

Ecological Impact Assessment



Strategic Housing Development

Redforge Road, Blackpool, Co.
Cork

On behalf of
Bellmount Developments Limited





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Strategic Housing Development
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Redforge Road, Blackpool, Co. Cork**

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1 INTRODUCTION

1.1 Background and Purpose of Report

Malone O'Regan Environmental Services (MORES) were commissioned by Bellmount Developments Limited ('the Applicant') to undertake an Ecological Impact Assessment (EclA), a proposed Strategic Housing Development (SHD) and all associated works on lands at Redforge Road, Blackpool, Co. Cork. (OS Reference W 67582 74022).

The location of the proposed development ('the Site') is shown in Figure 1-1.

Figure 1-1: Site Location



The objective of this EclA was to survey and assess the land within and adjacent to the Site for the presence of any habitats or species that could present a constraint on or an opportunity for enhancement due to the proposed development.

1.2 Statement of Authority

The report was approved by Mr. Dyfrig Hubble, Principal Ecologist. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management. Dyfrig has over 15 years' experience working in the ecological consultancy sector, including habitat surveys and appraisals, and specialist protected species surveys.

1.3 Legislation and Planning Policy Context

1.3.1 Legislation Policy Context

Within Ireland, a number of sites of international or national importance to nature conservation, as well as many species of animal and plants are afforded a degree of legal protection, as set out in Box 1 below.

A study of biodiversity related planning policy at both national and local level has been undertaken for the Site and locality in order to highlight any potential conflicts with the relevant legislation and guidance documents.

Box 1 Designated Wildlife Sites and Protected and Otherwise Notable Habitats and Species

The National Parks and Wildlife Service (NPWS) notifies sites in Ireland that are of international or national importance for nature conservation (although some sites that are of national importance for certain species have not been so designated).

Internationally important sites may also be designated as:

- Special Areas of Conservation (SACs): the legal requirements relating to the designation and management of SACs in Ireland are set out in the European Communities (Natural Habitats) Regulations 1997 (as amended) (Habs Regs);
- Special Protection Areas (SPAs): strictly protected sites classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC), also known as the Birds Directive; and,
- Ramsar sites: wetlands of international importance designated under the Ramsar Convention, to which Ireland is a signatory.

Other statutory site designations relating to nature conservation are:

- National Heritage Areas (NHAs): these represent examples of some of the most important natural and semi-natural terrestrial and coastal habitats in the country and are afforded protection under the Wildlife (Amendment) Act 2000. NHAs are legally protected from damage and receive protection from the date they are formally proposed for designation; and,
- Proposed Natural Heritage Areas (pNHAs): these sites are afforded the same protection as NHAs under the Wildlife (Amendment) Act 2000 from the date that they are formally proposed for designation.

Legally protected species

Many species of animal and plant receive some degree of legal protection. For the purposes of this study, legal protection refers to:

- Species included in the Wildlife (Amendment) Act 2000, excluding species that are only protected in relation to their sale, reflecting the fact that the site disposal will not include any proposals relating to the sale of species; and,
- Species afforded protection under the Flora Protection Order 1999.

Other notable habitat/species categories

- Biodiversity Action Plan (BAP) species: those targeted in local or national BAPs as being of particular conservation concern (priority species);
- Red and Amber List birds: those listed as being of high or medium conservation concern as listed by Birdwatch Ireland [1]; and,
- Other Irish Red Data Book species and Nationally/Regionally/Locally Notable species where appropriate.

1.3.2 National Planning Context

1.3.2.1 Planning Policy Statement

The National Planning Policy Statement 2015 [2] states via Key Principle No. 8, in relation to Biodiversity, that:

'Planning will conserve and enhance the rich qualities of natural and cultural heritage of Ireland in a manner appropriate to their significance, from statutorily designated sites to sites of local importance, and including the conservation and management of landscape quality to the maximum extent possible, so that these intrinsic qualities of our country can be enjoyed for their collective contribution to the quality of life of this and future generations.'

The same document, in relation to conservation of natural heritage, states as Key Principle No. 9 that:

'Planning will support the protection and enhancement of environmental quality in a manner consistent with the requirements of relevant national and European standards by guiding development towards optimal locations from the perspective of ensuring high standards of water and air quality, biodiversity and the minimisation of pollution risk.'

1.3.3 Local Planning Context

1.3.3.1 Cork City Development Plan 2015 - 2021

The Cork City Development Plan 2015-2021 [3] states that:

'It is the aim of the Council to protect, promote and conserve Cork City's natural heritage and biodiversity.'

Objective 10.7 - Designated areas and protected species

- a. *To protect enhance and conserve designated areas of natural heritage and biodiversity and the habitats, flora and fauna for which it is designated;*
- b. *To protect enhance and conserve designated species and the habitats on which they depend;*
- c. *To ensure that any plan/ project and any associated works, individually or in combination with other plans or projects are subject to Appropriate Assessment Screening to ensure there are no likely significant effects on the integrity (defined by the structure and function) of any Natural 2000 site(s) and that the requirements of Article 6 (3) and 6(4) of the EU Habitats Directive are fully satisfied. When a plan/project is likely to have a significant effect on a Natural 2000 site or there is uncertainty with regard to effects, it shall be subject to Appropriate Assessment. The plan/project will proceed only after it has been ascertained that it will not adversely affect the integrity of the site or where, in the absence of alternative solutions, the plan/project is deemed imperative for reasons of overriding public interest, all in accordance with the provisions of Article 6(3) and 6(4) of the EU Habitats Directive.*

Objective 10.8 – Non-Designated Areas of Biodiversity Importance

- a. *To work with local communities, groups, landowners, National Parks and Wildlife Service and other relevant parties to identify, protect, manage and where appropriate enhance and promote sites of local biodiversity value;*
- b. *To map the City's ecological networks/corridors of local biodiversity value outside of designated areas;*
- c. *To encourage the management of features which are important for wild flora and fauna. Such features are those which by virtue of their linear or continuous nature e.g., rivers, tree groups or hedgerows are essential for the migration dispersal and genetic exchange of wild species.*

Objective 10.9 - River and Waterway Corridors

To protect and maintain the integrity and maximise the potential of the natural heritage and biodiversity value of the River Lee and its associated watercourses. To promote an integrated approach to the future development of the River Lee so that it includes all aspects of use e.g., recreation, maritime history and economic factors

Development proposals in river corridors shall:

- a. *Dedicate a minimum of 10m from the water's edge in channelized rivers for amenity, biodiversity and walkway purposes;*
- b. *Dedicate a minimum of 15m from the top of the bank in non- channelized rivers for amenity, biodiversity and walkway purposes;*
- c. *Preserve the biodiversity value of the site subject to Ecological Assessment by a suitably qualified Ecologist;*

d. Shall not involve landfilling, diverting, culverting or realignment of river and stream corridors;

e. Shall not have a negative effect on the distinctive character and appearance of the waterway corridor and the specific characteristics and landscape elements of the individual site and its context.

Objective 10.10 - Trees and Urban Woodland

d. To ensure that new development benefits from adequate landscape structure / tree coverage, particularly in areas of the city with inadequate tree coverage.

Objective 10.12 - Alien Species

To implement measures to control and prevent the introduction and establishment of ecologically damaging alien invasive species (e.g., Japanese Knotweed and Himalayan Balsam).

Objective 10.13 Biodiversity Plan Actions

To adopt and implement the remaining actions from the Cork City Biodiversity Plan into the Heritage Plan 2014-2018.

1.3.3.2 Cork City Biodiversity Action Plan 2009-2014

The overall aim of the Cork City Biodiversity Action Plan is:

‘To promote the appreciation and enjoyment of Cork City’s biodiversity amongst the people of the city and to identify, understand and conserve the biodiversity of the city for future generations.’

Objective 1: *To identify measures to protect and enhance the biodiversity of Cork City.*

Objective 2: *To research and disseminate information on the biodiversity of Cork City.*

Objective 3: *To promote interest and knowledge of Cork City’s biodiversity through training and education.*

Objective 4: *To raise awareness and enjoyment of Cork City’s biodiversity and encourage participation and partnership amongst all.*

2 METHODOLOGY

2.1 Assessment Methodology for Prediction of Effects

The EclA process was undertaken in parallel with the proposed development design with a view of minimising the adverse ecological effects of the proposed development and, where possible, delivering benefits for biodiversity. Desk study data collection and field survey work were carried out as part of the EclA process, with the objective of ensuring that sufficient data was collected to identify the designated sites, habitat areas and species that could be significantly affected by the proposed development. This information then informed the assessment of effects on the potential biodiversity receptors.

The area for which biological data was collected was based on an assessment of the ecological zone of influence of the proposed development. The ecological zone of influence is the area that could be affected by the proposed development, within which there is the potential for significant ecological effects. The starting point was that significant effects on designated nature conservation sites were unlikely to occur over 2km from the proposed Site boundary. However, adopting the precautionary principle, all SACs and SPAs within a 15km radius and all nationally designated sites for conservation within a 5km radius of the proposed development Site have been identified and impacts considered. Significant effects on priority habitats and species were considered unlikely at over 1km away. Desk study data were collected for this area (See Section 4.1), whilst field surveys focused on the site of the proposed development (See Section 4.2).

It should be noted that there was the potential for the zone of influence to be redefined during the assessment process in response to new design or environmental information, and / or for the geographical extent of field surveys to be extended to cover a greater extent of the desk study area (e.g., if the desk study identified species occurring off-site that could be significantly affected by the proposed development). In the end, such an increase in the study area was not required for this assessment (see Section 5.2).

The next stage of the assessment was to determine which, if any, of the sites, habitats and species within the zone of influence (referred to in this report as 'potential biodiversity receptors') had the potential to be significantly affected by the proposed development (see Section 5). A high level 'scoping' assessment was then undertaken (see Section 5) to differentiate effects that were sufficiently likely to be significant as to merit more detailed assessment, from those that could be assessed at a less detailed level as they were classified as not likely to be significant (referred to as 'scoped-out' effects).

The assessment of how the potential biodiversity receptors would likely be affected by the environmental changes associated with the proposed development was based not only on the results of the desk study and field surveys, but also on published information on the potential biodiversity receptors' status, distribution, sensitivity to these changes, biology, and knowledge of ecological processes and functions, as appropriate.

2.2 Desk Study

A desk-based review of information sources was completed, which included the following sources of information:

- The National Parks and Wildlife Service (NPWS) website was consulted to obtain the most up to date detail on conservation objectives for the Natura 2000 sites relevant to this assessment [4];
- The National Biodiversity Data Centre (NBDC) website was consulted with regard to species distributions within 2km of the Site [5]; and,
- The EPA Envision website was consulted to obtain details about watercourses in the vicinity of the Site (<https://gis.epa.ie/EPAMaps/>) [6].

2.3 Field Survey

2.3.1 Habitat Survey

A Habitat Survey was undertaken using the Fossitt's Guide to Habitats in Ireland [7]. The survey aimed to identify the extent and quality of habitats present on the Site. The survey was carried out by two (2No) suitably qualified and experienced MOR ecologists on May 19th, 2021.

The assessment was extended to also identify the potential for these habitats to support other features of nature conservation importance, such as species afforded legal protection under either Irish or European legislation.

2.3.2 Protected / Notable Species

The methodologies used to establish the presence / potential presence of faunal species are summarised below. These relate to those species / biological taxa that the desk study and habitat types present indicated could occur on the Site.

Bats

An initial assessment was carried out during the habitat survey for suitability of the habitats within the Site to support bat roosting, foraging and commuting. The inspection was undertaken using close-focusing binoculars, a powerful focused-beam light source and an endoscope.

The following criteria were used to assess mature trees onsite:

- Presence of natural cavities, splits, cracks, loose bark and rot holes in the trunk or boughs of the tree;
- Presence of dense and woody ivy (*Hedera helix*) growth that could be used by bats for roosting;
- Evidence of bat droppings, which may also be seen as a black streak beneath holes, cracks, branches, etc; and,
- Presence of smooth edges with dark marks and urine stains at potential entrances to roosts.

Existing buildings were also inspected for was assessed for the presence of features suitable for roosting bats. An internal inspection of the building was also undertaken to determine if there were any signs of bat activity using the following criteria:

- Evidence of bat droppings / urine splashes;
- Bat specimens (live or dead);

- Evidence of feeding remains, (insect wings on the floor); and,
- Evidence of fur-oil staining.

Given the presence of features suitable for roosting bats, follow up Dusk and Dawn bat surveys were also undertaken for the Site to confirm if the building or any of the trees were being used by roosting bats.

All survey were undertaken in accordance with recognised best practice (Full details of the survey methodology are provide in Appendix C)

Birds

The Site was assessed for its potential to support important assemblages of birds of rare or notable species. Surveys aimed to identify and examine areas where wintering and breeding birds might occur. Any activity and potential nesting habitats were noted.

Invasive species

The Site was assessed for the presence of any noxious / invasive species such as Japanese knotweed (*Fallopia japonica*) and any other invasive species.

Other Species

In addition, an assessment was carried out of the potential for the Site to support any other species considered to be of value for biodiversity.

2.3.3 Survey Limitations

There were no survey limitations.

2.4 Assessment Methodology

The current Guidelines for Ecological Impact Assessment in the UK and Ireland [8] recognise that an ecological assessment cannot consider in detail every individual species or habitat that may potentially be affected by a proposed development. The EclA process aims to identify those ecological receptors that could be significantly affected by the proposed development i.e., where the effects on the receptor are of sufficient concern that they could influence the planning decision) or for which the development could result in the breach of relevant legislation. The effects of the proposed development on these receptors are then assessed, taking into account the sensitive design measures (avoidance measures) and where necessary the mitigation measures incorporated as part of the proposed development. The scope of the EclA is determined iteratively.

2.4.1 Significance Evaluation Methodology

As part of the high-level assessment reported in Section 5.1, the conclusion about whether effects are sufficiently likely to be significant as to merit more detailed assessment is informed by a judgement about whether:

- The Site, habitat or species population is of sufficient quality or size that an effect upon it could be significant; and,
- The environmental changes associated with the development are such that there is the potential for a significant effect to occur (i.e., for the integrity of a site or for the conservation status of a habitat area or species population to be affected).

If the answer to both of these questions is yes, the relevant receptor would be subject to more detailed assessment and the significance of effects would be evaluated based on the methodology that is outlined below.

2.4.1.1 Negative Effects

For biodiversity receptors, an effect is assessed as being significant if the favourable conservation status of the specified biodiversity receptor is compromised by the proposed development. Conservation status is defined by CIEEM (2016) as follows:

- *“Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area;”* and,
- *“Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.”*

The decision as to whether the conservation status of the specified biodiversity receptor has been compromised has been made using professional judgement, drawing upon the results of the assessment of how each receptor will be affected by the proposed development.

A similar procedure has been used for designated sites that are affected by the proposed development, except that the focus is on the effects on the integrity of each site, defined as “the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and / or the levels of populations of the species for which it was designated.”

2.4.1.2 Positive Effects

A positive effect is assessed as being ‘significant’ if development activities are predicted to cause:

- An improvement in the condition of a habitat / species population from unfavourable to favourable – condition data are only available for some Natura sites, but professional judgement and a review of available literature has been used to apply the same principle to habitats / species elsewhere; or,
- Partial or total restoration of a site’s favourable condition.

If a species population, habitat or site is already in favourable condition, it is still possible for there to be a significant positive effect. There is however no simple formula for determining when such effects are significant, given the complexities of assessing these types of effects. In such cases, decisions about significance have therefore been made on a case-by-case basis.

2.5 Identification of Potential Biodiversity Receptors

The assessment of the ecological zone of influence of the proposed development concluded that the development would be likely to result in changes in the extent and / or condition of the existing land cover on the Site, with potential effects on habitats and species on the Site. There is also the potential for effects on any areas that adjoin the site, where fauna might make use of the land cover onsite.

The potential for off-site changes in noise and dust deposition was also assessed. It was concluded that, with the dust and noise control measures that have been built into the proposed development proposals, which are important for avoiding significant effects on people as well as biodiversity, there is no likelihood of significant effects associated with either dust or noise.

In summary, therefore, the ecological zone of influence of the proposed development is defined as:

- The Site of the proposed development (fauna and flora); and,

- Habitats adjoining the Site (fauna).

In the case of designated sites, a precautionary approach has been taken and the search area extended to identify sites outside of the zone of ecological influence. This information was used to further inform the assessment process and to ensure that the onsite habitats are not of importance for either habitats or species for which these sites have been designated.

As a basis for determining which biodiversity receptors need to be assessed within the zone of influence of the development, CIEEM's guidelines on EclA recommend that consideration be given to the biodiversity conservation value of the sites, habitats and species that occur within the zone (as appropriate). The guidelines also refer to the need to consider the legal status that is afforded to some species and habitats (See Box 1).

Legal status needs to be considered because all developments must comply with the requirements of the law. By implication, therefore, there cannot be significant effects as a result of non-compliance with the law. However, it should be noted that, notwithstanding legal requirements, there is the potential for some legally protected species to be significantly affected in relation to their biodiversity conservation value.

In relation to biodiversity conservation value, only those designated sites, habitat types and species that fall within one or more of the categories defined in Box 1 are of sufficient importance that they could be significantly affected by the proposed development.

Drawing upon the biological data assembled for the purposes of this EclA (Section 4), the potential receptors in relation to the proposed development are discussed in Section 5.

3 DESCRIPTION OF THE PROJECT

The Site is located in Cork City, within a predominately urban landscape. The Site is approximately 0.73ha hectares (ha) in size. The Site is currently occupied by a petrol station, carwash and car parking area.

The existing ground profile is generally flat with a slight north to south fall. Levels vary from 13.5m to 15m OD. The proposed floor level is 14.1m OD.

The Site is predominately made up of hardstanding with a petrol filling station and associated roof with some limited trees, bushes and vegetation along the majority of the site boundary.

The key infrastructure at the Site includes the following:

- A car park which covers the northern area of the Site;
- A fuel filling station/grocers and associated filling station roof with pumps;
- A carwash area in the south-east portion of the Site; and
- A small yard area for deliveries and waste storage located to the west of the Site behind the petrol station.

3.1 Surrounding Land Uses

The Site is located in an area of mixed commercial and residential land use. It is zoned as “District Centres” and surrounded by areas zoned as “Residential, Local Services and Institutional Uses” and “Public Open Space.”

The objectives of “District Centres” are outlined in the Cork City Development Plan 2015-2021 [3] as follows: “To support the vitality and viability of Suburban District Centres to ensure that such centres provide an appropriate range of retail and non-retail functions to serve the needs of the community and respective catchment areas, with an emphasis on convenience and appropriate (lower order) comparison shopping, in order to protect the primacy of Cork City Centre.”

The Site is adjoined to the north by residential premises, to the east by railway cuttings and a railway line, by a multi-storey car park to the south and by a gym and Blackpool park to the east. Large commercial buildings are located to the northwest of the Site off Commons Road, including a large area of apparent brownfield land adjacent to the North of the Site. Refer to Table 3-1 below for a breakdown of adjacent land uses.

Table 3-1 Adjacent Land Use

Boundary/Direction	Land Use
North	Residential properties
South	Multi-Storey Car Parking
West	Commercial premises (Retail Park) and then bounded by Passive Open Space (Blackpool Park)
East	Railway Line and then residential properties

3.2 Watercourses within the Vicinity of the Site

The Site and adjacent watercourses are located within the Kiln_SC_010 sub-catchment, forming part of the overall Lee, Cork Harbour and Youghal Bay WFD Catchment [5].

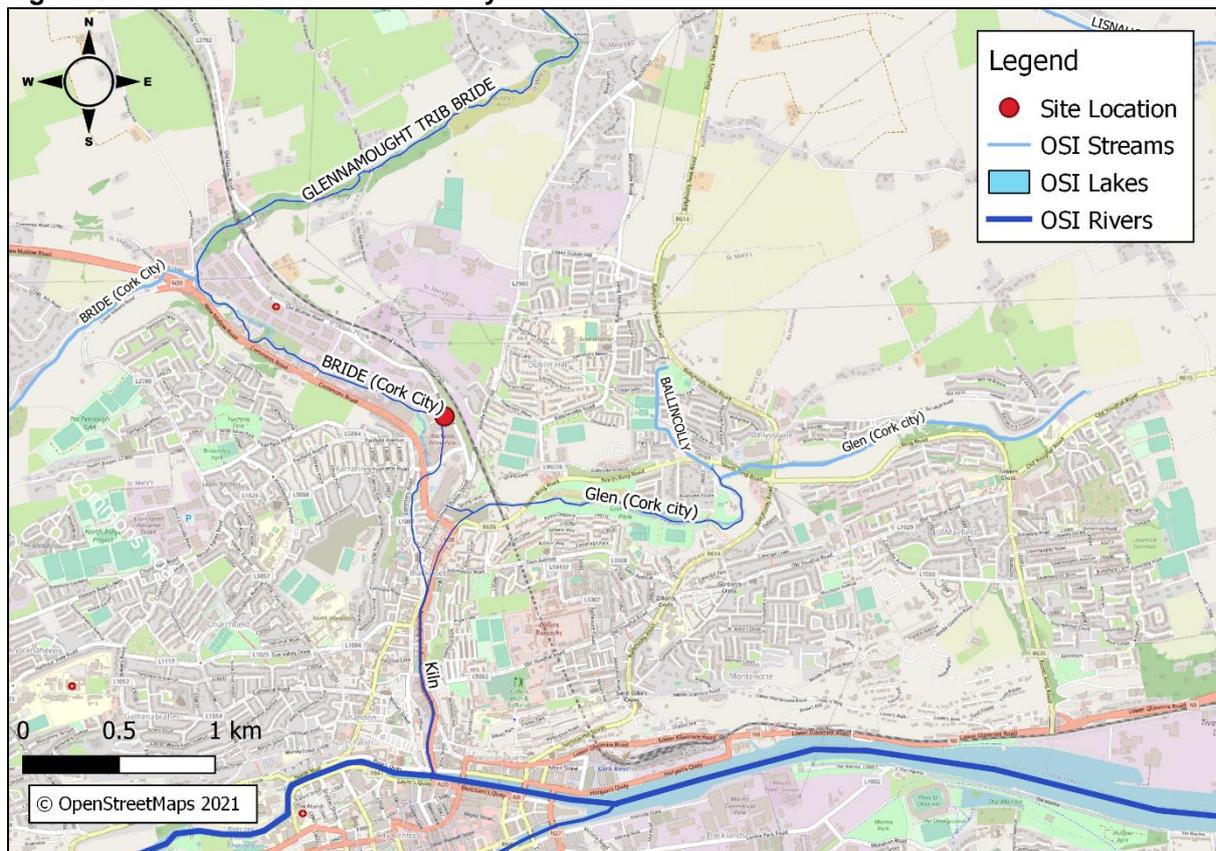
The Bride (Cork City) River is the closest watercourse to the Site, located ca. 80m west of the Site at its closest point. The river has been redirected above ground in Blackpool Park, to the west of the Site.

The Glen (Cork City) River is located ca. 500m south of the Site. The Bride River converges with the Glen River ca. 750m south of the Site to form the Kiln River. The Kiln River then continues in a southerly direction for ca. 1km before joining the River Lee (North Channel). The River Lee then travels for ca. 5.6km before discharging in Cork Harbour.

According to the Water Framework Directive 2013–2018 (WFD), the status of all of the above-mentioned river watercourses are currently 'unassigned' but they are all considered to be 'at risk.'

The location of the key surface water features in the vicinity of the Site are illustrated in Figure 3-1 below.

Figure 3-1 Watercourses in the Vicinity



3.3 Proposed Development

The proposed development will include demolition of existing petrol station and construction of residential apartments.

The proposed development is for a 5-year permission for a Strategic Housing Development at Millfield Service Station, Redforge Road, Blackpool, Cork comprising:

- The demolition of existing structures on site including a single storey building, pump island canopy, 4 no. fuel pumps and the decommissioning/removal of 4 no. underground fuel tanks; and
- The construction of 114 no. Build to Rent apartments (comprising a mix of 1 and 2 bed apartments) in 2 no. blocks, ranging in height from 4 to 9 storeys;
- Residential amenity facilities including a reception, residents' gym, lounge area and shared workspace;

Surface Water Drainage

The existing site is comprised of buildings and hardstanding's with un-attenuated outflow to the public drainage network and Bride River system. There is an existing 750mm diameter surface water drainage pipe running along Redforge road, east of the proposed site and returns along the southern perimeter.

The surface water drainage design for the proposed development has been carried out in accordance with SuDS and Cork City Council requirements.

The proposed surface water drainage system will collect storm-water run-off generated from the residential roofs and impermeable hard surfaces via gullies. The storm water will then drain to an on-site, below ground level attenuation facility. Attenuation capacity is designed for a 1 in 30-year storm event + 10% allowance for climate change. The attenuation tank capacity required is 40.8m³. Surface water outfall from the attenuation tank is to be restricted by a Hydro brake to limit the flow to the existing public storm drainage system. This surface water will then be discharged to the existing public drainage system, east of the site.

The proposed discharge rate from the site will be lower than the pre-development run-off levels in line with the SUDS requirement. Provision has also been made for an area of soft landscaping including grass, planting and trees, at ground floor externally to the west of the complex to improve the sustainability of the scheme. Petrol interceptors have not been included as there is no hardstanding car park proposed within the site.

Foul Water Drainage

There is an existing 375mm diameter foul sewer pipe running along Redforge road, east of the proposed site. The existing network then returns along the southern perimeter of the site beneath the public roadway. An existing combined sewer is located to the west of the proposed site. A 10 meters way leave is associated with this combined sewer and this right of access is to be retained as required by Irish Water to inspect and maintain the pipeline and chambers.

The wastewater discharge for the development is calculated in accordance with Irish Water's Code of Practice for Wastewater Infrastructure. The pipework will be 225mm diameter. The foul sewer will discharge to the existing system. All foul sewers and manholes will be constructed in accordance with the Irish Water Standard Details and the Irish Water Code of Practice for Wastewater.

The foul sewer will be discharged to the existing system which is main UWWTP for Cork City at Carrigrennan.

Irish Water have confirmed that based on the size of the proposed development and on the capacity currently available, that subject to a valid connection agreement being put in place, the proposed connection to the Irish Water network can be facilitated. Foul water design calculations will be submitted with planning application.

3.3.2 Water Supply

Irish Water have advised that the existing 100mm diameter watermain on Redforge Road is not sufficient for supplying the proposed development. Therefore, in order to accommodate the proposed connection to Irish Water network at the premises, approx. 175m of the existing 100mm watermain needs to be upgraded to 150mm diameter.

The proposed water main design and layout is in accordance with the Irish Water Code of Practice for Water Infrastructure and The Irish Water Infrastructure Standard Details. The total peak water demand of the proposed development is estimated to be 3.3 l/s. In accordance with best practice, new water saving devices (low water usage appliances and aerated taps

etc.) will be fitted as per standard into the proposed new units. Individual water meters for each apartment will be fitted on the incoming watermain in a designated area of the proposed development.

3.4 Internal Access/Circulation

This existing use of the site generates a high number of access and egress vehicular movements each day. This movement is related to customers, staff and service/delivery personnel.

There will be a reduction to the current vehicle traffic movements surrounding the site from the proposed development. There is no provision for vehicular parking spaces to be provided within the site boundary. Once occupied, the traffic to the site will likely be from pedestrians, cyclists, residential tenants as well as occasional delivery and refuse collection. Therefore, the level of vehicle trip generation from the proposed accommodation development will be relatively low. As a result of this, there will be no material impact on the operational performance of the surrounding road network and any change will be minimal.

3.4.1 Pedestrian Access

It is expected that many of the tenants living in the residence will access the development by foot. Footpath infrastructure surrounding the site and its environs is well developed due to the existing neighbouring retail units. Footpaths are considered an acceptable approach to the proposed residential development.

3.4.2 Cycle Access

Bicycle storage bays will be provided within the development to encourage travel by bicycle. The provision for appropriate level of bicycle parking for proposed development is provided in accordance with Cork City Council requirements.

3.4.3 Emergency Vehicle and Refuse Collection Access

The existing vehicular entrance along Redforge Road will be removed. The proposed new vehicular entrance will be to the west of the site, between blocks A and B, and the proposed new vehicular exit will be to the north of the site. The new entrance/exit and internal road layout is designed to accommodate a fire tender vehicle and a refuse heavy goods vehicle. The internal pathway providing access to the western section of the site will be designed and constructed to handle emergency vehicle traffic loading.

3.5 Earthworks

Earthworks will include the excavation for the proposed attenuation tank and drainage system. Four (4No.) of existing fuel tanks, related fuel lines and existing hydrocarbon interceptor will also need to be excavated. Foundations for the buildings will be piled, minimising earthworks requirements. Excavations across the site will be required to a depth of 0.4m which will be backfilled with 0.5m of clean engineering fill material.

3.6 Landscaping

A Landscape Plan has been developed for the Site and incorporates supplementary plantings of native species. The Landscape Plan can be seen in Appendix B.

3.7 Demolition and Construction Procedures

During the demolition and construction phases of the proposed development potential environmental effects will be short-term and localised. Nonetheless, all works will comply with the relevant legislation, construction industry guidelines and best practice in order to reduce potential environmental impacts associated with the works. Where remaining potential impacts

have been identified, additional mitigation measures will be employed to reduce, as far as practicable potential impacts.

All potential demolition phase environmental impacts will be addressed through the implementation of a comprehensive Demolition and Construction Waste Management Plan (D&CWMP) in accordance with current best practice guidelines. This plan will be agreed with Cork City Council (CCC) and relevant statutory bodies for the proposed works.

A Construction Environmental Management Plan (CEMP) will be prepared by the appointed contractor and will be submitted to the planning authority in advance of works commencing at the Site. The following guidance will be referred to and will be followed during the demolition and construction phases of the project to prevent water pollution that may occur within the area:

- C532 – Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors [7];
- C741 - Environmental Good Practice on Site (4th edition) [7];
- Guidance for the Treatment of Otters Prior to the Construction of National Road Schemes [13];
- All works will be undertaken in accordance with the 'Requirements for the Protection of Fisheries Habitat during Construction and Development' [9]; and,
- The recommendations included within the NRA Guidelines for the Crossing of Watercourses, where appropriate [15].

The full scope and what is to be included in the CEMP will be refined following detailed design and construction tender stages with regards to the proposed development.

Duration and Timing of Works

The proposed works will take approximately 24 months to complete. Working hours will generally be restricted to between 08:00 and 18:00 Monday to Friday and between 08:00 and 14:00 on Saturdays.

3.7.1 Construction Compound

To ensure the efficient management of the construction works, a Temporary Construction Compound will be set up for the duration of the construction works. The compound will be located in the western portion of the Site. A temporary sewer and water supply connection will be put in place for personnel facilities for the duration of the works with prior approval from Irish Water.

During the initial stages of construction works, construction vehicles (i.e., Heavy Goods Vehicles (HGVs) are proposed to access the site via the existing entrances off Redforge Road which bounds the site to the east for the initial stages of the works. Once the buildings have progressed above ground level access will be from the south of the site.

3.7.2 Waste Management

A preliminary Construction and Demolition Waste Management Plan (C&DWMP) has been submitted with the planning application.

4 STUDY RESULTS

4.1 Desk Based Study

Prior to conducting any site surveys, a desk-based review of information sources was completed. This baseline information provided a valuable insight into the types of flora and fauna that may occur onsite and allowed for the identification of features / habitats located off-site that may require further assessment.

4.1.1 Statutory Nature Conservation Sites

In accordance with the European Commission Methodological Guidance [16] a list of European sites that can be potentially affected by the proposed development has been compiled. Guidance for Planning Authorities prepared by the Department of Environment Heritage and Local Government [17] states that defining the likely zone of impact for the screening and the approach used will depend on the nature, size, location and the likely effects of the project. The key variables determining whether or not a particular Natura 2000 site is likely to be negatively affected by a project are:

- the physical distance from the project to the site;
- the presence of impact pathways the sensitivities of the ecological receptors; and,
- the potential for in-combination effects.

Adopting the precautionary principle, all SAC and SPA sites within a 15km radius of the proposed development Site have been considered (Refer to Figure 4-1).

Three (3No.) Natura 2000 designated sites were identified within 15km of the Site (Table 4-1, Figure 4-1).

Table 4-1: Designated Natura 2000 Sites within 15km of the Site

Site Name	Site Code	Distance (km)	Direction from the Site
Special Area of Conservation (SAC)			
Great Island Channel SAC	001058	8.8km	E
Blackwater River (Cork/Waterford) SAC	002170	13.3km	N
Special Protection Area (SPA)			
Cork Harbour SPA	004030	4.7km	E

The Site is not located within or directly adjacent to any Natura 2000 sites, however, the boundaries of two (2No.) SAC and one (1No.) SPA are located within 15km of the Site.

There is a hydrological connection between the Site the Great Island Channel SAC and Cork Harbour SPA, located approximately 7.4km downstream of the Site, (refer to section 3.2 and Figure 4-2) as storm water runoff will discharge into the Bride River. Further consideration will therefore be given to these Natura 2000 sites, to assess potential adverse effects resulting from the proposed development. Further details are provided below.

Figure 4-1 Natura 2000 Sites within 15km

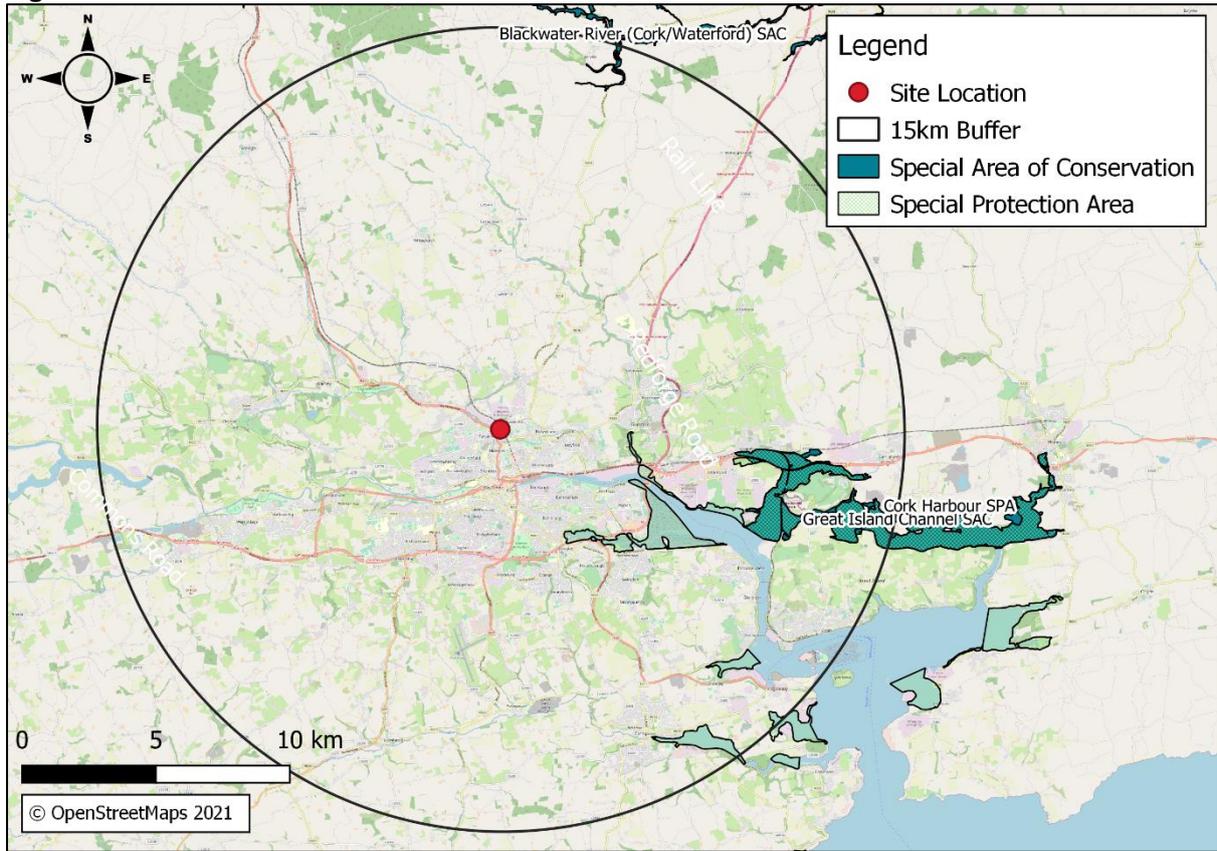
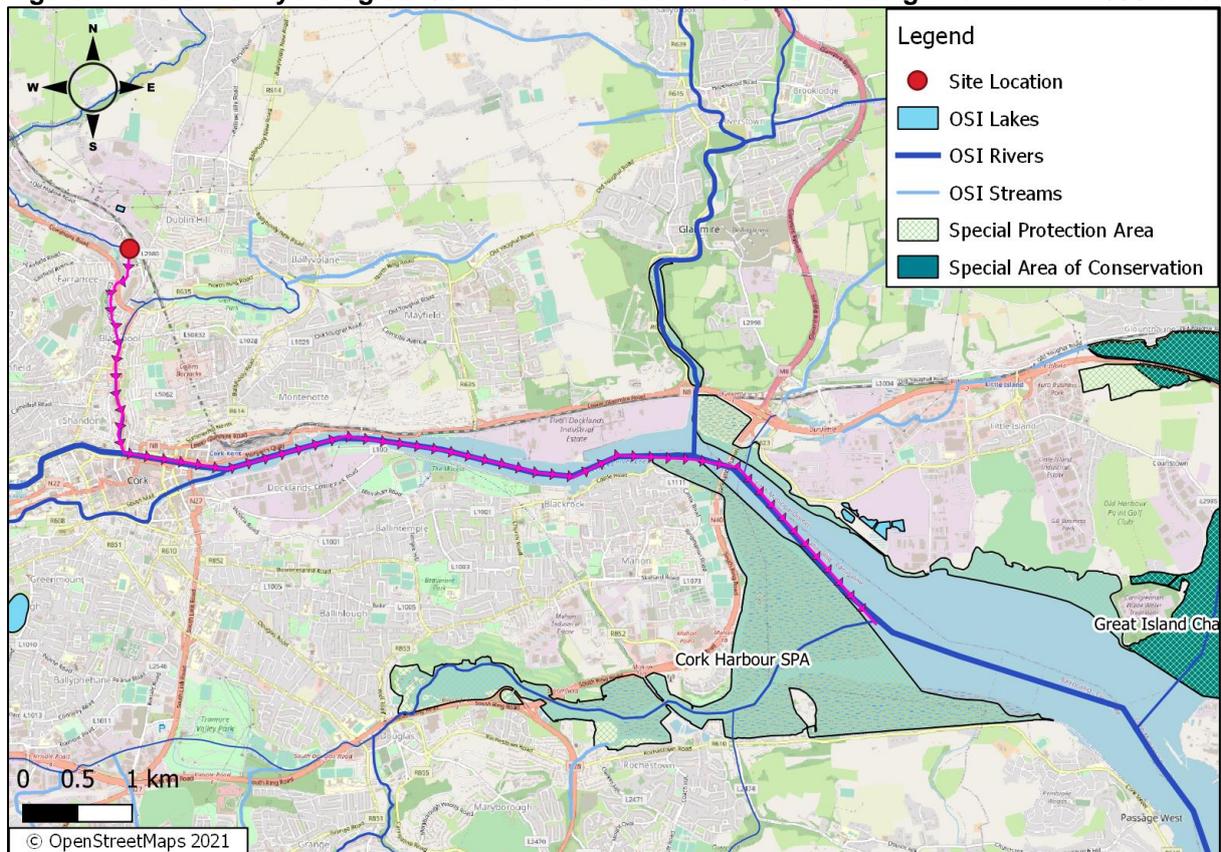


Figure 4-2 Potential Hydrological Connection between the Site and Designated Natura 2000 sites



4.1.2 Nationally Designated Conservation Sites

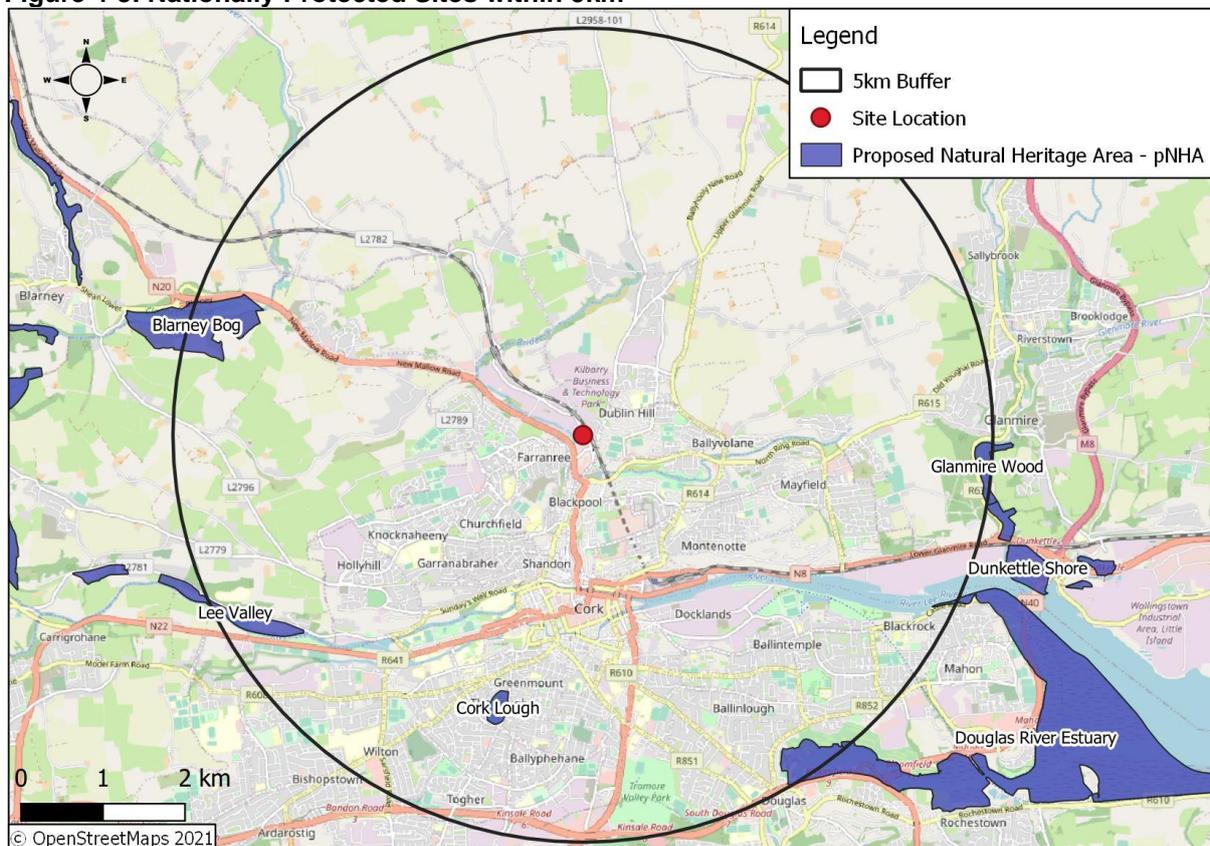
No Natural Heritage Areas (NHA) are located within 5km of the Site. However, five (5No.) proposed Natural Heritage Areas (pNHA) are located within 5km of the Site (refer to Table 4-2 and Figure 4-3).

Table 4-2: National Protected Sites within 5km

Site Name	Code	Distance (km) & Direction	Qualifying Interests
Proposed Natural Heritage Areas			
Lee Valley pNHA	000094	4.1km SW	<p>This pNHA occupies five sections of the River Lee valley, west of Cork City.</p> <p>The diverse range of intact semi-natural habitats, including freshwater marsh fringes, wet broadleaved woodland, wet grasslands, dry broadleaved woodland, unimproved dry grassland, make this site of regional conservation importance.</p> <p>The site is used by breeding wetland birds, including mallard, heron, sedge and grasshopper warblers, and reed bunting, and two locally distributed butterflies, small blur and wood white.</p>
Douglas River Estuary pNHA	001046	4.9km SE	<p>The site is situated in the north-west corner of Cork Harbour, stretching from Blackrock to Passage West.</p> <p>It is an integral part of Cork Harbour, which contains several other N.H.A.'s. This site occurs within the upper</p>

			<p>harbour and consists of extensive mudflats, formed from fine silts, bisected by the Douglas River. Damp grassland occurs on part of the southern side, extending to some low islands which are inundated in extreme tides.</p> <p>This site is of interest because it is an essential part of the Cork Harbour complex and contains high densities of wading birds than would be expected from its relative size.</p>
Blarney Bog pNHA	001857	4.3km NW	<p>Blarney Bog is an area of fen situated in the flat valley floor of the River Blarney. The main habitats of the area are lowland wet grassland and freshwater marsh/ fen. The area as a whole is used by a variety of bird species.</p>
Cork Lough pNHA	001081	3.2km S	<p>This small lake is situated in the north-west of Cork City, 1km. north of the River Lee. The site is a local important area for the bird community</p>
Glanmire Wood	001054	4.75km E	<p>Glanmire Wood pNHA consists of mixed broad-leaved woodland with patches of saltmarsh fed by the tidal Glashaboy River below the wood. The wood itself is dominated by Oak <i>Quercus</i> spp., Beech <i>Fagus sylvatica</i> and Sycamore <i>Acer pseudoplatanus</i>, with a rich ground flora including the ancient woodland indicators Wood Fescue <i>Festuca altissima</i> and Wood Millet <i>Milium effusum</i>. This type of woodland is rare in East Cork and parts of it also fall within the Cork Harbour SPA (NPWS, 2009).</p>

Figure 4-3: Nationally Protected Sites within 5km



4.1.3 Protected Species

Table 4-3 provides a summary of records of legally protected or otherwise notable species that occur within a 2km grid square of the Site boundary [5].

Table 4-3: NBDC Species within 2km of the Site

Common Name	Scientific Name	Date of last record	Designation
Bird Species			
Barn Swallow	<i>Hirundo rustica</i>	08/05/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Kestrel	<i>Falco tinnunculus</i>	14/08/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Eurasian Woodcock	<i>Scolopax rusticola</i>	24/11/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Linnet	<i>Carduelis cannabina</i>	31/12/2011	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Coot	<i>Fulica atra</i>	18/04/2011	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Swift	<i>Apus</i>	14/06/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Spotted Flycatcher	<i>Muscicapa striata</i>	31/12/2011	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
House Martin	<i>Delichon urbicum</i>	14/06/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
House Sparrow	<i>Passer domesticus</i>	31/12/2011	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Starling	<i>Sturnus vulgaris</i>	31/12/2011	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List

Common Name	Scientific Name	Date of last record	Designation
Great Cormorant	<i>Phalacrocorax carbo</i>	30/09/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Kingfisher	<i>Alcedo atthis</i>	31/12/2011	EU Birds Directive Annex I Bird Species Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Snipe	<i>Gallinago gallinago</i>	02/02/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Wood Pigeon	<i>Columba palumbus</i>	30/09/2016	Wildlife Acts 1976 / 2000
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	02/11/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Mew Gull	<i>Larus canus</i>	05/11/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Herring Gull	<i>Larus argentatus</i>	08/10/2012	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Red List
Little Egret	<i>Egretta garzetta</i>	31/12/2011	EU Birds Directive Annex I Bird Species Wildlife Acts 1976 / 2000
Lesser Black-backed Gull	<i>Larus fuscus</i>	29/10/2012	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Mallard	<i>Anas platyrhynchos</i>	19/11/2016	Wildlife Acts 1976 / 2000
Little Gull	<i>Larus minutus</i>	05/11/2017	Wildlife Acts 1976 / 2000 Annex I Bird Species
Rock Pigeon	<i>Columba livia</i>	31/12/2011	Wildlife Acts 1976 / 2000
Black-tailed Godwit	<i>Limosa limosa</i>	19/11/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List

Common Name	Scientific Name	Date of last record	Designation
Great Black-backed Gull	<i>Larus marinus</i>	29/10/2012	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Mute Swan	<i>Cygnus olor</i>	30/09/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Amphibians			
Common Frog	<i>Rana temporaria</i>	13/02/2017	EU Habitats Directive Annex V Species Wildlife Acts 1976 / 2000
Invertebrates			
Marsh Fritillary	<i>Euphydryas aurinia</i>	23/04/2019	EU Habitats Directive Annex II Species
Mammals			
European Otter	<i>Lutra lutra</i>	29/10/2018	EU Habitats Directive Annex II Species Wildlife Acts 1976 / 2000
West European Hedgehog	<i>Erinaceus europaeus</i>	15/09/2017	Wildlife Acts 1976 / 2000
Eurasian Badger	<i>Meles meles</i>	09/08/2017	Wildlife Acts 1976 / 2000
Invasive Species			
Japanese Knotweed	<i>Fallopia japonica</i>	18/06/2017	High Impact Invasive Species: Regulation S.I. 477 (Ireland)
Indian Balsam	<i>Impatiens glandulifera</i>	06/05/2016	High Impact Invasive Species: Regulation S.I. 477 (Ireland)
Brown Rat	<i>Rattus norvegicus</i>	12/11/2015	High Impact Invasive Species: Regulation S.I. 477 (Ireland)
Coypu	<i>Myocastor coypus</i>	12/05/2017	High Impact Invasive Species: Regulation S.I. 477 (Ireland)
American Mink	<i>Mustela vison</i>	05/07/2016	High Impact Invasive Species: Regulation S.I. 477 (Ireland)

Note: Table includes records of protected species recorded within the last 10 years.

4.2 Field Survey

4.2.1 Habitats

Site Context and Surrounding Habitats

The Site is located in Cork City, and the Site and surrounding areas are heavily built-up with urban development. The Site is bordered to the east and Redforge Road by railway cuttings and a railway line, to the north by residential premises, to the west by a retail park and then Blackpool Park and to the south by a multi-storey car park.

Buildings and Artificial Surfaces (BL3)

The majority of the Site is made of an existing carpark, hard surfacing, concrete and the existing petrol station buildings.

Flower Beds and Borders - BC4

A cinderblock planting box is partially lined along the eastern boundary of the Site. Species within these boxes include typical landscaping species.

Treeline (WL1)

Mature treelines occur along the northern and western boundaries of the Site. The tree species within these treelines include: oak (*Quercus robur*); beech (*Fagus sylvatica*); and sycamore (*Acer pseudoplatanus*).

Ornamental / Non-native Shrub (WS3)

Landscaped areas occur along the southern boundary of the Site and there are also pockets of small, landscaped spaces within the Site.

Species within these landscaped areas include: evergreen spindle (*Euonymus japonicus*), cedar (*Cedrus spp.*), beech, daisy (*Bellis perennis*), lesser trefoil (*Trifolium dubium*), creeping buttercup (*Ranunculus repens*), sweet vernal grass (*Anthoxanthum odoratum*), beech, scarlet firethorn (*Pyracantha coccinea*), sycamore, Japanese cherry (*Prunus serrulata*), holly (*Ilex aquifolium*) and laurustinus (*Viburnum tinus*).

Scrub (WS1)

There is a small area of scrub along the western boundary of the Site. This area may have been landscaped at one point but is now overgrown. There is an old diesel tank within the overgrown scrub. Species include: beech, bramble (*Robus spp.*), ivy (*Hedera helix*), ragwort (*Jacobaea vulgaris*), dandelion (*Taraxacum officinale*), bull thistle (*Cirsium vulgare*), cleavers (*Galium aparine*), daisy and butterfly bush (*Buddleja davidii*).

Amenity Grassland (GA2)

There are small areas of amenity grassland along the boundaries of the Site and dotted through the Site. These small areas are of low biodiversity and consisted mainly of short cut grass and dandelions or daisies.

Figure 4-4 Habitat Map

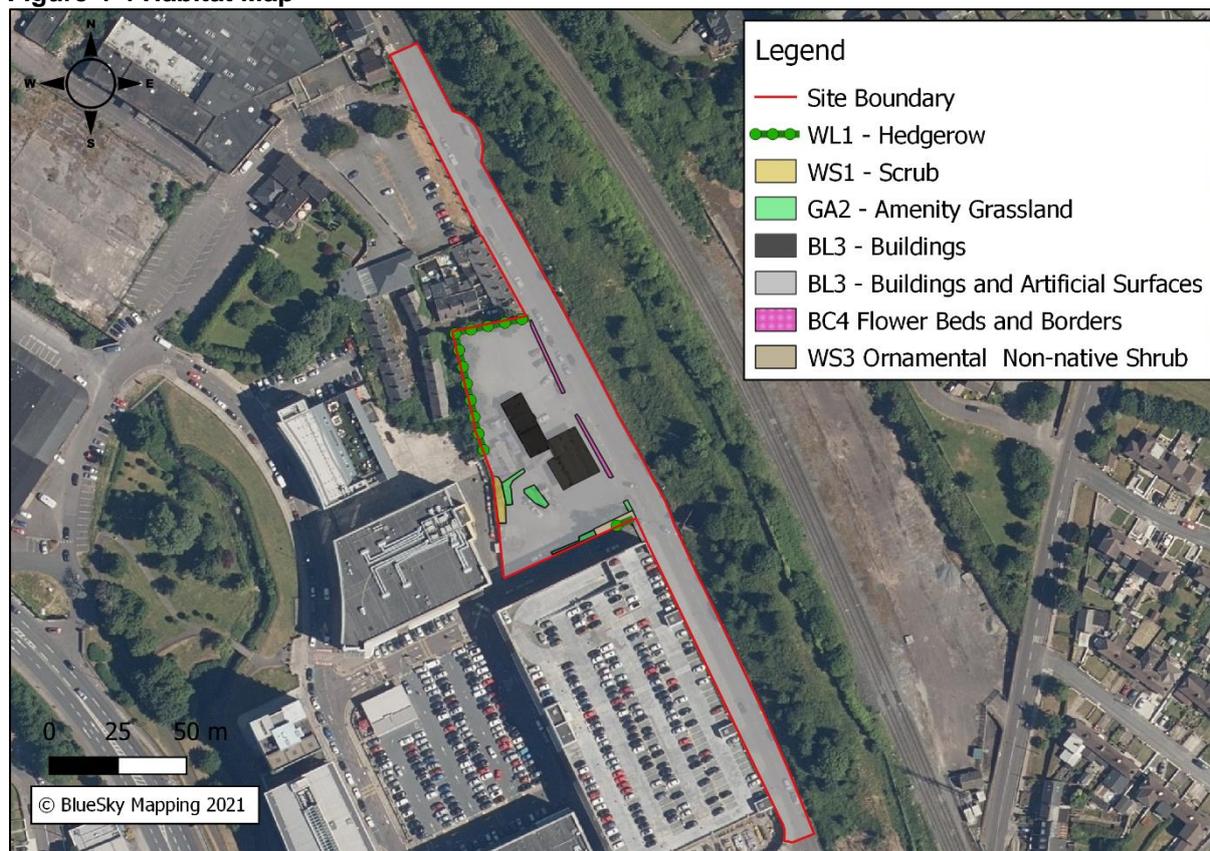
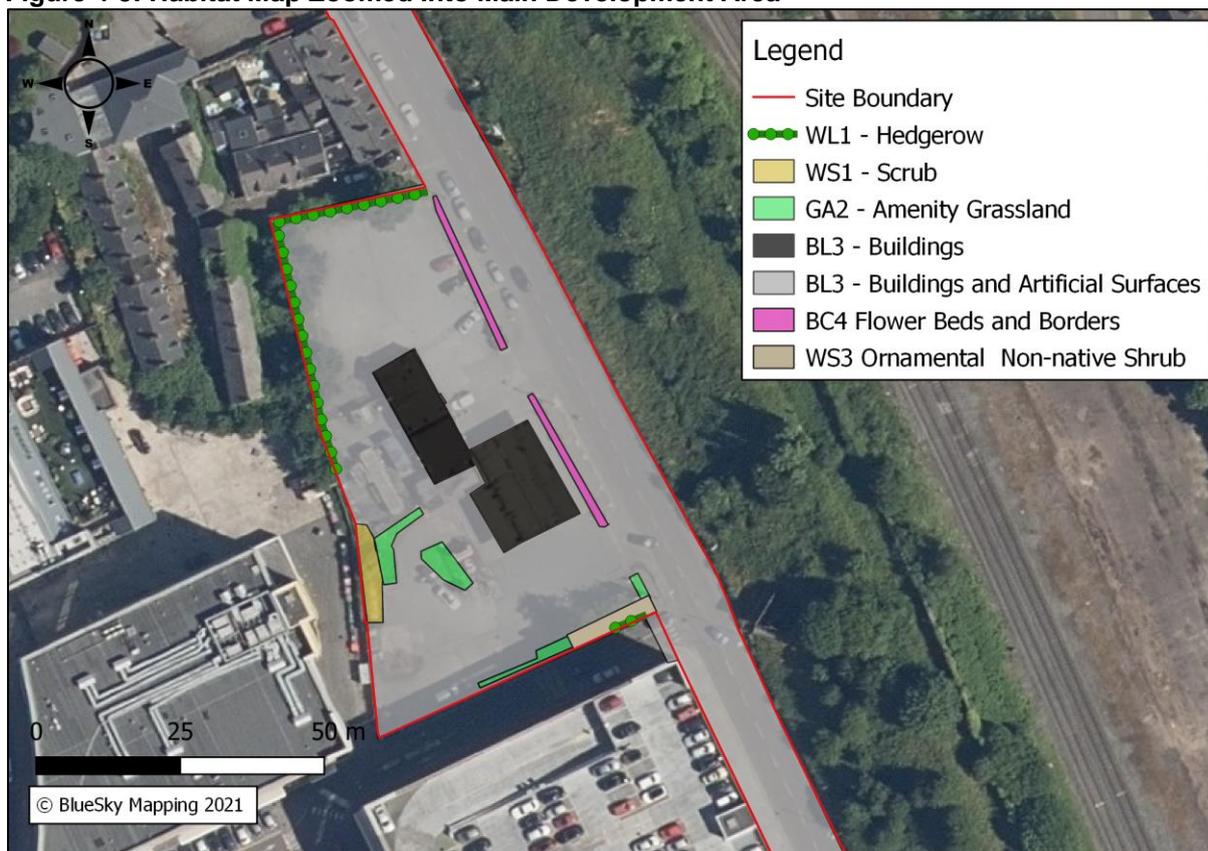


Figure 4-5: Habitat Map Zoomed into Main Development Area



4.2.2 Fauna

Amphibians

The NBDC holds records for amphibians, the common frog, within 2km of the Site [5]. However, it was concluded that there was no suitable habitat for breeding amphibians on the Site.

Badgers

The NBDC does not hold any records for badger within 2km of the Site [5] and it was concluded there were no suitable habitats for badger within the Site or the surrounding area.

Bats

Bats are known to follow linear features as they commute through the landscape. Therefore, the Bride River to the west of the Site is considered suitable for this purpose.

As per the NBDC landscape suitability metric, the Site and surrounding area is considered to be of Moderate suitability for bats (Landscape Suitability Metric Score: 28 - 36) [5].

Following the initial ground inspection involving tree surveys and building inspections onsite, it was determined that three (3No.) trees onsite were suitable for roosting and the buildings onsite are sub-optimal for roosting bats. Nevertheless, species such as common and soprano pipistrelles will roost in very tight spaces, and therefore have the potential to roost, within the existing onsite building.

No bats were observed emerging from or re-entering any of the trees or building surveyed. The survey identified bats commuting along treelines / scrub area to the west of the survey area where there is a dilapidated house and scrub / tree habitat.

Based on the levels of activity and movement of the bats recorded during the surveys, it is considered that the Site is of very little value to bats. During the surveys it was noted that the Site is heavily illuminated by street lighting posts from the adjacent Redforge Road as well as flood lights from the on-site building and the car park building directly south. As bats are typically adverse to lighting, no commuting and foraging activity was noted within the illuminated areas.

Please see Appendix C – Bat Survey Report, for details on the full survey.

Birds

All the birds recorded onsite, or expected, are common species, which included wood pigeon (*Columba palumbus*), magpie (*Pica pica*), rook (*Corvus frugilegus*) and carrion crow (*Corvus corone*). The onsite habitats are of limited value for bird species, however the trees and scrub located onsite provide suitable nesting sites for a range of common bird species.

Otter

The NBDC holds records for otter within 2km of the Site [5]. During the Site walkover, no evidence of otter was identified nor were any suitable habitats for otter identified within the Site or the immediate surrounding area.

Therefore, the onsite habitats are not considered to be of value to otter.

Invasive Species

No invasive species were noted within the Site.

Other Species

No other notable or protected species were identified on the Site or are considered likely to occur given the nature of the habitats and activities at the Site and on the adjoining lands.

5 CHARACTERISTICS AND POTENTIAL IMPACTS OF THE PROPOSED WORKS AND MITIGATION MEASURES

5.1 Potential Impacts

5.1.1 Designated Sites

European Designated Sites

A Natura Impact Statement (NIS) has been prepared as part of the overall planning application. The NIS concluded that the proposed development would not cause any adverse effects on any European designated sites or any of their designated features of interest provided the mitigation measures incorporated within the NIS are adhered to and the progression to Stage 3 of the Appropriate Assessment process (i.e., Assessment of Alternatives Solutions) was not considered necessary.

National Designated Sites for Conservation

There are no NHAs within 5km of the Site but there are four (4no.) pNHAs.

However, given the nature and scale of the proposed development, the water quality protection mitigation measures which will be put in place (see Section 5.2.1.1 and 5.2.2.1) and the nature of the habitats and features of interest for which the pNHA have been designated, it has been concluded that no significant impacts are likely to occur to these sites.

5.1.2 Habitat Loss and Habitat Alteration

Any potential impacts to Annex I habitats within the wider area due to potential water quality impacts from the proposed development will be avoided by mitigation measures listed in Section 5.2.1.1 and Section 5.2.2.1 below.

The proposed development will not result in any direct loss of habitats for which the Great Island Channel SAC is designated, as the Site is not located within close proximity to any of the Annex I habitats designated for the SACs.

Trees and Scrub

The complete removal of the trees and scrub will be required as part of the proposed development.

5.1.3 Fauna

Aquatic Species

Although there are no watercourses located within the Site, the Bride River is located ca. 800m west of the Site and acts as a hydrological link between the Site and the Great Island Channel SAC and Cork Harbour SPA.

This SAC is not designated for any aquatic species and the SPA is designated solely for bird species and the NBDC does not hold any records for aquatic freshwater species within 2km of the Site [5]. However, given the hydrological connection from the Site to the SPA, should runoff of potential pollutants from the construction area reach the surface water and flow into the Bride River there is potential for aquatic species to be impacted. Should sediment / silt enter the river network, there is the potential to clog fish gills, degrade spawning habitats and cover / smother aquatic plants. This would result in decreased food availability and shelter for fish species and indirectly impact the food availability for predators such as designated bird species within the SPA.

Should pollutants, such as hydrocarbons, concrete wash or detergents, enter the Bride River and flow downstream, there is potential for the chemical balance of the waterbody to change.

A change in water chemistry would be toxic to fish and other wildlife. Therefore, the mitigation measures discussed below in Section 5.2.1.1 and Section 5.2.2.1 will be put in place to prevent the potential impairment of water quality, and in turn the potential impacts on aquatic species.

Once the Site is developed the stormwater will discharge to the Bride River. However, the design of the new drainage system will ensure that there will be no potential for the impairment of water quality during the operational phase.

Bats

As the onsite buildings are considered sub-optimal for roosting, it is considered unlikely that bats will be impacted by the demolition of the buildings. However, based on the habitats onsite and the potential access points identified into the building, it is considered possible, although very unlikely, for bats to utilise the building for roosting. Therefore, solely as a precautionary measure and in advance of any demolition works, updated building inspections for bats should be undertaken. Based on the findings of these updated inspections, pre-demolition surveys may be required albeit considered unlikely (see section 5.2).

As three (3 No.) of the trees onsite had features suitable for roosting bats, it is considered that bats could potentially utilise the trees in the future. Therefore, as a precautionary measure further consideration is required. (See 5.2)

The inappropriate installation of lighting resulting in light spillage onto retained / adjacent habitats which are suitable for bats has the potential to cause adverse effects on bat species. Therefore, appropriate mitigation measures will be put in place in order to ensure no impacts occur to bats utilising the area within the vicinity of the Site (see Section 5.2.2.2).

Birds

The onsite scrub and trees and those within the surrounding area offer suitable foraging and nesting potential for bird species. Whilst the Site does provide nesting potential for common birds, in order to ensure that there will be no impact to nesting birds no vegetation clearance will take place within the nesting bird season. The loss of potential nesting habitat through the removal of trees / scrub will be compensated for by the additional planting around the Site.

Also, it should be noted that birds are highly mobile and so will move away from disturbances. Therefore, should any bird species which presently occur within the Site and the immediate vicinity of the Site experience minor disruptions during the construction phase, it can be concluded that they will move to a more suitable area. In addition, disturbances experienced by these species will be localised and short term. Given the abundance of foraging habitat outside of the site boundary, and the limited value of the Site for foraging and nesting birds, no negative impacts are likely to occur.

Otter

Although it has been concluded that the area within the Site does not provide suitable habitat for otter, otter have the potential to be impacted during the construction phase through the impairment of water quality. Should run-off of potential pollutants from the construction area reach the surface water and flow into the nearby watercourse (Bride River), this would result in decreased water quality, which has the potential to result in decreased food availability for otter. The mitigation measures discussed below in Section 5.2 will be put in place to prevent the potential impairment of water quality, which will in turn prevent potential impacts to otter.

Invasive Species / Biosecurity Considerations

No invasive species were noted on the Site during the field surveys. However, measures will be implemented in order to ensure no invasive species are introduced to the Site during the construction phase (see Section 5.2.1.2).

Other Fauna

It is considered that the proposed development will not give rise to any significant impacts to other fauna, given the localised nature of the proposed development and the low ecological value of the Site.

5.2 Mitigation Measures

5.2.1 Construction Phase

During the construction phase, all works will comply with all relevant legislation and best practice to reduce any potential environmental impacts. A CEMP will be prepared by the appointed main contractor and will be submitted to the planning authority in advance of works commencing as detailed in Section 3.4.

The following mitigation measures will be incorporated and adhered to in order to ensure that the proposed works do not result in any contravention of wildlife legislation:

- All activities will comply with all relevant legislation and best practice to reduce any potential environmental impacts. The mitigation measures detailed within this EclA and the NIS will be fully adhered to; and,
- The Site manager shall ensure that all personnel working onsite will be trained and made aware of the mitigation measures detailed within this EclA and the NIS.

5.2.1.1 Protection of Water Quality during Construction

In order to ensure that the works do not have an impact on the surface water surrounding the Site or further downstream into Cork Harbour, mitigation measures will be put in place in accordance with best practice guidance to avoid impacts on these receptors. These measures will include:

- All construction works associated with the new drainage infrastructure onsite will be completed, checked and cleaned where required, in advance of discharging to the Bride River;
- Adequate spill kits including absorbent booms and other absorbent material will be maintained onsite;
- All contractor workers will be appropriately trained in the use of spill kits;
- Any accidental spillage of cementitious materials will be cleaned-up immediately;
- Any sediments adversely effected by contamination will be excavated and stored in appropriate sealed containers for disposal offsite in accordance with all relevant waste management legislation.
- Stockpiles of material will be covered during periods of prolonged or heavy rain and will be located away from the river as far as practically possible;
- Concrete pours will be adequately planned and executed;
- Washouts of equipment used for concrete operations will be done either offsite or within a designated washout area, which will comprise of a container that will capture the washout material / water for reuse or disposal offsite;
- Adequate fuel storage facilities and re-fuelling protocols will be provided; and,
- Silt traps will be installed at appropriate locations to mitigate against any potential impacts to water quality associated with suspended solids in runoff from the construction area.

The following best practice guidelines will be followed, which are based on Inland Fisheries Ireland [39] and National Roads Authority [40] guidance documents:

- All materials shall be stored at the main contractor compound and transported to the works zone immediately prior to construction;
- Only emergency breakdown maintenance will be carried out on-site. Emergency procedures and spill kits will be available and construction staff will be familiar with emergency procedures;
- Fuels, lubricants and hydraulic fluids for equipment used in the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to current best practice;
- Fuelling and lubrication of equipment will be carried out within a designated refuelling area protected from spillage to ground or the river;
- Prior to any works commencing, all construction equipment will be checked to ensure that they are mechanically sound, to avoid leaks of oil, fuel, hydraulic fluids and grease; and,
- Measures will be implemented to minimise waste and ensure correct handling storage and disposal of waste.

Periodic monitoring will be undertaken during the construction works to ensure that the above measures are effective.

5.2.1.2 Protection of Fauna

Bats

In order to ensure that the works in relation to the proposed development do not have significant impacts on bats, the following mitigation measures will be followed:

- Immediately prior to any building demolition works, an updated building inspection for bats will be undertaken and should it be deemed necessary, an updated emergence / dawn re-entry survey will be required to confirm the presence / absence of roosting bats within the building;
- Immediately prior to the removal of the trees, an updated tree inspection and should it be deemed necessary, an updated emergence / dawn re-entry survey will be required to confirm the presence / absence of roosting bats within the building;
- If bats are found to be roosting within the building, then further measures may need to be considered in order to protect bats against any disturbance (i.e., lighting or noise levels). The NPWS will be consulted for advice and a delegation licence will be if required; and,
- The findings of the updated bat surveys will be submitted to the planning authority prior to the commencement of the demolition works.

Birds

Protection for Birds Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, 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. The management of vegetation (including trees and scrub) will be restricted to outside the bird breeding season.

In the event that works need to be undertaken within the main breeding season, this would be undertaken in consultation with NPWS.

Invasive species

To mitigate against the unintentional introduction of invasive species during construction and decommissioning works, the following mitigation measures will be followed:

- All vehicles, machinery and any other equipment used for the works will be washed prior to its use at the Site to prevent the import of plant material or seeds;
- Before machinery or equipment is unloaded at the Site, equipment will be visually inspected to ensure that all adherent material and debris has been removed;
- Any vehicles and machinery that are not clean will not be permitted entry to the Site;
- All materials to be imported to the Site including additional planting will be sourced from a reputable supplier and records of all material and supplies will be maintained;
- In advance of works, all site personnel will receive a toolbox talk with regards to invasive species; and,
- Everybody working onsite must understand the role and authority of the ECoW managing the issue of the non-native species.

Otter

The mitigation measures discussed above in Section 5.2.1.1 will be put in place to prevent potential impacts to otter due to potential impairment of water quality.

Other flora and fauna

No significant impacts on other flora and fauna are expected, therefore, no mitigation additional to the ones specified above are required.

5.2.2 Operational Phase

Operational phase impacts for the proposed development relate only to water quality and nocturnal species (i.e., bats).

5.2.2.1 Protection of Water Quality during Operation

As the foul drainage will connect into the existing services, which have sufficient capacity to support the proposed development, it is not considered that further mitigation is required.

5.2.2.2 Protection of Fauna

Nocturnal Species

Nocturnal mammals (i.e., bats) are impacted by lighting. Therefore, it is important that lighting installed within the Site is completed with sensitivity for local wildlife while still providing the necessary lighting for human usage.

The main potential impact on bats that may arise is the potential lighting impact on the commuting corridors for bats i.e., the train line and the area to west of the site where there is no / limited lighting. It should be noted that as the Site is located within a populated urban area, there is currently light spillage from surrounding developments onto the majority of the Site.

The lighting strategy has been designed in line with the Bat Conservation Trust (BCT) Guidelines on '*Bats and Artificial Lighting in the UK*' [20]. The lighting strategy been designed to avoid excessive lighting and reduce light spillage onto the train line and area to the west of

the Site. The following measures should be taken into consideration during the lighting layout design:

- Construction should be limited to daylight hours in order to minimise adverse effects on nocturnal fauna;
- Avoidance of excessive lighting;
- Light Emitting Diodes (LED's) should be used, and the brightness will be set as low as possible;
- Lighting should be aimed only where it is needed, with no upward lighting;
- Lighting should be directed away from landscaped areas;
- Lighting should be turned down / off when not required; and,
- The height of lighting columns should be reduced as much as possible, as lighting at a low level further reduces ecological impact.

6 CONCLUSIONS

Based on the findings of a detailed desk-based study, a review of all the ecological information available for the Site and wider area and a field survey by MOR Ecologists, it is considered reasonable to conclude the following:

- The Site itself is currently of Low local ecological value;
- The existing habitats onsite are not of value to any Annex I or Annex II species or Red listed birds;
- Bat surveys conducted at the Site did not identify any bats roosting on the Site.
- The Site is located in a predominantly urban area zoned as 'District Centre': *"to support the vitality and viability of Suburban District Centres to ensure that such centres provide an appropriate range of retail and non-retail functions to serve the needs of the community and respective catchment areas, with an emphasis on convenience and appropriate (lower order) comparison shopping, in order to protect the primacy of Cork City Centre"*; and,
- The proposed development will not result in any significant impacts on ecological receptors identified both onsite and in the surrounding area following the implementation of appropriate mitigation measures.

7 REFERENCES

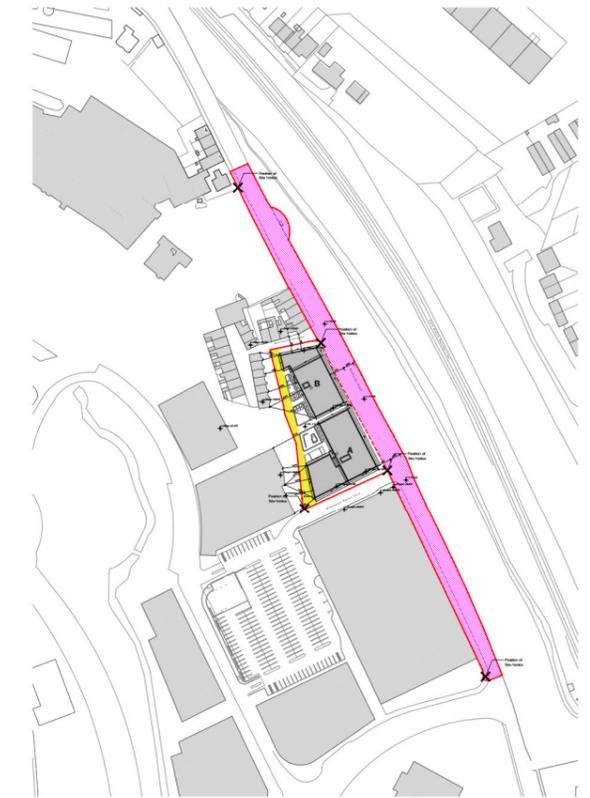
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APPENDICES

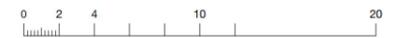
APPENDIX A

PROPOSED SITE PLAN



KEY PLAN 1:2000

- Proposed Development Site Boundary (Outlined Red) 7318m² / 0.73ha
- - - Land in Ownership of the Applicant 3372m² / 0.34ha
- Land Within Ownership of Cork City Council 3948m² / 0.39ha
- Area reserved for wayleave 453m²



Notes

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RIAI Registered Architect 2020
FPD FPD Accreditation 2020

Project name
Redforge Road

Project no
19082

Client
Bellmount Developments Limited

Drawing
Proposed Site Plan

Series
Planning

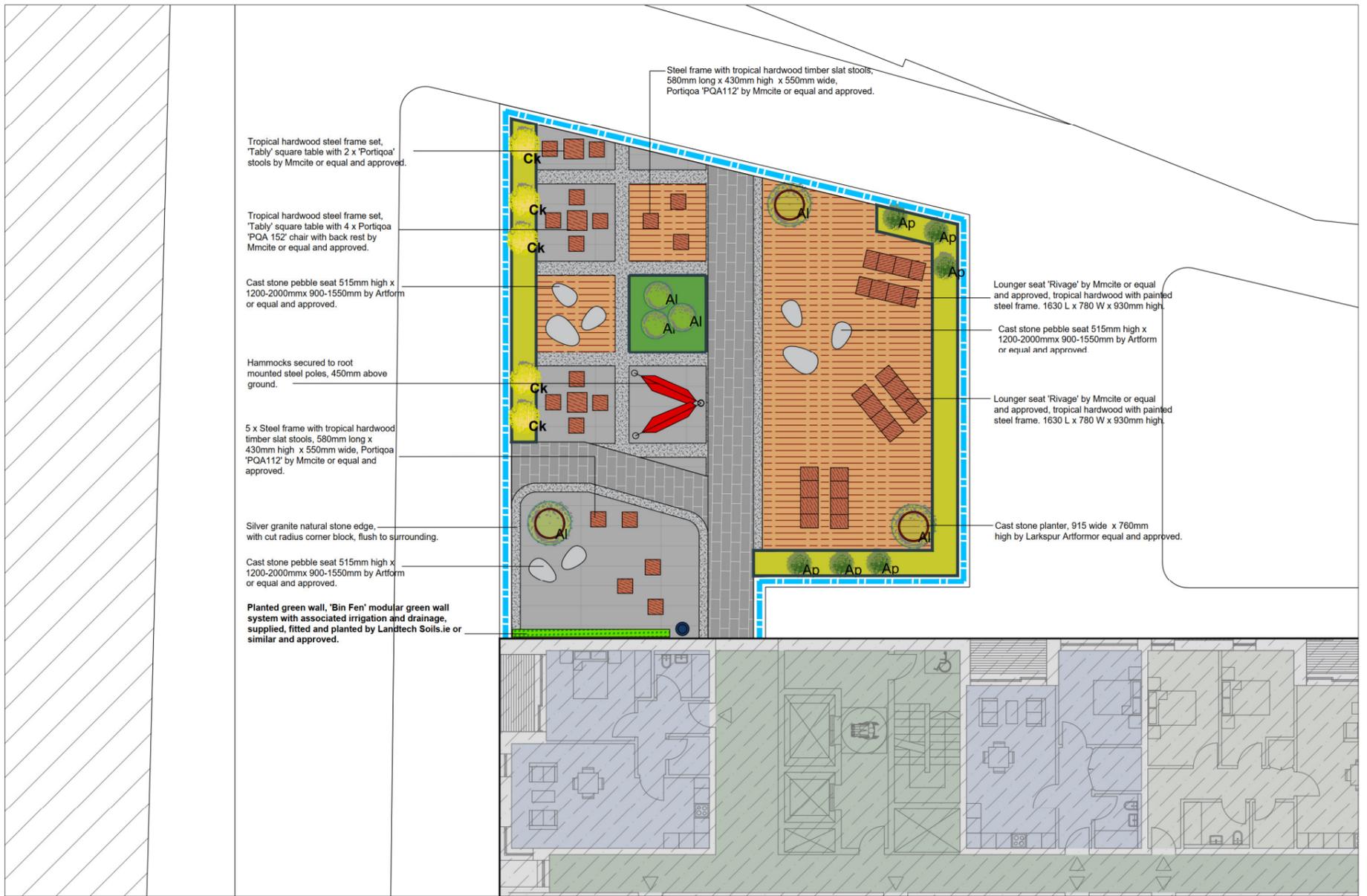
Scale
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Drawing no.
SITE_A01-10

Revision
A

Date
2021/06/23

APPENDIX B



Forth Floor Roof Garden: Scale 1:100 @ A1

- ROOF GARDENS KEY**
- PAVING:** 900mm x 600mm x 60mm concrete slab with aggregates, laid in stack bond. 'Shebourne' square edge flag in Silver granite with smooth finish by Kilsarran or equal and approved.
 - PAVING:** 600mm x 300mm x 60mm reconstituted concrete slab with granite aggregate, laid in stretcher bond. 'Shebourne' square edge flag in Black granite with smooth finish by Kilsarran or equal and approved.
 - Decking:** Hardwood decking, 145 x 28mm fsc hardwood decking boards with safe grip finish Bangkara safe grip by Abeywoods or equal and approved on treated softwood bearer system.
 - FLUSH EDGING STONE:** 150mm x 400mm x 1000mm white granite curb with bush hammered finish, square edge with 1M Radius corner kerbs by CED stone or equal and approved.
 - STEEL PLANTING BED EDGE:** 450mm high, 10mm mild steel plate planter edge, by OMOS or equal and approved, powder coated colours to match signage graphics.
 - 90L bin, galvanneal steel with powder coated finish, RAL to be confirmed. Root mounting & foundations to manufactures specification. Product: Carpo bin by Hess or similar and approved.
 - GLASS BALUSTRADE:** 1.8M high 'Ez' glass rail & post balustrade with toughened laminated glass & stainless steel posts by Silgo Glass or equal & approved.
 - PLANTING BLOCK 1:** Perennial and ornamental grass mix as per planting schedule on 450mm good quality topsoil to BS 3882:2007
 - PLANTING BLOCK 2:** Perennial and ornamental grass mix as per planting schedule on 450mm good quality topsoil to BS 3882:2007
 - Cornus kousa var. chinensis,** Multistem, minimum 5 breaks, 2M tall, 30L pot, guyed within planter.
 - Amelanchier lamarkii,** Multistem, minimum 3 breaks, 2.5-3M tall, 45L pot, guyed within planter.
 - Acer palmatum 'emerald lace' tree,** Multistem, minimum 3 breaks, 1.5M tall, 25L pot, guyed within planter.

- PLANTING SCHEDULE**
- Planting Block 01: Ornamental grasses & Perennials to be planted as P9 sized plants. Density as indicated
- 40% Stipa tenuissima, 5m²
 - 10% Lavandula angustifolia 'Hidcoté', 7m²
 - 10% Eryngium planum 'Jade Frost', 7m²
 - 10% Echinacea 'Tiki torch', 7m²
 - 10% Salvia verticillata 'Purple Rain', 7m²
 - 10% Ligularia 'The Rocket', 5m²
 - 10% Verbascum 'Gainsborough', 5m²
- Planting Block 02: Ornamental grass and perennial block to be planted as P9 sized plants. Density as indicated
- 30% Hakonechloa macra, 7m²
 - 20% Rodgersia aesculifolia, 5m²
 - 20% Libertia chilensis, 7m²
 - 10% Crocosmia x crocosmiflora 'Emily McKenzie', 5m²
 - 10% Sasa palmata 'Nebulosa' 3m²
 - 10% Hosta sieboldiana var. elegans, 5m²



NOTES

Irrigation: Courtyards to have water connections as required, using 20mm water supply location to M+E engineers specification.

- System to have 1/2" double check valve supplied by Imtec or equal and approved before the timer, to prevent backflow from the irrigation system. 2.5 bar pressure is required, flow rate will be less than 500 l/hr.
- Each tap shall have a Hunter Node battery powered controller, location to be agreed on site, all the planters will be linked to the timer, using 20mm mdppe piping, installed under the paving, detail to be agreed with architect. One tap shall be accessible for maintenance operations and hand watering.
- Techline drip irrigation throughout all the planters delivering 4.8lt/metre per hour. Techline 18mm will be installed at a rate of 2 linear metres per square metre of planting.
- Drip irrigation shall be within the mulch layer in planter beds.
- Maintenance: All gardens require a minimum of two inspections a year to ensure that the outlets etc are maintained, maintenance regime to be confirmed with manufacturer.

Lighting: Lighting (number, spacing and mounting/foundations) to meet required calculations as per M+E Engineers drawings/specification using products shown in key.

- All cabling, ducting, junction boxes and accessories as per manufactures recommendations/M+E engineers specifications. Contractor to liaise with electricity provider to arrange connection.

Planters / Edgings:

- Steel planting bed edges, 450mm high to all shrub and tree beds, constructed in 10mm mild steel plate, powder coated RAL to be confirmed, manufactured and supplied by OMOS or equal and approved.
- All supports and internal framework to manufactures recommendations/engineers drawings/specification for calculated loading weights.
- All fixtures/fittings and foundations to manufactures recommendations/engineers drawings/specification.

Paving and Surfacing:

- Paving set on fixed head pedestal system creating a "floating floor" system to allow services to be hide underneath, waterproofing and insulation to engineers recommendation.
- Paving to have a minimum cross fall of 1:100.
- All slabs to be cut to best fit around lighting, bins, seats, pergola and other furniture.
- Spacing/joints between paving units: 4mm.
- Wash area thoroughly with clean water from hose pipe at mains pressure or lower to remove all surplus jointing whilst ensuring that none of the joints are disturbed.
- Cementitious material must not be permitted to enter the drainage system or flow onto adjacent paving surfaces. All cementitious material to be removed from surface of all paving prior to and upon completion of laying and jointing.
- All construction works to be carried out to manufactures recommendations regarding climatic conditions and controls.
- Adverse Weather General: Do not use frozen materials or lay on frozen surfaces.
- A trial panel 4m x 4m (min) of paving shall be constructed at an agreed location for inspection by the Employer's Representative.

General:

- Water proofing and insulation refer to architects and engineers drawings/specifications.
- Please refer to engineer drawings/specification for all drainage layout and details.
- All levels are as per Architects/Engineers Drawings with raised planting beds +450mm.
- Any changes to specified materials to be approved by Contract Administrator and should be of equal quality meeting all relevant BS standards.

Planting Notes:

- All plant material to be inspected by the Landscape Architect prior to planting.
- Planting beds:** Infilled with Bauder Intensive substrate, Composition Mineral component recycled crushed brick and expanded clay shale. Organic component composted pine bark, depth of 450mm - Certs required.
- Plant Block and Timing:** Plant material shall conform to BS 3036 Part 1: 1992, Part 2: 1990, Part 9: 1998, Part 10: 1990 and BS4043: 1980 and shall be protected at all times in transit to the site. The planting season shall be from 1st October to the 31st March. Planting shall not be carried out during periods of frost, drought, cold drying winds, or when the soil is waterlogged. Planting outside the planting season will require adequate watering to ensure establishment. All planting shall be planted upright at the same depth as the nursery soil level and evenly spaced, leaving room for growth.
- Mulching:** Prior to the application of mulch, the planting areas shall be completely weed free and watered sufficiently to achieve field capacity. The surface of the planting areas shall be mulched with a layer of Organic Compost Mulch or Fine Composted Bark Mulch composted for 2-4 weeks with a particle size of 0-8mm, to a depth of 50mm, ensuring that the low branches of shrubs and herbaceous plants are not smothered. The mulch shall be topped-up to maintain, after settlement, a depth of not less than 50mm.
- After Care Period:** The Aftercare Period shall extend for an 18 month period. During the Aftercare Period maintenance visits shall be carried out, at least monthly from April to September and twice during the dormant season to carry out the following operations to establish healthy growing plants in weed free areas. Maintenance operations shall include: watering, firming-up, pest and disease control, grass cutting, general pruning, weed control, top up mulch and autumn tidying. Replacement Planting. All plants, which have died, are missing or have failed to thrive, shall be noted and replaced with the same size and species as originally planted, in the following planting season.

THIS IS NOT FOR CONSTRUCTION

This drawing is the copyright of the Landscape Architect unless otherwise stated. All dimensions are in millimeters. Where dimensions are not given, drawings must not be scaled and the matter must be referred to the Landscape Architect. If the drawing includes conflicting details/dimensions the matter must be referred to the Landscape Architect. All dimensions must be checked on site. The Landscape Architect must be informed, by the contractor, of any discrepancies before work proceeds.

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Client: Bellmount Development

Project: Redforge Road

Drawing: Roofgardens Layout

Date: 30/05/ 2021

Drawn By: Wendy Kirkpatrick

Checked By: Cathal O'Meara

Issue: Planning

Dwg No: 2014-LA-P002

Rev	Date	Note



Scale 1:100, @ A1

APPENDIX C

Bat Survey Report

Strategic Housing Development



On behalf of
Bellmount Developments Ltd.
Redforge Road, Blackpool, Co.
Cork



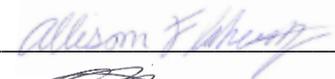


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Job Number: E1810

Prepared By: Allison Flaherty

Signed: 

Checked By: Dyfrig Hubble

Signed: 

Approved By: Dyfrig Hubble

Signed: 

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	30/06/'21	Report	FINAL	AF	DH	DH

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Bat Survey Report
Strategic Housing Development
Bellmount Developments Ltd.
Redforge Road, Blackpool, Co. Cork

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1 INTRODUCTION

1.1 Background

This Bat Survey Report has been prepared by Malone O'Regan Environmental (MOR) on behalf of Bellmount Developments Limited ('the Applicant'), to present the findings of bat surveys undertaken at the site for the proposed Strategic Housing Development (SHD) and all associated works on lands at Redforge Road, Blackpool, Co. Cork. (OS Reference W 67582 74022).

The baseline ecological survey of the Site highlighted the potential for bat roosts to occur within some of the mature trees and buildings on Site. It was therefore deemed necessary for further survey work to be carried out to determine whether or not any bat roosts occur within the mature trees or buildings to be removed as part the proposed development works.

The location of the proposed development ('the Site') is shown in Figure 1-1.

Figure 1-1: Site Location



1.2 Relevant Legislation

All Irish bat species are protected by law under the Wildlife Act 1976 and its subsequent amendments. They are afforded full protection under this act, which makes it a criminal offence for anyone without a licence to:

- Kill, injure or handle a bat;
- Possess a bat (whether alive or dead);
- Disturb a roosting bat; and,

- Damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

In addition to domestic legislation, bats are also protected under the EU Habitats Directive (92/43/EEC). All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II, which make it an offence to:

- Deliberately capture, injure or kill any bat; or,
- Deliberately disturb a bat, in particular any disturbance which is likely;
 - (a) To impair their ability:
 - (i) To survive, to breed or reproduce, or to rear or nurture their young; or,
 - (ii) To hibernate or migrate.
 - (b) To affect significantly the local distribution or abundance of the bat species; or,
- Damage or destroy a breeding site or resting place of a bat.

Therefore, the destruction, alteration or evacuation of a known bat roost is a notifiable action under current legislation and a derogation license must be obtained from the National Parks and Wildlife Service (NPWS) before works can commence.

Furthermore, it should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a license to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by NPWS.

1.3 Statement of Authority

The bat inspection survey and subsequent report were undertaken and prepared by the following MOR personnel, Mr. Dyfrig Hubble and Ms. Allison Flaherty.

Dyfrig Hubble, Principal Ecologist, has a B.Sc. (Hons) in Tropical Environmental Science and an M.Sc. Environmental Forestry. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management. Dyfrig has over 15 years' experience working in the ecological consultancy sector including habitat appraisals and specialist species specific surveys. Dyfrig has extensive experience in undertaking surveys for bats and in the preparation of survey reports for various projects within both the UK and Ireland.

Allison Flaherty, Environmental Consultant, has a B.A. Biology, a M.Sc. Biodiversity and Conservation and over 2 years' working experience in the ecological consultancy sector. Allison is a qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and has a specialist interest in bats. Allison has gained extensive experience in undertaking bat surveys and assessments within her role at MOR. Allison has also taken part in specialist bat trainings including; *Introduction to Bat Ecology and Bat Surveys*; *Bats: Impact Assessment of Development, Mitigation and Enhancements*; *Patterns of Bat Activity at Upland Windfarms: Implications for Sampling and Mitigation*; and *Designing Biodiversity Net Gain for Bats*, all provided by CIEEM course instructors.

1.4 Purpose of Survey Work

The implication of these legislative policies is that the proposed road scheme needs to take account of the potential effects on bats. Survey work is necessary to establish whether the species are currently present in areas where suitable habitat exists and in areas where bats have previously been recorded. Survey work also enables appropriate mitigation measures to be incorporated into the design of the project and ensures that there are no adverse effects on the conservation status of the species.

Survey work was deemed necessary based on desktop surveys and suitable habitat being identified during the initial walkover of the site.

2 METHODOLOGY

The methodologies used to establish the presence / potential presence of bats are summarised below.

2.1 Desk-Based Studies

A desk-based study was undertaken to identify records of bats within the survey area. The following sources of information were reviewed:

- The National Parks and Wildlife Service (NPWS) website was consulted to obtain the most up to date detail on conservation objectives for the Natura 2000 sites relevant to this assessment (National Parks and Wildlife Service, 2021); and,
- The National Biodiversity Data Centre (NBDC) website was consulted with regard to bat species distributions and bat habitat suitability index (National Biodiversity Data Centre, 2021).

2.2 Field Based Studies

All surveys conducted followed methodology outlined in the Bat Mitigation Guidelines for Ireland (DoEHLG, 2006), Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (National Roads Authority, 2006) and Bat Surveys for Professional Ecologists Good Practice Guidelines (Collins, 2016).

2.2.1 Tree Inspection

A walkover of the lands within the survey area was undertaken by MOR Ecologists on May 19th, 2021 (See Figure 2-1).

Figure 2-1: Survey Area



The tree inspection aimed to identify potential ecological constraints in relation to the proposed development design. As part of the walkover, the trees within the proposed development area were assessed for the presence of features that could be utilised by roosting bats, using close-focusing binoculars and a powerful focused-beam light source. The following criteria were used:

- Presence of natural cavities, splits, cracks, loose bark and rot holes in the trunk or boughs of the tree;
- Presence of dense and woody ivy (*Hedera helix*) growth that could be used by bats for roosting;
- Evidence of bat droppings, which may also be seen as a black streak beneath holes, cracks, branches, etc;
- Presence of smooth edges with dark marks and urine stains at potential entrances to roosts;
- Adjoining habitat which are likely to be important to bats, including the river corridor, and hedge / treelines within the survey area that offer a variety of potential foraging, roosting and commuting opportunities for bats; and,
- Adjoining potential roosts / known roosts identified. This raises the likelihood of a tree being of benefit as bats may move roosts if the roost becomes too hot or cold during roosting and a nearby alternative roost is highly desirable.

All trees within the survey area that are to be removed as part of the proposed development that were identified as having potential roost features (PRFs) were subject to emergence and re-entry surveys. See Figure 3-1 and Table 2 below for more details.

2.2.2 External Building Inspection

The outside of the building was assessed for the presence of potential access points into the buildings and features suitable for roosting bats. The inspection was undertaken using a powerful focused-beam light source.

The external inspection of the building also looked for any signs of bat activity at these potential access points using the following criteria:

- Evidence of bat droppings / urine splashes below the potential access points;
- Evidence of feeding remains, (insect wings on the ground below potential access point); and,
- Evidence of fur-oil staining on walls leading into potential access points.

2.2.3 Dusk Emergence Survey

The dusk emergence survey was undertaken on May 19th 2021 by two (2no.) MOR Ecologists. This survey commenced 15 minutes before sunset and ended 2 hours after sunset, therefore encompassing the typical emergence times of Irish bat species.

The survey was designed to incorporate all trees identified as having PRFs during the tree inspections and that will be potentially affected by the proposed works. The trees were surveyed so that they could be monitored for bat emergence.

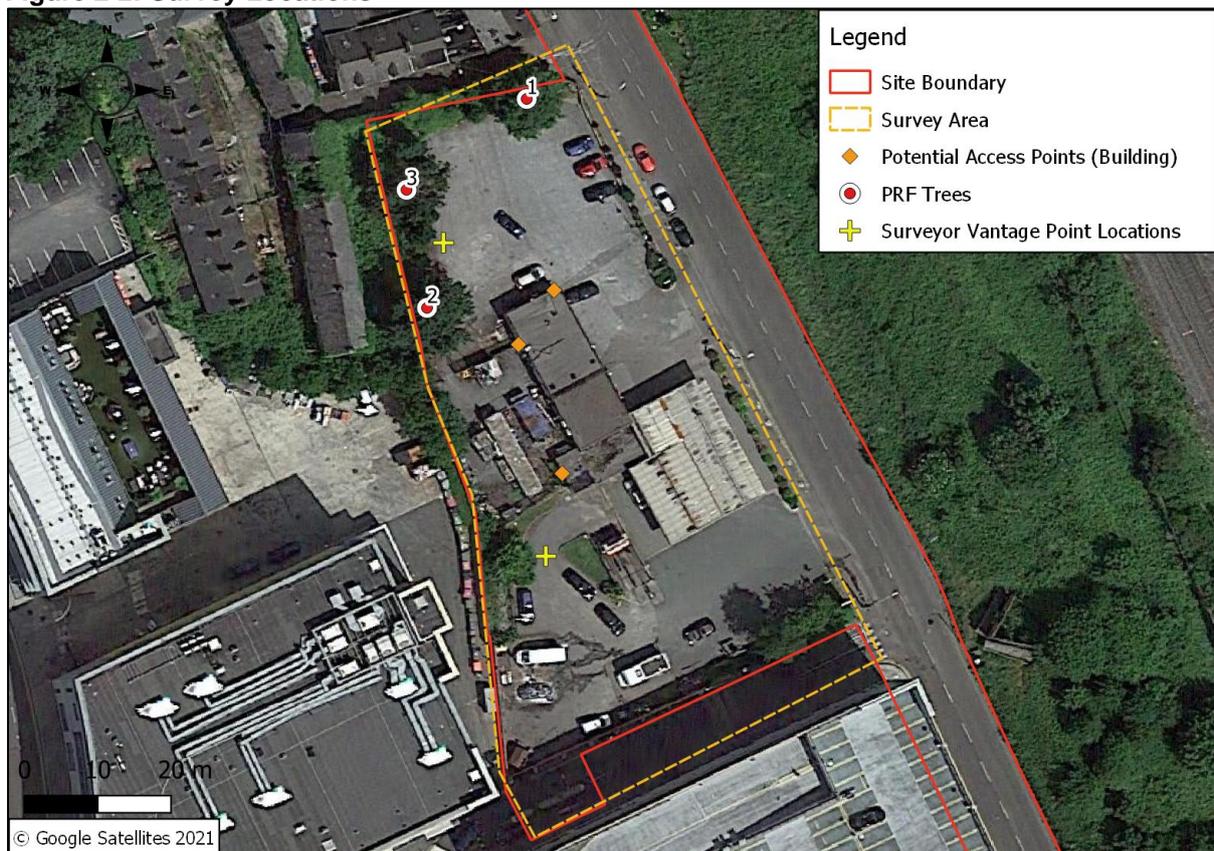
MOR Ecologists surveyed the three (3No.) trees along the north-western boundary of the survey area on May 19th 2021. The PRF trees and potential access points identified on the building were surveyed at pre-determined vantage points so that they could be monitored for bat emergence (See Figure 2-2).

A combination of visual observation and listening to ultrasonic bat calls using frequency division bat detector (Batbox Duet) and Echo Meter Touch2 Pro (Apple IOS) were used throughout the emergence survey. Bat calls were recorded digitally using Edirol Roland R-05 recorder and Echo Meter Tough2 Pro and analysed using appropriate software (KaleidoscopePro) to aid the identification of bat species present.

2.2.4 Dawn Re-Entry Survey

The dawn re-entry survey took place on the 3rd of June 2021 by two (2no.) MOR Ecologists, with two surveyors at each pre-determined vantage point. The survey commenced 2 hours before sunrise and finished 15 minutes after sunrise. The dawn survey was conducted using a similar methodology as the dusk emergence surveys. (See Figure 2-2).

Figure 2-2: Survey Locations



2.3 Survey Limitations

All survey work was conducted in accordance with current best practice guidelines. All of the surveys were undertaken when there was no rain or wind and the temperature was above 10°C. In these weather conditions, bats will not have been deterred from flying and no survey limitations were encountered.

3 RESULTS

3.1 Desk-Based Results

Prior to conducting the field surveys, a desk-based review of information sources was completed.

None of the nine bats species present in Ireland were recorded within a 2km radius of the proposed development area within the past 10 years (National Biodiveristy Data Centre, 2021)

Table 1 provides details of the habitat suitability index for the study area (National Biodiveristy Data Centre, 2021). The habitat suitability index identifies the geographical areas that are suitable for individual species. The index ranges from 0 to 100, with 100 being the most favourable to bats. The index presented is for all species combined, in addition to the individual species indices within the study area.

From the indices, it can be established that the study area has an overall moderate habitat suitability index range of 28– 36. All of the Irish bat species have high or moderate habitat suitability index for the area, with the exception of the lesser horseshoe, Nathusius' pipistrelle and Natterer's bat, and therefore all of the other listed species are likely to occur within the area.

Table 3-1: Habitat Suitability Index

Bat Species	Suitability Index Range	Suitability Index Level
All Bat Species	28– 36	Moderate
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	46 - 64	High
Brown Long-eared Bat (<i>Plecotus auritus</i>)	50 - 79	High
Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)	48 - 72	High
Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>)	0 - 4	Very Low
Whiskered Bat (<i>Myotis mystacinus</i>)	45 - 69	High
Daubenton's Bat (<i>Myotis daubentonii</i>)	30 - 38	Moderate
Lesser Noctule (<i>Nyctalus leisleri</i>)	47 - 71	High
Nathusius' Pipistrelle (<i>Pipistrellus nathusii</i>)	6 - 15	Low
Natterer's Bat (<i>Myotis nattereri</i>)	27 - 36	Low - Moderate

3.2 Field Based Results

3.2.1 Tree Inspection

The initial field survey identified three (3no.) trees within the survey area that have features that are suitable for roosting bats (refer to Figure 3-1). Table 2 provides details of the assessments of the trees, which are due to be removed / have potential to be affected by the proposed works.

Table 3-2: Tree Survey Results

Tree No.	Species	Bat Potential	Ivy	Knotholes	Loose Bark	Cracks and Crevices
1	Beech	✓	✓			
2	Oak (<i>Quercus spp.</i>)	✓	✓			✓
3	Oak (<i>Quercus spp.</i>)	✓	✓			✓

Figure 3-1: Trees Identified with Features Suitable for Roosting Bats



3.2.2 Building Inspection

The building is a one-storey structure with a flat roof that is currently operated as a service station shop. There is petrol station roof structure, and this was also inspected.

During the external inspection of the building, it was noted there were three potential access point for bats to enter into the building by gaps under the soffit and barge board, as well as cracked window near the rear of the building (See Figure 3-2). These features have the potential to be used as access points into the building by bats. There were no suitable access points within the petrol station roof structure.

The Site is heavily illuminated at night (Refer to Figure 3-2) due to street lighting along Redforge Road, flood lights off the petrol shop building and from commercial lighting along the southern boundary of the survey area (coming off the car park building).

No evidence of bat activity was found during the external inspection of the building and the building itself was deemed sub-optimal for roosting bats due to the flat roof structure of the building as well as the high levels of light spillage surrounding the building at night.

Figure 3-2: Potential Access Points into Building and Lighting Patterns on Site at Night



3.2.3 Emergence and Dawn Re-entry Survey Results

No bats were observed emerging from or re-entering any of the trees or building surveyed. The survey identified bats commuting along treelines / scrub area to the west of the survey area where there is a dilapidated house and scrub / tree habitat. (See Figure 3-3). Very little bat activity was recorded within the Site during both surveys.

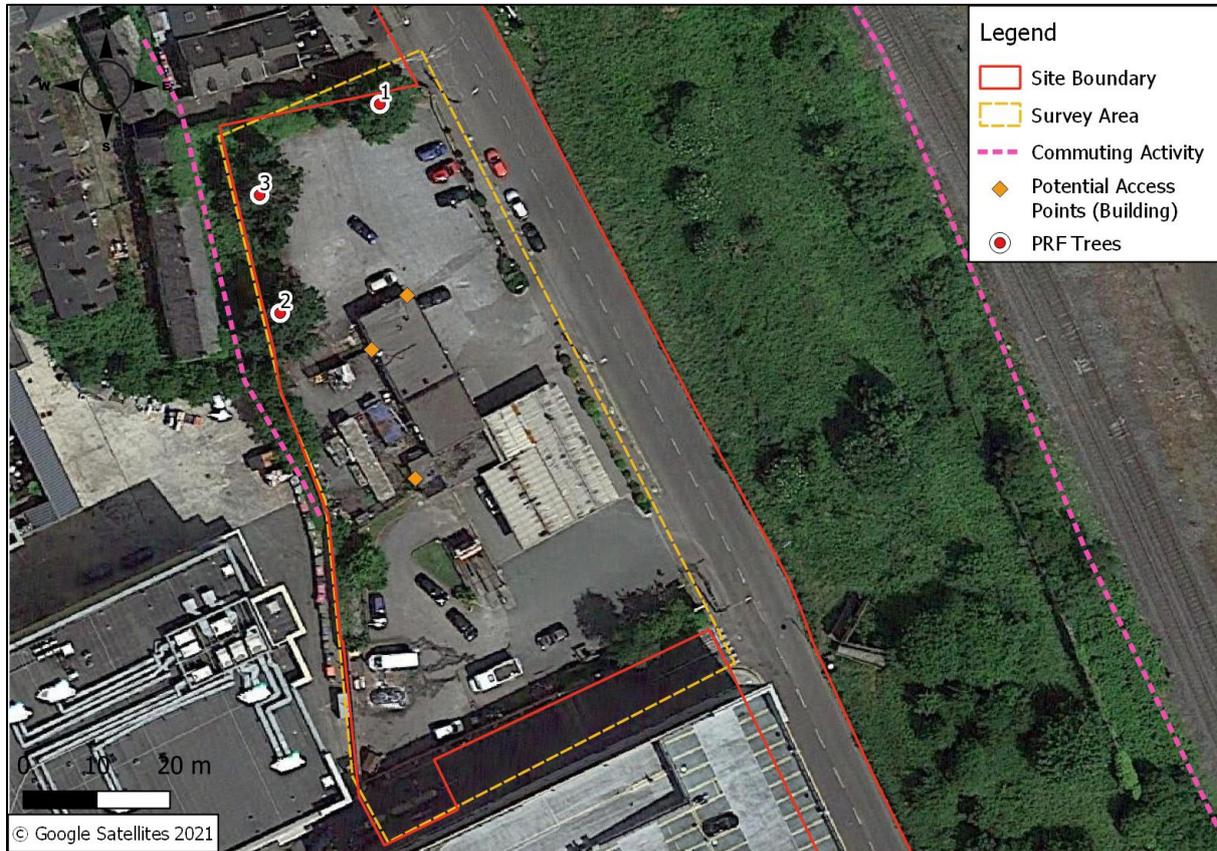
The following bats were recorded as a result of the emergence and dawn re-entry surveys:

- Common pipistrelle, soprano pipistrelle and lesser noctule bats were recorded commuting along the treelines to the west of the survey area and the east along the railway line. The most frequently encountered species of these were soprano pipistrelle and lesser noctules. These species are relatively wide-spread and the most commonly encountered species within Ireland;
- No bats were identified to be roosting within the trees or buildings in the survey area; and,
- Bats were recorded soon after dusk during the emergence survey, indicating that bat roosts are likely to be present within the local area. The survey recorded bats commuting along treelines and scrub area to the west of the Site and to the east along the railway line (Figure 3-3).

Based on the levels of activity and movement of the bats recorded during the surveys, it is considered that the Site is of very little value to bats. During the surveys it was noted that the

Site is heavily illuminated by street lighting posts from the adjacent Redforge Road as well as flood lights from the on-site building and the car park building directly south. As bats are typically adverse to lighting, no commuting and foraging activity was noted within the illuminated areas.

Figure 3-3: Bat Activity Map within the Survey Area



4 IMPACT ASSESSMENT AND MITIGATION

The following bat species have been recorded during the bat surveys: common pipistrelle, soprano pipistrelle and lesser noctule. This represents three of the nine residence bat species known to Ireland, all of which are common Irish bat species. All bat species recorded during the bat surveys are Annex IV species under the EU Habitats Directive and all have a favourable status in Ireland.

Bat species within the survey area will be affected by both the construction phase and operational phase of the proposed development. The impact assessment and mitigation will be undertaken in relation to the three bat species recorded within the survey area and the surrounding area: common pipistrelle, soprano pipistrelle and lesser noctules.

4.1 Potential Impacts on Bats

The buildings will be fully demolished and all existing vegetation on Site will be removed as part of the proposed development.

Principal impacts of the proposed development, in general, on bat fauna may be summarised as follows:

4.1.1 Loss of Habitat

The surveys did not identify any bat roosts within the survey area. However, there is potential commuting and foraging habitats to the west of the Site and within the wider area. Therefore it is considered that without the appropriate consideration of foraging and commuting bats in close vicinity to the Site, that the proposed development could have a Negative Impact on bat species.

4.1.2 Lighting of the General Area (street lighting, security lighting etc.)

Lighting for the proposed development will potentially impact on bat species in relation to commuting and foraging potential within the wider area which is used by lesser noctules and pipistrelles. Common pipistrelles and soprano pipistrelles will tolerate low levels of lighting, however excess lighting is likely to have an impact on bats.

In the absence of an appropriate lighting scheme, it is considered that the proposed development could have a Negative Impact on foraging and commuting bats.

4.2 Mitigation Measures

The following mitigation measures are recommended to reduce the potential impact of the proposed development on local bat populations:

4.2.1 Landscaping Plan

The Landscaping Plan should be developed to replace *at the least*, any vegetation removed due to the proposed development.

The following landscape recommendations are also advised:

- Avoid the use of chemicals (weed killers, etc.) within the development zone; and,
- The plantings should comprise a mix of native woody shrubs and trees, including fruit-bearing or flowering species, which will provide cover and potential foraging opportunities for wildlife.

4.2.2 Lighting Plan

Bats are adverse to excessive lighting, subsequently, impacts could occur as a result of an inappropriate lighting strategy. Therefore, it is important that lighting installed for the proposed

development will be completed with sensitivity for local wildlife while still providing the necessary lighting for human usage.

The lighting to be installed as part of the proposed development will be for safety and maintenance. Nevertheless, the lighting strategy should be designed to mitigate against any potential impacts on nocturnal species in line with the Bat Conservation Trust (BCT) Guidelines on '*Bats and Artificial Lighting in the UK*' (BCT, 2018). The lighting strategy should involve avoiding excessive lighting. The following measures should be taken into consideration during the lighting layout design:

- Construction should be limited to daylight hours in order to minimise adverse effects on nocturnal fauna;
- Avoidance of excessive lighting;
- Light Emitting Diodes (LED's) should be used and the brightness will be set as low as possible;
- Lighting should be aimed only where it is needed, with no upward lighting;
- Lighting should be directed away from landscaped areas;
- Lighting should be turned down / off when not required; and,
- The height of lighting columns should be reduced as much as possible, as lighting at a low level further reduces ecological impact.

4.2.3 Monitoring

In order to ensure that the works in relation to the proposed development do not have significant impacts on bats, the following construction procedures and mitigation measures should be implemented. These measures are in line with the NRA (now TII) Guidance for Bats.

- Immediately prior to works on the roof structure / demolition of the building, an updated building inspection, and should it be deemed necessary, an updated emergence / dawn re-entry survey will be required to confirm the presence / absence of roosting bats within the building;
- Immediately prior to the removal of the trees, an updated tree inspection, and should it be deemed necessary, an updated emergence / dawn re-entry survey will be required to confirm the presence / absence of roosting bats within the trees;
- If bats were found to be roosting within the building or trees, then further measures may need to be considered in order to protect bats against any disturbance. The NPWS will be consulted for advice and a delegation licence will be obtained if required; and,
- The findings of the updated bat surveys will be submitted to the planning authority prior to the commenced of the demolition works.

5 CONCLUSIONS

The bat surveys undertaken for the proposed development included a walkover of the lands within the survey area, tree inspections, external building inspections, dusk emergence surveys and a dawn re-entry survey. The walkover, building inspections and tree inspection identified three (3no.) trees with features suitable for roosting bats and three (3no.) potential access points into the building. These trees and access points were subject to dusk emergence and dawn re-entry surveys; however, no bats were observed roosting within these trees or building.

Based on the bat activity within the survey area shortly after sunset and right before sunrise, it is considered likely that there are bats roosting within the locality of the proposed development. The surveys identified bats commuting along sections of the treelines / scrub areas, to the northwest of the survey area and within the wider area.

Overall, the survey area is considered to be of Low Importance for roosting, commuting and foraging bats within the local area as the majority of the Site is heavily illuminated at night and the Site is located within an urban environment. However, it is considered that if the mitigation measures presented within this report are followed, the potential impacts on bats will be reduced and the overall impact from the proposed development on bats will be Negligible.

6 REFERENCES

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