Karstified (diffuse).

Vulnerability

According to the Geohive Mapviewer the proposed housing development is underlain by an aquifer with 'H – High vulnerability' and 'E – Extreme vulnerability'.

While the site is underlain by limestone bedrock, there is no known karst features or landform (*e.g.,* springs, caves) indicated on contemporary mapping within the site of the proposed housing development. Karstified features or landforms were not recorded during the walkover survey.

The closest karst feature to the proposed housing development on contemporary mapping, is a Cave (IE_GSI_Karst_40K_1855) at Beaumont Park which is located 1.2km to the west (Geohive Webmapper).

There is no fault zone traversing the site (Geohive Mapviewer).

Groundwater Flow

Given the topography of the site the overall groundwater flow direction is inferred as being from northwest to southeast. This may deviate where karstic conduits are present.

3.1.3 Surface Water Features

The site is located within Hydrometric Area 19, Water Framework Directive (WFD) Lee, Cork Harbour and Youghal Bay, Subcatchment Glasheen[Corkcity]_SC_010 and WFD River Sub Basin, GLASHEEN (Cork City)_010.

There is no surface water feature within the site.

Given the topography of the site the overall direction of overland surface water flows is inferred as being from northwest to southeast.

The tidal River Lee and the Tramore River are located approx. 0.6km north and 1km south, respectively, from the site.

3.1.4 Habitats

Habitats recorded within the study site include intensively managed Amenity grassland (GA2) with rank grassland on the margins, Scattered trees & parkland (WD5), Scrub (WS1), Ornamental/non-native shrub (WS3), Spoil & bare ground (ED2), Recolonising bare ground (ED3) and a temporary car park with a finished surface of imported stone fill and Blackrock Avenue categorised as Buildings and artificial surfaces (BL1).

The boundaries of the site consist of an escarpment dominated by Scrub (WS1) and a stone wall categorised as Stone walls and other stonework (BL1) on the southern boundary, an earth berm dominated by Amenity grassland (GA2) and small patches of Scrub (WS1) and railing along the greenway to the west, hoarding along the northern boundary due to the presence of an existing construction site, and the footpath along Blackrock Avenue to the east categorised as Buildings and artificial surfaces (BL1).

Native Hawthorn (*Crataegus monogyna*) and Ash (*Fraxinus excelsior*), and non-native invasive Sycamore (*Acer pseudoplatanus*) trees (8 no. in total) are present within the site. A planted row of non-native standard Lime (*Tilia cordata*) trees are located in the immediate roadside verge along the footpath of Blackrock Avenue.

Scrub (WS1) habitat was recorded along a small escarpment on the southern boundary of the site, and in patches along the western boundary.

A number of Ornamental/non-native shrubs (WS3) were recorded within the site. Of the non-native species recorded, 5 no. are considered invasive of which none are 'regulated' species under European or National Legislation.

The only 'regulated' species identified was Three-cornered garlic (*Allium triquetrum*), which was recorded outside the site along the southern stone wall boundary of Mahon Boreen Pathway. Three-cornered garlic is 'regulated' by National Legislation i.e. First Schedule: Part 1 of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024) and Third Schedule: Part 1 of the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.

In summary, the habitats within the site are considered to be of Lower Value Local Importance (as per NRA, 2008) with the exception of the Scrub habitat (WS1) on the southern boundary which is considered Higher Value Local Importance due to its potential to support local passerine bird and small mammal populations in the context of a suburban environment.

Figure 5.2 Wider Study Area (Source: Google Earth Pro)

3.2 Wider Study Area

The study area consists of those land uses located in southwest of Ireland at Mahon and Blackrock, Cork City within the Zone of Influence (ZOI) of the proposed housing development.

In terms of the contextual framework, the surrounding landscape of the proposed housing development is dominated by the suburban environment of Mahon and Blackrock in Cork City which includes residential dwellings, healthcare facilities, retail outlets, a filling station, financial services along Blackrock Avenue, the R852 Skehard Road and adjoining roads. These suburban areas are categorised as Buildings and artificial surfaces (BL3) with

landscaped areas dominated by Amenity grassland (GA2) and Ornamental/non-native shrubs (WS3).

Habitats recorded within the wider study area include a Tidal river (CW2), Estuaries (MW4), Sea inlets and bays (MW2), Drainage ditches (FW4), Hedgerows (WL1), Scrub (WS1), Amenity grassland (GA2), Ornamental/non-native shrub (WS3), Dry meadows and grassy verges (GS2), and Improved agricultural grassland (GA1).

The Regional Road R852 and the National Road N40 Cork South Ring Road are located 0.5km and 1km, respectively, to the south of the proposed housing development. The lower stretches of the River Lee and Tramore River, both Tidal Rivers (CW2), flow west to east approximately 0.6km north and 1km south, respectively, from the proposed site. The River Lee becomes a transitional watercourse or Tidal river (CW2) at the 'Salmon Weir', while the Tramore River becomes tidal at the junction of Douglas Road with Douglas East Street on the Tramore River. The River Lee and Tramore River both outflow into the Estuarine (MW4) environment of Lough Mahon, which forms the north-western inlet of Cork Harbour, located 1km to the east and south of the site.

The site at its closest point is located 1.1km and 5km by land, respectively, from the boundary of two Natura 2000 Sites *i.e.,* Cork Harbour SPA (Site Code: 004030) and Great Island Channel SAC (Site Code: 001058), and 1.1km from Cork Harbour Ramsar Site (Site Code: 000837).

The site at its closest point is located between 0.8km and 5km by land from the boundary of 6 no. (proposed) national designated areas *i.e.,* Douglas River Estuary pNHA (Site Code: 001046), Dunkettle Shore pNHA (Site Code: 001082), Glanmire Wood pNHA (Site Code: 001054), Rock Farm Quarry, Little Island pNHA (Site Code: 001074), Cork Lough pNHA (Site Code: 001081) and Great Island Channel pNHA (Site Code: 001058). Douglas Estuary Wildfowl Sanctuary (WFS-67) a designated conservation areas of regional importance is located 0.8km to the south.

The site at its closest point is located 0.6km from the transitional waterbody Lee (Cork) Estuary Lower (IE_ SW_060_0900), 1.1km from estuarine waterbody of Lough Mahon (IE_ SW_060_0750), and 7.4km from the coastal waterbody of Cork Harbour (IE_SW_060 _0000).

3.3 Guidance

The ecological impact assessment methodology deployed in this report is based primarily upon the following guidelines prepared by the Chartered Institute of Ecology & Environmental Management (CIEEM) and the former National Road Authority (TII/NRA) now known as Transport Infrastructure Ireland (TII) and the Environmental Protection Agency (EPA):

- CIEEM (2013) Guidelines for Preliminary Ecological Appraisal
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland
- EPA (2022) Guidelines on information to be contained in the Environmental Impact Assessment Report

- TII/NRA (2009a) Guidelines for Assessment of Ecological Impacts of National Road Schemes – A Practical Guide Rev 2

3.4 Procedure

The procedure utilised in preparing the EcIA requires the undertaking/preparation of the following elements:

- Desktop Study
- Consultation
- Walkover and targeted field surveys
- Evaluation
- Impact Assessment
- Selection of Avoidance & Mitigation Measures
- Residual Impact Assessment

These elements are described in the following sections.

In the context of this document 'ecological resources' relate to sites, habitats, features, assemblages, taxon groups, species or individuals that occur in the vicinity of a project and upon which impacts are possible.

The term **'ecological receptors'** is used when impacts upon them are likely, while the term 'Key Ecological Receptors' is reserved for habitats and species which are of 'Local Importance (Higher Value)' or above and for which a detailed assessment is required as per TII/NRA (2009a).

3.5 Desktop Study

Prior to the commencement of the walkover and field surveys, a desktop study of the relevant technical literature and databases was undertaken for the proposed housing development in order to identify the presence/absence of ecological resources *e.g.,* any rare, threatened or legally protected species or protected habitats.

The primary sources of published material consulted as part of the desk study to identify ecological resources within the study area are as follows;

- Literature review to identify and collate relevant published information on both the ecology of the study area and relevant ecological studies conducted in other areas,
- A review of the National Parks & Wildlife Service (NPWS) databases for designated conservation areas and sites of nature conservation importance within and adjacent to the study area
- The Flora Atlas, Birds Atlas, National Biodiversity Data Centre (NBDC) online database
- Review of Ordnance Survey Ireland (OSI) and Geological Survey of Ireland (GSI)

Geohive and EPA Mapviewer and aerial images where available

3.6 Zone of Influence

3.6.1 Advanced Contracts & Construction Stage

Given its location in a highly modified suburban landscape and the dominance of intensively managed vegetation, there are limited potential sources of direct significant impacts arising from the construction stage of the Project.

In this regard, potential sources of significant impacts which may arise from the construction of a Project of this nature, scale, and duration are limited to indirect and secondary impacts as a result of the accidental release or spillage of contaminants within the site.

Depending on the magnitude and frequency of pollution event(s), the Zone of Influence of contaminants (in terms of water pollution) would typically extend to a few kilometres downstream or downgradient from the proposed Project for surface water and groundwater dependent habitats and species, and will depend on the sensitivity of the receptors, nature of the receiving environment including dilution effects and tidal currents, amongst other factors.

In addition to the release of contaminants, there is potential for indirect or secondary disturbance-related impacts arising from light, noise, dust and visual disturbances regimes and impacts from human activities/interactions during the advanced contracts and construction stage of the proposed housing development. Impacts from disturbance regimes and human activities are likely to be confined to the site boundary or localised within a few hundred metres of the site depending on the sensitivity of the receptors/ecological resources and existing background disturbance levels.

There is also a potential risk of introducing to and/or dispersing invasive species within the site, and into adjacent habitats.

3.6.2 Operational Stage

Given its location in a highly modified suburban landscape and the dominance of intensively managed vegetation, there are limited potential sources of direct significant impacts arising from the operational stage of the Project due to habitat loss.

Potential sources of direct significant impacts which may arise from the operational stage of a Project of this nature, scale and duration are direct mortalities as a result of bird (window) collisions.

Indirect or secondary impacts from disturbance regimes (light, noise and visual) and human activities/interactions are likely to be confined to the site boundary or localised within a few hundred metres of the site depending on the sensitivity of the receptors/ecological resources and existing background disturbance levels.

There is limited potential for water pollution events arising from surface water runoff or accidental release of foul water during the operational stage, given that any excess surface water runoff will be picked by the SuDs system (and a conventional attenuation tank during

peak flows). All excess surface water runoff from the SuDS system and attenuation tank will discharge via onsite silt traps and sediment controls and a bypass interceptor, to the existing surface water drainage system on Blackrock Avenue which in turn discharges to the transitional/estuarine environment of the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor. All foul water will discharge to the public foul water network.

There is also a potential risk of introducing to and/or dispersing invasive species within the site, and into adjacent habitats.

3.6.3 Sensitivity of Receptors

An initial preliminary review of potential sensitive ecological resources within the Zone of Influence confirmed the absence of sensitive receptors; in particular, the absence of an SAC designated for Freshwater pearl mussel (*Margaritifera margaritifera*) within the catchment. The review of the NPWS webmapper also confirmed that the proposed Project is not located within a Margaritifera Sensitive Area (NPWS, 2017).

3.6.4 Buffer Zone

Given the nature and scale of the proposed Project and the likelihood of significant effects, the sensitivity of the ecological resources and the nature of the receiving environment (suburban), a radius of 5km was adopted as an appropriate buffer zone around the proposed housing development, for the purposes of determining significant effects on receptors within the Zone of Influence of the proposed Project.

As the proposed Project is located upstream and upgradient of transitional waters on both the River Lee and the Tramore River, there are limited surface or groundwater pathways for potential impacts on freshwater environments with the exception of reverse tidal flows, which are limited by the 'Salmon Weir' on the River Lee at Lee Road and the junction of Douglas Road with Douglas East Street on the Tramore River.

3.7 Habitats

Protected Habitats

The **NPWS webmapper**[1] was consulted in relation to the presence of designated conservation areas within the potential Zone of Influence of the proposed housing development; in particular, Natura 2000 sites known as Special Areas of Conservation (SAC's) and Special Protection Area's (SPA's) designated at a European level and Natural Heritage Area's (NHA's) and proposed Natural Heritage Areas (pNHA's) which are selected at a national level. Boundary shapefiles for the designated conservation areas were also downloaded from the NPWS website where available. The presence of any National Parks or Statutory Nature Reserves, and habitats protected under the Ramsar (http://irishwetlands.ie/irish-sites/) and Ospar Conventions (https://www.npws.ie/protected-sites/ospar-sites).

[1] www.npws.ie; data extracted in April 2026

Habitats of Ecological Value

As part of the desktop study, a review of aerial photographs of the study area was carried out prior to the commencement of field surveys. This exercise aimed to identify areas of low ecological value, such as urban areas, areas under arable cultivation or under intensive pasture. Conversely, the review of aerial photographs was also used to identify areas of potentially high ecological value including grasslands, woodlands and wetlands, such that targeted field survey work could be undertaken.

In summary, the presence of the following habitats outside of designated conservation areas was noted, amongst others:

- Annex I habitats
- Surface water Dependent Terrestrial Ecosystems (SWDTEs)
- Groundwater Dependent Terrestrial Ecosystems (GWDTEs)

In relation to surface water and groundwater dependent habitats, the desktop review was also utilised to define the catchments/sub-catchment of watercourses and aquifers/groundwater bodies within the Zone of Influence of the proposed housing development, through a review of the EPA's AA Geotool and Geohive Mapviewer and the relevant 1:50,000 OSi Discovery Series Map.

Information on the aquatic/transitional/estuarine/marine habitats within the study area was gleaned from existing water quality/fisheries information available from the EPA, Inland Fisheries Ireland and published aquatic assessments for the wider study area and surrounding region.

3.8 Rare, Threatened or Protected Species

Rare, threatened or legally protected species in Ireland include those listed in the following legislation or publications:

- Annex II, Annex IV or Annex V listed species under the EU Habitats Directive
- Article 4(2) and Article 12 bird species (including Annex I bird species of Special Conservation Interest for SPAs) under the EU Birds Directive 2009/147/EC
- Irish Wildlife Act 1976 (as amended in 2000)
- Flora (Protection) Order 2022
- Ireland Red Listed species
- Birds of Conservation Concern in Ireland (BoCCI) Red List
- Any other species which are the focus of ratified conventions for nature conservation *e.g.,* Berne and Bonn Convention (see Table 3.1 for further details).

The main source of information for these species was the **NBDC online database** [2]. Relevant literature and databases were also consulted in relation the potential for invasive

[2] www.biodiversityireland.ie; data extracted in April 2026

alien plant species within the wider study area. Details of other sources of information are provided in the following sections.

3.8.1 Flora

A desktop study was conducted for records of any rare, threatened or legally protected vascular plant species previously recorded within the 10km grid square W77 that are listed on Annex II and IV of the EU Habitats Directive, the Flora Protection Order (FPO) 2022 and on the Ireland Red List No. 10: Vascular Plants (Wyse Jackson *et al*., 2016) and held in the following principal data sources regarding the distribution of flora in Ireland:

- Online Atlas of Vascular Plants 2012-2020 (https://maps.biodiversityireland.ie/Data set/162)
- Botanical Society of Britain & Ireland (BSBI) Distribution Database (https://data base.Bsbi.org/gridref.php?ref=R78)
- Online Atlas of British and Irish Flora (https://www.brc.ac.uk/plant atlas/)
- New Atlas of the British & Irish Flora (Preston *et al*., 2002)

A desktop study was also conducted for any rare, threatened or legally protected bryophytes previously recorded within the 10km grid square W77 that are listed on Annex II and IV of the EU Habitats Directive, the Flora Protection Order (FPO) 2022 and the Ireland Red List No. 8: Bryophytes (Lockhart *et al*., 2012). In addition, to the above relevant databases (where relevant) the following primary source of information were also consulted:

- Flora Protection Order Map Viewer – Bryophytes (https://www.npws.ie/maps-and-data/flora-protection-order-map-viewer-bryophytes)
- Atlas of British & Irish Bryophytes 2014 (https://maps.biodiversityireland.ie/Dataset /8)

All results were compared with rare vascular and bryophytes species listed in the Site Synopses and the Conservation Objectives documents prepared by the NPWS for any designated conservation areas in the Zone of Influence of the proposed housing development.

3.8.2 Invertebrates

A desktop study was completed for records of any rare or threatened bees and macro-moths previously recorded within the 2km grid square W77A that are listed in

- Ireland Red List No. 9: Macro-moths (Lepidoptera) (O' Donnell *et al*., 2016)
- Regional Red List of Irish Bees (Fitzpatrick *et al*., 2006)

and held in the following principal data source regarding the distribution of bees in Ireland:

- Bees of Ireland Dataset (https://maps.biodiversityireland.ie/Dataset/5)
- Dragonfly (and Damselfly) Records (https://maps.biodiversityireland.ie/Data set/239)

Specifically, with respect to butterflies a desktop study was conducted for records of any rare, threatened or legally protected butterfly species previously recorded within the 10km grid square W77 that are listed on Annex II of the EU Habitats Directive namely the Marsh fritillary (*Euphydryas aurinia*) and on the Ireland Red List No. 4: Butterflies (Regan *et al*., 2010) held in principal data sources regarding the distribution of butterflies in Ireland including:

- Butterfly Conservation Ireland website (https://butterflyconservation.ie/)
- Butterfly Distribution Maps 2010-2014 on the Butterfly Ireland website (http://www. butterflyireland.com/)
- Distribution Atlas of Butterflies in Ireland 1979 (An Foras Forbartha) (https://maps. biodiversityireland.ie/Dataset/94)
- Butterflies of Ireland Dataset (https://maps.biodiversityireland.ie/Dataset/116)

The desktop study also focused on the three species of Whorl Snails in Ireland which are listed on Annex II of the EU Habitats Directive and the Ireland Red List No. 2: Non-Marine Molluscs (Byrne *et al*., 2009) *i.e.,* the 'Vulnerable' Geyer's Whorl Snail (*Vertigo geyeri*) and Narrow-mouthed Whorl Snail (*Vertigo angustior*), and the 'Endangered' Desmoulin's whorl snail (*Vertigo moulinsiana*) held in the following principal data sources regarding the distribution of Whorl Snails in Ireland including:

- Moorkens and Killeen (2011) Monitoring and Condition Assessment of Populations of Vertigo geyeri, Vertigo angustior and Vertigo moulinsiana in Ireland
- All Ireland Non-Marine Molluscan Database (https://maps.biodiversityireland.ie/ Data set/1)

3.8.3 Birds & Mammals

A desktop study of bird and mammal species within the 10km grid square W77 was also undertaken.

With respect to terrestrial mammals, particular focus was paid to Annex II and IV species Otter (*Lutra lutra*) and the Lesser horseshoe bat (*Rhinolophus hipposideros*) and to all eight other species of bat which occur in Ireland. In addition to these species, Pine marten (*Martes martes*) and Irish hare (*Lepus timidus hibernicus*), listed on Annex V of the EU Habitats Directive, along with those mammals listed in Marnell *et al*. (2019) Ireland Red List No. 12: Terrestrial Mammals were also included in the desktop study. The principal data sources regarding the distribution of mammals in Ireland were accessed including Lundy *et al*. (2011) Landscape Conservation for Irish Bats (Bat GIS Layer).

Birds

With respect to breeding birds, BirdWatch Ireland and the RSPB Northern Ireland produced a list of Birds of Conservation Concern (BoCCI) in Ireland 2020-2026 which evaluates the conservation status of birds using colour codes (Colhoun and Cummins, 2021). Those on the Red List are considered threatened, while Amber List species are considered to be of medium conservation importance. Green Listed species are considered to have favourable

conservation status as population trends are good.

Birds listed on the BoCCI Red List meet one or more of the following criteria:

- Their breeding population or range has declined by more than 50% in the last 25yrs,
- Their breeding population has undergone significant decline since 1900, or
- They are of global conservation concern

The records held by the NBDC online database for the 10km grid squares W77 were consulted and a search was carried out for any birds listed on Article 4(2) and Article 12 of the EU Birds Directive and/or listed as in the BoCCI Red List (Colhoun and Cummins, 2021) and held in principal data sources for the distribution of birds in Ireland.

3.9 Consultation

Consultation is typically undertaken with the Development Applications Unit (DAU) in the Department of Culture, Heritage and the Gaeltacht and Inland Fisheries Ireland (IFI). The DAU coordinates the evaluation of planning applications by the various technical services of the Department, including archaeology, architectural heritage, and NPWS.

The consultation process may provide access to additional background information on ecological resources such as protected, rare or threatened species within the Zone of Influence of a project and the requirement for targeted surveys for particular habitats and species, where appropriate. The presence of important recreational or commercial fisheries is typically identified through consultation with IFI.

An 'Information/Data Request' for sensitive scientific data can be made to NPWS to acquire data on the location of sensitive or unpublished data pertaining to rare and threatened species (which could be at risk if the location was available on public access databases).

Consultation with the Botanical Society of the British Isles and Ireland (BSBI) may also provide additional information pertaining to the presence of protected, rare or threatened flora, or indeed, noteworthy species.

3.10 Field Assessment

Following a full desktop study of available information pertaining to the ecological resources of the study area, Ecosystem Services in Practice Ltd. carried out a field assessment of the habitats and species within the Zone of Influence of the proposed housing development in April 2026. The field assessment included the following surveys:

- Habitat Survey, Classification and Mapping
- Flora Survey
- Mammal Survey including potential signs of bats and roost features
- Bird Survey

The surveys were undertaken in accordance with '*Ecological Surveying Techniques for Protected Flora and Fauna During the Planning of National Road Schemes*' (TII/NRA, 2009b). Seasonal factors that affect distribution patterns and habitats or species were taken into

account when conducting the surveys and the potential of the study area to support certain populations (see Section 3.14).

3.10.1 Habitat Survey, Classification & Mapping

Habitat Survey

The habitat survey undertaken on 9th April 2026 comprised of a field-based assessment of the habitats within the Zone of Influence of the proposed Project supported by information acquired from the desktop review and aerial photographs.

Habitat Classification

The habitats found within the study area were categorised as per Fossitt (2000) 'A Guide to Habitats in Ireland' down to level III and EC (2013) 'Interpretation Manual of European Union Habitats - EUR28', where they were found to correspond to Annex I habitats.

Fossitt (2000) is a national standard scheme for identifying, describing and classifying wildlife habitats; based on the vegetation present, and management history. The classification is hierarchical and operates at three levels, outlining the correlation between its habitat categories and the phytosociological units (plant communities) of botanical classifications.

EC (2013) is a scientific reference document published by the European Commission for the interpretation of Priority and Non-Priority Annex I habitat types of the EU Habitats Directive. This manual incorporates descriptive sheets for Priority and Non-Priority Annex I habitats, which establishes scientific definitions of habitats, using pragmatic descriptive elements (*e.g.,* characteristic plants) and taking into consideration regional variations.

Habitat Mapping

The habitat mapping for the study area was undertaken in accordance with the 'Best Practice Guidelines for Habitat Mapping' (The Heritage Council, 2011). The locations of the habitats found within the Zone of Influence of the proposed housing development are provided for each habitat type.

3.10.2 Flora

In addition to protected, rare and threatened species, common, dominant and noteworthy plant species were also recorded as part of the botanical survey on 9th April 2026.

Surveys for plants which may be present within the Zone of Influence of the proposed housing development were undertaken in accordance with 'Ecological Surveying Techniques for Protected Flora and Fauna During the Planning of National Road Schemes' (TII/NRA, 2009b), where applicable.

3.10.3 Invertebrates

With respect to terrestrial invertebrates, the habitat and botanical surveys focussed on the presence/absence of the larval host plant Devil's-bit scabious (*Succisa pratensis*) of the Annex II butterfly species Marsh fritillary (*Euphydryas aurinia*) and other features of entomological importance such as habitats of interest, other host or food plants or specialist

species.

3.10.4 Amphibians & Reptiles

Common Frog & Smooth Newt

As the walkover survey in April was undertaken outside of the optimal survey period for Common frog and Smooth newt, the field surveys focussed on the presence/absence of suitable (breeding) habitat.

Common frogs have a very broad habitat requirement and may lay frog spawn from January to March in both permanent and temporary wetland habitat including ponds, ditches, shallow temporary pools, excavations, and deep tyre ruts.

In contrast to Common frog, Smooth newt has more specific habitat requirements, requiring slow-moving or standing water, presence of macrophytes *i.e.,* broadleaved aquatic vegetation (on which to lay eggs), the absence of fish (who predate on newt larvae) and presence of suitable hibernacula.

Smooth newt breed from March to August. They favour still moving water in small to large ponds and pockets at the sides of slow-flowing ditches and streams; avoiding fast moving water as eggs can be washed away.

While Common frog and Smooth newt are not mutually exclusive, they typically do not co-occur as newts predate on frogspawn and frog tadpoles. In most cases where newt predation takes place, some frog tadpoles will survive to become froglets. A 'boom-bust' relationship often forms between frog and newt populations – with larger numbers of newts leading to fewer frogs, then fewer frogs leading to fewer newts, leading to more frogs in following years (and so on).

Common Lizard

During the field surveys in April the presence/absence of Common lizard (*Zootoca vivipara*) and suitable habitat was noted. According to Bebee and Griffiths (2000) '*Adequate viviparous lizard habitat is made up of undisturbed ground that is topographically diverse with fairly dense but short vegetation less than 0.5m high, open to the sun and with at least a few exposed areas or promontories that can be used for basking*'. In addition to these criteria Bebee and Griffiths (2000) state that the land must be well drained and free from pesticide applications. Despite the affinity for warm and dry locations, it has been found that Common lizard also thrive in Irish bog habitats.

3.10.5 Birds & Mammals (Non-flying)

During the field survey in April any incidental observations of birds and mammals encountered were also recorded, and any bird or mammal species of conservation concern were investigated, where appropriate.

The presence/absence of suitable nesting/roosting/foraging habitat for birds was noted.

Mammal signs were actively searched for in any areas that were considered to be of potential importance such as woodlands, scrub, grasslands for Badger (*Meles meles*), bats, Pine marten, Irish stoat (*Mustela mustela hibernica*), Irish hare, and Red squirrel (*Sciurus*

vulgaris) and waterbodies for Otter *etc.* Much of the information regarding the presence/absence of mammals comes from active searches for field signs such as tracks (footprints), faeces, runs, dens, fur snags, other field signs, and local road kills.

Where encountered, incidental observations of Wood mouse (*Apodemus sylvaticus*), Pygmy shrew (*Sorex minutus*) and the non-native Hedgehog (*Erinaceus europaeus*) were noted during field surveys. However, it is generally accepted that the detection of Hedgehog and Pygmy shrew is unlikely without the use of significant survey effort, and the use of technology such as wildlife tracking cameras, as direct observations of these elusive species are very infrequent and field signs of these species are rarely recorded. Furthermore, a determination with regards to the location of breeding or resting sites, population size, or number of territories for these mammal species would require further intensive surveys in the form of hair-tubes or capture and release and radio tracking surveys (see Section 3.14 for further details).

In terms of context, according to TII/NRA (2009b), road projects will generally not involve significant impacts on populations of Hedgehog, Irish hare, Irish stoat, and Pygmy shrew nor are there particularly relevant/effective mitigation measures specific to any of these species. Thus, in most cases, further surveys for these species, over and above the information collected during the field surveys, will not be appropriate.

In those few situations where significant impacts are likely, *e.g.,* where grassland supporting large numbers of Irish hares would unavoidably be bisected, any further surveys should be designed on a case by-case basis, following other published survey techniques and should be developed in consultation with the NPWS and other relevant consultees (TII/NRA, 2009b).

Considering the above, under the precautionary principle, it is assumed that Woodl mouse, Pygmy shrew and Hedgehog are present within a study area, where suitable habitat exists.

3.10.6 Bats

It is well established that bats may avail of eaves of buildings, attic spaces, old stone walls, bridges, and trees for roosting; seeking out crevices, cavities or indentations that might allow avoidance of direct sunlight and weather conditions. In this regard, a walkover survey to assess the site in terms of the potential for bats was undertaken on 9th April 2026. During this walkover any trees, buildings or other structures that had potential to hold roosting bats, were noted for targeted surveys.

An assessment of the linear corridors and trees within the site and wider study area was undertaken to qualitatively identify the potential for roosting, commuting and/or foraging bats. In the absence of any structures, subsequent targeted surveys focused on a ground level roost assessment of trees within the site for Potential Roost Features (PRF's) as per Collins (2016) and/or signs of bats with the site.

Further bat survey work will be undertaken on completion of the Arboricultural Impact Assessment (AIA) and the micro-siting process by the Arborist (see Section 2.3.2; 11.0).

3.11 Ecological Evaluation

The ecological resources *i.e.,* habitats and species identified during the field assessment (or which are known to occur in the wider study area under the precautionary principle) were assessed according to the criteria for site evaluation outlined in the TII/NRA Ecological Impact Assessment Guidelines (TII/NRA, 2009a) on their naturalness, value and vulnerability as well as their inclusion within the Natura 2000 Network (see Table 3.1). Together with the geographic frame of reference (see Table 3.2) this evaluation was utilised to determine whether they are of International, National, Regional or County, or Local importance (see Section 3.11).

Identification of Key Ecological Receptors

Only those ecological resources located within the Zone of Influence of a proposed project should be assigned a geographic frame of reference to determine their ecological value as per Table 3.2. In the context of a proposed project, ecological resources which are found to have an ecological value of Local Importance (Higher Value) or greater should be selected as '**Key Ecological Receptors**' for which a detailed assessment is required as per TII/NRA (2009a).

For the purposes of clarity any ecological resources which are found to have an ecological value of 'Local Importance (Lower Value)' or less should not be selected as '**Key Ecological Receptors**' as per TII/NRA (2009a).

Table 3.1 Ecological Evaluation Scheme (Source: TII/NRA, 2009a)

Rating for Ecological Resources
International Importance
▪ 'European Site' or Natura 2000 site including Special Area of Conservation (SAC), Site of Community Importance (SCI) and Special Protection Area (SPA) ▪ Proposed Special Area of Conservation (pSAC) or proposed Special Protection Area (pSPA) ▪ Site that fulfils the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended) ▪ Features essential to maintaining the coherence of the Natura 2000 Network ▪ Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive ▪ Resident or regularly occurring populations (assessed to be important at the national level) of the following: ➢ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or ➢ Species of animal and plants listed in Annex II and/or IV of the Habitats

Directive

- Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971)
- World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972)
- Biosphere Reserve (UNESCO Man & the Biosphere Programme)
- Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979)
- Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979)
- Biogenetic Reserve under the Council of Europe
- European Diploma Site under the Council of Europe
- Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988)

National Importance

- Site designated or proposed as a Natural Heritage Area (NHA)
- Statutory Nature Reserve
- Refuge for Fauna and Flora protected under the Wildlife Acts
- National Park
- Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park
- Resident or regularly occurring populations (assessed to be important at the national level) of the following:
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Ireland Red List
- Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive

County Importance

- Area of Special Amenity
- Area subject to a Tree Preservation Order
- Area of High Amenity, or equivalent, designated under the County Development

Plan

- Resident or regularly occurring populations (assessed to be important at the County level) of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list
  - Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance
- County important populations of species or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP, if this has been prepared
- Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county
- Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level

Local Importance (Higher Value)

- Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared
- Resident or regularly occurring populations (assessed to be important at the Local level) of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list
- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality
- Sites or features containing common or lower value habitats, including

naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value

Local Importance (Lower Value):
▪ Sites containing small areas of semi-natural habitat that are of some local importance for wildlife ▪ Sites or features containing non-native species that are of some importance in maintaining habitat links

Table 3.2 Six-level Ecological Valuation Scheme (CIEEM, 2016)

Ecological Value	Geographical Scale of Importance
International	International or European Scale
National	Country
Regional	Province
County	County
Local	Immediate surroundings
Negligible	None, feature is common and widespread

3.12 Impact Assessment

Potential impact(s) on Key Ecological Receptors within the Zone of Influence of the proposed housing development were characterised on the basis of the following parameters:

- Magnitude - relates to the quantum of impact, for example the number of individuals affected by an activity
- Extent - relates to the area over which the impact occurs
- Duration - intended to refer to the length of time for which the impact is predicted to continue, until recovery or re-instatement
- Reversibility - whether an impact is ecologically reversible, either spontaneously or through specific action; and
- Timing - timing and/or frequency of impacts in relation to important seasonal and/or life-cycle constraints should be evaluated.
- Integration – integration of impact characteristics should also be considered

It is necessary to ensure that the characterisation of impacts on Key Ecological Receptors

takes into account the construction and operational phases of the proposed Project; direct, indirect, and cumulative impacts; and the duration and timing of impacts. Definitions of terms used when quantifying duration of impacts are listed below (as per EPA, 2017):

- Temporary – up to 1yr
- Short-term – 1 to 7yrs
- Medium-term – 7 to 15yrs
- Long-term – 15 to 60yrs
- Permanent – over 60yrs

Assessment of Significance

Once the potential impacts are characterised, the significance of any such impacts on each of the Key Ecological Receptors is then determined using the following criteria:

- Effects on conservation status of 'Key Ecological Receptors'
- Effects on ecological integrity of 'Key Ecological Receptors', and
- Process of assessing significance.

Significance is determined by effects on conservation status or integrity, regardless of geographical scale at which these would be relevant. The most relevant criteria for assessment of effects of significance (and quality) are defined in Table 3.4 and 3.5.

Table 3.4 Criteria for Assessing Impact Significance (EPA, 2017)

Impact Type	Criteria
No change	No discernible change in the ecology of the affected feature
Imperceptible Impact	An impact capable of measurement but without noticeable consequences
Slight Impact	An impact which causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate Impact	An impact that alters the character of the environment that is consistent with existing and emerging trends
Significant Impact	An impact which, by its character, its magnitude, duration, or intensity alters a sensitive aspect of the environment
Profound Impact	An impact which obliterates sensitive characteristics

Table 3.5 Criteria for Assessing Impact Quality (EPA, 2017)

Impact Type	Criteria
Positive	A change which improves the quality of the environment *e.g.,* increasing species diversity, improving reproductive capacity of an ecosystem, or removing nuisances
Neutral	A change which does not affect the quality of the environment
Negative	A change which reduces the quality of the environment *e.g.,* lessening species diversity or reducing the reproductive capacity of an ecosystem

Where significant impacts are identified, measures will be taken to avoid, minimise or compensate for impacts. Based on these measures, the impact assessment will be repeated, and any residual impacts will be discussed (CIEEM, 2016).

3.13 Selection of Avoidance, Mitigation or Compensatory Measures

The selection of avoidance and mitigation measures was completed in accordance with 'Ecological Surveying Techniques for Protected Flora and Fauna During the Planning of National Road Schemes' (TII/NRA, 2009b), other relevant best practice guidelines and standards the knowledge and the expertise of the author, where applicable.

3.14 Limitations in Field Assessment Methodology

Flora & Habitats

A walkover survey to assess the habitat types and flora present within the site of the proposed Project was undertaken on the 9th April 2026. The survey was undertaken outside of the recognised optimum period for vegetation surveys/habitat mapping *i.e.,* May to September (TII/NRA, 2008; The Heritage Council, 2010).

While the survey was undertaken outside of the optimal survey period, given the recent mild weather conditions (continued absence of frost), the land-use type (intensively managed amenity grassland) and the expertise of the surveyor, there is no constraint on the findings of the flora and habitat survey. A further survey during the optimum (flowering) period (May to September) is required to confirm the presence/absence of Little-robin (*Geranium purpureum*) on the southern stone masonry boundary wall of the site.

Bats

It should be noted that bats may establish new maternity or hibernation roosts and may also use sites as temporary roosts. Therefore, the absence of bats at time of survey may not preclude the use of a tree or building by bats, at some stage in the future, or at other times of the year. Surveys, therefore, focus on searches for the presence of roosting bats, signs of former bat occupancy and also for the presence of Potential Roost Features (PRF's)

as per Collins (2024). There is no constraint on the findings of the survey completed to date in relation to bats. Further bat survey work will be undertaken on completion of the Arboricultural Impact Assessment (AIA) and the micro-siting process by the Arborist (see Section 2.3.2;11.0).

Birds

The survey took place during the bird nesting season 1st March to 31st August. There is no constraint on the findings of the walkover survey in relation to birds.

4.0 Findings of the Desktop Study

4.1 Designated Conservation Areas (DCA's)

There are 2 No. Natura 2000 sites, 1 no. Ramsar Site, 5 No. proposed Natural Heritage Area and 1 no. wildfowl sanctuary within 5km of the proposed housing development (refer to Tables 4.1-4.3; Figures 4.1-4.3).

Table 4.1 Location of International Designations within 5km of the Proposed Project

International DCA	Site Code	Direction	Land	Surface Water	Ground Water
Cork Harbour SPA	004030	South	1.1km	1.1km via ground and surface water	
Cork Harbour Ramsar Site	000837	South	1.1km	1.1km via ground and surface water	
Great Island Channel SAC	001058	South East	5km	5km via ground and surface water	

Note: u/s = upstream, d/s = downstream, u/g = upgradient, d/g = downgradient, l/c = local tidal currents

Table 4.2 Location of National DCA's within 5km of the Proposed Project (closest point)

National DCA	Site Code	Direction	Land	Surface Water	Ground water
Douglas River Estuary pNHA	001046	North	0.8km	0.8km via ground and surface water	
Dunkettle Shore pNHA	001082	North East	1.5km	1.5km via ground and surface water	
Glanmire Wood pNHA	001054	North East	2.2km	2.5km via ground and surface water	
Rock Farm Quarry, Little Island pNHA	001074	East	3.9km	3.9km via ground and surface water	
Cork Lough pNHA	001081	West	4.9km	Limited connectivity	
Great Island Channel pNHA	001058	East	5km	5km via ground and surface water	
Lee Valley pNHA	000094	West	7.3km	Limited connectivity Located u/s beyond tidal	

National DCA	Site Code	Direction	Land	Surface Water	Ground water
				reach	
Blarney Bog pNHA	001857	North West	9.1km	Limited connectivity. Located u/g	

Note: u/s = upstream, d/s = downstream, u/g = upgradient, d/g = downgradient, l/c = local tidal currents

Table 4.3 Location of Regional DCA's within 5km of the Proposed Project (closest point)

Regional DCA	Site Code	Direction	Land	Surface Water	Ground water
Douglas Estuary Wildfowl Sanctuary	WFS-67	South	0.8km	0.8km via ground and surface water	

Note: u/s = upstream, d/s = downstream, u/g = upgradient, d/g = downgradient, l/c = local tidal currents

4.1.1 Cork Harbour SPA

Cork Harbour SPA is located 1.1km from the proposed Project (see Figure 4.1; Table 4.1).

It is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Tramore (Douglas), Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poulnabibe inlets.

Cork Harbour is of major ornithological significance, considered an internationally important wetland site, both for the total numbers of wintering birds (*i.e.*, > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, it supports nationally important wintering populations of 22 no. species, as well as a nationally important breeding colony of Common Tern.

In terms of the internationally important populations of waterbirds, it supports Black-tailed godwit (1,896) and Redshank (2,149) - all figures given are five-year mean peaks for the period 1995/96 to 1999/2000.

Nationally important populations of the following 19 no. species occur: Little grebe (57), Great crested grebe (253), Cormorant (521), Grey heron (80), Shelduck (2,009), Wigeon (1,791), Teal (1,065), Mallard (513), Pintail (57), Shoveler (103), Red-breasted merganser (121), Oystercatcher (1,809), Golden plover (3,342), Grey plover (95), Lapwing (7,569), Dunlin (9,621), Bar-tailed godwit (233), Curlew (2,237) and Greenshank (46). The Shelduck population is the largest in the country (over 10% of national total). Other species using the site include Mute swan (38), Whooper swan (5), Pochard (72), Gadwall (6), Tufted duck (64), Goldeneye (21), Coot (53), Ringed plover (73), Knot (26) and Turnstone (113).

Figure 4.1 Location of International Designated Conservation Areas

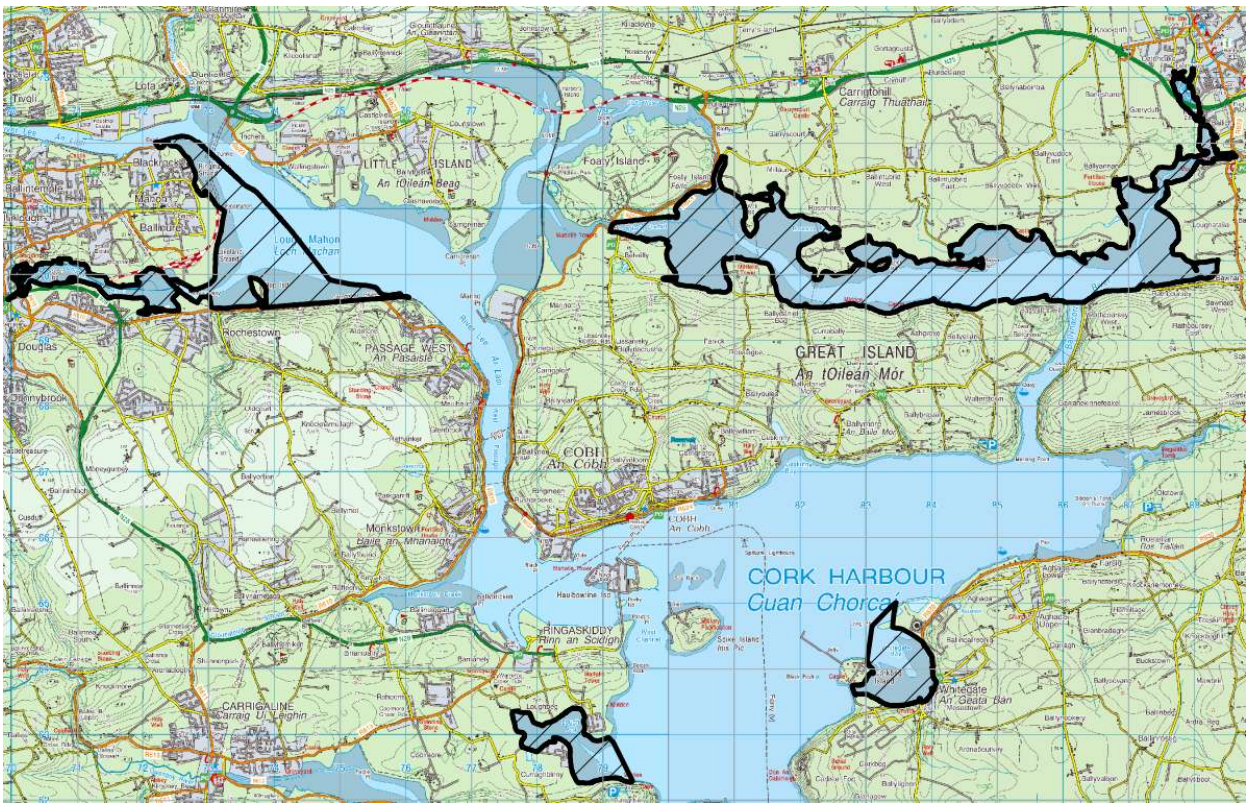

Figure 4.2 Location of Cork Harbour Ramsar Site

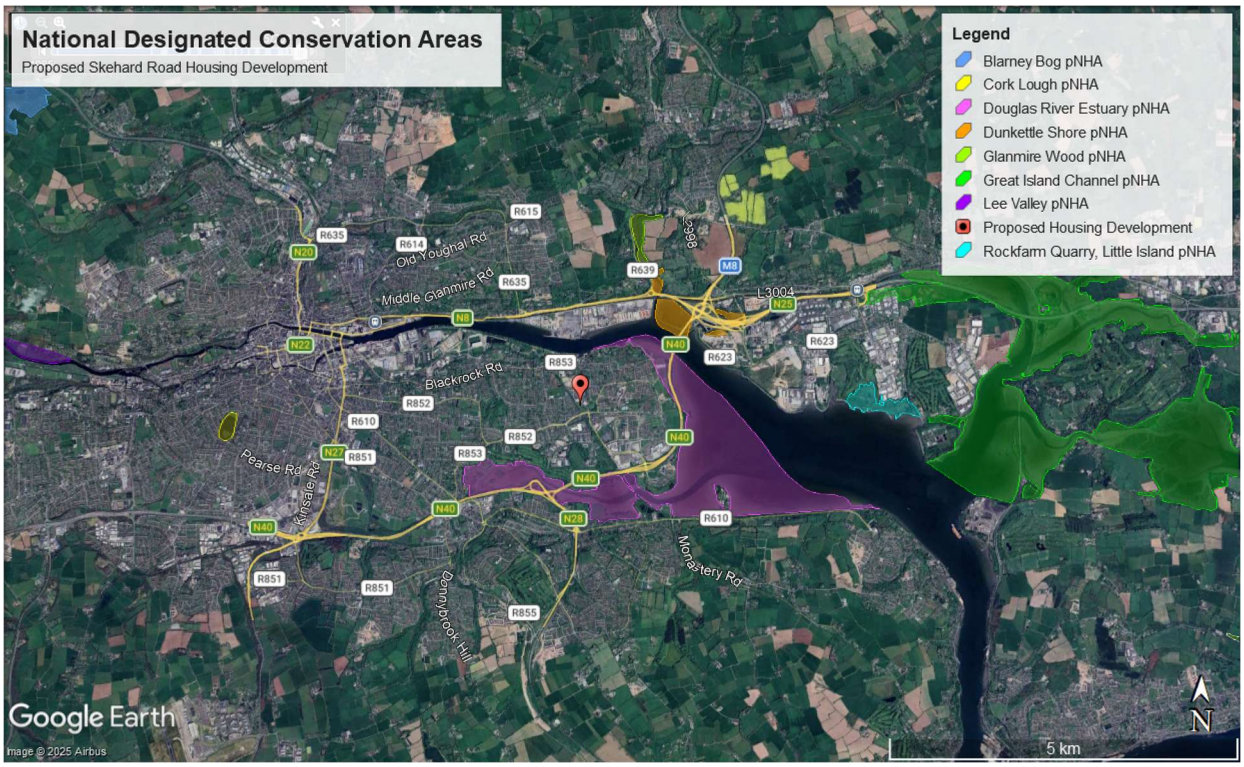

Figure 4.3 Location of National Designated Conservation Areas

Cork Harbour is an important site for gulls in winter and autumn, especially Black-headed gull (3,640), Common gull (1,562) and Lesser black-backed gull (783), all of which occur in numbers of national importance. Little egret and Mediterranean gull, two species which have recently colonised Ireland, also occur at this site.

A range of passage waders occurs regularly in autumn, including such species as Ruff (5-10 no.), Spotted redshank (1-5 no.) and Green sandpiper (1-5 no.). Numbers vary between years and usually a few of each of these species over-winter.

Cork Harbour has a nationally important breeding colony of Common tern (102 no. pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

Several of the species which occur regularly are listed on Annex I of the EU Birds Directive, *i.e.,* Whooper swan, Little egret, Golden plover, Bar-tailed godwit, Ruff, Mediterranean gull and Common tern. The site provides both feeding and roosting sites for the various bird species. Cork Harbour is also a Ramsar Convention site, while Douglas Estuary is a Wildfowl Sanctuary.

Owing to the sheltered conditions, the intertidal flats of Cork Harbour SPA are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nepthys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva* spp. and Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are

scattered through the site and these provide high tide roosts for the birds. Some shallow bay water is also included in the site. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds (NPWS, 2015).

Table 4.4 Birds listed as Special Conservation Interests for Cork Harbour SPA

Special Conservation Interests		
NPWS Conservation Objectives Document		
Code	**Common name**	**Scientific name**
A004	Little Grebe	*Tachybaptus ruficollis*
A005	Great Crested Grebe	*Podiceps cristatus*
A017	Cormorant	*Phalacrocorax carbo*
A028	Grey Heron	*Ardea cinerea*
A048	Shelduck	*Tadorna tadorna*
A050	Wigeon	*Anas penelope*
A052	Teal	*Anas crecca*
A054	Pintail	*Anas acuta*
A056	Shoveler	*Anas clypeata*
A069	Red-breasted Merganser	*Mergus serrator*
A130	Oystercatcher	*Haematopus ostralegus*
A140	Golden Plover	*Pluvialis apricaria*
A141	Grey Plover	*Pluvialis squatarola*
A142	Lapwing	*Vanellus vanellus*
A149	Dunlin	*Calidris alpina alpina*
A156	Black-tailed Godwit	*Limosa limosa*
A157	Bar-tailed Godwit	*Limosa lapponica*
A160	Curlew	*Numenius arquata*
A162	Redshank	*Tringa totanus*
A179	Black-headed Gull	*Chroicocephalus ridibundus*

A182	Common Gull	*Larus canus*
A183	Lesser Black-backed Gull	*Larus fuscus*
A193	Common Tern	*Sterna hirundo*
A999	Wetlands	

There are 23 no. Special Conservation Interests for Cork Harbour SPA (see Table 4.4), of which 7 no. are Annex I species. In terms of the habitat preferences of the 23 no. species, suitable habitat is present along the tidal and estuarine habitat of the River Lee/Tramore River/Lough Mahon/Cork Harbour.

4.1.2 Great Island Channel SAC

Great Island Channel is located 5km from the proposed Project (see Figure 4.1; Table 4.1).

The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest.

Geologically, Cork Harbour consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. Within this system, Great Island Channel forms the eastern stretch of the river basin and compared to the rest of Cork Harbour, is undisturbed. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel.

The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Owing to the sheltered conditions, the intertidal flats are composed of soft muds. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nepthys hombergi*, *Nereis diversicolor* and *Corophium volutator*. Green algal species occur on the flats, especially *Ulva lactua* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially at Rossleague and Belvelly.

The saltmarshes are scattered throughout the SAC and are all of the estuarine type on mud substrate. Species present include Sea purslane (*Halimione portulacoides*), Sea aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common saltmarsh-grass (*Puccinellia maritima*), Sea plantain (*Plantago maritima*), Greater sea-spurrey (*Spergularia media*), Lax-flowered sea-lavender (*Limonium humile*), Sea arrowgrass (*Triglochin maritimum*), Sea mayweed (*Matricaria maritima*) and Red fescue (*Festuca rubra*).

The site is an integral part of Cork Harbour which is a wetland of international importance for the birds it supports. In terms of wintering waterfowl, the site contains three of the top five areas within Cork Harbour, namely North Channel, Harper's Island and Belvelly-Marino Point. All the mudflats support feeding birds; the main roost sites are at Weir Island and Brown Island, and to the north of Fota at Killacloyne and Harper's Island. Ahanesk supports

a roost also but is subject to disturbance. Waders occur in the greatest density north of Rosslare, with Dunlin, Godwit, Curlew and Golden plover the commonest species. A population of about 80 no. Grey plover is a notable feature of the area. Shelduck is the most frequent duck species with 800-1,000 birds centred on the Fota/Marino Point area. There are also large flocks of Teal and Wigeon, especially at the eastern end The numbers of Grey plover and Shelduck, as given above, are of national importance.

Overall, Cork Harbour regularly holds over 20,000 waterfowls and contains internationally important numbers of Black-tailed godwit (1,181) and Redshank (1,896), along with nationally important numbers of nineteen other species. Furthermore, it contains large Dunlin (12,019) and Lapwing (12,528) flocks. All counts are average peaks, 1994/95 – 1996/97. Much of the site overlaps with Cork Harbour SPA.

While the main land use within the site is aquaculture (oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows and marina developments.

The site is of major importance for the 2 no. habitats listed on Annex I of the EU Habitats Directive (see Table 4.5), as well as for its important numbers of wintering waders and wildfowl. It also supports a good invertebrate fauna assemblage (NPWS, 2013).

Table 4.5 Qualifying Interests for Great Island Channel SAC

Code	Qualifying Interests
	NPWS Conservation Objectives Document
[1140]	Mudflats and sandflats not covered by seawater at low tide
[1330]	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

4.1.3 Cork Harbour Ramsar Site

Cork Harbour Ramsar Site is located 1.1km from the proposed Project (see Figure 4.2; Table 4.1).

Cork Harbour Ramsar site (Site Code: 000837) is part of a large, sheltered bay system with several river estuaries and extensive intertidal habitats.

The Cork Harbour Ramsar Site lies within the wider and extensive wetland system that is Cork Harbour and is focused on four separate areas of intertidal habitat. These areas are an integral part of the larger Cork Harbour SPA and part of the Ramsar site lies within the Great Island Channel SAC. Cork Harbour SPA has been selected as an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterbirds, making it one of the top five sites in the country. Owing to the sheltered conditions within Cork Harbour, intertidal mud and sand flat habitats are extensive and saltmarsh habitat is scattered throughout. These habitats are important for both roosting and wintering waterbirds. Great Island Channel SAC, which lies within the Cork Harbour wetland complex is designated for intertidal mud and sandflat habitat and for saltmarsh. Cork Harbour also

has a breeding colony of Common Tern which is of national importance and it is important for post breeding tern aggregations (Ramsar Information Sheet, 2022).

Cork Harbour Ramsar site overlaps with Cork Harbour SPA and Great Island Channel SAC. The impact assessment process undertaken in respect of Cork Harbour SPA and Great Island Channel SAC will, therefore, also serve to protect this designated conservation area. As such potential impacts on Cork Harbour Ramsar site will not be discussed further in this EcIA report.

4.1.4 Douglas River Estuary pNHA, Dunkettle Shore pNHA & Great Island Channel pNHA

Douglas River Estuary pNHA, Dunkettle Shore pNHA and Great Island Channel pNHA are located between 0.8-5km from the proposed Project.

There is no site synopsis available for Douglas River Estuary pNHA, Dunkettle Shore pNHA & Great Island Channel pNHA, however, these sites overlap with Cork Harbour SPA and Great Island Channel SAC. The impact assessment process undertaken in respect of Cork Harbour SPA and Great Island Channel SAC will, therefore, also serve to protect these designated conservation areas. As such potential impacts on these sites will not be discussed further in this EcIA report.

4.1.5 Glanmire Wood pNHA

Glanmire Wood pNHA occurs on the east bank of the Glashaboy River located 2.2km to the northeast of the proposed Project (see Figure 4.3).

The main habitat of interest is mixed broad-leaved woodlands dominated by oak (*Quercus* spp.), Beech (*Fagus sylvatica*) and Sycamore with a few conifers, especially European silver-fir (*Abies alba*). The ground flora is particularly rich and includes two grasses, Wood fescue (*Festuca altissima*) and Wood millet (*Milium effusum*), which are thought to indicate ancient woodland. More commonly occurring species include Primrose (*Primula vulgaris*), violets (*Viola riviniana*, *V. reichenbachiana*), Wood anemone (*Anemone nemorosa*) and Lords-and-ladies (*Arum maculatum*). The tidal river below the wood adds to the diversity of the site with patches of saltmarsh. The recent NHA survey indicates that no damaging activities occur within the wood at present. However, in the past the woodland has been much modified by planting and felling. This site is of interest because this type of woodland is rare in east Cork (NPWS, 2009).

Given the distance from the site, and the degree of separation provided by Lough Mahon, there is limited connectivity between the site and this designated conservation area. As such potential impacts on Glanmire Wood pNHA will not be discussed further in this EcIA report.

4.1.6 Rock Farm Quarry, Little Island pNHA

Rock Farm Quarry is located c.9km west of Cork City on the southern shore of Little Island in the River Lee estuary (see Figure 4.3) and 3.9km from the proposed Project.

It is underlain by limestone which is of Carboniferous age and was formed of a shell reef. There are a range of rock types in the area including fine-grained crinoidal limestone,

pseudobreccia, reef limestone and a conglomerate - the Cork marble. Formerly, the area was quarried for its limestone, but it is no longer actively quarried and a golf course occupies much of the site. This site's southern boundary is along the top edge of the quarries' rock cliffs.

The habitats within the site include unimproved lowland dry grassland, amenity grassland (golf course), scrub woodland and the exposed rock and spoil of quarries. On the floor of the quarries and around their edges, a rich calcareous flora has developed and within this small area (30ha) there is a considerable diversity of species.

The calcareous grassland species include grasses such as Red fescue, Quaking-grass (*Briza media*), Downy oat-grass (*Helictotrichon pubescens*) and a small annual species, Fern-grass (*Desmazeria rigida*). Crested dog's-tail (Cynosurus cristatus) is also frequently encountered. Some of the herbs present include Kidney vetch (*Anthyllus vulneraria*), Common knapweed (Centaurea nigra), Field scabious (*Knautia arvensis*), Oxeye daisy (*Leucanthemum vulgare*), Fairy flax (*Linum catharticum*), Common bird's-foot-trefoil (*Lotus corniculatus*) and Bulbous buttercup (*Ranunculus bulbosus*). The rock from the quarries also supports the growth of a distinct flora including species such as Round-leaved Crane's-bill (*Geranium rotundifolium*), Weld (*Reseda luteola*), Dwarf spurge (*Euphorbia exigua*) and Great mullein (*Verbascum thapsus*). Ferns noted in the area are Maidenhair spleenwort (*Asplenium trichomanes*) and Rustyback (*Ceterach officinarum*). There are small areas of scrub woodland, of Ash (*Fraxinus excelsior*) with non-native invasive species Traveller's-joy (*Clematis vitalba*) and Japanese Knotweed (*Fallopia japonica*). The proximity of the site to the sea also gives the site a maritime influence. The presence of White campion (Silene alba), Wild madder (*Rubia peregrina*) and Portland spurge (*Euphorbia portlandica*) are noted.

Many orchids are found in the site including the Early-purple orchid (*Orchis mascula*), Bee orchid (*Ophrys apifera*) and Dense-flowered orchid (*Neotinea maculata*), a species usually only found occasionally in the west and centre of Ireland. Also of note is a parasitic plant on Ivy, the Ivy broomrape (*Orobanche hederae*).

Although the present land use within the site would appear to maintain the sites interest, alteration or extension of the golfing activities may be potentially damaging to the site. It is suggested that no new areas of 'rough' should be taken into the golf course, heavy fertiliser application should be avoided, as should the dumping of mown grass on the dry calcareous grassland areas; extensive reseeding or top seeding of greens and trees with rye-grass mixtures would also be detrimental to the areas species composition and diversity.

The area is of considerable interest botanically because of its species diversity and the presence of 'rarities' for the region, such as Dense-flowered orchid and Portland spurge (NPWS, 2009).

Rock Farm Quarry, Little Island pNHA is located 3.9km from the proposed Project. Given the distance from the proposed Project, and the degree of separation provided by Lough Mahon, there is limited connectivity between the proposed housing development and this

designated conservation area. As such potential impacts on Rock Farm Quarry, Little Island pNHA will not be discussed further in this EcIA report.

Cork Lough pNHA

Cork Lough pNHA is a small spring fed freshwater lake located southwest of Cork City, 1km south of the River Lee and 4.9km from the proposed Project.

High numbers of birds, attracted by bread-feeding, have caused severe eutrophication at the lake. Non-native fish have also been released into the lake over the years. The lake regularly holds over 100 no. Mute Swans, a feral flock of over 30 no. Canada Geese and small numbers (usually under 50 no.) of Mallard, Teal, Tufted Duck and Coot. An increasing flock of wintering Lesser Black-backed Gulls also occurs (460+ in January 1995). The site is of local importance for its bird community (NPWS, 2009).

Given the distance from the proposed Project and the spring fed nature of the lake, there is limited connectivity between the proposed housing development, and this designated conservation area. As such potential impacts on Cork Lough pNHA will not be discussed further in this EcIA report.

4.1.7 Douglas Estuary Wildfowl Sanctuary

Douglas Estuary Wildfowl Sanctuary is located 0.8km from the proposed Project.

There is no site synopsis available in the published literature for Douglas Estuary Wildfowl Sanctuary, however, it overlaps with the site boundary of Cork Harbour SPA. The impact assessment process undertaken in respect of Cork Harbour SPA will, therefore, also serve to protect this designated conservation area. As such potential impacts on Douglas Estuary Wildfowl Sanctuary will not be discussed further in this EcIA report.

4.2 Mammals

Otter

There are 31 no. records of Otter with the NBDC on-line Database for the 10km grid square W77. Of these records there are 3 no. records for Otter along the tidal environment of the Lower River Lee approx. 0.6km to the north of the site.

Bats

The NBDC online database holds 2 no. records for Soprano pipistrelle and Leisler's bat roosts within a building on Beaumont Drive within the 1km grid square W7171 which overlaps with the site, and 4 no. roosts for Soprano pipistrelle, Pipistrelle, Leisler's bat and Common pipistrelle at an "undisclosed" location.

According to the Bat Landscape GIS Layer (Lundy *et al*., 2011) which examines the relative importance of the landscape, and habitat associations for bats across Ireland, the surrounding landscape has an overall moderate suitability index of 35.44; with 0 being least favourable and 100 most favourable for bats. The landscape was found to be most suitable for Brown long-eared bat (*Plecotus auratus*) followed by Leislers bat (*Nyctalus leisleri*), Soprano pipistrelle (*Pipistrellus pygmaeus*), Common pipistrelle (*Pipistrellus pipistrellus*), and Whiskered bat (*Myotis mystacinus*), amongst others.

Deer

There are no records for native Red deer (*Cervus elaphus*), while there are records for the non-native Sitka (*Cervus nippon*) and Fallow (*Dama dama*) deer species for the 10km grid square W77 in the NBDC online database.

Pine Marten

There are 3 no. records for Pine marten within the 10km grid square W77 in the NBDC online database including 1 no. record for Blackrock, 100m to the north of the site from 2021.

Red squirrel

There are no records for Eastern grey squirrel (*Sciurus carolinensis*) with the NBDC for the 10km grid square W77. There are many records for Red squirrel in W77, however, there are none within the 1km grid square W7171. Many of the records appear to be from woodland habitats located north of the River Lee and Lough Mahon.

Irish Hare, Irish Stoat, Badger, Hedgehog & Pygmy Shrew

The NBDC online database holds records for Irish hare, Irish stoat, Badger, Pygmy shrew, Hedgehog, and Wood mouse for W77.

4.3 Birds

The desktop study identified 66 no birds of note, of which 18 no. are primarily terrestrial based and 48 no. are typically aquatic/transitional/marine species; from the available literature and databases (NBDC online database and NPWS documentation) for the 5km Zone of Influence.

Of the 66 no. birds, 64 no. birds are known from the 10km grid square W77 in the NBDC online database.

35 no. of the 64 no. birds in W77 are BoCCI Red Listed, of which 7 No. bird species *i.e.,* Corncrake, Golden plover, Dunlin, Bar-tailed godwit, Curlew sandpiper and Balearic shearwater are also Annex I listed species (see Table 4.7).

A further 18 No. Annex I bird species, which are not BoCCI Red List species, were also identified from the NBDC online database and/or NPWS documentation for the designated conservation areas within the 5km Zone of Influence (see Table 4.7).

Of the 23 No. Special Conservation Interests for Cork Harbour SPA (see Table 4.5), there are four Annex I species Dunlin, Golden plover, Bar-tailed godwit and Common tern, all of which are BoCCI Red Listed with the exception of Common tern.

A further 7 no. Special Conservation Interests are BoCCI Red List species *i.e.*, Shoveler, Oystercatcher, Grey plover, Lapwing, Black-tailed godwit, Curlew, and Redshank. For further details on the Special Conservation Interests refer to Section 7.5.

There are records for Swifts and Herring gulls from the 1km grid square W77A which overlaps with the site from the 2007-2011 Bird Atlas. All bird species are protected under the Irish Wildlife Act 1976 (as amended in 2000).

Table 4.7 BoCCI Red List & Annex I Bird Species

Scientific Name	Common Nam	NBDC W77	@NPWS Docs	Red List	Annex I	SCI
Terrestrial Environment						
Barn owl	*Tyto alba*	✓	-	✓	-	-
Corncrake	*Crex crex*	✓	-	✓	✓	-
Yellowhammer	*Emberiza citronella*	✓	-	✓	-	-
Hen harrier	*Circus cyaneus*	✓	-	-	✓	-
Marsh harrier	*Circus aeruginosus*	✓	-	-	✓	-
Merlin	*Falco columbarius*	✓	-	-	✓	-
Peregrine	*Falco peregrinus*	✓	-	-	✓	-
Kestrel	*Falco tinnunculus*	✓	-	✓	-	-
Red kite	*Milvus milvus*	✓	-	✓	-	-
Short-eared owl	*Asio flammeus*	✓	-	-	✓	-
*Grey wagtail	*Motacilla cinerea*	✓	-	✓	-	-
Redwing	*Turdus iliacus*	✓	-	✓	-	-
Meadow pipit	*Anthus pratensis*	✓	-	✓	-	-
Stock Dove	*Columba oenas*	✓	-	✓	-	-
Swift	*Apus apus*	✓	-	✓	-	-
Twite	*Linaria flavirostris*	✓	-	✓	-	-
Woodcock	*Scolopax rusticola*	✓	-	✓	-	-
Chough	*Pyrrhocorax pyrrhocora*	✓	-	-	✓	-
Aquatic & Estuatine/Marine Environment						
Little grebe	*Tachybaptus ruficollis*	✓	✓	-	-	✓
Great crested grebe	*Podiceps cristatus*	✓	✓	-	-	✓
Black-necked grebe	*Podiceps nigricollis*	✓	-	✓	-	-
Ruff	*Calidris pugnax*	✓	-	-	✓	-
Common scoter	*Melanitta nigra*	✓	-	✓	-	-
Cormorant	*Phalacrocorax carbo*	✓	✓	-	-	✓

Scientific Name	Common Nam	NBDC W77	@NPWS Docs	Red List	Annex I	SCI
Grey heron	*Ardea cinerea*	✓	✓	-	-	✓
Shelduck	*Tadorna tadorna*	✓	✓	-	-	✓
Wigeon	*Anas penelope*	✓	✓	-	-	✓
Teal	*Anas crecca*	✓	✓	-	-	✓
Pintail	*Anas acuta*	-	✓	-	-	✓
Shoveler	*Anas clypeata*	✓	✓	✓	-	✓
Red-breasted merganser	*Mergus serrator*	✓	✓	-	-	✓
Oystercatcher	*Haematopus ostralegus*	✓	✓	✓	-	✓
Golden plover	*Pluvialis apricaria*	✓	✓	✓	✓	✓
Grey plover	*Pluvialis squatarola*	✓	✓	✓	-	✓
Lapwing	*Vanellus vanellus*	✓	✓	✓	-	✓
Dunlin	*Calidris alpina alpina*	✓	✓	✓	✓	✓
Snipe	*Gallinago gallinago*	✓	-	✓	-	-
Black-tailed godwit	*Limosa limosa*	✓	✓	✓	-	✓
Bar-tailed godwit	*Limosa lapponica*	✓	✓	✓	✓	✓
Goldeneye	*Bucephala clangula*	✓	-	✓	-	-
Long-tailed Duck	Clangula hyemalis	✓	-	✓	-	-
Pochard	*Aythya ferina*	✓	-	✓	-	-
Scaup	*Aythya marila*	✓	-	✓	-	-
Curlew	*Numenius arquata*	✓	✓	✓	-	✓
Curlew sandpiper	*Calidris ferruginea*	✓	-	✓	✓	-
Wood sandpiper	*Tringa glareola*	✓	-	-	✓	-
Redshank	*Tringa totanus*	✓	✓	✓	-	✓
Black-headed gull	*Chroicocephalus ridibundus*	✓	✓	-	-	✓
Common gull	*Larus canus*	-	✓	-	-	✓
Lesser black-backed gull	*Larus fuscus*	✓	✓	-	-	✓

Scientific Name	Common Nam	NBDC W77	@NPWS Docs	Red List	Annex I	SCI
Common tern	*Sterna hirundo*	✓	✓	-	✓	✓
Arctic tern	*Sterna paradisae*	✓	-	-	✓	-
Little tern	*Sternula albifrons*	✓	-	-	✓	-
Sandwich tern	*Thalasseus sandvicensis*	✓	-	-	✓	-
Kittiwake	*Rissa tridactyla*	✓	-	✓	-	-
Balearic shearwater	*Puffinus mauretanicus*	✓	-	✓	✓	-
Grey wagtail	*Motacilla cinerea*	✓	-	✓	-	-
Kingfisher	*Alcedo atthis*	✓	-	-	✓	-
Little egret	*Egretta garzetta*	✓	✓	-	✓	-
Herring gull	*Larus argentatus*	✓	-	✓	-	-
Whooper swan	*Cygnus cygnus*	✓	✓	-	✓	-
Great northern diver	*Gavia immer*	✓	-	-	✓	-
Knot	*Calidris canutus*	✓	-	✓	-	-
Little gull	*Larus minutus*	✓	-	-	✓	-
Mediterranean gull	*Larus melanocephalus*	✓	✓	-	✓	-
Red-throated diver	*Gavia stellata*	✓	-	-	✓	-

* Terrestrial species associated with the aquatic environment

@ = Annex I, BoCCI Red List species and large numbers of birds as per NPWS Site Synopsis, Natura 2000 Standard Data Form and Conservation Objectives for the Cork Harbour SPA

4.4 Fish

The Annex II and V species Atlantic salmon (*Salmo salar*) and Annex II species Sea lamprey (*Petromyzon marinus*) occur in Cork Harbour.

The European eel has a 'protected' status under the European Eel Regulation EC No. 1100/2007 to facilitate the recovery of eel stocks since the large decline in the 1980's. European Eel does not spawn in freshwater; they utilise river networks for feeding/adult holding habitat and as a migration route to the Sargasso Sea. European eel migrates from freshwater habitats in the River Lee catchment into the transitional/estuarine/marine environment of tidal River Lee/Tramore River/Lough Mahon/Cork Harbour enroute to the Sargasso Sea.

Atlantic salmon are classified as 'Vulnerable', Sea Lamprey as "Near Threatened", and European eel as 'Critically Endangered' on the Ireland Red List No. 5: Amphibians, Reptiles

& Freshwater Fish (King *et al*., 2011).

A fish stock survey CRFB (2008) *Sampling fish for the Water Framework Directive for Transitional Waters 2008* recorded a total of 13 no. fish species within the estuarine environment of Lough Mahin via fyke and seine netting. A low species diversity was recorded across the 9 no. sampling points. The most commonly occurring species were Sprat (*Sprattus sprattus*), Thick lipped grey mullet (*Chelon labrosus*) and Common goby (*Pomatoschistus microps*). Other native fish estuarine fish are also likely to occur. Legal protection is afforded to fish species under the Fisheries Acts 1959 to 2006.

4.5 Amphibians & Reptiles

There are records for Common frog (*Rana temporaria),* Smooth newt (*Lissotriton vulgaris*) and Common lizard (*Zootoca vivipara*) in the NBDC online database for the 10km grid square W77.

4.6 Invertebrates

There are 32 no. threatened or protected invertebrate species in the NBDC online database for W77.

The NBDC online database confirms that there are records for the 'Vulnerable' Annex II listed Marsh fritillary for W77 pre-dating 1990. No records of Marsh Fritillary were found on the Butterfly Ireland Butterfly Distribution Maps 2010-2014 or the Butterfly Conservation Ireland website for Mahon/Blackrock (see Table 4.8).

Table 4.8 Records for Rare, Threatened and Legally Protected Invertebrates

Scientific Name	Common Name	Last Record	Database	Status
Butterflies & Moths				
Argynnis aglaja	Dark green fritillary	22/06/1975	NBDC	VU
Pyronia tithonus	Gatekeeper	18/08/2020		NT
Hipparchia semele	Grayling	30/07/1989		NT
Euphydryas aurinia	Marsh fritillary	31/12/1990		II, VU
Cupido minimus	Small blue	30/11/1976		EN
Coenonympha pamphilus	Small heath	02/07/2020		NT
Lasiommata megera	Wall	22/05/2010		EN
Lacanobia suasa	Dog's tooth	10/08/2020		NT
Amphipyra tragopoginis	Mouse moth	24/08/2001		NT
Eupithecia simpliciata	Plain Pug	28/06/2010		VU
Lenisa geminipuncta	Twin-spotted Wainscot	13/08/1991		VU
Camptogramma bilineata	Yellow shell	02/08/2023		NT

Scientific Name	Common Name	Last Record	Database	Status
Bees				
Nomada striata	Blunt-jawed nomad bee	20/05/2010	NBDC	EN
Halictus tumulorum	Bronze furrow bee	29/07/2025		NT
Andrena nigroaenea	Buffish mining bee	08/04/2017		VU
Andrena denticulata	Grey-banded mining bee	22/07/2024		VU
Bombus bohemicus	Gipsy cuckoo bee	14/04/2015		NT
Bombus rupestris	Red-tailed (Hill) Cuckoo Bee	16/07/2014		EN
Bombus lapidarius	Large red tailed bumble bee	20/06/2024		NT
Non-marine Molluscs				
Limax cinereoniger	Ash-black slug	11/07/2000	NBDC	VU
Cecilioides (Cecilioides) acicula	Blind snail	15/07/2000		VU
Zenobiellina subrufescens	Brown snail	30/07/2005		VU
Vertigo (Vertigo) ygmaea	Common whorl snail	08/08/1971		NT
Leiostyla (Leiostyla) anglica	English chrysalis snail	30/07/2025		VU
Helicella itala	Heath snail	31/12/1940		VU
Spermodea lamellata	Plated snail	31/12/1940		EN
Acicula fusca	Point snail	25/01/2002		VU
Acanthinula aculeata	Prickly snail	31/12/1940		NT
Ashfordia granulata	Silky snail	26/11/2008		NT
Vallonia pulchella	Smooth grass snail	31/12/1940		VU
Vertigo (Vertigo) substriata	Striated whorl snail	31/12/1940		NT
Balea (Balea) perversa	Tree snail	31/12/1940		VU

White-clawed Crayfish

White-clawed crayfish, an Annex II and V species, are found in streams, rivers, and lakes particularly in those with a calcareous influence. The species prefers a pH above 7 and calcium levels of a minimum 5mg/l (www.nbdc.ie). There are no records for White-clawed

Crayfish with the NBDC online database for W77.

4.7 Flora

A total of 7 no. rare plant species were identified during the desktop study for the 10km grid square W77 (see Table 4.9). Meadow barley (*Hordeum secalinum*) and Chives (*Allium schoenoprasum*) are assessed as "Vulnerable" and are listed under the Flora Protection Order (FPO) 2022, while Little-robin, Common toadflax (*Linaria vulgaris*), Milk thistle (*Silybum marianum*), Pale flax (*Linum bienne*) and Corn marigold (*Glebionis segetum*) are all assessed as "Near Threatened", on the Ireland Red List No. 10: Vascular Plants (Wyse Jackson *et al*., 2016). All seven are listed for the 10km grid square W77 in the NBDC online database.

Meadow barley

Meadow barley (*Hordeum secalinum*) is a perennial herb of lowland damp meadows, pastures and roadsides, often in river valley floodplains and showing a strong preference for sticky clay soils. In coastal areas it is frequently abundant in grazing marsh grasslands and on earthen sea walls (https://plantatlas.brc.ac.uk/plant/hordeum-secalinum). In Ireland it occurs on damp grassland associated with heavy alluvial soils of large rivers such as the Shannon and the Suir. It is a slender erect perennial grass which grows to 30 to 60cm high with narrow (to 5 mm) flat roughish leaves. The flower spikes are slender 2.5 to 5 cm long sometimes flushed purple. The glumes are bristle like and rough. It flowers in June and July. In terms of distribution, it has a European temperate element. It is vulnerable to drainage, re-seeding and the conversion of grassland to arable. It can, however, withstand modest improvement. Its overall distribution is stable in Ireland (https://plantatlas.brc.ac.uk/plant/hordeum-secalinum). There are 3 no records for the 10km grid square W77 from 1845 and 1894 held by the NBDC online database at Brickfields, Little Island Marsh and Cork Harbour.

Chives

A bulbous perennial herb found as a native in a range of lowland habitats, usually on thin soils over limestone, serpentine and basic igneous rocks; it sometimes grows in rank grass on deeper soils, and in crevices of riverside bedrock.

Little-robin

Little-robin is an upright annual of lowland stony or rocky places near the sea, on sheltered cliffs, disused railway lines, and particularly by roads and fields on the earth-and-stone sides of hedges (https://plantatlas.brc.ac.uk/plant/geranium-purpureum).

In terms of distribution, it has a Mediterranean-Atlantic element. It can be found in Europe, the Mediterranean basin, Northern Africa, and Western Asia. In terms of its native range in Ireland, Little-robin has a southern distribution. It is known from walls and waste ground in Cork City and coastal areas in Dungarvan Co Waterford.

Table 4.9 Records for Rare, Threatened or Protected Flora, Bryophytes & Lichen

Scientific Name	Common Name	@NPWS Docs	Latest Record	NBDC W77	BSBI Atlas W77	Annex II or V	Red List	FPO 2022
Terrestrial Environment								
Allium schoenoprasum	Chives	-	2012	✓	%	-	VU	✓
Linaria vulgaris	Common toadflax	-	2023	✓	✓	-	NT	-
Glebionis segetum	Corn marigold	-	2025	✓	✓	-	NT	-
Geranium purpureum	Little-robin	-	2017	✓	-	-	NT	-
Hordeum secalinum	Meadow barley	-	1894	✓	+	-	VU	✓
Silybum marianum	Milk thistle	-	2010	✓	✓	-	NT	-
Linum bienne	Pale flax	-	2023	✓	✓	-	NT	-
Encalypta vulgaris	Common Extinguisher-moss	-	1845	✓	N/A	-	NT	-
Tortula lanceola	Lance-leaved pottia	-	1845	✓	N/A	-	NT	-
Dicranella cerviculata	Red-neck forklet-moss	-	1845	✓	N/A	-	NT	-
Tortula wilsonii	Wilson's pottia	-	1872	✓	N/A	-	CE	-

NT = Near Threatened, Vu = Vulnerable, En = Endangered, WL = Waiting list as per the Ireland Red List No. 10 Vascular Plants

@ = NPWS Site Synopsis, Natura 2000 Standard Data Form and Conservation Objectives for the Designated Conservation Areas

% = Plant species recorded 2020 onwards

$ = Plant species recorded in the 2010-2019 BSBI Atlas

^ = Plant species recorded in the 2000-2009 BSBI Atlas

+ = Plant species recorded in the 1987-1999 BSBI Atlas
** = Plant species recorded in the 1970-1986 BSBI Atlas*
§ = Pre-1970 BSBI Atlas
 # = Historic record pre 1932 in the NPWS Rare & Protected Species Database
- = Plant species not recorded or listed

4.8 Bryophytes & Lichens

There are records for 4 no. protected, rare or threatened bryophytes and lichens in the NBDC online database (see Table 4.6). The "Near Threatened" Common extinguisher-moss (*Encalypta vulgaris*) at Blackrock (1845), and Red-neck forklet-moss from 3m NE of Rathcooney (1845), and Lance-leaved pottia (*Tortula lanceola*) at Glanmire (1845) and the "Critically Endangered" Wilson's pottia (*Tortula wilsonii*) at Little Island (1872).

Common extinguisher-moss is typically found on exposed calcareous rocks, walls, and dry banks. According to Bryological Society Key 258 is favours base-rich substrates generally, and tends to be a lowland species. There are no records for Mahon and Blackrock and the wider study area on the Bryophyte Flora Protection Order Map Viewer for this species.

4.9 Results of the Consultation Process

The botanical walkover survey of the site of the proposed housing development, and relevant adjacent lands, was undertaken by Paul Green BSBI Vice County Recorder for Waterford and Wexford; therefore, no other consultation was sought with the BSBI.

Given the suburban context and types of habitats present within the site, no other consultation was sought.

5.0 Description of the Receiving Environment

Detailed descriptions of the ecological resources including habitats and species recorded during the field surveys of the site of the proposed housing development, are described in the following sections with cross references to the data gleaned from the desktop survey (see Section 4.1-4.8) and the consultation process (see Section 4.9), where relevant.

Eleven ecological resources were recorded during field surveys within the study area or noted during the desktop study as being present within the wider study area (see Tables 5.1-5.2; Figures 5.1-5.2). A total of eight terrestrial habitats and four taxon groups or species were identified, while three aquatic/estuarine/marine habitats were identified.

Details are presented in the following sections (6.0 and 7.0) for each of the 11 no. ecological resources, followed by a summary table which identifies the ecological value, relevant legislation (if any), links to [3]Annex listed habitats or species and location within the works areas, temporary storage areas, access routes or the wider study area. Table 8.1 confirms the value of the ecological resource, its presence within the Zone of Influence and if it is likely to be impacted by the proposed Project *i.e.,* if it constitutes a Key Ecological Receptor.

Table 5.1 Terrestrial Ecological Resources Recorded

	Habitat Types	Code
6.0	**Terrestrial Environment**	
	Habitats	
6.1	Buildings & artificial surfaces and Spoil & bare ground	BL3/ED2
6.2	Amenity grassland/Scattered trees & Parkland	GA2/WD5
6.3	Scrub	WS1
6.4	Ornamental/non-native shrubs	WS3
	Taxon Groups/Species	
6.5	Mammals	
6.6	Birds	
6.7	Invertebrates	
6.8	Flora	

[3] Annex listed habitats or species *i.e.,* Annex I habitats, Annex II, IV and V plant and animal species and Annex I bird species protected under the EU Habitats and EU Birds Directives (see Sections 3.6 & 3.7).

Table 5.2 Transitional Environment Resources Recorded

	Habitat Types	Code
7.0	**Aquatic & Estuarine/Marine Environment**	
	Habitats	
7.1	Tidal River, Estuaries & Sea Inlets & Bays	CW2/MW2/MW4
7.2	Mammals	
7.3	Birds	
7.4	Fish	
7.5	Amphibians	
7.6	Invertebrates	
7.7	Flora	

6.0 Terrestrial Environment

The site of the proposed housing development is dominated by Buildings & artificial surfaces (BL3), Amenity grassland (GA2), Scattered trees and parkland (WD5), Ornamental/non-native shrubs (WS3) & Herbs/Forbs and Scrub (WS1) habitat.

Photograph 6.1 Buildings & artificial surfaces (BL3)

6.1 Buildings & artificial surfaces (BL3) and Spoil & bare ground (ED2)

The temporary car park established along the northern boundary, of the site, to facilitate the construction of the adjacent residential development, has a finished surface of imported stone fill material which is categorised as Buildings & artificial surfaces (BL3). One individual Sycamore tree remains within the temporary car park which supports an active corvid bird nest (see Photograph 6.1).

Ecological Value	Any protection status (or EU Annex listed)	Location	Ecological Receptor
Negligible	None	Within the site and wider study area	No

Photograph 6.2 Buildings & artificial surfaces (BL3)

6.2 Amenity grassland (GA2)/Scattered trees & Parkland (WD5)

Intensively managed grassland, categorised as Amenity grassland (GA2), dominates the site forming parkland with a few scattered native and non-native trees. Despite intensive management in the form of mowing, a moderate diversity of forbs was recorded from the grassland habitat, however, due to regular maintenance the grassland has limited potential to support large numbers of pollinators (see Photograph 6.2).

The amenity grassland is dominated by Creeping bent (*Agrostis stolonifera*), Sweet vernal-grass (*Anthoxanthum odoratum*), Yorkshire-fog (*Holcus lanatus*) and Perennial rye-grass (*Lolium perenne*). Red Fescue was localised. Forbs included Daisy (*Bellis perennis*), Ribwort plantain (*Plantago lanceolata*), Dandelion (*Teraxacum* sp.), Common mouse-ear (*Cerastium fontanum*), Cat's-ear (*Hypochaeris radicata*), White clover (*Trifolium repens*), Red clover (*Trifolium pratense*), Thyme-leaved speedwell (*Veronica serpyllifolia*), and Self-heal (*Prunella vulgaris*). Rank (less frequently mown) grassland is present along the margins of the site (see Appendix II for full Botanical List).

A number of native Hawthorn (*Crataegus monogyna*) and Ash (*Fraxinus excelsior*) trees (<6 no.), and non-native invasive Sycamore trees (<2 no.) with some Ivy cover are present within the site. The Ash trees within the site appear to be suffering from Ash Dieback. Ash Dieback is a highly destructive chronic and sometimes lethal invasive alien fungal disease of ash trees, especially the native ash species, Common ash (*Fraxinus excelsior*), caused by a fungus named *Hymenoscyphus fraxineus* which is of eastern Asian

origin. A planted row of non-native standard Lime (*Tilia cordata*) trees is located in the immediate roadside verge along Blackrock Avenue.

6.3 Ornamental/non-native shrubs (WS3) & Herbs/Forbs

Of the non-native species recorded within the site, the following 5 no. species are considered invasive or have potential invasive qualities: Buddleia (*Buddleia davidii*), Sycamore (*Acer pseudoplatanus),* Travelers' joy (*Clematis vitalba*), Montbretia (*Crocosmia* x *crocosmiiflora*), and Winter heliotrope (*Petasites fragrans*). Three-cornered garlic was recorded just outside of the site along the southern stonewall boundary of Mahon Boreen Pathway (see Photograph 6.3).

None of the species recorded are regulated by European legislation i.e., the EU Regulation on Invasive Alien Species 1143/2014 on the prevention and management of the introduction and spread of invasive alien species. Some of the core provisions of EU Regulation 1143/2014 deal with among other things, bringing into the territory of the Union, keeping, breeding, transporting, and placing on the market, the 49 no. species included on the list of invasive alien species of Union Concern (*i.e.,* the 'Union list').

Photograph 6.3 Three-cornered garlic adjacent to the site

In terms of national legislation, Three-cornered garlic is only species recorded which is listed amongst 57 no. plants under the First Schedule: Part 1 of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024).

Plants listed under the First Schedule: Part 1 Plants and Second Schedule: Vector Materials

are subject to restrictions under Regulations (17)1. Under Regulation 17(1) it is illegal to keep, permit to reproduce, grow or cultivate, release into the environment or place invasive species on the market. A 'Regulation 10 permit' is required from NPWS to carry out research on, or *ex-situ* conservation on invasive species.

Of the species recorded, Three-cornered garlic is also the only species regulated amongst 35 no. plant species under the Third Schedule: Part 1 of the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015. Plants listed under the Third Schedule: Part 1: Plants and Part 3: Vector Materials are subject to restrictions under Regulations 49 and 50. Regulation 49 deals with the 'Prohibition on introduction and dispersal' while Regulation 50 deals with the 'Prohibition on dealing with and keeping certain species'. Regulation 50 which prohibits the sale of invasive species has yet to be enacted into Irish law. A license is required from NPWS under Regulation 49(2) to transport vector material off a site (for the purposes of eradication via disposal at a receiving facility). A Waste License is also required under the Waste Management (Licensing) Regulations 2004 from the EPA to bury soil contaminated with vector material within a site.

Buddleia davidii is included on the European and Mediterranean Plant Protection Organisation (EPPO) List of Invasive Alien Plants. The EPPO strongly recommends that countries which are endangered by listed species take measures to prevent their introduction and spread or manage unwanted populations.

Three-cornered garlic is categorised as a 'High Impact' invasive species by the Irish National Biodiversity Data Centre (NBDC), while Sycamore, Traveller's joy, and Buddleia are considered 'Medium Impact' species. Montbretia and Winter heliotrope are deemed to be at a 'Low Risk' of impact by the NBDC.

Buddleia, Travelers' joy, Montbretia, and Winter heliotrope are included (or referenced) in the TII/NRA/TII '*Guidelines on the Management of Noxious Weeds and Non-native Species on National Roads'* (TII/TII/NRA, 2010) as these species have been shown to have an adverse impact on landscape quality, native biodiversity or infrastructure. Three-cornered garlic, along with the aforementioned species, are also included in the TII publication on '*The Management of Invasive Alien Plant Species on National Roads – Technical Guidance*' (TII, 2020).

Ecological value	Any protection status (or EU Annex listed)	Location	Ecological Receptor
Negligible	None	Within the site and wider study area	No

6.4 Scrub (WS1)

The Scrub (WS1) habitat within the site is dominated by Gorse (*Ulex europaeus*), and Hawthorn (*Crataegus monogyna*), and the non-native species Red-osier dogwood (*Cornus sericea*) with a climbing layer of Bramble (*Rubus fruticosus* agg.), Atlantic ivy (*Hedera hibernica*), and the non-native invasive species Traveler's joy (*Clematis vitalba*). The understorey consists of Hogweed (*Heracleum sphondylium*), Soft Shield-fern (*Polystichum*

setiferum), and Lords-and-Ladies (*Arum maculatum*). Elder (*Sambucus nigra*) was also recorded within the site.

Patches of Scrub (WS1) dominated by Gorse delineates the western boundary with the adjacent Passage Railway Greenway.

Ecological value	Any protection status (or EU Annex listed)	Location	Ecological Receptor
Higher Value Local Importance	None	On the southern and western boundaries within the site and wider study area	Yes

6.5 Urban Ecological Corridor

The Passage Railway Greenway is a 5km flat, off-road recreational and commuting trail which commences in Cork City at Harty's Quay and terminates at Passage West in Count Cork. It is built on the old Cork City to Passage West Railway Line. It is a popular route running along the south banks of the River Lee, frequently used by walkers, runners, and cyclists.

The urban ecological corridor of the Passage Railway Greenway is likely to provide nesting/roosting/foraging and a commuting route for bats, passerine birds, Hedgehog, Pygmy shrew, and Wood mouse. Of note is an individual record of a Pine marten sighting from 2021, 100m to the north of the site. Urban Foxes (*Vulpes vulpes*) are also likely to occur.

The urban corridor links habitats within the suburbs of Cork City with semi-natural habitats in the wider study area including Hedgerows (WL1), Tree-lines (WL2), Scrub (WS1), grasslands, woodlands, Depositing lowland rivers (FW2), Tidal river (CW2) and Estuaries (MW4) *etc*.

Ecological Value	Any protection status (or EU Annex listed)	Location	Ecological Receptor
High Value Local Importance to County Importance	Article 10	Urban corridor located adjacent to the western boundary of the site	Yes

6.6 Mammals

Vegetation on the urban corridor of the adjacent Passage Railway Greenway and Mahon Boreen Pathway, along with mature trees, hedgerow/tree-line corridors, grass, scrub, woodland and built structures, in the wider study area, are likely to support foraging/commuting/roosting habitat for bats and small non-volant mammals.

Photograph 6.4 Scrub habitat along the escarpment on the southern boundary

According to the Bat Landscape GIS Layer (Lundy *et al*., 2011), the surrounding landscape has an overall moderate suitability index of 35.44. The landscape was found to be most suitable for Brown long-eared bat (*Plecotus auratus*) followed by Leislers bat (*Nyctalus leisleri*), Soprano pipistrelle (*Pipistrellus pygmaeus*), Common pipistrelle (*Pipistrellus pipistrellus*), and Whiskered bat (*Myotis mystacinus*), amongst others. The NBDC online database holds 2 no. records for Soprano pipistrelle and Leisler's bat roosts within a building on Beaumont Drive within the 1km grid square W7171 which overlaps with the site, and 4 no. roosts for Soprano pipistrelle, Pipistrelle, Leisler's bat and Common pipistrelle at an "undisclosed" location.

Trees within the site were found to display limited Potential Roost Features (PRFs) as per Collins (2016). Further bat survey work will be undertaken on completion of the Arboricultural Impact Assessment (AIA) and the micro-siting process by the Arborist.

Under the precautionary principle, there is a low potential for breeding or resting site(s) for Pygmy shrew within the scrub habitat on the southern and western boundaries of the site. However, the exact location, number of individuals or territories cannot be determined (see Section 3.10.5).

There is potential for Wood mouse, Pygmy shrew, Hedgehog, Pine marten, and urban Fox to utilise the adjacent Passage Railway Greenway (see Section 6.5).

Within the wider study area, potential breeding or resting site(s) for Hedgehog and larger mammals such as Irish stoat, Badger, Irish hare, Red squirrel and Pine marten are also

assumed to be present.

Ecological Value	Any protection status (or EU Annex listed)	Location	Ecological Receptor
National to International Importance	All bat species are listed on Annex IV; Lesser Horseshoe Bat is also listed on Annex II; and the Bonn Convention. All bat species are afforded protection under the Irish Wildlife Act 1976 (as amended in 2000)	Bats will utilise the ecological corridors such as hedgerows/tree-lines within the wider study area for roosting/ commuting/foraging	Yes
County Importance		Urban corridor located adjacent to the western boundary of the site	Yes
High Value Local Importance		Limited potential within the site	Yes
Higher Value Local Importance	Wood mouse, Hedgehog, and Pine marten are afforded protection under the Irish Wildlife Act 1976 (as amended in 2000)	Urban corridor located adjacent to the western boundary of the site and wider landscape	Yes
Higher Value Local Importance	Pygmy shrew is afforded protection under the Irish Wildlife Act 1976 (as amended in 2000)	Under the precautionary principle, there is potential for this species within the site, in the adjacent urban corridor and wider landscape	Yes
Lower Value Local Importance	Foxes are not afforded any legal protection in Ireland, with the exception of animal cruelty legislation.	Urban corridor located adjacent to the western boundary of the site and wider landscape	No

6.7 Birds

The desktop study identified 18 no. terrestrial based birds for the 5km Zone of Influence.

All 18 no. terrestrial birds are known from the 10km grid square W77 in the NBDC online database.

According to the NBDC, there are records for 7 No. Annex I and 12 No. BoCCI Red List terrestrial bird species.

Suitable habitat for BoCCI Red list or Annex I terrestrial birds was not recorded within the site, with the exception of potential aerial foraging habitat for Swifts. There are records

for Swifts from the 1km grid square W77A which overlaps with the site from the 2007-2011 Bird Atlas.

Table 6.1 Terrestrial Bird Species Recorded within the Study Site

Species	BoCCI
Blackbird (*Turdus merula*)	Green List
Hooded crow (*Corvus corone cornix*)	Green List
Robin (*Erithacus rubecula*)	Green List
Woodpigeon (*Columba palumbus*)	Green List
Jackdaw (*Corvus monedula)*	Green List
Great tit (*Parus major*)	Green List

Traditionally coastal, the BoCCI Red List Herring gull has adapted to urban and suburban environments. These opportunistic birds now frequently nest on urban rooftops and scavenge in parks or are deliberately fed (see Section 7.3). Suitable scavenging habitat for this species is present within and adjacent to the site.

The terrestrial birds recorded within the study area of the proposed site are typical hedgerow/woodland edge and urban adapted species. No BOCCI Red List or Annex I bird species were recorded (see Table 6.1).

Ecological Value	*Any protection status (or EU Annex listed)	Location	Ecological Receptor
International	Annex I species	Hedgerows, ruined buildings, barns/sheds, arable crops, conifer plantations, upland grasslands, cliffs *etc.* within the wider study area	No
National Importance to International	BoCCI Red List birds (General)		
	Swift (BoCCI Red Listed bird)	Potential aerial foraging habitat for Swifts above the site and surrounding suburban environment	Yes
Higher Value Local Importance to	Passerine birds typical of suburban environments	Limited potential nesting/foraging scrub habitat within	Yes

Ecological Value	*Any protection status (or EU Annex listed)	Location	Ecological Receptor
County Importance		the site.	
		Urban corridor adjacent to the western boundary of the site and wider study area	Yes
Higher Value Local Importance to County Importance	Other terrestrial birds	Semi-natural native woodland, scrub, hedgerows, tree-lines, buildings *etc.*, in the wider study area	Yes

* All bird species are afforded protection under the Irish Wildlife Act 1976 (as amended in 2000).

6.8 Reptiles

Common lizard was not recorded during the field survey. Suitable habitat for Common lizard is not present within the site. Common lizards are likely to occur within the wider study area.

Ecological Value	Any protection status (or EU Annex listed)	Location	Ecological Receptor
Higher Value Local Importance	Common lizard is protected under the Irish Wildlife Act 1976 (as amended in 2000)	Limited potential for this species within the site	No

6.9 Invertebrates

While there are historic records for the Marsh fritillary butterfly from the 10km grid square W77, and records for 32 no. threatened or protected invertebrate species in the NBDC online database for the 2km grid square W77A, the terrestrial habitats within the site were not found to support features of entomological importance such as habitats of interest, host or food plants of Marsh fritillary or other specialist species. The dominance of intensively managed grassland has reduced the overall potential for rare invertebrate species. Due to regular maintenance, in the form of mowing, the grassland has limited potential to support large numbers of pollinators.

Ecological Value	Any protection status (or EU Annex listed)e	Location	Ecological Receptor
Lower Value Local Importance	None	Limited potential within the site	No

6.10 Flora

None of the rare, threatened or protected terrestrial flora species identified during the desktop study (see Table 4.9) were recorded during the botanical survey (see Appendix II for full botanical list).

Suitable habitat for any of the rare, threatened or protected terrestrial flora species identified during the desktop study was not recorded during the walkover survey.

The site of the proposed housing development is dominated by Buildings & artificial surfaces (BL3), Amenity grassland (GA2), Scattered trees and parkland (WD5), Ornamental/non-native shrubs (WS3) & Herbs/Forbs and Scrub (WS1) habitat.

Intensively managed grassland categorised as Amenity grassland (GA2) dominates the site along with scattered native and non-native trees. Despite intensive management in the form of mowing, a moderate diversity of forbs was recorded from the grassland habitat (see Section 6.2). Rank grassland is present along the margins of the site.

There is potential for the "Near Threatened" Little-robin as per Ireland Red List No. 10: Vascular Plants on the southern stone masonry boundary wall of the site. Further survey work is required during the optimum (flowering) period (May to September) to confirm the presence/absence of this species.

A number of native Hawthorn (*Crataegus monogyna*) trees and Ash (*Fraxinus excelsior*) (<6 no.), and non-native invasive Sycamore (*Acer pseudoplatanus*) trees (<2 no.) are present within the site.

Several invasive and potentially invasive non-native species were recorded within the site. However, the only 'regulated' species identified was Three-cornered garlic (*Allium triquetrum*), which was recorded outside the site along the southern stone wall boundary of Mahon Boreen Pathway. Three-cornered garlic is 'regulated' by National Legislation i.e. First Schedule: Part 1 of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024) and Third Schedule: Part 1 of the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.

The site of the proposed housing development is dominated by habitats of relatively low ecological value due to disturbance, with the exception of the Scrub (WS1) habitat on the southern boundary which is considered to be of High Value Local Importance within the contextual framework of a suburban environment.

Ecological Value	Legislation, Annex Listing under EU Directive	Location	Ecological Receptor
National Importance	Meadow barley and Chives are protected under the Flora Protection Order 2022	Not recorded within the site during the botanical survey	No
Regional/ County Importance	Common toadflax, Milk thistle, Pale flax and Corn marigold considered "Near Threatened" species on	Not recorded within the site during the botanical survey	No

	Ireland Red List No. 10: Vascular Plants are not afforded any protection		
Regional Importance	Little-robin considered a "Near Threatened" species on Ireland Red List No. 10: Vascular Plants is not afforded any protection	Suitable habitat is present along the southern stone masonry wall boundary of site	Yes
Lower Value Local Importance	Local flora is not afforded any protection	Within the site	No

7.0 Aquatic, Estuarine/Marine Environments

The site at its closest point is located 0.6km from the lower River Lee transitional waterbody, 1km from the lower Tramore River transitional waterbody, 1.1km from estuarine waterbody of Lough Mahon and 7.4km from the coastal waterbody of Cork Harbour.

Cork Harbour SPA and Great Island Channel SAC are located 1.1km and 5km from the site, while Douglas River Estuary pNHA is located 1.1km from the site.

7.1 Tidal River (CW2), Estuaries (MW4) and Sea Inlets & Bays (MW2)

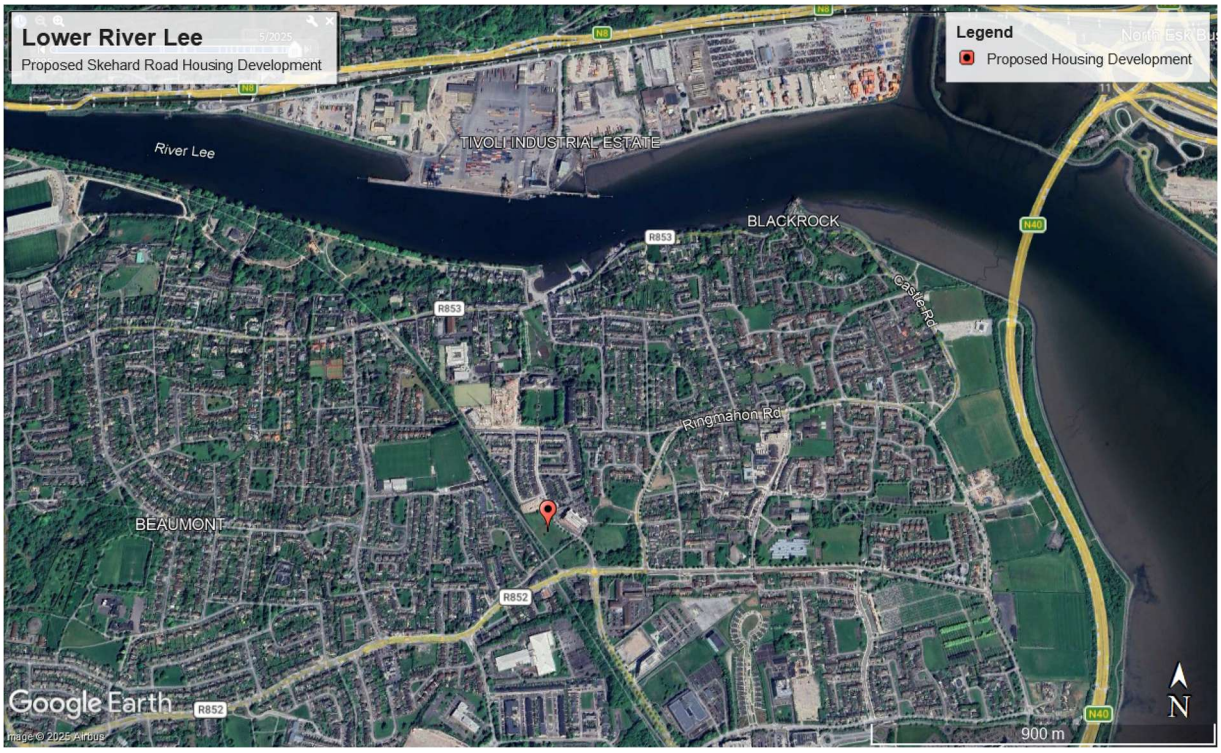

Figure 7.1 Lower River Lee to the north and east of the site

The site is located within Hydrometric Area 19, Water Framework Directive (WFD) Lee, Cork Harbour and Youghal Bay, Subcatchment Glasheen[Corkcity]_SC_010 and WFD River Sub Basin, GLASHEEN (Cork City)_010 and CURRAGHEEN (Cork City)_010.

River Lee

The River Lee is a large 90km long depositional river with a catchment in the order of 1,253km^2. It rises in the Shehy Mountains near Gougane Bara on the western border of Co. Cork with Kerry and flows eastwards through Cork city, where it splits in two for a short distance, creating an island on which Cork's city centre is built after which it passes through Cork Harbour before entering the Celtic Sea. The River Lee becomes a transitional waterbody or Tidal river (CW2) at the 'Salmon Weir' i.e., Lee (Cork) Estuary Lower (IE_ SW_060_0900).

Land use along the lower River Lee includes urban and suburban areas, industrial zones, recreational areas, agricultural activities, and woodland. A hydroelectric reservoir is

present at Inniscarra. The lower reaches are designated as Cork Harbour SPA and Douglas River Estuary pNHA.

Douglas River

The Douglas River or Ballybrack Stream is a small 2.3km long depositional river that rises in Castletreasure and flows northwards towards Donnybrook, Co. Cork. In Donnybrook, The Douglas River is joined by the Grange Stream. The watercourse then flows through Ballybrack Woods and Douglas Village, before merging with the Tramore River and discharging into the Douglas Estuary which outflows into Lough Mahon. Douglas Estuary is located within Cork Harbour SPA and Douglas River Estuary pNHA.

Tramore River

The Tramore River is a small 9km long depositional river that rises southwest of Togher and flows eastward through the Glasheen and Togher areas before converging with the Douglas River (Ballybrack Stream) in Douglas village. The combined waterways then flow into the Douglas River Estuary and discharge into Lough Mahon. The Tramore River becomes an estuarine waterbody i.e., Lough Mahon (IE_ SW_060_0750) at the junction of Douglas Road with Douglas East Street.

Lough Mahon

The estuarine waterbody of Lough Mahon (IE_ SW_060_0750) is a 12.1km^2 sea-lough approx. 5km (L) x 3km (B) that forms the north-western inlet of Cork Harbour. It is naturally shallow with exposed mudflats at high tide. A 3m deep shipping channel is maintained at low tide. 1.1km from Cork Harbour SPA and Douglas River Estuary pNHA.

Water Quality Status

The status of Lough Mahon transitional waterbody at Mid Lough Mahon Station (TW05003157LE4004) downstream of the proposed site is "Moderate", while upstream the status of Lee (Cork) Estuary Lower at all monitoring stations is "Poor". Both the Lough Mahon and Lee (Cork) Estuary Lower transitional/estuarine waterbodies are deemed to be 'At Risk' (EPA Mapviewer).

Ecological Value	Any protection status (or EU Annex listed)	Location	Ecological Receptor
International Importance	Cork Harbour SPA Cork Harbour Ramsar Site Great Island Channel SAC	1.1km-5km by land	Yes
Regional to National Importance	Douglas Estuary Wildfowl Sanctuary Douglas River Estuary pNHA Dunkettle Shore pNHA Great Island Channel pNHA	0.8km-5km by land	Yes

Ecological Value	Any protection status (or EU Annex listed)	Location	Ecological Receptor
County Importance	River Lee (lower reaches) Tramore River (lower reaches)	0.6km-1km by land	Yes

7.2 Mammals

Otter utilise the River Lee, Tramore River and shoreline of Lough Mahon for foraging/commuting, and where sufficient vegetation and cover is present, there may be opportunities for resting and breeding sites *i.e.,* holts or couches. The River Lee, Tramore River and the shoreline of Lough Mahon are located at least 0.6km from the proposed site.

Ecological Value	Legislation, Annex Listing under EU Directive	Location	Ecological Receptor
International Importance	Listed on Annex II and IV and protected under the Irish Wildlife Act 1976 (as amended in 2000)	Likely to utilise the River Lee, Tramore River and Lough Mahon for foraging/ commuting/resting and breeding	Yes

7.3 Birds

The desktop study identified 48 no. typically aquatic/transitional/marine bird species for the 5km Zone of Influence.

According to the NBDC, there are records for 18 No. Annex I species and 23 No. BoCCI Red List waterbird species.

Of the 23 No. Special Conservation Interests for Cork Harbour SPA, there are four Annex I species Dunlin, Golden plover, Bar-tailed godwit and Common tern, all of which are BoCCI Red Listed with the exception of Common tern.

A further 7 no. Special Conservation Interests are BoCCI Red List species *i.e.*, Shoveler, Oystercatcher, Grey plover, Lapwing, Black-tailed godwit, Curlew, and Redshank.

With respect to BOCCI Red list and Annex I listed grebes, Cormorant, ducks, waders, terns and the majority of gulls, these species would have a preference for transitional/estuarine environment i.e. intertidal mudflats, large open water bodies, and adjacent improved grasslands of an optimal sward height for foraging. The transitional/estuarine environment is located at a minimum of 0.6km from the proposed site i.e. the lower reaches the River Lee and Tramore Rivers where they enter Lough Mahon/Cork Harbour. Such habitat types were not recorded within the site of the proposed housing development. Traditionally coastal, the BoCCI Red List Herring gull has adapted to urban and suburban environments. These opportunistic birds now frequently nest on urban rooftops and scavenge in parks or are deliberately fed. There are records for Herring gull from the 1km

grid square W77A which overlaps with the site from the 2007-2011 Bird Atlas.

In summary, suitable habitat for BoCCI Red List or Annex I waterbirds was not recorded within the site, with the exception of potential scavenging habitat for Herring gulls within and adjacent to the site.

Ecological Value	*Any protection status (or EU Annex listed)	Location	Ecological Receptor
Aquatic & Estuarine/Marine			
International	▪ Special Conservation Interests for Cork Harbour SPA ▪ Annex I waterbirds ▪ BoCCI Red List waterbirds	River Lee and Tramore Rivers/ Lough Mahon/ Cork Harbour and wider study area	Yes
National Importance to International	▪ BoCCI Red List waterbirds		Yes
International Importance	▪ Herring gulls (BoCCI Red List)	Scavenging habitat within the site	Yes
Higher Value Local Importance to County Importance	▪ Other aquatic birds	River Lee and Tramore Rivers/ Lough Mahon/ Cork Harbour and wider study area	Yes

* All bird species are afforded protection under the Irish Wildlife Act 1976 (as amended in 2000).

7.4 Fish

The transitional/estuarine environment of the River Lee/Tramore River/Lough Mahon provides fish passage between the marine and freshwater environment for diadromous fish (catadromous and anadromous) and foraging and spawning grounds for brackish-intertidal species including Annex II and IV species Atlantic salmon, and Annex II species River lamprey and Sea lamprey. European eel is the subject of EU Regulation 1100/2007.

Ecological Value	Legislation, Annex Listing under EU Directive	Location	Ecological Receptor
International Importance	Sea lamprey and Atlantic salmon are listed on Annex II. Atlantic salmon is also protected under Annex V.	River Lee and Tramore Rivers/ Lough Mahon/ Cork Harbour and wider study area	Yes
International	European Eel is the subject		Yes

Ecological Value	Legislation, Annex Listing under EU Directive	Location	Ecological Receptor
Importance	of EU Regulation 1100/2007		
Higher Value Local Importance	All other fish species are afforded protection under the Fisheries Acts 1959 to 2006		Yes

7.5 Amphibians

No amphibians were observed during the field survey. Suitable spawning habitat was not recorded within the site.

While temporary pooling of surface and groundwater is likely to occur within the site during construction stage, there is limited potential for Common frog to utilise these habitats for spawning, given the absence of adjacent waterbodies/wetland habitats.

Ecological Value	Legislation, Annex Listing under EU Directive	Location	Ecological Receptor
Higher Value Local Importance	Common frog is an Annex V listed species. Common frog and Smooth are protected under the Irish Wildlife Act 1976 (as amended in 2000)	Limited potential for Common frog within the site.	No

7.6 Invertebrates

There were no records of any rare, threatened or protected invertebrate species identified during the desktop study for W77. There are no records for White-clawed Crayfish with the NBDC online database for W77.

Suitable habitat for any of the rare, threatened or protected invertebrate species is not present within the study site.

Ecological Value	Legislation, Annex Listing under EU Directive	Location	Ecological Receptor
Higher Value Local Importance	None	River Lee and Tramore Rivers/ Lough Mahon/ Cork Harbour and wider study area	Yes

7.7 Flora

There were no records of any rare, threatened or protected flora species identified during the desktop study for W77 for the transitional/estuarine environment.

Suitable habitat for any rare, threatened or protected flora species is not present within the study site.

Ecological Value	Legislation, Annex Listing under EU Directive	Location	Ecological Receptor
Higher Value Local Importance	None	River Lee and Tramore Rivers/ Lough Mahon/ Cork Harbour and wider study area	Yes

8.0 Evaluation

8.1 Key Ecological Receptors

In accordance with TII/NRA (2009a) any ecological resources located outside of the Zone of Influence of the proposed Project were scoped out of the EcIA process in Section 7.0.

Table 8.1 below summaries the ecological resources, which have been identified within the Zone of Influence of the proposed Project and are deemed to be ecological receptors.

Those ecological receptors which were found to have an ecological value of 'Local Importance (Higher Value)' or greater are considered **'Key Ecological Receptors'** and will require a detailed assessment as presented in Section 9.0. The remaining receptors which were found to be of 'Negligible' or 'Local Importance (Lower Value)' are scoped out at this point in the process.

The summary evaluations of the Key Ecological Receptors, located within the Zone of Influence of the proposed Project, are presented below.

Table 8.1 Summary of Ecological Receptors

Ecological Receptors	Location	Ecological Value	Within ZOI	Key Ecological Receptor
Terrestrial Environment				
Terrestrial Habitats				
Buildings & artificial surfaces (BL3)	Within the site and wider study area	Negligible	Yes	No
Amenity grassland (GA2)		Lower Value Local Importance	Yes	No
Scattered trees & parkland (WD5)		Lower Value Local Importance	Yes	No
Ornamental/ non-native shrubs (WS3)		Lower Value Local Importance	Yes	No
Scrub (WS1)	Southern and western boundary within the site	Higher Value Local Importance	Yes	Yes
Urban Ecological Corridor	Adjacent to the western boundary	Higher Value Local Importance to County Importance	Yes	Yes

Ecological Receptors	Location	Ecological Value	Within ZOI	Key Ecological Receptor
Terrestrial Species				
Bats	Limited potential within the site. Commuting/ foraging/roosting along the adjacent urban corridor and wider study area	Higher Value Local Importance	Yes	Yes
Pygmy shrew	Limited potential within the site with the exception of scrub habitat. Suitable habitat is present along the adjacent urban corridor and wider study area	Higher Value Local Importance	Yes	Yes
Terrestrial birds (General)		Higher Value Local Importance	Yes	Yes
Swifts	Aerial foraging habitat is present over the site and wider study area	International Importance	Yes	Yes
Reptiles	Limited potential within the site	Lower Value Local Importance	Yes	No
Terrestrial Invertebrates	Limited potential within the site. Suitable habitat is present (semi-natural grasslands, hedgerow and scrub habitats) in the wider study area.	Lower Value Local Importance	Yes	No
Terrestrial Flora (General)		Lower Value Local Importance	Yes	No
Little-robin (to be confirmed)	Along the southern stone masonry boundary wall of the site	Regional Importance	Yes	Yes
Aquatic & Estuarine/Marine Environments				
Tidal river (CW2)	0.6km by land	County to International Importance	Yes	Yes
Estuaries	1km by land		Yes	Yes

Ecological Receptors	Location	Ecological Value	Within ZOI	Key Ecological Receptor
(MW4)				
Otter	0.6km by land	International Importance	Yes	Yes
Waterbirds	0.6km by land (transitional/ and estuarine mudflats)	Higher Value Local Importance to International Importance	Yes	Yes
Herring gull	Scavenging habitat within and wider study area	International Importance	Yes	Yes
Amphibians	Within the wider study area	Higher Value Local Importance	No	No
Invertebrates			Yes	Yes
Flora			Yes	Yes
Designated Conservation Areas				
Douglas River Estuary pNHA	0.8km by land	National Importance	Yes	Yes
Douglas Estuary Wildfowl Sanctuary	0.8km by land	Regional Importance	Yes	Yes
Cork Harbour SPA	1.1km by land	International Importance	Yes	Yes
Cork Harbour Ramsar Site	1.1km by land	International Importance	Yes	Yes
Dunkettle Shore pNHA	1.5km by land	National Importance	Yes	Yes
Glanmire Wood pNHA	2.2km by land	National Importance	No	No
Rock Farm Quarry, Little Island pNHA	3.9km by land	National Importance	No	No
Cork Lough pNHA	4.9km by land	National Importance	No	No
Great Island Channel pNHA	5km by land	National Importance	Yes	Yes
Great Island Channel SAC	5km by land	International Importance	Yes	Yes

8.2 Terrestrial Environment

8.2.1 Terrestrial Habitats

The Buildings & artificial surfaces (BL3) within the site of the proposed housing development, are considered to be of **Negligible Importance** and as such are not considered to be a Key Ecological Receptor.

The Ornamental/non-native shrubs (WS3) and Scattered trees & parkland (WD5) and intensively managed Amenity grassland (GA2) are considered to be of **Lower Value Local Importance**; however, they do provide limited cover, nesting and foraging habitat for terrestrial birds and small non-volant mammals.

The Scrub (WS1) habitat on the southern and western boundary of the site are considered to be of **Higher Value Local Importance** due to the potential for nesting and foraging habitat for terrestrial birds and small non-volant mammals.

8.2.2 Terrestrial Mammals

There is low potential for Pygmy shrew to nest within the Scrub (WS1) habitat on the southern and western boundaries of the site. The terrestrial mammal is afforded protection under the Irish Wildlife Act 1976 (as amended in 2000) and is considered to be of a minimum of **Higher Value Local Importance.**

Trees within the site were found to display limited Potential Roost Features (PRFs) as per Collins (2016). There is also limited foraging habitat for bats within the site. The adjacent urban corridor provides a foraging/roosting/commuting corridor for bats. All bat species are listed on Annex IV and are afforded protection under the Irish Wildlife Act 1976 (as amended in 2000). Lesser horseshoe bat is also listed on Annex II; and the Bonn Convention. A bat roost, if confirmed present, is considered to be of **Higher Value Local Importance** to **County Importance.**

8.2.3 Terrestrial Birds

There are 12 no. BoCCI Red List terrestrial species known from the 10km grid square W77. Suitable nesting/roosting/foraging habitat for these species was not recorded within or adjacent to the site, with the exception of aerial foraging habitat for Swifts. There are records for Swifts from the 1km grid square W77A which overlaps with the site from the 2007-2011 Bird Atlas. Swifts a migratory BoCCI Red List species are considered to be of **International Importance**. Suitable habitat for the remaining BoCCI Red List species is present within the wider study area.

There is a low potential for passerine birds to utilise the scrub habitat within the site - **Higher Value Local Importance**. Passerine birds are likely to utilise the adjacent urban corridor of Passage Railway Greenway for nesting/commuting/foraging - **Higher Value Local Importance** to **County Importance**.

Section 46 of the Wildlife (Amendment) Act 2000 restricts the cutting of vegetation from 1st March to 31st August. All terrestrial birds recorded are afforded protection under the Irish Wildlife Act 1976 (as amended in 2000) and are considered to be of a minimum **Higher Value Local Importance**.

8.2.4 Reptiles

Common lizard was not recorded during the field survey. Suitable habitat for Common lizard is not present within the site. Common lizards are likely to occur within the wider study area. As this species does not occur within the zone of influence, it is not a Key Ecological Receptor.

8.2.5 Terrestrial Invertebrates

Given the dominance of intensively managed habitat within the site there are limited potential features of entomological importance *e.g.*, habitats of interest, host or food plants of specialist invertebrate species. The terrestrial invertebrate community is likely to be of **Lower Value Local Importance.**

8.2.6 Terrestrial Flora

Given the dominance of intensively managed habitat within the site, the terrestrial flora is considered to be of **Lower Value Local Importance**.

There is potential for the " Near threatened" Little-robin as per the Ireland Red List No. 10: Vascular plants on the southern stone masonry boundary wall of the site. If confirmed present, Little-robin is considered to be of **Regional Importance**.

8.2.7 Urban Ecological Corridor

The urban ecological corridor of the Passage Railway Greenway adjacent to the western boundary of the site is likely to provide nesting/roosting/foraging habitat and a commuting route for bats, passerine birds, Hedgehog, Pygmy shrew, and Wood mouse. Of note is an individual record of a Pine marten from 2021. Urban Foxes are also likely to occur. The urban corridor is considered to be of **County Importance**.

8.3 Aquatic, Estuarine/Marine Environment

8.3.1 Habitats

The site is located 0.6km and 1km from the lower River Lee and Tramore River, both Tidal rivers (CW2), which are considered to be of **County Importance**.

The lower reaches of the River Lee and Tramore River are considered to be of **National** to **International Importance**, where they overlap with Douglas River Estuary pNHA, Cork Harbour Ramsar Site and Cork Harbour SPA, respectively.

The site at its closest point is located 1.1km from Douglas Estuary Wildfowl Sanctuary and 0.8km from Douglas River Estuary pNHA which are considered to be of **Regional** and **National Importance**, respectively.

The site at its closest point is located 1.1km and 5km from Cork Harbour SPA and Great Island Channel SAC, respectively, which are both of **International Importance.**

8.3.2 Mammals

Otter an Annex II and IV species, are likely to utilise the River Lee, Douglas River, and the shoreline of Lough Mahon for foraging/commuting, and where sufficient riverbank vegetation and cover is present, there may be opportunities for resting and breeding sites *i.e.,* holts or couches.

There are records for Otter along the River Lee and Douglas Rivers which confirms that the river corridors act as foraging/commuting route for this species.

Otter are also afforded protection under the Irish Wildlife Act 1976 (as amended in 2000). This species is considered to be of **International Importance**.

8.3.3 Birds

All bird species are protected under the Irish Wildlife Act 1976 (as amended in 2000).

Special Conservation Interests

There are 23 no. Special Conservation Interests for Cork Harbour SPA.

Suitable roosting/foraging habitat for these species was not recorded within or adjacent to the site.

The majority of the Special Conservation Interests for Cork Harbour SPA (grebes, Cormorant, ducks, waders, gulls and terns) would have a preference for the transitional/estuarine environments i.e. intertidal mudflats and large open water bodies, and adjacent improved grasslands of an optimal sward height for foraging in the lower reaches and at the mouth of the River Lee and Tramore River where they enter Lough Mahon/Cork Harbour located at least 0.6km from the site.

All 23 no. species are considered to be of **International Importance.**

Annex I Bird Species

There are 18 no. Annex I species known from 10km grid square W77. Suitable roosting/foraging habitat for these species was not recorded within or adjacent to the site. Suitable habitat is present within the wider study area, in particular, for waterbirds in the transitional/estuarine environment.

BoCCI Red List

There are 23 no. BoCCI Red List species known from the 10km grid square W77. Suitable nesting/roosting/foraging habitat for these species was not recorded within or adjacent to the site, with the exception of Herring gulls. Traditionally coastal, the BoCCI Red Listed Herring gull has adapted to urban and suburban environments. These opportunistic birds now frequently nest on urban rooftops and scavenge in parks or are deliberately fed. Suitable scavenging habitat for this species is present within the site. There are records for Herring gulls from the 1km grid square W77A which overlaps with the site from the 2007-2011 Bird Atlas. Herring gulls are considered to be of **International Importance**. Suitable habitat for the remaining BoCCI Red List species is present within the wider study area, in particular, for waterbirds in the transitional/estuarine environment. These birds are considered to be of **National** to **International Importance.**

Other Birds

There is potential for other waterbird species to utilise the mouth of the River Lee and Tramore River where they outflow into Lough Mahon/Cork Harbour and to utilise surrounding grasslands of an optimal sward height for foraging/grazing. Such birds are considered to be of **Higher Value Local Importance** to **County Importance**.

8.3.4 Fish

Atlantic salmon and all three lamprey species are listed under Annex II of the EU Habitats Directive, while Atlantic salmon and Pollan are protected under Annex V. European eel is the subject of EU Regulation 1100/2007 to recover stocks of European Eel. All five species are considered to be of **International Importance**.

Other native fish species within the River Lee, Tramore River, Lough Mahon and Cork Harbour are considered to be of **Higher Value Local Importance**. Legal protection is afforded to fish species under the Fisheries Acts 1959 to 2006.

8.3.5 Amphibians

Common frog or Smooth newt were not recorded during the field survey. Suitable habitat for Common frog and Smooth newt is not present within the site. Common frog and Smooth newt are likely to occur within the wider study area. As these species do not occur within the zone of influence, they are not considered Key Ecological Receptors.

8.3.6 Flora & Invertebrates

There were no protected, rare, or threatened flora species identified in the transitional/ estuarine or marine environment during the desktop study (see Table 4.9).

There were no protected, rare, or threatened invertebrates identified in the transitional/ estuarine or marine environment during the desktop study (see Table 4.8).

The transitional/estuarine/marine macrophyte assemblage is considered to be of **Higher Value Local Importance.**

The invertebrate community of the transitional/estuarine/marine environment is considered to be of **Higher Value Local Importance.**

8.4 Summary

Overall, the Key Ecological Receptors within the site of the proposed housing development are considered to be of **Negligible** to **Higher Value Local Importance.**

The adjacent Passage Railway Greenway is considered to be of **County Importance.**

The lower River Lee and Tramore River located 0.6km and 1km from the site, respectively, are both considered to be of **County Importance.** Where the lower reaches overlap with Douglas Estuary Wildfowl Sanctuary, Douglas River Estuary pNHA and Cork Harbour SPA, they are considered to be of **Regional** to **International Importance**.

Douglas Estuary Wildfowl Sanctuary and Douglas River Estuary pNHA are located 1.1km from the site and are considered to be of **Regional** and **National Importance,** respectively.

Cork Harbour SPA, Cork Harbour Ramsar Site and Great Island Channel are located

between 1.1km to 5km from the site, respectively, and all are considered to be of **International Importance.**

9.0 Likely Effects from the Advanced Contracts & Construction Stage

The advanced contract for geotechnical site investigation was completed in April/May 2026 over a period of 2-3 no. days. It is anticipated that the construction stage of the proposed housing development will have a 22-month duration and will commence in October/November 2026, subject to grant of planning.

9.1 Direct Impacts

9.1.1 Habitat Loss

Terrestrial Habitat Loss

The partial clearance of amenity grassland, scrub and parkland trees was undertaken along the northern boundary of the site to facilitate the construction of the new adjacent Eden residential development. The area is now dominated by a finished surface of imported stone fill, with the exception of a Sycamore tree which is supporting an active corvid bird nest.

The remainder and majority of the site is considered 'greenfield' dominated by intensively managed amenity grassland forming parkland with scattered trees, and scrub habitat along the small escarpment on the southern boundary, with patches of scrub on the western boundary.

The advanced contract and construction stage of the proposed housing development will not directly impinge on ecological receptors considered to be greater than Higher Value Local Importance within the site (as per TII/NRA, 2008). Therefore, any potential direct impacts which have been identified are at the *geographical local scale of importance.*

In order to accommodate the proposed housing development, site clearance during the construction stage will involve the removal of amenity grassland, along with the potential removal of up to 8 no. trees. Micro-siting of the car park, hard landscaping and ancillary services *etc.* will be undertaken onsite, in consultation with the Arborist, with the intention of retaining as many trees as possible as part of the design, where practically feasible (see Section 10.1). There is also a potential requirement to remove a small number of standard non-native Lime (*Tilia cordata*) trees planted in the immediate verge along Blackrock Avenue, to facilitate access to the site by plant machinery) during the construction stage – **Imperceptible Impact.**

The scrub habitat along the small escarpment on the southern boundary and patchy scrub on the western boundary of the site is to be retained, along with a number of trees subject to the micro-siting process. Potential impacts on the scrub habitat and the root protection zone of trees to be retained, as a result of temporary works and accidental ingress or egress during the construction stage could result in an **Imperceptible** to **Permanent Slight Negative Impact.**

There is potential for the disturbance of Little-robin (presence to be confirmed) where vegetation is disturbed on the southern stone masonry boundary wall due to accidental

ingress and egress during the construction stage - **Permanent Slight Negative Impact.**

The construction stage of the proposed housing development will not directly impact on the aerial foraging habitat of Swifts – **No Change.**

With respect to Herring gulls, the construction stage of the proposed housing development will not significantly impact on scavenging activities – **No Change.**

9.1.2 Direct Mortalities

Terrestrial Species

Given the extent and/or type of vegetation to be removed during site clearance, and the potential risk of disturbance during temporary works and accidental ingress or egress into habitats to be retained, the construction stage is unlikely to result in fatalities, in terms of numbers of passerine birds. Under the precautionary principle, in the event that nesting birds or young birds did not (or were unable to) take flight and were impacted by machinery, the potential impact on the local bird population would be unlikely to exceed the *geographical local scale of importance*, given the favourable conservation status and the widespread distribution of all species concerned – **Temporary Slight Negative Impact**. The Sycamore tree containing the active bird nest has been retained within the adjacent Eden residential development construction site.

There is a low risk of fatalities and injury to young mammals in dens or nests *e.g.,* Pygmy shrew due to the removal of intensively amenity grassland during site clearance, and the potential risk of disturbance during temporary works, and accidental ingress or egress into habitats to be retained during the construction stage. Despite not knowing the numbers of Pygmy shrew territories present, potential impacts on local populations would collectively be unlikely to exceed the *geographical local scale of importance*, given the favourable conservation status and the widespread distribution of the species concerned - **Temporary Slight Negative Impact.**

9.2 Indirect or Secondary Impacts

9.2.1 Light, Noise, Visual, Human Activities & Air Pollution

Light, Noise, Visual & Human Activities

It is known that certain breeding, roosting or foraging birds may temporarily avoid suitable habitat for certain hours of the day, or permanently avoid habitat, due to the presence of light, noise & visual disturbances, and certain human activities associated with the advanced contract and construction works.

Disturbance leading to a 'fight-or-flight' response can cause birds to abandon their nests or young, use valuable energy reserves for defense, instead of incubating eggs and feeding their young. While getting too close to nests may prevent adult birds from returning to protect and feed their young which can expose eggs or young to predation, and to the lethal effects of heat, cold, and rain.

Similarly with respect to foraging habitat, exposure to higher disturbance levels could influence suitability resulting in birds seeking alternative foraging sites. Less suitable sites could impact on a birds' energy intake and lead to an increase in energy expenditure. The alternative foraging site may be inferior in various ways such as energetic costs in

commuting there, forage quality, increased competition for food resources, proximity of retreat zones, intensity of agricultural activities and real or perceived safety threats such as increased risk of predation. These threats and costs could constitute a deterioration in habitat quality.

The proposed housing development is located in a suburban environment which tolerates moderate to high traffic volumes at daily peak travel times.

Typical suburban background light, noise & visual disturbances and human activities are associated with urban roads and traffic, residential dwellings, healthcare facilities, and retail outlets. These suburban land uses include artificial lighting from outdoor security, public street lighting and indoor domestic and commercial uses, and vehicle head lamps, and a high pedestrian footfall.

The contextual framework of the existing suburban landscape at Mahon and Blackrock accords a certain level of acceptance of noise, light and visual including human activity related disturbances by the existing wildlife which is present.

The advanced geotechnical site investigation contract and construction work, required under the proposed Project, will have a combined 22-month duration (2-3 no. days and 22-months, respectively). The construction stage is considered to be major in terms of scale but of a short-term duration.

Site clearance and general groundworks will require the use of tree shears, chainsaws, mulchers, excavators, dumpers, loaders, telehandlers *etc.*, as required.

Other site preparation works such as blasting, demolition or piling activities which could result in vibration-related impacts are not required. While 140 no. CFA piles are to be installed there is limited risk of vibration-related impacts from this method of piling which involves auguring. There may be a requirement for the use of concrete saws, pneumatic breaker or mounted hydraulic breaker to assist with <2.0 days of rock breaking activities to remove 20m^3 of bedrock in order to reach formation level for the foundations of the apartment complex and other construction activities.

Current understanding of construction related noise disturbance suggests that at a distance of *circa* 300m from a site, typical noise levels associated with construction activity (BS 5228 - Code of practice for noise and vibration control on construction and open sites) are generally below 60dB or, in most cases, are approaching the 50dB threshold. For every doubling of the distance from the source of noise, the sound pressure levels will broadly be reduced by six decibels (6dB).

In terms of context, the following are typical examples of noise emission levels from plant machinery utilised during geotechnical site investigation, site preparation, and general construction works at a distance of 10m:

Geotechnical Site Investigation

- Tracked Hydraulic and Mobile Exploratory Drilling Rig = 87-92dB

Site Clearance & Ground Excavation:

- 360° tracked excavator = 70-78dB

- Dozer = 79-86dB
- Wheeled backhoe loader = 75-85dB
- Wheeled loader/Loading Shovel = 70-85dB
- Wheeled excavator/Rubber duck = 70-78dB

Concrete Breaking/Rock Breaking/Piling/Auguring

- Hydraulic breaker mounted on an excavator/wheeled backhoe = 88-90dB
- CFA Piling Rig = 79-85dB
- Hydraulic Pile Cropper = 70-78dB

Lifting:

- Wheeled Mobile Telescopic Crane = 75-78dB
- Telehandler = 70-79dB

Haulage:

- Dumper = 76-85dB
- Road Lorry/HGV = 75-84dB

Noise monitoring data indicates that emissions from mobile exploratory drilling rigs and mounted hydraulic breakers are typically in the order of up to 92dB at a distance of 10m. Such activities within the site of the proposed housing development, are considered temporary and localised in terms of duration and scale.

There is a requirement for temporary site lighting for security purposes at the site compound/temporary storage area for the duration of the construction stage. Given the presence of existing outdoor security lighting, public street lighting and indoor domestic lighting along Blackrock Avenue, there is limited potential for additional impacts arising from temporary site lighting. The construction works are to be undertaken during daylight hours and will not require lighting.

In summary, given the nature, scale and combined 22-month duration of the geotechnical site investigation and construction stage, there is limited potential for vibration and light related impacts. There is potential for temporary localised disturbance related impacts from noise, visual and human activities to terrestrial birds and small mammals, where present within or the immediate vicinity, of the site. Given the sensitivity of these receptors, the nature and scale of the plant machinery and equipment required under the Project and the combined duration (22-months) of the advanced contracts and construction works within the contextual framework of the surrounding suburban landscape, there is limited potential for a 'fight-or-flight' response by terrestrial birds and small mammals where present within or adjacent to the site. Any disturbance related impacts arising from the general construction works will result in a **Temporary Slight Negative Impact**, while the mobile exploratory drilling rig, CFA piling rig, and rock breaking activities which are considered temporary and localised in terms of duration and scale will result in a **Temporary Moderate Negative Impact**.

Air Pollution

Given the nature and scale of the works, including the requirement to import up to

967.7m^3 of infill material in the form of local quarried stone, there is potential for dust pollution arising from the advanced contract and construction stage.

High levels of dust from the importation of infill material, during the construction stage, could lead to a layer or coating of dust on adjacent vegetation. Under the precautionary principle, and in the unlikely event that significant volumes of dust arose from the works on a continual basis, a thick layer of dust could temporarily gather on terrestrial green plants thus impacting on the ability of such plants to photosynthesise – **Temporary Slight Negative Impact**.

A bituminous surface will be laid to provide the internal access road and car park spaces. Given that the works are to take place in an outdoor open space there is limited potential for the migration of concentrated vapours or fumes from the construction site - **Negligible**.

9.2.2 Reduction in Water Quality & Feeding Opportunities

The release or spillage of silt laden waters (via overland flows to gullies connected to the surface water drainage network) from advanced contracts and construction works, could lead to the temporary suspension of disturbed silt particles or suspended solids in the water column which could affect water quality and clarity locally, as well as travelling according to local tidal currents, causing impacts on the food resources i.e. prey items of Otter and waterbirds in the transitional/estuarine/marine habitats of the River Lee/Tramore River/Lough Mahon/Cork Harbour.

Based on the nature, scale and duration of the construction works the potential for the large scale, regular or chronic release or spillage of silt laden waters (via overland flows) is considered unlikely.

Under the precautionary principle, and in the unlikely event that high volumes of suspended solids managed to gain entry to the River Lee/Tramore River/Lough Mahon/Cork Harbour on a continual basis, a large scale, regular or chronic, pollution event has the potential to impact on invertebrates and fish species (prey items), altering community structure where natural background levels of turbidity are continuously exceeded.

High volumes of silt can cause direct impacts on fish by blocking their respiratory organs (*i.e.,* gills), and the breathing apparatus of filter feeders, thus reducing food resources in particular the diversity/abundances of fish species and macro-invertebrate communities, which form part of the food chain, for Otter and waterbirds *etc*.

A reduction in the diversity/abundances of fish species and macro-invertebrate communities and, could have a knock-on effect on the foraging and feeding opportunities (prey items) for Otter and waterbirds.

The food resources of Otter and waterbirds and the ability of estuarine/marine macrophytes in the photic zone to photosynthesise, could also be significantly impacted by a reduction in water quality, as a result of an acute point source of suspended solids.

Given the nature and scale of the site investigation and construction works proposed under the Project, any release of suspended solids is likely to be of a slight to moderate

magnitude and occasional. The potential volume of suspended solids released from the site, as a result of a chronic or acute event, is unlikely to exceed that of a short duration natural flood event. Fish and invertebrates in the estuarine/marine environment of the Cork Harbour, downstream of the proposed Project, are typically considered less sensitive to suspended solids than those of freshwater environments given the naturally high background levels of turbidity and dilution effects.

In summary, based on the nature and scale of the works, the turbid nature of the estuarine environment/dilution factors and low sensitivity of prey items, significant effects on Otter and waterbirds and their prey items (fish and invertebrates) are considered unlikely - **Temporary Slight to Moderate Negative Impact**.

Furthermore, as per industry best practice and standard construction guidance, it is a requirement that the Contractor adheres to best practice in terms of preventing contaminants such as suspended solids from entering overland flows, and gullies connected to the existing surface water drainage system during construction works.

Hydrocarbons & Cementitious Materials

The accidental release or spillage of hydrocarbons or cementitious materials during the construction stage will have a localised impact in terms of the contamination of soil, at the location of the spill zone, within the site of the proposed housing development.

Hydrocarbons or cementitious materials which manage to access the transitional/estuarine environment via surface (i.e. overland flows and gullies connected to the surface water drainage system) or groundwater pathways (i.e. percolation through the overburden), will be carried by winds and local currents.

The accidental spillage or release of hydrocarbons or concrete to the transitional/estuarine environment could result in a severe impact such as a reduction in foraging resources and opportunities - where a reduction in water quality affects macro-invertebrate diversity and abundance and fish and/or temporarily displaces fish, waterbirds, and Otters from the local transitional/estuarine environment.

In the transitional/estuarine/marine environment contaminants can coat rocks and macrophytes and even penetrate small burrows created by benthic invertebrates, in exposed mudflats, resulting in a loss of available micro-habitat *e.g.* shade, shelter, and a food source for an array of invertebrate species.

Hydrocarbons and cementitious materials may also cause skin irritation, ulceration and fatalities in local fish populations or temporarily displace fish from the local environment.

Impacts on invertebrate and fish diversity and abundance could have a knock-on effect higher up the food chain on the feeding opportunities for Otter and waterbirds, through a reduction in prey items/foraging resources leading to temporary displacement, while an uptake of 'contaminated' prey items could lead to bioaccumulation and poisoning. Contact with hydrocarbons can also cause damage to plumage (waterbirds) and fur (Otter).

Hydrocarbons may 'strand' on the high tide line, coating rocks, marine macrophytes and mudflats, and may even penetrate the exposed surface. On waterlogged sediments such as on mudflats, hydrocarbons will remain on the surface if undisturbed, and will be lifted

again on the next tide. Sun, wind, and waves will gradually weather 'globs' of hydrocarbons that remain on the shoreline (causing them to change physically and chemically), forming a hard asphalt-like substance, and eventually causing them to break apart and disappear. In sheltered areas, hydrocarbons may remain for a long time.

On this basis, a chronic, acute or large-scale pollution event arising from hydrocarbons or cementitious materials has the potential to alter the community structure of the receiving transitional/estuarine/marine environment.

Approx. 1500m^3 of ready-mix concrete is to be delivered to the site during the construction stage, while bentonite is utilised in drilling fluid and to seal the boreholes. Any impact arising from the accidental release of cementitious materials is likely to be of a slight to moderate magnitude given the distance and dilution effects while the frequency of occurrence would be considered rare. While the magnitude of the impact could be even greater, based on the scale and type of plant machinery and equipment required under the proposed Project, the frequency of occurrence in terms of releasing hydrocarbons is considerably lower.

In summary, based on the nature and scale of the works, type of plant machinery and equipment, distance and dilution effects, and frequency of occurrence, significant effects on water quality arising from hydrocarbons and cementitious materials are considered unlikely – **Temporary Slight Negative Impact**

Furthermore, industry best practice and standard construction guidance will be implemented and adhered to with respect to the use of hydrocarbons and cementitious materials. Sealed double shuttering and steel will be utilised to strengthen formwork prior to a concrete pour and a dedicated washed out for concrete skips *etc.* will be established in the temporary storage area, such that the risk of a cementitious pollution event is considered rare. Biodegradable products such as hydraulic fluids will be utilised where available. Fuels, oils, greases, and hydraulic fluids will be kept within the temporary storage area at least 50m from a watercourse or ponding surface water body and the manufacturers guidance on the Product Labels for hydrocarbons will be adhered to. All refueling and maintenance of plant machinery and equipment is to take place within the temporary storage area setback at least 50m from watercourses and ponding surface waterbodies, and all machinery and equipment will be regularly maintained, such that the risk of a malfunction and/or the accidental release of hydrocarbons is unlikely.

Foul Water

Impacts on water quality can also occur during the construction stage, as a result of the inappropriate disposal of foul water from temporary site welfare facilities. Given the scale and duration of the works, and the provision of regularly serviced temporary site welfare facilities, the potential for the accidental release of foul water is considered low – **Temporary Slight Negative Impact.**

Table 9.1 Summary of Impacts on Key Ecological Receptors

Key Ecological Receptors	Location	IMPACTS		Overall Significance (unmitigated)	Avoidance & Mitigation	Residual, post-mitigation
		Construction Stage	Operational Stage			
Terrestrial Environment						
Terrestrial Habitats						
Little-robin (to be confirmed)	Southern stone masonry boundary wall	- Accidental disturbance - Accidental introduction and dispersal of invasive species	- Accidental disturbance during maintenance and repair of the wall - Accidental introduction and dispersal of invasive species	Temporary Slight Negative Impact (Construction Stage) to Permanent Significant Impact (Operational Stage)	- CEMP - Survey during optimum period - Environmentally Sensitive Area (ESA) signage - Toolbox talk - Retention of vegetation on stone walls - Survey prior to structural repairs to stone wall - Checks on imported soil and local quarry stone	Imperceptible Impact

Key Ecological Receptors	Location	IMPACTS		Overall Significance (unmitigated)	Avoidance & Mitigation	Residual, post-mitigation
		Construction Stage	Operational Stage			
Scrub (WS1) to be retained	Along the southern and western boundaries	- Accidental ingress into scrub - Accidental ingress into the RPZ of trees - Branch removal or trimming to facilitate temporary works - Accidental introduction and dispersal of invasive species	- Accidental introduction and dispersal of invasive species -	Imperceptible [Scrub habitat is to be retained]	- CEMP - Micro-siting of the design to retain trees - Environmentally Sensitive Area (ESA) signage - Toolbox talk - Fencing to prevent accidental ingress to RPZ of trees and scrub to be retained - Checks on imported soil and local quarry stone - Interplanting of scrub with native trees and shrubs - Up to 84 no. native trees	Imperceptible Impact. Once the native tree and shrub planting has become established there will be a Permanent Positive Impact
Up to 8 no. trees to be retained subject to micro-siting of the design with the Arborist	Scattered within the site		- Loss of up to 8 no. trees	Permanent Slight Negative Impact [depending on how many trees can be retained]		

Key Ecological Receptors	Location	IMPACTS		Overall Significance (unmitigated)	Avoidance & Mitigation	Residual, post-mitigation
		Construction Stage	Operational Stage			
Terrestrial Species						
Swifts	Potential aerial foraging habitat above the site and wider study area	- Light pollution	- Bird collisions with glazing - Light pollution	Permanent Slight to Moderate Negative Impact if birds do not adjust to presence of glazing	- Deterrent stickers or window "decals" or "bird safe" glazing materials - Directional and shielded lighting - Swift boxes	Imperceptible Impact
Other terrestrial birds	Low potential for nesting/ foraging in scrub habitat on southern/ western boundary. Likely to occur in the adjacent urban corridor and wider study area	- Direct mortalities (due to timing of works during bird nesting season) - Accidental ingress into scrub - Branch removal or trimming to facilitate temporary works	- Bird collisions with glazing - Loss of nesting/ foraging opportunities - Noise & visual - Light pollution	Permanent Slight to Moderate Negative Impact	- Timing of works to avoid bird nesting season - Pre-construction survey - Retention of scrub - Planting of native trees and shrubs - Deterrent stickers or	Temporary Slight Negative Impact. Once the bird boxes are installed and the native tree and shrub planting has become established there will be a Permanent Positive Impact
Pygmy shrew				Permanent Slight Negative Impact		Imperceptible Impact

Key Ecological Receptors	Location	IMPACTS		Overall Significance (unmitigated)	Avoidance & Mitigation	Residual, post-mitigation
		Construction Stage	Operational Stage			
		- Noise & visual - Light pollution			window "decals" or "bird safe" glazing materials - Directional or shielded lighting - Bird boxes (passerines)	
Bats	Limited potential within the site. Potential for roosting/ foraging bats in the adjacent urban corridor	- Direct mortalities (due to timing of tree felling works) - Branch removal or trimming to facilitate temporary works - Light pollution	- Loss of potential roosting habitat due to tree felling - Loss of potential foraging opportunities - Light pollution	Permanent Slight to Moderate Negative Impact if a roost is confirmed present	- Pre-construction survey - Timing of works - Bat boxes - Supervision of tree work and tree felling by a bat specialist - Planting of native trees - Directional or shielded lighting	Temporary Slight Negative Impact. Once the bat boxes are installed and the native tree and shrub planting has become established there will be a Permanent Positive Impact

Key Ecological Receptors	Location	IMPACTS		Overall Significance (unmitigated)	Avoidance & Mitigation	Residual, post-mitigation
		Construction Stage	Operational Stage			
Urban Ecological corridor	Adjacent to the western boundary of the site	- Light pollution - Noise pollution	- Light pollution - Noise pollution	- Slight to Moderate Negative Impact	- Directional or shielded lighting - Interplanting of scrub on western boundary to establish a tree-lined hedgerow - Bird boxes - Bat boxes	Temporary Slight Negative Impact. Once the bat/bird boxes are installed and the native tree and shrub planting has become established there will be a Permanent Positive Impact
Transitional/Estuarine/Marine Environment						
Habitats						
Tidal River (CW2) River Lee Tramore River	0.6km 1km	- Reduced water quality	- Reduced water quality	Temporary Slight to Moderate Negative Impact	- CEMP - Best practice guidelines and standards guidance for control of water pollution - Spillage Response Plan	Imperceptible Impact
Estuaries (MW4)	1.1km	- Reduced water quality	- Reduced water quality	Temporary Slight to Moderate Negative Impact		Imperceptible Impact
Sea Inlets & Bays (MW2)	7.4km	- Reduced water quality	- Reduced water quality	Temporary Slight to Moderate		Imperceptible Impact

Key Ecological Receptors	Location	IMPACTS		Overall Significance (unmitigated)	Avoidance & Mitigation	Residual, post-mitigation
		Construction Stage	Operational Stage			
				Negative Impact	- Pre-earthworks drainage - Sealed double shuttering - Siltation control devices	
Otter	0.6km	- Reduced water quality - Reduced abundance of prey items	N/A	Temporary Slight to Moderate Negative Impact		Imperceptible Impact
Waterbirds	0.6km		N/A	Temporary Slight to Moderate Negative Impact		Imperceptible Impact
Herring gull	Scavenging habitat within the site	- None	- None	No Change	- None	No Change

9.2.3 Invasive Species

Terrestrial

There is potential for the dispersal of existing invasive species within the site, and the introduction of invasive alien plant species, due to natural dispersal mechanisms, and the accidental importation of viable plant material in soil or local quarried stone material, or on equipment and plant machinery. Invasive species could also be accidentally introduced or incidentally acquired for planting under landscape planting schemes. The introduction of a 'regulated' invasive species could result in a **Temporary Slight Negative Impact** depending on the invasive qualities of the plant species in question.

None of the existing species recorded within the site require specialist intervention to achieve eradication. Particular focus should be given to monitoring for the potential introduction of Three-cornered garlic to the site, during construction stage, as a result of natural dispersal mechanisms.

An Invasive Species Management Plan shall be prepared where Three-cornered garlic or another 'regulated' invasive species is identified within the site. Industry best practice and standard construction guidance should be deployed by the Contractor with respect to the control and management of invasive species during the advanced contract and construction stage of the proposed Project.

Aquatic/Estuarine/Marine

There is limited potential for the accidental introduction and dispersal of invasive species to Cork Harbour including plants, fish viruses, bacteria, fungi and moulds such as Crayfish Plague (*Aphanomyces astaci*) on equipment and plant machinery, given that there is a limited pathway for dispersal and no receptor, given the absence of aquatic/estuarine/marine habitat within the site – **No Change.**

9.2.4 Species or Habitat Fragmentation

The advanced contract and construction stage of the proposed housing development will not result in impacts on ecological corridors or result in the creation of bottlenecks which could lead to habitat fragmentation or isolation. There is, however, potential for temporary indirect effects or secondary impacts arising from noise visual disturbance and human activities which could impact on species commuting/foraging along wildlife corridors i.e. the adjacent Passage Railway Greenway.

It is likely that the foraging range of bats extends beyond the optimal habitat for the species, especially where artificial lighting attracts an abundance of prey items. In contrast the presence of artificial lighting impacts on suitability of trees for roosting. There is a requirement for temporary site lighting in terms of security at the site compound/temporary storage area. Given the presence of existing public street and outdoor security lighting, there is limited potential for additional impacts arising from temporary site lighting at night-time for security purposes. The construction works are to be undertaken during daylight hours and will not require lighting. The advanced contract and construction stage will not impact significantly on wildlife with respect to the dispersal of species along the adjacent urban corridor (see Sections 9.2.1, 10.2.1 and 10.2.4) – **Imperceptible Impact**.

Given the nature, scale and duration of the advanced contract and construction stage, significant effects on ecological corridors connecting Cork Harbour SPA, Great Island Channel SAC, Cork

Harbour Ramsar Site, Douglas River Estuary pNHA, Dunkettle Shore pNHA, Glanmire Wood pNHA, Rock Farm Quarry, Little Island pNHA, Cork Lough pNHA, Great Island Channel pNHA, Douglas Estuary Wildfowl Sanctuary, and other designated conservation areas in the wider study area are not anticipated – **Imperceptible Impact.**

10.0 Likely Effects from the Operational Stage

It is not envisaged that substantial maintenance or repair works to the proposed housing development will be required within the next 15 years under the operational stage.

10.1 Direct Impacts

Habitat Loss

The gross area of the site (including Blackrock Avenue) is 0.91ha, while the net development area (excluding Blackrock Avenue) totals 7833m^2 or 078ha.

The partial clearance of amenity grassland, scrub and parkland trees was undertaken along the northern boundary of the site to facilitate the construction of the new adjacent apartment complex Eden residential development. The area is now dominated by a finished surface of imported stone fill, with the exception of a retained Sycamore tree which is supporting an active corvid bird nest.

The remainder and majority of the site is considered 'greenfield' dominated by intensively managed amenity grassland forming parkland, scattered trees, and scrub habitat along the small escarpment on the southern boundary, with patches of scrub on the western boundary.

The total footprint of the hard surfaces associated with the proposed housing development is approx. 4995.27m^2 or 0.5ha *i.e.*, with the housing development covering an area of 1885.75m^2 (Block A & B), while the car park spaces, footpaths, hard landscaping, play area and vehicular access routes total approx. 3109.52m^2, with green open space totalling 2837.73m^2.

The operational stage of the proposed housing development will not directly impinge on ecological receptors considered to be greater than Higher Value Local Importance within the site (as per TII/NRA, 2008). Therefore, any impacts identified are at the *geographical local scale of importance.*

The dominant habitats to be removed are amenity grassland forming parkland with a few scattered trees.

The removal of the intensively managed amenity grassland will result in an **Imperceptible Impact**.

The development of the site may involve the removal of up to 8 no. trees. Further to the completion of an Arboricultural Impact Assessment (AIA) some of the 8 no. trees may need to be removed, in any event, for health and safety reasons i.e., are Category "U" = particularly poor quality, dangerous or diseased trees that offer no realistic sustainability. The potential presence of Ash die back disease has been observed within the site. Of the potential trees to be removed, there are 6 no. native Hawthorn and Ash trees and 2 no. non-native Sycamore trees, none of which are considered mature trees. Micro-siting of the car park, hard landscaping and ancillary services *etc.* will be undertaken onsite, in consultation with the Arborist, with the intention of retaining as many trees as possible as part of the design, where practically feasible. Worst-case scenario the removal of the 8 no. trees will result in a **Permanent Slight Negative Impact**.

The removal of amenity grassland and up to 8 no. trees could result in the localised loss of pollen sources for pollinators – **Permanent Slight Negative Impact.**

There is potential for the loss of habitat for Little-robin (presence to be confirmed) where vegetation

is removed from the southern stone masonry wall where future maintenance is required to the wall structure. Little-robin is considered Near Threatened" as per Ireland Red List No. 10: Vascular Plants - **Permanent Significant Negative Impact.**

Trees within the site were found to display limited Potential Roost Features (PRFs) as per Collins (2016). There is also limited foraging habitat for bats within the site. The adjacent urban corridor provides a foraging/roosting/commuting corridor for bats. There are records of roosting bats in the area at Beaumont Drive and at "undisclosed" locations. Further bat survey work will be undertaken on completion of the Arboricultural Impact Assessment (AIA) and the micro-siting process by the Arborist. There is a low potential for a bat roost to be identified within the site post-completion of these surveys. In this regard, there is limited potential for the direct loss of foraging habitat, or Potential Roost Features (PRFs) for bats in the trees to be removed - **Permanent Slight to Moderate Negative Impact** in the unlikely event that a bat roost is identified during further survey work. The scale of the impact will be less, where mitigation measures are deployed in the event that a roost(s) is located.

The proposed housing development will not impact on the aerial foraging of Swifts. The height at which Swifts forage on the wing varies with atmospheric pressure, with high humidity forcing flying insects closer to the ground, requiring Swifts to swoop lower to street and roof level. On warm, clear days with strong thermals, swifts forage at great heights 50m – 150m (even up to 2000m during migration). During low pressure events before rain or low temperatures, their foraging range is 10m – 50m where they glide and weave past buildings, and above rooftops and treetops, targeting concentrations of midges, aphids, *etc.* – **No Change.**

With respect to Herring gulls, the proposed housing development will not significantly impact on scavenging activities given the absence of waste disposal units and formal eating areas within the existing parkland – **No Change.**

In terms of the local bird population and other wildlife such as small non-volant \s, there is limited potential for the direct loss of both nesting/foraging habitat as a result of the removal of the intensively managed amenity grassland – **Imperceptible Impact**. The removal of up to 8 no. trees could at most have a **Permanent Slight Negative Impact.** The scrub habitat on the southern and western boundaries is to be retained.

Figure 10.1 Proposed housing development elevation (indicative)

Direct Mortalities

Direct mortality of birds from anthropogenic causes may arise as a result of domestic pets, building and automobile collisions, power line collisions, power line electrocutions, communication tower or wind turbine collisions and poisoning.

Research indicates that birds do not recognise glass as a barrier and are therefore vulnerable to collisions with the transparent and reflective glass that is ubiquitous in the built environment. Birds "cannot discriminate between clear glass and unobstructed airspace" (Klem 1990) and either attempt to fly to habitat visible through clear glass panes or attempt to fly to reflections of sky and vegetation. Among the greatest predictors of window collision rates at a building are the percentage coverage of glass on a building façade, coupled with reflections of vegetation (Klem et al 2009, Gelb & Delacretaz 2006, Cusa *et al*., 2015).

In this regard, the use of glass façades (presence of large windows) in the design of the proposed housing development has the potential to lead to bird mortality through collision. Under the proposed design, there will be approximately 795.85m^2 of glass or 32.22% cover associated with Block A and 1013.64m^2 or 33.915% associated with Block B.

Table 10.1 Results of Glazing Assessment for Block A

Elevation	Façade (m^2)	Glazing (m^2)	Glazing %
North	448.19	106.92	23.86
South	441.17	94.48	21.42
East	715.13	282.42	39.5
West	707.65	312.03	44.1
TOTAL	2312.14	795.85	Ave. 32.22%

Table 10.2 Results of Glazing Assessment for Block B

Elevation	Façade (m^2)	Glazing (m^2)	Glazing %
North	581.15	137.4	23.65
South	588.18	164.66	28
East	852.05	312.66	36.7
West	843.31	398.92	47.31
TOTAL	2864.69	1013.64	Ave. 33.915%

Of this glazing 961.09m^2 is associated with the southern and western and façades of the proposed housing development, which face scrub and linear woody habitat along Passage Railway Greenway (see Figure 10.1).

Given the relatively high percentage cover and the scale of glazing on the façades of the proposed housing development, in particular the southern and western façades, and the presence of vegetation to create reflections, there is potential for impacts due to collisions (bird strikes) by the local terrestrial bird population. This may result in a **Permanent Slight to Moderate Negative Impact** depending on magnitude and frequency of occurrence relative to the length of time it takes for the local bird population to adjust to the presence of the new infrastructure. The scale of the impact will be less, where mitigation measures are deployed to reduce the risk of bird collisions.

As the native trees and shrubs proposed under the landscape design mature over time, an increase in the extent of vegetation reflected in the glazing is anticipated. As this will be a gradual process it is unlikely to increase the magnitude or significance of the impact on the local bird population i.e., to result in terms of an increase in bird collisions.

10.2 Indirect or Secondary Impacts

10.2.1 Light, Noise, Visual, Air Pollution & Human Activities

There is potential for light, noise & visual disturbance regimes, and impacts from human activities/interaction once the apartments are occupied during the operational stage of the proposed housing development.

Local terrestrial bird and mammal populations, nesting, roosting, foraging, or commuting, may temporarily avoid suitable habitat for certain hours of the day, or permanently avoid habitat, as a result of noise, light and visual (including human activities/interactions) related disturbances associated with the operational stage of certain types of development projects.

Disturbance can cause birds to abandon their nests or young, use valuable energy reserves for defence, instead of incubating eggs and feeding their young. While getting too close to nests may prevent adult birds from returning to protect and feed their young which can expose eggs or young to predation, and to the lethal effects of heat, cold, and rain.

Specific operational aspects of the proposed housing development such as outdoor security and indoor domestic lighting, daily activities including deliveries, regular landscape maintenance of hard and soft landscaped areas, maintenance and repairs to the complex, high pedestrian footfall, daily chores, recreational activities, and presence of domestic pets can lead to noise, light and visual disturbances potentially resulting in a 'fight-or-flight' response.

Following the construction of the proposed housing development, maintenance may be necessary on an *ad hoc* basis going forward in terms of repairs. Regular maintenance of the gullies, silt traps and sediment controls, bypass interceptors, and SuDS measures will be required along with landscape maintenance of the hard and soft landscaped areas. However, it is not envisaged that substantial maintenance or repair works will be required within the next 15 years.

It is proposed to install a permanent boundary fence (permeable to small non-volant mammals), interplant and create a native tree-lined hedgerow on the western boundary of the site to minimise disturbance related impacts and to ensure the integrity of the adjacent urban corridor is maintained.

It is noted that the hedgerow planting will not take effect (mature) until Year 15 post planting. It is also proposed to retain trees where practically feasible, to interplant the scrub habitat on the southern boundary with native trees and shrubs, to plant native trees and shrubs throughout the communal green open spaces, and to install of bat and bird boxes both within the site and along the adjacent greenway.

Artificial light can impact on biological processes *e.g.,* circadian rhythms and result in phototactic responses (movements in response to a light stimulus) by certain species. The installation of inappropriate permanent outdoor security lighting, in a suburban setting, can contribute to sky glow, causing phototactic responses or disrupt the biological processes of certain species. The proximity of the existing urban roads and traffic, residential dwellings, healthcare facilities, retail outlets and a filling station with street and security lighting is noted. Directional LED street lighting is already *in situ* on the western boundary of the site for the adjacent greenway corridor and access ramp (see Photograph 10.1).

Photograph 10.1 Route of Passage Railway Greenway (in green) on the western boundary of the proposed site

In accordance with best practice, directional or shielded street lighting is proposed in respect of the proposed housing development to minimise any additional light pollution and overspill. Therefore, significant effects from light pollution are considered unlikely.

In summary, given the contextual framework of the surrounding suburban landscape, the interplanting of scrub to create a native tree-lined hedgerow on the western boundary, and installation of directional or shielded LED lighting, amongst other measures, it is considered unlikely that the proposed housing development once occupied, will result in significant disturbance related impacts on nesting/roosting/foraging/commuting terrestrial birds and small mammals along the adjacent urban corridor and in scrub habitat within the site – worst case scenario is a **Permanent Slight Negative Impact** depending on efficacy of the mitigation measures.

10.2.2 Water Abstraction, Discharge & Groundwater Recharge

There is no requirement for surface or groundwater abstraction with respect to a domestic drinking water supply. A connection will be made to the public mains water supply.

All foul water will discharge to the existing foul water network on Blackrock Avenue.

There will be an impact on groundwater recharge from precipitation, as a result of hard surfaces. The slow rate of recharge identified during the percolation tests (as per Causeway Geotech (2026) *Soakaway Logs* has removed the possibility of incorporating 'traditional' measures such as permeable paving and soakaways into the SuDs design, such that the SuDs systems has been reduce to green roofs, rain gardens, rainwater harvesting tanks and bio-retention tree pits and a conventional attenuation tank. The attenuation tank will be utilised to prevent flooding where other SuDS measures are not able to deal with peak water flows. In this regard, there will be an overflow from the attenuation tank to the existing existing surface water drainage network on Blackrock Avenue. However, the site layout and landscape design of the proposed housing development has allowed for the retention of 2837.73m^2 of green open space along with the retention and enhancement of natural vegetation which will continue to facilitate groundwater recharge i.e. permit percolation of rainwater through the overburden into the groundwater table in these areas. In light of the above, there will be a slight localised impact on groundwater recharge from precipitation, as a result of the proposed permanent structure and associated hard surfaces. Given the absence of an adjacent groundwater dependent ecosystems an **Imperceptible Impact** is foreseen.

10.2.3 Reduction in Water Quality

Given that foul water will discharge to the existing public foul water network, no risk to the estuarine environment of River Lee/Tramore River/Lough Mahon/Cork Harbour is foreseen from the discharge of foul water.

Given that any excess surface water runoff will discharge via the existing surface water drainage system to the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor, no risk to the transitional/estuarine environment is foreseen from the discharge of surface water.

Maintenance of gullies, silt traps and sediment controls, bypass interceptors and various SuDS measures is, however, essential to avoid future risk.

Where required, any imported stone fill material will be sourced from a local quarry supplier and will be geochemically similar to the existing geological characteristics of the site following GSI/EPA guidance *i.e.* Glennon et al. (2020) Geochemical Characterisation & Geochemically Appropriate Levels (GALs) for Soil Recovery Facilities. This will ensure that there are limited changes to soil and groundwater chemistry.

In light of the above, there is limited potential for a reduction in water quality as a result of the operational stage – **Imperceptible Impact**.

Invasive Species

There is potential for the dispersal of existing invasive species within the site, and the introduction of invasive alien plant species, due to natural dispersal mechanisms, and the accidental importation of viable plant material in soil or local quarried stone material, or on equipment and plant machinery. Invasive species could also be accidentally introduced or incidentally acquired for planting under landscape planting schemes. There may also be a requirement to import small volumes of locally quarried stone, mulch, compost, or soil for landscaping maintenance activities which could act as a vector for terrestrial invasive plant species.

The introduction of a 'regulated' invasive species could result in a **Temporary Slight Negative Impact** depending on the invasive qualities of the plant species in question.

None of the existing species recorded within the site require specialist intervention to achieve eradication. Industry best practice and standard construction guidance should be deployed by Cork City Council with respect to the control and management of invasive species during the operational stage of the proposed Project.

Particular focus should be given to monitoring for the potential introduction of Three-cornered garlic to the site, during the operational stage, as a result of natural dispersal mechanisms. An Invasive Species Management Plan shall be prepared where Three-cornered garlic or another 'regulated' invasive species is identified within the site.

10.2.4 Species or Habitat Fragmentation

Article 10 of the EU Habitats Directive recognises the importance of ecological networks as corridors and stepping-stones for wildlife, including for migration, dispersal, and the genetic exchange of species of flora and fauna. The Habitats Directive requires that ecological connectivity and areas of ecological value, outside the Natura 2000 Network of designated conservation areas, are maintained and it recognises the need for the management of these areas through land-use planning and development policies.

Ecological corridors can link habitat patches or islands in the wider landscape which are important for the dispersal of wildlife and gene flow to designated conservation areas. Where corridors are absent or impacted, habitat isolation and bottlenecks to wildlife dispersal and gene flow can occur.

In the context of the Irish landscape, ecological corridors include linear features such as tree-lines, hedgerows, roadside verges, railway lines, riparian vegetation, linear woodland, watercourses including rivers, streams, ditches and canals which act as steppingstones for wildlife moving between patches of habitats within their range. They are particularly important as commuting/foraging corridors for mammals, especially bats, and small birds and provide opportunities for roosting/nesting.

The nearest wildlife corridor to the proposed housing development is the north to south trending corridor of Passage Railway Greenway. This urban ecological corridor is likely to provide nesting/roosting/foraging habitat and a commuting route for bats, passerine birds, Pine marten, Hedgehog, Pygmy shrew, and Wood mouse. Urban Foxes are also likely to occur.

Bats

The greenway corridor provides roosting/commuting/foraging habitat for bats within a suburban environment with connectivity to Hedgerows (WL1), Tree-lines (WL2), and woodland habitats in the wider agricultural landscape.

According to the Bat Landscape GIS Layer (Lundy *et al*., 2011) which examines the relative importance of the landscape, and habitat associations for bats across Ireland, the surrounding landscape has an overall moderate to high bat suitability index of 43.44; with 0 being least favourable and 100 most favourable for bats. The landscape was found to be most suitable for Brown long-eared bat, Soprano pipistrelle, Leisler's bat, Common pipistrelle, and Whiskered bat.

Trees within the site were found to display limited Potential Roost Features (PRFs) as per Collins (2016). Further bat survey work will be undertaken on completion of the Arboricultural Impact Assessment (AIA) and the micro-siting process by the Arborist.

According to the JNCC (2001) gaps created in a corridor greater than 10m in length can impact on the dispersal of bats through the landscape.

The development of the site may involve the removal of up to 8 no. trees. Further to the completion of an Arboricultural Impact Assessment (AIA) some of the 8 no. trees may need to be removed, in any event, for health and safety reasons i.e., are Category "U" = particularly poor quality, dangerous or diseased trees that offer no realistic sustainability. The potential presence of Ash die back disease has been observed within the site. Micro-siting of the car park, hard landscaping and ancillary services *etc.* will be undertaken onsite, in consultation with the Arborist, with the intention of retaining as many trees as possible as part of the design where practically feasible.

The proposed external lighting design for the housing development will incorporate directional or shielded LED luminaires to minimise light pollution and overspill (see Section 11.2.1).

While there is limited potential for the fragmentation of habitats as a result of the proposed housing development, it is proposed under the design to establish a permanent fence boundary (permeable to small non-volant mammals) and to interplant and create a native hedgerow on the western boundary of the site in order to minimise disturbance related impacts and to ensure the integrity of the adjacent wildlife corridor is maintained. It is noted that the hedgerow planting will not take effect (mature) until Year 15 post planting. It is also proposed to retain trees where it is practically feasible, to interplant the scrub habitat on the southern boundary with native trees and shrubs, to plant native trees and shrubs throughout the site, and to install bat and bird boxes both within the site and along the adjacent greenway (see Doyle O' Troitigh, 2026).

In summary, the operational stage of the proposed housing development will not impact significantly on wildlife, including Key Ecological Receptors, with respect to the dispersal of species – **Imperceptible Impact.**

Similarly, in terms of the Natura 2000 Network, the operational stage of the proposed housing development will not result in impacts on ecological corridors which could cause 'bottlenecks' to the dispersal of wildlife, including Key Ecological Receptors, between Cork Harbour SPA, Great Island Channel SAC, Cork Harbour Ramsar Site, Douglas River Estuary pNHA, Dunkettle Shore pNHA, Glanmire Wood pNHA, Rock Farm Quarry, Little Island pNHA, Cork Lough pNHA, Great Island Channel pNHA, Douglas Estuary Wildfowl Sanctuary, and other designated conservation areas in the

wider study area – **Imperceptible Impact.**

11.0 Avoidance & Mitigation Measures

Prior to the commencement of the advanced contract and construction works, a Construction Environmental Management Plan (CEMP) shall be prepared by the Contractor, and shall also cover all works to be undertaken by any subcontractors.

The CEMP shall assist the Contractor in minimising environmental impacts which may arise during the works. The CEMP shall cover all aspects of the site investigation, vegetation removal, site clearance, and construction works through the preparation of 'Environmental Control Measure Sheets'. These 'Environmental Control Measure Sheets' shall list discrete actions or procedures that will assist in identifying any potential impacts on the natural environment and will provide a checklist for preventing, managing and/or minimising environmental impacts which could arise as a result of advanced contract and construction works.

The CEMP shall specify the requirement for a Site Ecologist to be present on site during key work stages. The CEMP shall also outline all actions and procedures for the delivery of the recommended avoidance and mitigation measures as detailed below, any additional measures, and measures to address general day-to-day environmental issues that can arise during the advanced contract and construction works such as surface water management. The implementation of the avoidance and mitigation measures shall be monitored to ensure avoidance of pollution or disturbance related impacts and chronic and large-scale pollution events which could result in significant impacts. The CEMP shall include a Spillage Response Plan for hydrocarbons and cementitious materials (including bentonite) during works and a Dust Minimisation Plan.

In order to avoid and minimise impacts from site investigation, site clearance, vegetation removal, and construction works a detailed site-specific method statement containing avoidance and mitigation measures shall be prepared. The method statement shall detail the requirement for a walkover survey by the Site Ecologist and any specific pre-construction surveys required prior to commencement of site clearance works; in order to note any changes to the ecology of the works areas since the preparation of this document which may influence site clearance, vegetation removal, or construction related avoidance and mitigation measures, methodologies and approaches.

The following industry best practice and standard construction avoidance and mitigation control measures shall be included in the CEMP and all relevant method statements prepared in respect of the proposed Project.

11.1 Advanced Contracts & Construction Stage

11.1.1 Pre-construction Surveys

- A targeted survey for the "Regionally Important" Little-robin plant shall be undertaken within the site during the optimum survey period, to confirm presence/absence of this species, by a suitably qualified ecologist.
- A pre-construction walkover survey of the site shall be undertaken by a suitably qualified ecologist prior to the commencement of site clearance works with specific emphasis on roosting bats, breeding birds, and invasive species.

11.1.2 Timing of Works: Bats, Birds & Non-volant Mammals

- There may be seasonal restrictions in terms of the timing of construction works with respect to the requirement for bat, bird and invasive species surveys and associated avoidance and mitigation measures.
- The pre-construction breeding bird survey shall confirm the presence/absence of active bird nests. The removal of vegetation shall be undertaken outside of the bird nesting season as per Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, which restricts the cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or in hedges or ditches during the nesting and breeding season for birds and wildlife, from 1st March to 31st August. Exemptions do exist, however, under the legislation and include the clearance of vegetation in the course of the development or preparation of sites on which any building or other structure is intended to be provided. Vegetation clearance can proceed during the bird nesting season subject to the findings of bird nest survey by the Site Ecologist. The Sycamore tree supporting an active corvid bird nest, on the northern boundary of the site, has been retained within the temporary site compound of Eden residential development.
- The pre-construction bat survey shall confirm the presence/absence of a bat roost or Potential Roost Feature (PRF) as per Collins (2016). Where required a bat specialist shall apply to and obtain a Derogation License from NPWS for tree felling. Felling should be undertaken during the months of September and October (potentially November – weather dependent), and February and March during mild weather conditions. Note: the breeding bird season is March to August inclusive. Thus, tree removal during March may only be conducted if a breeding bird survey is undertaken by the Site Ecologist in advance of the works. Tree felling of PRF trees may be permitted in December and January in mild conditions (i.e., >8ºC day-time temperature). These works shall be undertaken in consultation with a bat specialist.
- All works shall be confined to daylight hours to avoid or minimise light, noise & visual disturbance, and human activities related impacts on crepuscular and nocturnal species. Measures to reduce noise and visual disturbance are detailed below in Section 11.1.5.

11.1.3 Habitats

- Where Little-robin is confirmed present, Environmentally Sensitive Area signage and fencing shall be installed within the site, and tool-box talks provided to site personnel to ensure that there is no accidental disturbance (including ingress or egress).
- The scrub habitat to be retained along the southern and western boundaries shall be separated or isolated from the construction works by way of a temporary structure *e.g.*, hoarding, or similar barrier, for the duration of the construction stage.
- The landscape design shall include for the micro-siting of the design onsite e.g. car park, hard landscaping and ancillary services *etc.* in an effort to retain as many of the 8 no. trees within the site, as possible, subject to the completion of an Arboricultural Impact Assessment (AIA) report and in consultation with an Arborist.
- Efforts shall be made to ensure that the trees (including the root protection zone) to be

retained are not impacted during the construction stage. The trees shall be separated or isolated from the construction works by way of a temporary structure *e.g.*, hoarding, or similar barrier, for the duration of the construction stage.

- The trees to be retained within the site may need arboricultural works in terms of ivy removal, branch trimming or limb removal. Consultation shall be undertaken with the Site Ecologist in respect of both bats and birds, where arboricultural works are required. Any resulting avoidance or mitigation measures shall be deployed.

11.1.4 Prevention of Water Pollution

- The Contractor shall adhere to industry best practice construction standards and guidelines with respect to working near watercourses and in terms of preventing contaminants including suspended solids, hydrocarbons and concrete fines from reaching overland flows/entering the existing gullies on adjoining roads which are connected to the surface water drainage system which discharges to the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor.
- An Aquatic Environmental Protection System (AEPS) shall be installed to protect the water quality of the River Lee/Tramore River/Lough Mahon/Cork Harbour, prior to the commencement of site investigation, vegetation removal, site clearance, and construction works.
- The Contractor shall prepare a method statement which shall include details of the AEPS; it shall be submitted to IFI at least two weeks prior to the advanced contract and construction works commencing on-site. The AEPS shall be in place prior to the commencement of the advanced contract and construction works.
- The protection system shall include a pre-earthworks drainage system to be installed prior to the commencement of construction (where required), sealed double shuttering, concrete washout areas and silt control devices *etc*.
- Works shall be undertaken in such a manner so as to minimise the release of suspended solids. The pre-earthworks drainage will pick up overland flows and groundwater. Silt control devices shall be installed around the works areas and gullies to prevent loose soil and run-off of silt from reaching overland flows and/or existing gullies connected to the surface water drainage system which discharges to the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor.
- There is also potential for ponding surface water (from rainfall and to a lesser degree from groundwater) in the excavations. In the event that there is an accumulation of ponding surface water, or the groundwater table is struck, a sump shall be formed in one corner of the excavation and a submersible pump shall be utilised to divert water to the AEPS to ensure silt settlement prior to discharge.
- All pump heads shall be fitted with screens/cages, and silt bags (where suspended solids are present) to minimise the uptake of silt during the drawdown of water.
- Under the AEPS there is potential for temporary surface water abstraction i.e. pumping of ponding rainfall and groundwater from excavations followed by discharge to the existing foul

or surface water drainage network on Blackrock Avenue, where required, and with the necessary approvals).

- Under the AEPS additional equipment shall be put in place by the Contractor, to ensure settlement of silt prior to the release of water to the existing surface water drainage system which discharges to the River Lee/Lough Mahon/Cork Harbour via a hydrocarbon interceptor, where required, and in agreement with the Site Ecologist.
- The use of hydrocarbons and bituminous materials shall adhere to best practice construction standards and guidance, the manufacturers guidance on the Product Label and the Material Safety Data Sheet (MSDS), to minimise the risk of hydrocarbons reaching overland flows and/or existing gullies connected to the surface water drainage system which discharges to the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor.
- Refueling or maintenance of plant machinery and equipment shall take place within the temporary storage area setback at least 50m from a surface watercourse or waterbody.
- Biodegradable products such as hydraulic fluids will be utilised where available. Sealants, chemical disinfectants, chemical herbicide, fuels, oils, greases, and hydraulic fluids *etc*. will be kept within the temporary storage area at least 50m from a watercourse or ponding surface water body and the manufacturers guidance on the Product Labels will be adhered to.
- All machinery shall be in good working order/regularly maintained and inspected prior to mobilisation to site and an ongoing basis to ensure that there are no hydrocarbons leaking from vehicles. Hydrocarbon spill kits shall be available on site during the works.
- The dewatering pump shall have a built-in and external hydrocarbon interceptor drip tray.
- The use of bentonite and concrete shall adhere to best practice construction standards and guidance, the manufacturers guidance on the Product Label and the Material Safety Data Sheet (MSDS), to minimise the risk of cementitious materials reaching overland flows and/or existing gullies on adjoining roads connected to the surface water drainage system which discharges to the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor.
- Sealed double shuttering shall be deployed to strengthen the formwork for the foundations and other cast in situ structures i.e., for containment purposes during the pouring of concrete. The pouring of concrete shall be undertaken during dry weather conditions.
- The following guidance documents shall be adhered to:
    - Control of water pollution from linear construction projects. Technical guidance (C648). CIRIA.
    - Control of water pollution from linear construction projects. Site guide (C649). CIRIA.
    - DOMNR (1998) Fishery guidelines for Local Authority works. Department of the Marine and Natural Resources, Dublin.
    - IFI (2016) Guidelines on protection of fisheries during construction Works in and adjacent to waters (IFI, 2016)

- Kilfeather, P.J., (2007) Maintenance and protection of the inland fisheries resource during road construction and improvement works. Southern Regional Fisheries Board, Clonmel, Co. Tipperary.
- Murphy, D.F. (2004) Requirements for the Protection of Fisheries Habitat During Construction and Development Works at River Sites. Eastern Regional Fisheries Board, Dublin.
- TII/NRA (2005) Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes. Dublin: National Roads Authority.
- The Contractor shall prepare a method statement which will include details of the AEPS; allowing for consultation with IFI, it shall be submitted at least two weeks prior to geotechnical site Investigation works commencing on-site. The AEPS shall be in place prior to the commencement of geotechnical site investigation, vegetation removal, site clearance and construction works.

11.1.5 Air, Noise & Visual

- As per industry best practice and standard construction guidance, the Contractor shall adhere to best practice in terms of preventing dust arising from the works. Such guidance shall be deployed with respect to dust suppression.
- The methodology of British Standard BS 5228-1:2009+A1:2014 (Noise) and BS 5228-2:2009+A1:2014 (Vibration) for "Noise and Vibration Control on Construction and Open Sites", shall be deployed during geotechnical site investigation, site clearance and construction works, where required, to minimise emission of any noise and vibration. In addition, the following best practice measures shall be deployed:
  - All plant and equipment for use shall comply with European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001 (S.I. No. 632 of 2001) and all amendments.
  - Silencers and engine covers shall be kept in good and effective working order.
  - The Contractor shall select plant that can be attenuated, to avoid any significant noise intrusion or disturbance where possible.
  - A silent dewatering pump shall be deployed.
  - Plant shall be chosen to avoid significant low-frequency noise emissions which increase nuisance potential.
  - Noisier plant shall be positioned to optimise screening by other plant.
  - Plant machinery shall be turned off when not in use

11.1.6 Estuarine Invasives

- Not applicable.

11.1.7 Terrestrial Invasives

- During construction, the Contractor shall adhere to the following in order to avoid the spread

and introduction of invasive alien plant species and noxious weeds:

- No soil, gravel, or stone shall be brought on to the site without prior notification to and inspection by the Site Ecologist.
- The donor site for the materials *e.g.,* local quarry which is to act as the source of stone material or soil shall be subject to a review/check for invasive alien plant species prior to the commencement of works.
- Best practice methods shall be deployed in respect of non-regulated invasive species, where required.
- An Invasive Species Management Plan shall be prepared where Three-cornered garlic or other regulated invasive species is identified within the site.

11.2 Operational & Maintenance Stage

11.2.1 Habitats

- Where Little-robin is confirmed present, maintenance of the southern stone masonry boundary wall should only be completed under the supervision of a suitably qualified ecologist.
- The scrub habitat on the small escarpment along the southern boundary and along the western boundary shall be retained as part of the landscape design.
- The landscape design shall include the interplanting of the existing scrub on the southern boundary with native trees and shrubs, the planting of mostly native tree and shrubs throughout the communal green open spaces, and the installation of bat and bird boxes within the site.
- The landscape design shall include the installation of a permanent fence (permeable to small non-volant mammals) on the western boundary with the adjacent Passage Railway Greenway, the interplanting of the existing scrub with native trees and shrubs to create a native tree-lined hedgerow, and the installation of bat and bird boxes along the greenway. It is noted that the hedgerow planting along the fence will not take effect (mature) until Year 15 post planting.
- The fence boundary treatment along the western boundary shall not be mammal-resistant to ensure that the habitats of small non-volant mammals, where present, will not be fragmented by the proposed fence.
- The bat boxes shall be installed within the site and along the adjacent Passage Railway Greenway under the direction of a Bat Specialist.
- The bird boxes shall be installed within the site and along the adjacent Passage Railway Greenway under the direction of the Site Ecologist.
- The external lighting design for the housing development shall incorporate "wildlife friendly" directional or shielded LED luminaires to minimise light pollution and overspill. Final lighting positions will be determined following further design development and completion of detailed lighting calculations.

- The risk of bird collisions shall be reduced by placing visual markers on glass facades such as deterrent stickers or window "decals" with patterned dots in specified densities placed on the outside surface of the windows or utilising "bird-safe materials" such as etched, frosted or UV reflective glass.
- Integral Swift nest boxes shall be incorporated into the design of the buildings, or installed on the buildings within the site under the direction of the Site Ecologist.
- Ivy should be retained on all trees within the site, for the provision/conservation of bat roosting and bird nesting habitat, and to ensure the presence of an early pollen source for pollinators.
- Tree retention must recognise changes in occupation and land-use. It is advised that all retained trees are reviewed at least annually, as well as after severe weather events. To accommodate this, Ivy management and cutting may be required to facilitate visual inspections. This form of management is applicable to larger trees located within falling range of occupied or potentially occupied areas only, subject to consultation with the Arborist. The removal of Ivy shall not be undertaken on trees within the site which are setback from occupied areas.

11.2.2 Terrestrial & Estuarine Invasives

- See Sections 11.1.6-11.1.7.

11.2.3 Prevention of Water Pollution

- Given that foul water shall discharge to the existing public foul water network, no risk to the local environment is foreseen from the discharge of foul water. Regular maintenance of the foul network within the site shall be required.
- All surface water runoff during the operational stage, shall be picked by a SuDs system (and a conventional attenuation tank during peak flows). All excess surface water runoff from the SuDS system and attenuation tank shall discharge via onsite silt traps and sediment controls and a bypass interceptor, to the existing surface water drainage system on Blackrock Avenue which in turn discharges to the transitional/estuarine environment of the River Lee/Tramore River/Lough Mahon/Cork Harbour via a hydrocarbon interceptor.
- In terms of excess surface water runoff to be discharged to the River Lee/Tramore River/Lough Mahon/Cork Harbour, regular maintenance of gullies silt traps and sediment controls (to recover silt and debris), and the bypass interceptor shall be required.

12.0 Residual Impacts

The residual impacts of the proposed housing development located in the suburban landscape of Cork City, on Key Ecological Receptors, are not considered to be significant. As described in Section 11.0 site specific, industry best practice and standard avoidance and mitigation control measures have been recommended for the construction and operational stage.

Post implementation of the control measures the worst-case residual impact anticipated is a **Temporary Slight Negative Impact** on Key Ecological Receptors considered to be of **Higher Value Local Importance** once the extensive native tree and shrub planting proposed under the landscape design plan have matured.

The presence of an urban ecological corridor i.e. Passage Railway Greenway on the western boundary has been acknowledged in the design. Under the design it is proposed to retain 2837.73m^2 of green open space, plant mostly native trees (84 no.) and shrubs in communal areas, interplant the existing scrub in order to enhance the habitat on the southern boundary and to create a tree-lined hedgerow along the western boundary, and to install wildlife permeable fencing, directional or shielded LED luminaires within the site, and finally bird and bat boxes both within the site and along the adjacent greenway. Once matured the landscape design proposals utilising mostly native species, will have a localised **Permanent Positive Impact** in terms of the provision of habitat and food resources for wildlife and pollinators both within the site and along the adjacent Passage Railway Corridor.

Pygmy shrew was presumed, rather than confirmed, present under the precautionary principle. Pygmy shrew currently have a favourable conservation status/classified as 'Least Concern' and are considered widespread in Ireland. However, the Pygmy shrew is facing conservation concerns in Ireland due to the introduction of two invasive species i.e. Greater white-toothed shrew and Bank vole. The Greater white-toothed shrew and Bank vole are outcompeting the Pygmy shrew for food and resources, leading to declines in pygmy shrew populations where the range of these species overlap.

No specific mitigation measures were proposed for Pygmy shrew as there are no particularly relevant/effective mitigation measures specific to this species. The Scrub habitat along the southern and western boundaries will continue to provide habitat/cover for Pygmy shrew.

13.0 Monitoring

Monitoring is required in respect of avoidance and mitigation measures to ensure that Three-cornered garlic is not introduced or dispersed within the site of the proposed housing development, that the "Near Threatened" Little-robin plant, where confirmed present, is not accidentally disturbed during any future structural repairs which may be required to the southern masonry stone boundary wall, and in relation to the Swift boxes to be installed on the buildings.

14.0 Cumulative Impacts

14.1 Cumulative Impacts & In-combination Effects

The Ecological Impact Assessment (EcIA) process also requires consideration of the construction and operation of the proposed housing development in conjunction with other plans or projects, which may give rise to cumulative impacts or in-combination effects on Key Ecological Receptors.

Typically, all (proposed) plans and projects have or will be screened for Environmental Impact Assessment (EIA), and where required, mitigation measures will be put in place to avoid or minimise negative impacts.

Cumulative Impacts and in-combination effects are more likely, in circumstances where the physical footprint, the Zone of Influence and the timing (temporal aspects) of the various stages (advanced contracts, construction or operational) of existing, ongoing, and proposed projects overlap.

Given that industry best practice design and standards, best practice construction standards and guidance and site-specific mitigation measures are typically deployed to avoid or minimise negative impacts arising from a plan or project, the potential risk of cumulative impacts and in-combination effects is low, even if construction programmes for projects were to overlap. However, in certain circumstances the EcIA process may identify significant cumulative impacts and in-combination effects, which have not already been foreseen, and which may need to be addressed.

14.2 Other Strategies, Plans or Projects

Cork City and County Development Plan 2022

The Cork City Development Plan 2022-2028 (CCDP, 2022) sets out the hierarchal network of settlements throughout Cork City.

Under the CCDP (2022), the site is zoned ZO 01 – Sustainable Residential Neighbourhoods, with the objective of providing residential development supported by appropriate services, amenities, and sustainable transport infrastructure. The zoning also supports a range of complementary uses that serve residents' daily needs.

The site is located within an established suburban area characterised primarily by residential development, with a mix of commercial and community uses in the wider study area.

14.3 Summary

If granted there is potential for the advanced contracts, construction and operational stage of the proposed housing development to overlap with any of the granted and proposed developments listed above, in terms of the zone of influence, and temporal aspects. The is no overlap in terms of the physical footprint of the proposed site and the site boundary of other granted and proposed developments.

Table 14.1 Planning Applications in the Wider Study Area

Planning Ref No.	Development Description	Decision Date	Address	Distance
21/40196 (ABP-3144310-22)	Demolition of existing geodesic dome and the construction of 204 apartments across three blocks. The development also consists of the construction of a creche facility, ancillary rooms and facilities, car/bike parking, and associated site development works. The proposed development would be a material contravention of the development plan.	21/12/23	Site adjacent to Telus International, Loughmahon Link Road, Mahon, Cork City.	c.450m
24/42822	Permission for development at City Gate Plaza, Loughmahon Link Road, Mahon, Cork, comprising 2 no. four-storey over ground floor office buildings (Blocks A1 and A2) replacing a previously permitted office block, including rooftop plant enclosures, terraces, signage, and associated site development, drainage, and landscaping works.	09/09/24	Site known as City Gate Plaza, (former Ma/Comm site), Loughmahon Link Road, Mahon Cork	c.300m
Part 8	The construction of 22 no. new residential units, comprising of 4 no. 2 storey townhouses and 18 apartments in a 3 and 4 storey building, and all associated ancillary site and landscape	18/07/2025 (Submitted)	Ballinure Avenue, Mahon, Cork	c.800m

In terms of temporal aspects, the proposed projects may be constructed or operated concurrently, contiguously, or consecutively with the proposed housing development, thus resulting in potential cumulative impacts e.g., from habitat loss; noise, light and visual, and human activity related disturbances on existing wildlife, water pollution arising from accidental spillage or release of contaminants etc.

The extent of existing suburban disturbance at Mahon and Blackrock accords a certain level of acceptance of urban noise, light and visual and human activity related disturbances by wildlife. Given the nature, scale, and location of the proposed housing development and the other granted developments, and the proposals to implement industry best practice and standard construction guidance, there is limited potential for cumulative impacts or in-combination effects arising from the advanced contracts, construction and operational stage of the proposed housing in conjunction with other proposed projects.

Further to a review of the Cork City Council's planning viewer, there are no other known strategies, plans or projects on-going or proposed (at the time of this study) which in combination with the proposed Project may give rise to any form of significant cumulative impacts or in-combination effects on Cork Harbour SPA, Great Island Channel SAC, Cork Harbour Ramsar Site, Douglas River Estuary pNHA, Dunkettle Shore pNHA, Glanmire Wood pNHA, Rock Farm Quarry, Little Island pNHA, Cork Lough pNHA, Great Island Channel pNHA, or Douglas Estuary Wildfowl Sanctuary, and other Key Ecological Receptors within the Zone of Influence.

15.0 Conclusion

The proposed 0.91ha site, with a net development area (excluding Blackrock Avenue) totalling 7833m^2 or 0.78ha, is located on Blackrock Avenue, and accessed off the R852 Skehard Road in the southeast suburbs of Mahon and Blackrock in Cork City, approximately 4.35km to the southeast of Cork City Centre, in southwest Ireland.

The site is bound to the south by Mahon Boreen Pathway and a green open space, to the west by a greenway on the former Passage West railway line *i.e*. Passage Railway Greenway, to the east by Blackrock Avenue and Blackrock Hall (a 4-storey mixed-use neighbourhood centre building), and a new apartment complex Eden residential development (a 5-storey apartment/creche block) currently under construction to the north (O' Mahony Pike, 2025a).

The majority of the site is considered 'greenfield' dominated by intensively managed amenity grassland forming parkland with a few scattered trees, and scrub habitat along a small escarpment on the southern boundary, with patches of scrub on the western boundary.

The proposed development comprises of 114 no. residential apartment units (consisting of a mix of 1-bed and 2-bed units) split across 2 no. apartment blocks, which varies in height from three to five storeys over ground floor, together with all associated site development works including the provision of 56 no. car parking spaces and 231 no. secure bicycle parking spaces. Additionally, it includes approx. 697.8m^2 of communal open spaces and a centrally located public open space of approx. 1,701.5m^2 (McCutcheon Halley, 2026a).

Works to construct the proposed housing development are considered short term with a duration of 22-months.

The proposed housing development is located in a suburban environment which tolerates moderate to high traffic volumes at daily peak travel times.

Typical suburban background light, noise & visual disturbances and human activities are associated with urban roads and traffic, residential dwellings, healthcare facilities, and retail outlets. These suburban land uses include artificial lighting from outdoor security, public street lighting and indoor domestic and commercial uses, and vehicle head lamps, and a high pedestrian footfall.

The contextual framework of the existing suburban activities at Mahon and Blackrock accords a certain level of acceptance of noise, light and visual including human activity related disturbances by the existing wildlife where present including passerine birds, bats and small non-volant mammals from light, noise, visual disturbance, and human activity related impacts in the context of existing background levels.

The development of the site may involve the removal of up to 8 no. trees. Further to the completion of an Arboricultural Impact Assessment (AIA) some of the 8 no. trees may need to be removed, in any event, for health and safety reasons i.e., are Category "U" = particularly poor quality, dangerous or diseased trees that offer no realistic sustainability. The potential presence of Ash die back disease has been observed within the site. Of the potential trees to be removed, there are 6 no. native Hawthorn and Ash trees and 2 no. non-native Sycamore trees, none of which are considered mature trees.

Best practice and standard avoidance and mitigation control measures have been set out in this EcIA report to address potential impacts. It considered that the construction and operational stage of the proposed housing development will not have a significant negative impact on Key Ecological Receptors in the Zone of Influence for the following reasons:

- The site of the proposed Project does not overlap with any designated conservation area.
- With respect to designated conservation areas, the proposed site is located 0.8km from Douglas River Estuary pNHA (001046) and Douglas Estuary Wildfowl Sanctuary (WFS-67) and 1.1km from Cork Harbour SPA (004030) and Cork Harbour Ramsar Site (Site Code: 000837), at its closest point.
- With respect to non-designated habitats in the wider study area, the site is located 0.6km and 1km (respectively) from the transitional environment of the River Lee and Tramore River, 1km from the estuarine environment of Lough Mahon, and 7.4km from the coastal environment of Cork Harbour. The site is also located adjacent to Passage Railway Greenway which forms an urban ecological corridor.
- The site does not contain ex-situ supporting wetland habitat of Special Conservation Interest for Cork Harbour SPA.
- The site does not contain habitats considered to have an ecological value greater than Higher Value Local Importance (as per TII/NRA, 2008).
- The site of the proposed housing development provides limited potential nesting/roosting/ foraging/commuting habitat for terrestrial species such as passerine birds, bats and small non-volant mammals with the exception of scrub habitat on the southern boundary. The adjacent Passage Railway Greenway provides a nesting/roosting/foraging/commuting corridor for wildlife along the western boundary of the site.

Advanced Contracts & Construction Stage

- There is limited potential for direct impacts on habitats with an ecological value greater than Higher Value Local Importance (as per TII/NRA, 2008) as a result of temporary works or accidental ingress or egress during the advanced contracts or construction stage of the proposed housing development.
- Given the nature, scale and duration (combined 22-months) of the advanced contracts and construction works required under the Project, there is limited potential for a 'fight-or-flight' response by birds, bats and small non-volant mammals to light, noise, visual disturbance and human activity related impacts within the contextual framework of the surrounding suburban landscape and existing background levels. Any disturbance-related impacts arising from the construction stage are considered temporary in nature.
- There is one surface water pathway between the proposed housing development and the transitional/estuarine/marine environment via contaminants which could enter overland flows, or gullies along adjoining roads, which discharge to the River Lee/Lough Mahon/Cork Harbour via a hydrocarbon interceptor.

- Any overland flows of surface water containing contaminants will enter the existing gullies on adjoining roads, which are connected to the surface water drainage system. As the installation of the SuDs system progresses during the construction stage, overland flows will subsequently be picked up by the SuDs measures. Any excess surface water runoff from the SuDS system and attenuation tank will be directed to the existing surface water drainage system on Blackrock Avenue, via silt traps and sediment controls and a bypass interceptor, which ultimately discharges to the River Lee/Lough Mahon/Cork Harbour.
- There is a potential groundwater pathway between the proposed housing development and the estuarine environment via the percolation of contaminants through the overburden into groundwater baseflows/table which discharge to River Lee/Lough Mahon/Cork Harbour.
- The Contractor is required to prepare a Construction & Environmental Management Plan (CEMP) which will include details of industry best practice and standard construction guidance including the deployment of an Aquatic Environmental Protection System (AEPS) to protect the water quality of the transitional/estuarine environment of the River Lee/Tramore River/Lough Mahon/Cork Harbour prior to the commencement of the advanced contract and construction works.
- The CEMP will include details of industry best practice and standard construction guidance including the use of pre-earthworks drainage, sealed double shuttering during concrete pours, concrete washout areas, siltation control devices and dust suppression *etc*.
- Any water pollution events arising from the proposed Project are likely to be of a slight magnitude and rare, once the CEMP including industry best practice and standard construction guidance have been adhered to.

Operational Stage

- There is limited potential for direct impacts on habitats with an ecological value greater than Higher Value Local Importance (as per TII/NRA, 2008) as a result of the permanent structures, hard & soft landscaped areas associated with the proposed housing development.
- Given the nature and scale of day-to-day activities, once the apartment complex is occupied during the operational stage of the proposed housing development, there is limited potential for a 'fight-or-flight' response by birds, bats and small non-volant mammals to light, noise, visual disturbance and human activity related impacts within the contextual framework of the surrounding suburban landscape and existing background disturbance levels. The extent of existing disturbance at Mahon and Blackrock accords a certain level of acceptance of urban noise, light and visual and human activity related disturbances by wildlife. While any disturbance-related impacts are considered permanent in nature, significant impacts are considered unlikely.
- The proposed external lighting design for the housing development shall incorporate directional or shielded LED luminaires to minimise light pollution and overspill. Final lighting positions will be determined following further design development and completion of detailed lighting calculations.

- Micro-siting of the car park, hard landscaping and ancillary services *etc.* shall be undertaken onsite, in consultation with the Arborist, with the intention of retaining as many trees as possible, as part of the design, where practically feasible.
- There is limited potential for impacts on the habitats of local bird and mammal populations within the site, due to proposals to retain trees where practically feasible, to retain and interplant with native trees and shrubs the scrub habitat on the southern boundary, to plant mostly native trees and shrubs throughout the communal green open spaces, to utilise directional or shielded LED lighting, along with the installation of bat and bird boxes within the site.
- There is limited potential for impacts on the adjacent Passage Railway Greenway, due to proposals to install a permanent boundary fence (permeable to small non-volant mammals), to interplant the existing scrub to create a native hedgerow on the adjoining western boundary, to utilise directional or shielded LED lighting, and to install bat and bird boxes along the greenway. It is noted that the hedgerow planting along the fence will not take effect (mature) until Year 15 post planting. "Standard" trees shall be included in the design of the hedgerow to accelerate the establishment of the hedgerow.
- The risk of bird collisions will be limited through the provision of visual markers on glass facades such as deterrent stickers or window "decals" with patterned dots in specified densities placed on the outside surface of the windows or through the use of "bird-safe materials" such as etched, frosted or UV reflective glass.
- There is limited potential for water pollution events arising during the operational stage given that all surface water runoff will be picked by the SuDs system and a conventional attenuation tank during peak flows. Any excess surface water runoff from the SuDS system and attenuation tank will be directed to the existing surface water drainage system on Blackrock Avenue, via silt traps and sediment controls and a bypass interceptor, which ultimately discharges to the River Lee/Lough Mahon/Cork Harbour.
- There is limited potential for water pollution events during the operational stage, given that all foul water will discharge to the existing foul water network on Blackrock Avenue and will be treated in the Municipal Wastewater Treatment Plant.
- It is not envisaged that substantial maintenance or repair works to the proposed housing development will be required within the next 15 years. There is no requirement to assess any future maintenance works in respect of the potential for significant impacts, given that the scale of the maintenance and repair works will be less than that required under the proposed construction of the proposed Project. Where Little-robin is confirmed present, maintenance of the southern stone masonry boundary wall should only be completed under the supervision of an ecologist.

In summary, provided that the site specific and industry best practice and standard construction guidance control measures, as set out in this EcIA report are adhered to, it considered that the construction and operational stage of the proposed housing development will not have a significant negative impact on Key Ecological Receptors in the Zone of Influence.

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Appendix I

SITE LAYOUT

Proposed Site Layout Plan

Application site outlined in red

Wayleave

Note: Refer to Landscape Architect's drawings & reports for landscape proposals & boundary treatments and to Civil & Structural Engineer's drawings & reports for roads & services information

OS MAP REF: 6383-20; 6383-15

Tailte Éireann Licence No. CYAL50511690

All dimensions in millimeters.

All levels (in metres) are related to Malin Head datum.

Revision Description	Date	Rev. No.	Issued by
Planning issue (Draft)	13-05-2026	A3-C01	AR
Planning issue	26-06-2026	A3-C02	EON

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Drawing Title: Proposed Site Layout Plan
Drawing No.: 25040-OMP-01-00-DR-A-1000

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Appendix II

BOTANICAL LIST

Within Site Boundary		
Common name	**Scientific name**	**GPS Coordinates**
Annual Meadow-grass	*Poa annua*	
Ash	*Fraxinus excelsior*	
Atlantic Ivy	*Hedera hibernica*	
Bilbao's Fleabane	*Erigeron floribundus*	
Bramble	*Rubus fruticosus* agg.	
Broad-leaved Dock	*Rumex obtusifolius*	
Butterfly-bush	*Buddleja davidii*	
Carrot	*Daucus carota*	
Cat's-ear	*Hypochaeris radicata*	
Changing Forget-me-not	*Myosotis discolor*	
Charlock	*Sinapis arvensis*	
Cleavers	*Galium aparine*	
Cock's-foot	*Dactylis glomerata*	
Common Centaury	*Centaurium erythraea*	
Common Couch	*Elymus repens*	
Common Field-speedwell	*Veronica persica*	
Common Knapweed	*Centaurea nigra*	
Common Mouse-ear	*Cerastium fontanum*	
Common Nettle	*Urtica dioica*	
Common Ragwort	*Jacobaea vulgaris*	
Common Ramping-fumitory	*Fumaria muralis*	
Common Sorrel	*Rumex acetosa*	
Common Vetch	*Vicia sativa*	
Creeping Bent	*Agrostis stolonifera*	
Creeping Cinquefoil	*Potentilla reptans*	
Creeping Thistle	*Cirsium arvense*	
Crested Field-speedwell	*Veronica crista-galli*	
Curled Dock	*Rumex crispus*	
Cut-leaved Crane's-bill	*Geranium dissectum*	
Daisy	*Bellis perennis*	
Dandelions	*Taraxacum*	
Elder	*Sambucus nigra*	
False Oat-grass	*Arrhenatherum elatius*	

Field Wood-rush	*Luzula campestris*	
Germander Speedwell	*Veronica chamaedrys*	
Gorse	*Ulex europaeus*	
Great Willowherb	*Epilobium hirsutum*	
Greater Bird's-foot-trefoil	*Lotus pedunculatus*	
Greater Plantain	*Plantago major*	
Grey Sedge	*Carex divulsa*	
Groundsel	*Senecio vulgaris*	
Hairy Bitter-cress	*Cardamine hirsuta*	
Hart's-tongue	*Asplenium scolopendrium*	
Hawthorn	*Crataegus monogyna*	
Hedge Mustard	*Sisymbrium officinale*	
Hedge Woundwort	*Stachys sylvatica*	
Herb-Robert	*Geranium robertianum*	
Hogweed	*Heracleum sphondylium*	
Ivy-leaved Toadflax	*Cymbalaria muralis*	
Lesser Celandine	*Ficaria verna subsp. verna*	
Lesser Trefoil	*Trifolium dubium*	
Little-Robin???	*Geranium purpureum*	W7173571039
Lords-and-Ladies	*Arum maculatum*	
Meadow Buttercup	*Ranunculus acris*	
Meadow Vetchling	*Lathyrus pratensis*	
Montbretia	*Crocosmia x crocosmiiflora*	
Nipplewort	*Lapsana communis*	
Oxeye Daisy	*Leucanthemum vulgare*	
Perennial Rye-grass	*Lolium perenne*	
Procumbent Pearlwort	*Sagina procumbens*	
Red Clover	*Trifolium pratense*	
Red Dead-nettle	*Lamium purpureum*	
Red Fescue	*Festuca rubra*	
Red Valerian	*Centranthus ruber*	
Red-osier Dogwood	*Cornus sericea*	
Ribwort Plantain	*Plantago lanceolata*	
Round-leaved Crane's-bill	*Geranium rotundifolium*	
Rustyback	*Asplenium ceterach*	