



ECOLOGICAL IMPACT ASSESSMENT REPORT

FOR
PROPOSED RESIDENTIAL
DEVELOPMENT
AT

RAVENS ROCK ROAD,
SANDYFORD, DUBLIN 18

March 2022

ON BEHALF OF
Ravensbrook Ltd.

Prepared by
Enviroguide Consulting

 *Dublin*
3D Core C, Block 71, The Plaza,
Park West, Dublin 12

 *Kerry*
19 Henry Street
Kenmare, Co. Kerry

 *Wexford*
M10 Wexford Enterprise
Centre, Strandfield Business
Park, Rosslare Road, Wexford

 www.enviroguide.ie
 info@enviroguide.ie
 +353 1 565 4730



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TABLE OF CONTENTS

LIST OF TABLES	IV
LIST OF FIGURES.....	V
1 INTRODUCTION	1
1.1 QUALITY ASSURANCE AND COMPETENCE	1
2 RELEVANT LEGISLATION	3
2.1 NATIONAL LEGISLATION.....	3
2.1.1 <i>Wildlife Act 1976, as amended</i>	3
2.1.2 <i>EU Habitats Directive 1992 and EC (Birds and Natural Habitats) Regulations 2011</i>	3
2.1.3 <i>Flora (Protection) Order, 2015</i>	4
2.2 INTERNATIONAL LEGISLATION	4
2.2.1 <i>EU Birds Directive</i>	4
2.2.2 <i>EU Habitats Directive</i>	4
2.2.3 <i>Water Framework Directive</i>	4
2.2.4 <i>Bern and Bonn Convention</i>	4
2.2.5 <i>Ramsar Convention</i>	5
3 DESCRIPTION OF THE PROPOSED DEVELOPMENT.....	6
3.1 LOCATION.....	6
3.2 DESCRIPTION.....	6
4 METHODOLOGY	9
4.1 SCOPE OF ASSESSMENT	9
4.2 DESK STUDY.....	9
4.3 FIELD SURVEYS.....	10
4.3.1 <i>Habitat Surveys</i>	10
4.3.2 <i>Bat Surveys</i>	10
4.3.3 <i>Bird Surveys</i>	10
4.3.4 <i>Mammal Surveys</i>	10
4.3.5 <i>Invasive Species Surveys</i>	10
4.4 CONSULTATION	10
4.5 ASSESSMENT	11
4.6 LIMITATIONS	11
5 BASELINE ECOLOGICAL CONDITIONS	12
5.1 SITE OVERVIEW	12
5.1.1 <i>Geology, Hydrology and Hydrogeology</i>	12
5.2 DESIGNATED SITES	12
5.3 DESK STUDY.....	29
5.3.1 <i>Species and Species Groups</i>	29
5.4 FIELD SURVEYS	32
5.4.1 <i>Habitats & Flora</i>	32
5.4.2 <i>Bats</i>	36
5.4.3 <i>Birds</i>	36
5.4.4 <i>Mammals (excl. bats)</i>	36
5.5 DESIGNATED SITES, HABITAT AND SPECIES EVALUATION	36
6 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT	38

6.1	CONSTRUCTION PHASE.....	38
6.1.1	<i>Impacts on fauna</i>	38
6.2	OPERATIONAL PHASE.....	38
6.2.1	<i>Impacts on Fauna</i>	38
6.3	DO NOTHING IMPACT.....	39
7	MITIGATION AND ENHANCEMENT MEASURES	40
7.1	CONSTRUCTION PHASE.....	40
7.1.1	<i>Planting of native flora and protecting pollinators</i>	40
7.1.2	<i>Aquatic Fauna & Surface Waters</i>	40
7.1.3	<i>Bats</i>	42
7.1.4	<i>Birds</i>	42
7.1.5	<i>Reduction of noise and dust related impacts</i>	43
7.1.6	<i>Control of Air Quality and Dust</i>	46
7.1.7	<i>Invasive Species</i>	52
7.1.8	<i>Biosecurity</i>	52
7.2	OPERATIONAL PHASE.....	52
7.2.1	<i>Bats</i>	52
7.2.2	<i>Birds</i>	53
8	CUMULATIVE IMPACTS.....	54
8.1.1	<i>Existing granted planning permissions</i>	54
8.1.2	<i>Relevant policies and plans</i>	58
8.1.3	<i>Operation of Ringsend WwTP</i>	58
9	RESIDUAL IMPACTS	59
10	CONCLUSION	61
11	REFERENCES	62
	APPENDIX I – VALUE OF ECOLOGICAL RESOURCES.....	65
	APPENDIX II – EPA IMPACT ASSESSMENT CRITERIA	67
	APPENDIX III – BAT REPORT	69

LIST OF TABLES

Table 1. Designated sites within the zone of influence (15km) of the Proposed Development, potential pathways between the Proposed Development Site and the designated Sites. Sites that have been screened into this EclA for further assessment are shaded in green.	13
Table 2. Invasive plant species within the 2km (O12Y) grid square. The records are dated within the last 20 years and are provided by the NBDC.....	29
Table 3. Terrestrial mammal species within the 2km (O12Y) grid square. The records are dated within the last 20 years and are provided by the NBDC.	30
Table 4 Bird species observed on Site - 6th October 2021	36
Table 5. Evaluation of designated sites, habitats and fauna recorded within the surrounding area. ...	37
Table 6-1: <i>Maximum Permissible Noise Levels at the Facade of Dwellings during Construction</i>	45
Table 7 Summary of potential impacts on KER(s), mitigation proposed and residual impacts.	60

LIST OF FIGURES

Figure 1. Site Location.	8
Figure 2. European sites within 15km of the Proposed Development Site.....	27
Figure 3. Proposed Natural Heritage Areas within 15km of the proposed Development Site	28
Figure 4. Buildings and artificial surfaces (BL3) at the Site of the Proposed Development, with Amenity grassland (improved) (GA2) in the foreground and Sessile oak Treeline (WL2) habitat in the background.	33
Figure 5 Highly managed Leyland Cypress Treeline (WL2) along the south boundary of the Site.....	33
Figure 6 Habitats found within Site of the Proposed Development	35

1 INTRODUCTION

Enviroguide Consulting was commissioned by Ravensbrook Ltd to prepare an Ecological Impact Assessment for a Proposed Development at Ravens Rock Road, Sandyford, Dublin 18.

This Ecological Impact Assessment (EclA) assesses the potential effects of the Proposed Development on habitats and species; particularly those protected by National and International legislation or considered to be of particular nature conservation importance. This report will describe the ecology of the Proposed Development area, with emphasis on habitats, flora and fauna, and will assess the potential effects of the Construction and Operational Phases of the Proposed Development on these ecological receptors. The report follows Guidelines for Ecological Impact Assessment in the UK and Ireland, by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).

1.1 Quality assurance and competence

Synergy Environmental Ltd., T/A Enviroguide Consulting, is wholly Irish Owned multi-disciplinary consultancy specialising in the areas of the Environment, Waste Management and Planning. All of our consultants carry scientific or engineering qualifications and have a wealth of experience working within the Environmental Consultancy sectors, having undergone extensive training and continued professional development.

Enviroguide Consulting as a company remains fully briefed in European and Irish environmental policy and legislation. Enviroguide staff members are highly qualified in their field. Professional memberships include the Chartered Institution of Wastes Management (CIWM), the Irish Environmental Law Association and Chartered Institute of Ecology and Environmental Management (CIEEM).

All surveying and reporting have been carried out by qualified and experienced ecologists and environmental consultants. Aisling Walsh, Professional Bat Ecologist with Ash Ecology and Environmental Ltd. undertook the on-site bat surveys. Shannen O'Brien, Ecologist with Enviroguide undertook the habitat surveys and desktop research for this report.

Aisling Walsh is a Professional Ecologist and director of Ash Ecology Consulting. Aisling has a wealth of academic qualification having studied a MSc in Biodiversity and Conservation (TCD), A BSc (Hons) Zoology (NUIG), a Diploma in Applied Aquatic Sciences (GMIT), a Post Graduate Diploma in Statistics (TCD), and a Certificate in Environmental Noise (Institute of Acoustics); while also holding a full membership of the Chartered Institute of Ecology and Environmental Management (CIEEM). Aisling has written numerous Ecological Impact Assessments (EclA), Screening for Appropriate Assessment Stage I and Stage II Natura Impact Statement, Environmental Impact Assessments/Statements, Badger Surveys, Bat Surveys, Habitat Surveys. She has also provided input and reviewed Ecological and Environmental assessments for several EIS and EIA Reports and conducted numerous noise surveys for EPA licensed facilities. AEE is listed as a Registered Practice by the CIEEM.

Shannen O'Brien has a B.A. in Zoology from Trinity College Dublin and a M.Sc. Hons. in Wildlife Conservation and Management from University College Dublin, and has experience in desktop research, report writing, and literature scoping-review, as well as practical field and

laboratory experience (Pollinator surveying, sampling and identification, habitat surveying, invasive species surveying, etc.). Shannen has prepared Stage I and Stage II Appropriate Assessment Reports, Invasive Species Surveys, Ecology Statements, and Ecological Impact Assessments (EclA).

2 RELEVANT LEGISLATION

An Ecological Impact Assessment (EclA) is a process of identifying, quantifying, and evaluating potential effects of development-related or other actions on habitats, species and ecosystems (CIEEM, 2016). The Proposed Development is a sub-threshold for an Environmental Impact Assessment (EIA) under the Planning and Development Regulations 2011-2018.

An EclA is not a statutory requirement, however it is a best practice evaluation process. This EclA has been undertaken to support and assess the Proposed Development planning application and assesses the potential impacts that the Proposed Development may have on the ecology of the site and its environs. Where potential for a risk to the environment is identified, mitigation measures are proposed on the basis that by deploying these mitigation measures the risk is eliminated or reduced to an insignificant level. This EclA is provided to assist the Competent Authority with its decision making in respect of the Proposed Development.

2.1 National Legislation

2.1.1 Wildlife Act 1976, as amended

The Wildlife Act 1976 was enacted to provide protection to birds, animals, and plants in Ireland and to control activities which may have an adverse impact on the conservation of wildlife. With regard to the listed species, it is an offence to disturb, injure or damage their breeding or resting place wherever these occur without an appropriate licence from the National Parks and Wildlife Service (NPWS). This list includes all wild birds along with their nests and eggs. Intentional destruction of an active nest from the building stage up until the chicks have fledged is an offence. This includes the cutting of hedgerows from the 1st of March to the 31st of August. The act also provides a mechanism to give statutory protection to Natural Heritage Areas (NHAs). The Wildlife Amendment Act 2000 widened the scope of the Act to include most species, including the majority of fish and aquatic invertebrate species which were excluded from the 1976 Act.

2.1.2 EU Habitats Directive 1992 and EC (Birds and Natural Habitats) Regulations 2011

The EU Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992) provides protection to particular species and habitats throughout Europe. The Habitats Directive has been transposed into Irish law through the EC (Birds and Natural Habitats) Regulations 2011 (“the 2011 Regulations”).

Annex IV of the EU Habitats Directive provides protection to a number of listed species, wherever they occur. Under Regulation 23 of the Habitats Directive, any person who, in regards to the listed species, “Deliberately captures or kills any specimen of these species in the wild, deliberately disturbs these species particularly during the period of breeding, rearing, hibernation and migration, deliberately takes or destroys eggs from the wild or damages or destroys a breeding site or resting place of such an animal shall be guilty of an offence.” This is implemented under Regulation 51 of the 2001 Regulations.

2.1.3 Flora (Protection) Order, 2015

The Flora (Protection) Order (S.I. No. 356/2015) affords protection to several species of plant in Ireland, including 68 vascular plants, 40 mosses, 25 liverworts, 1 stonewort and 1 lichen. This Act makes it illegal for anyone to uproot, cut or damage any of the listed plant species and it also forbids anyone from altering, interfering, or damaging their habitats. This protection is not confined to within designated conservation sites and applies wherever the plants are found.

2.2 International Legislation

2.2.1. EU Birds Directive

The Birds Directive constitutes a level of general protection for all wild birds throughout the European Union. Annex I of the Birds Directive includes a total of 194 bird species that are considered rare, vulnerable to habitat changes or in danger of extinction within the European Union. Article 4 establishes that there should be a sustainable management of hunting of listed species, and that any large scale non-selective killing of birds must be outlawed. The Directive requires the designation of Special Protection Areas (SPAs) for: listed and rare species, regularly occurring migratory species and for wetlands which attract large numbers of birds. There are 25 Annex I species that regularly occur in Ireland and a total of 153 Special Protection Areas have been designated.

2.2.2. EU Habitats Directive

The Habitats Directive aims to protect some 220 habitats and approximately 1000 species throughout Europe. The habitats and species are listed in the Directives annexes, where Annex I covers habitats and Annex II, IV and V cover species. There are 59 Annex I habitats in Ireland and 33 Annex IV species which require strict protection wherever they occur. The Directive requires the designation of Special Areas of Conservation for areas of habitat deemed to be of European interest. The SACs together with the SPAs from the Birds Directive form a network of protected sites called Natura 2000.

2.2.3. Water Framework Directive

The EU Water Framework Directive (WFD) 2000/60/EC is an important piece of environmental legislation which aims to protect and improve water quality. It applies to rivers, lakes, groundwater, estuaries, and coastal waters. The Water Framework Directive was agreed by all individual EU member states in 2000, and its first cycle ran from 2009 – 2015. The Directive runs in 6-year cycles, so the second (current) cycle runs from 2016 – 2021. The aim of the WFD is to prevent any deterioration in the existing status of water quality, including the protection of good and high water quality status where it exists. The WFD requires member states to manage their water resources on an integrated basis to achieve at least 'good' ecological status, through River Basin Management Plans (RBMP), by 2027.

2.2.4. Bern and Bonn Convention

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982) was enacted to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was introduced to give protection to migratory species across borders in Europe.

2.2.5. Ramsar Convention

The Ramsar Convention on Wetlands is an intergovernmental treaty signed in Ramsar, Iran, in 1971. The treaty is a commitment for national action and international cooperation for the conservation of wetlands and their resources. In Ireland there are currently 45 Ramsar sites which cover a total area of 66,994 Ha.

3 DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 Location

The Site of the Proposed Development is approximately 0.31ha, located within an industrial estate on Ravens Rock Road, Sandyford, Co. Dublin. The Site is located approximately 2.4km southeast of Dundrum Town Centre and almost 1.2km northeast of Sandyford Village. The Site currently contains industrial retail units, and is bounded on the north by Carmanhall Road, and on the east by Ravens Rock Road, and the southern and western boundaries are abutted by commercial buildings.

3.2 Description

Ravensbrook Ltd, intend to apply to An Bord Pleanála for permission for a strategic housing development at this site of approximately 0.31ha on lands at IVM House, nos. 31 Ravens Rock Road (D18H304) and 31a Ravens Rock Road (D18C8P2), Sandyford Business Park, Dublin 18.

The development will consist of the demolition of the existing 2 no. storey building (c.717sqm) and hard surface parking area on the site and construction of a Build to Rent residential development comprising 101 no. residential apartments as follows:

- 101 no. build to rent apartments within a part 5, part 6 to part 11 no. storey building over partial basement comprising 65 no. 1 bedroom apartments and 36 no. 2 bedroom apartments (balconies on all elevations);
- 734sqm of external communal amenity space provided in the form of a podium courtyard at first floor level and a series of rooftop terraces at fifth, sixth and tenth floor levels, c. 514sqm of public open space provided fronting Carmanhall Road;
- 511 sqm of resident support facilities/ services and amenities space provided at ground and first floor levels;
- Vehicular access to the development will be from the upgraded existing access from Ravens Rock Road;
- Provision of 10 no. car parking spaces [1 no. accessible] at surface level, 2 no. motorcycle spaces; and 234 no. cycle parking spaces;
- Provision of 4 no. Ø0.3m Microwave link dishes to be mounted on 2 No. steel support pole affixed to lift shaft overrun, all enclosed in radio friendly GRP shrouds, together with associated equipment at roof level;
- Provision of an ESB substation, switch room and plant room at ground floor level, hard and soft landscaped areas, public lighting, attenuation, service connections and all ancillary site development works.

The incorporation of Sustainable Urban Drainage Systems (SUDS) into the design of the Proposed Development is mandatory for all new developments under the Greater Dublin Regional Code of Practice for Drainage Works. As such, the Proposed Development design entails a suite of SuDS measures. SUDS is a series of management practices and control structures that aim to mimic natural drainage. SUDS reduces flood risk, improves water quality

and provides amenity through the use of permeable paving, swales, green roofs, rain water harvesting, detention basins, ponds and wetlands¹.

¹ <https://www.dublincity.ie/dublin-city-development-plan-2016-2022/9-sustainable-environmental-infrastructure/95-policies-and-objectives/954-surface-water-drainage-and>

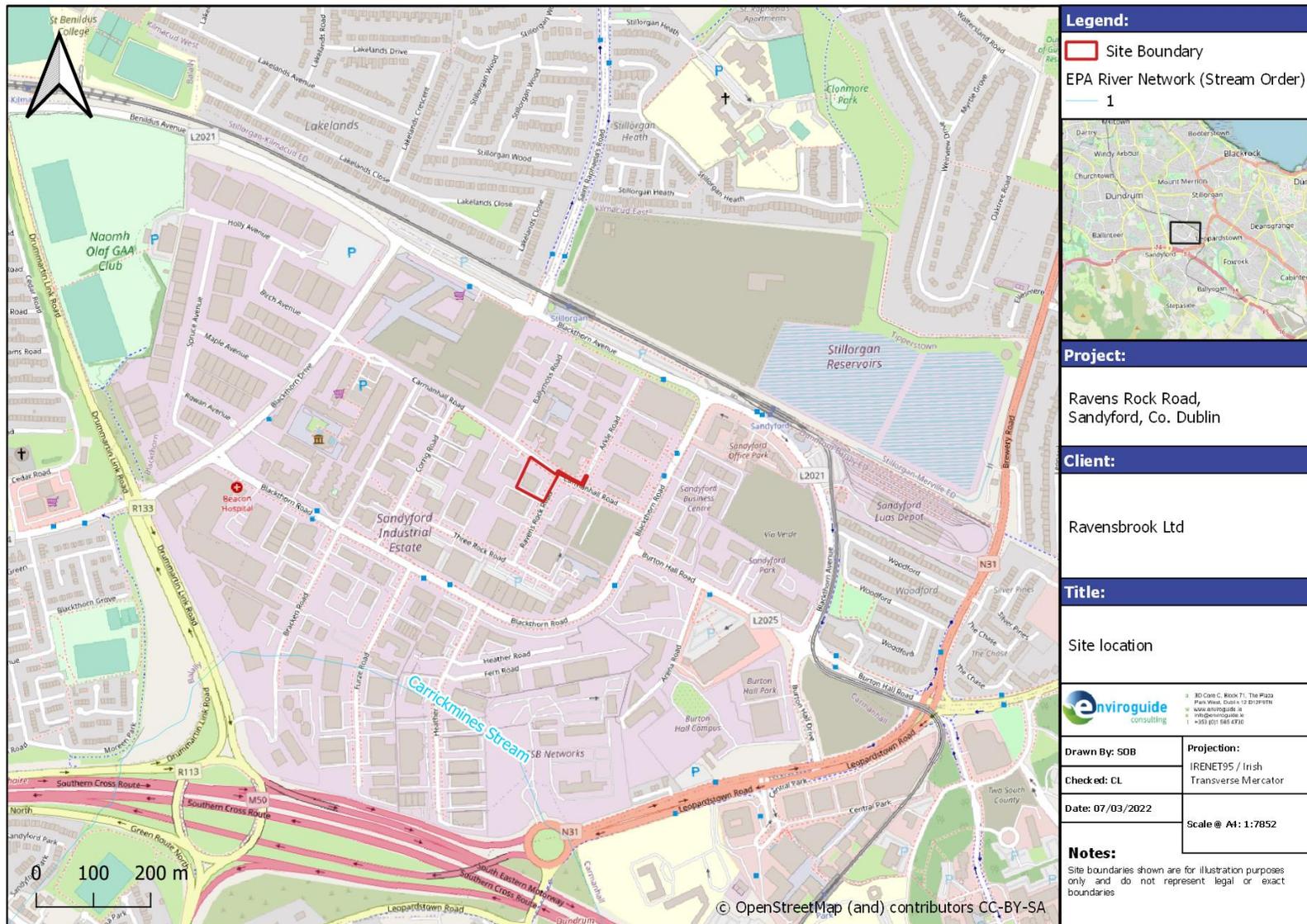


FIGURE 1. SITE LOCATION.

4 METHODOLOGY

This section details the steps and methodology employed to undertake an Ecological Impact Assessment of the Proposed Development.

4.1 Scope of Assessment

The specific objectives of the study were to:

- Undertake baseline ecological surveys and evaluate the nature conservation importance of the Site of the Proposed Development.
- Identify and assess the direct, indirect, and cumulative ecological implications or impacts of the Proposed Development during its lifetime; and
- Where possible, propose mitigation measures to remove or reduce those impacts at the appropriate stage of development.

4.2 Desk Study

A desktop study was carried out to collate and review available information, datasets and documentation sources pertaining to the site's natural environment. The desktop study relied on the following sources:

- Information on species records and distributions, obtained from the National Biodiversity Data Centre (NBDC) at www.maps.biodiversityireland.ie.
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at www.gis.epa.ie.
- Information on bedrock, groundwater, aquifers and their statuses, obtained from Geological Survey Ireland (GSI) at www.gsi.ie ;
- Information on the network of designated conservation sites, boundaries, qualifying interests and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at www.npws.ie ;
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe and Ordnance Survey Ireland.
- Information on the existence of permitted developments, or developments awaiting decision, in the vicinity of the Proposed Development from Dublin City Council available at: <http://www.dublincity.ie/main-menu-services-planning/planning-search>
- Information on the extent, nature and location of the Proposed Development, provided by the applicant and/or their design team.
- The current conservation status of birds in Ireland taken from Gilbert et al. (2021).
- The pollinator friendly planting code provided by The All-Ireland Pollinator Plan (2015-2020) available at www.pollinators.ie
- Dún Laoghaire-Rathdown County Council Biodiversity Plan 2009 – 2013
- Dún Laoghaire-Rathdown County Council County Development Plan 2016 – 2022

A comprehensive list of all the specific documents and information sources consulted in the completion of this document is provided in Section 11, References.

4.3 Field surveys

4.3.1 Habitat Surveys

A habitat survey was carried out at the Site on the 6th of October 2021 as part of a multi-disciplinary walkover survey. This falls within the recommended habitat survey period of late March to mid-October to coincide with the growing season of most plants and complies with Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009a). Habitats were categorised according to the Heritage Council's '*A Guide to Habitats in Ireland*' (Fossitt, 2000) to level 3. The habitat mapping exercise had regard to the '*Best Practice Guidance for Habitat Survey and Mapping*' (Smith et al., 2010) published by the Heritage Council. Satellite imagery was used together with GPS to accurately enable field navigation. Habitat categories, characteristic plant species, invasive species and other ecological features were recorded.

4.3.2 Bat Surveys

A bat survey was carried out on Site of the Proposed Development on the 27th of April 2021 and a habitat assessment was carried out on the 21st of January 2022 by Ash Ecology & Environmental Ltd (AEE). Bat activity surveys are ideally undertaken between April and October, and therefore this survey was carried out in compliance with Bat Surveys for Professional Ecologists: Good Practise Guidelines (3rd edn) (Collins, J (ed.), 2016). Details of the bat survey can be found in the Bat Survey Report in Appendix III.

4.3.3 Bird Surveys

A bird survey was completed on the 6th of October 2021 as part of a multi-disciplinary walkover survey. All birds encountered on Site, through visual and/or audio means, were recorded during this survey. This survey was carried out outside of the optimal breeding bird survey period (March 1st to August 31st) (NRA, 2009a).

4.3.4 Mammal Surveys

Mammal surveys of the Site were carried out in conjunction with the habitat survey, in compliance with guidelines from '*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*' (NRA, 2009a). There is no single survey technique or period that can be applied to all Irish mammal species due to the diversity of life-cycles, behaviours, and habitat requirements. The Site was examined for tracks and signs of mammals. The habitat types recorded throughout the survey area were used to assist in identifying the fauna considered likely to utilise the area.

4.3.5 Invasive Species Surveys

The Site was assessed for the presence of invasive plant species during the habitat survey undertaken.

4.4 Consultation

No consultation was undertaken as part of this Ecological Impact Assessment.

4.5 Assessment

The value of the ecological resources, i.e., the habitats and species present or potentially present, was determined using the ecological evaluation guidance given in the National Roads Authority's Ecological Assessment Guidelines (NRA, 2009b), presented in Appendix I. This evaluation scheme, with values ranging from locally important to internationally important, seeks to provide value ratings for habitats and species present that are considered ecological receptors of impacts that may ensue from a proposal. As per the NRA guidelines, impact assessment is only undertaken of key ecological receptors (KERs).

The assessment of the potential effect or impact of the Proposed Development on the identified key ecological receptors was carried out with regard to the criteria outlined in the draft EPA Guideline (EPA, 2017), presented in Appendix II. These guidelines set out a number of parameters such as quality, magnitude, extent and duration that should be considered when determining which elements of the Proposed Development could constitute impact or sources of impacts.

4.6 Limitations

An extensive search of available datasets for records of rare and protected species within proximity of the Proposed Development has been undertaken as part of this assessment. However, the records from these datasets do not constitute a complete species list. The absence of species from these datasets does not necessarily confirm an absence of species in the area.

Habitat surveys and invasive species surveys were carried out within the standard acceptable timeframe (late April to mid-October), and bat activity surveys were undertaken at the appropriate time of year (April to October, in suitable weather conditions). Breeding bird surveys were undertaken outside the appropriate time of year (early March to late August). Further breeding bird surveys should be carried out during nesting season (March 1st to August 31st). Due to the highly urbanised nature of the Site, the surveyor is satisfied ecological features of note were recorded.

5 BASELINE ECOLOGICAL CONDITIONS

5.1 Site Overview

5.1.1 Geology, Hydrology and Hydrogeology

The Site of the Proposed Development is within the Liffey and Dublin Bay catchment and Dodder_SC_010 sub catchment. The closest watercourse to the Site is the Carrickmines Stream, approximately 400m to the southwest, however, according to the Hydrological & Hydrogeological Qualitative Risk Assessment (AWN Consulting, 2021) prepared as part of the Proposed Development, the surface water from the Site discharges to the Brewery Stream, 980m northeast of the Site. The Brewery Stream then flows into Dublin Bay 3.7km northeast of the Site of the Proposed Development.

The Site is situated on the Kilcullen groundwater body, which is *At Risk* of not meeting its WFD objectives. The aquifer type within the Site boundary is a *Poor Aquifer* (PI) aquifer on bedrock which is *Generally Unproductive except for Local Zones*. The groundwater rock units underlying the aquifer are classified as *Granites & other Igneous Intrusive rocks* (GSI, 2021). The level of vulnerability of the Site to groundwater contamination via human activities is *Moderate*. The soil is classified as *Urban*, and the subsoil is man-made (*Made*) (EPA, 2021).

5.2 Designated Sites

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected sites throughout the European Community. SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the qualifying interests of the sites; from these the conservation objectives of the site are derived.

Natural Heritage Areas (NHAs) are designations under the Wildlife Acts to protect habitats, species, or geology of national importance. The boundaries of many of the NHAs in Ireland overlap with SAC and/or SPA sites. Although many NHA designations are not yet fully in force under this legislation (referred to as 'proposed NHAs' or pNHAs), they are offered protection in the meantime under planning policy which normally requires that planning authorities give recognition to their ecological value.

Table 1 below presents details of the designated sites within a 15km radius of the Proposed Development. In addition, the potential for connectivity with designated sites at distances of greater than 15km from the Development was also considered in this initial assessment. In this case, there is no potential connectivity between the Development site and designated sites located at a distance greater than 15km from the Proposed Development.

The result of this preliminary screening concluded that there is a total of 10 SACs, 6 SPAs and 27 pNHAs located within the Zone of Influence of the Proposed Development Site. The distances to each site listed are taken from the nearest possible point of the Proposed Development Site boundary to nearest possible point of each Natura 2000 site or pNHA. In addition, Dublin Bay is designated as a UNESCO Biosphere². Dublin Bay Biosphere contains three different zones, which are managed in different ways:

- The core zone of Dublin Bay Biosphere comprises 50km² of areas of high natural value. Key areas include the Tolka and Baldoyle Estuaries, Booterstown Marsh, Howth Head, North Bull Island, Dalkey Island and Ireland's Eye.
- The buffer zone comprises 82km² of public and private green spaces such as parks, greenbelts and golf courses, which surround and adjoin the core zones.
- The transition zone comprises 173km² and forms the outer part of the Biosphere. It includes residential areas, harbours, ports and industrial and commercial areas. The Site of the Proposed Development is located within this zone.

TABLE 1. DESIGNATED SITES WITHIN THE ZONE OF INFLUENCE (15KM) OF THE PROPOSED DEVELOPMENT, POTENTIAL PATHWAYS BETWEEN THE PROPOSED DEVELOPMENT SITE AND THE DESIGNATED SITES. SITES THAT HAVE BEEN SCREENED INTO THIS ECIA FOR FURTHER ASSESSMENT ARE SHADED IN GREEN.

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
Special Area of Conservation			
South Dublin Bay SAC (000210)	3.6km	Indirect hydrological connection via surface water discharge to the Brewery Stream and via discharges from Ringsend WwTP during both the Construction and Operational Phases	<p>The potential for surface water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Construction and Operational Phases, is excluded due to:</p> <ul style="list-style-type: none"> • Distance between the Site and Dublin Bay, and consequent potential for dilution in the surface water network. • The surface water hydrological link will only exist during rainfall events <p>The potential for foul water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Operational Phase, is excluded due to:</p> <ul style="list-style-type: none"> • The potential for dilution in the surface water network during heavy rainfall events. • The upgrade works to Ringsend WWTP which will increase the capacity of the facility from 1.6 million PE to 2.4 million PE (see section 8.1.3). • It is considered that effects on marine biodiversity and the European sites within Dublin Bay from the current operation of Ringsend WwTP are unlikely (see section 8.1.3) • Even without treatment at Ringsend WWTP, the peak effluent discharge (3.12 litres/sec which

² A biosphere is a special designation awarded by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) but managed in partnership by communities, NGOs and local and national governments (<https://www.dublinbaybiosphere.ie/>).

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
			would equate to 0.028% of the licensed discharge at Ringsend WWTP), would not impact on the overall water quality within Dublin Bay and therefore would not have a significant impact on the current Water Body Status (as defined within the Water Framework Directive).
Wicklow Mountains SAC (002122)	6.5km	No potential pathway	There is no hydrological connection with this SAC and the intervening distances between the Site and the SAC are sufficient to exclude the possibility of significant effects on the SAC arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Knocksink Wood SAC (000725)	7.2km	No potential pathway	There is no hydrological connection with this SAC and the intervening distances between the Site and the SAC are sufficient to exclude the possibility of significant effects on the SAC arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Rockabill to Dalkey Island SAC (003000)	8.0km	No potential pathway	There is no hydrological connection with this SAC due to the significant marine buffer and the intervening distances between the Site and the SAC are sufficient to exclude the possibility of significant effects on the SAC arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Ballyman Glen SAC (000713)	8.2km	No potential pathway	There is no hydrological connection with this SAC and the intervening distances between the Site and the SAC are sufficient to exclude the possibility of significant effects on the SAC arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
			Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
North Dublin Bay SAC (000206)	8.6km	Indirect hydrological connection via surface water discharge to the Brewery Stream and via discharges from Ringsend WwTP during both the Construction and Operational Phases	<p>The potential for surface water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Construction and Operational Phases, is excluded due to:</p> <ul style="list-style-type: none"> Distance between the Site and Dublin Bay, and consequent potential for dilution in the surface water network. The surface water hydrological link will only exist during rainfall events <p>The potential for foul water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Operational Phase, is excluded due to:</p> <ul style="list-style-type: none"> The potential for dilution in the surface water network during heavy rainfall events. The upgrade works to Ringsend WWTP which will increase the capacity of the facility from 1.6 million PE to 2.4 million PE (see section 8.1.3). It is considered that effects on marine biodiversity and the European sites within Dublin Bay from the current operation of Ringsend WwTP are unlikely (see section 8.1.3) Even without treatment at Ringsend WWTP, the peak effluent discharge (3.12 litres/sec which would equate to 0.028% of the licensed discharge at Ringsend WWTP), would not impact on the overall water quality within Dublin Bay and therefore would not have a significant impact on the current Water Body Status (as defined within the Water Framework Directive).
Glenasmole SAC (001209)	10.4km	No potential pathway	There is no hydrological connection with this SAC and the intervening distances between the Site and the SAC are sufficient to exclude the possibility of significant effects on the SAC arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Bray Head SAC (000714)	12.0km	No potential pathway	There is no hydrological connection with this SAC and the intervening distances between the Site and the SAC are sufficient to exclude the possibility of significant effects on the SAC arising from: emissions

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
			of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Howth Head SAC (000202)	12.7km	No potential pathway	There is no hydrological connection with this SAC and the intervening distances between the Site and the SAC are sufficient to exclude the possibility of significant effects on the SAC arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Baldoyle Bay SAC (000199)	14.3km	No potential pathway	There is no hydrological connection with this SAC and the intervening distances between the Site and the SAC are sufficient to exclude the possibility of significant effects on the SAC arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Special Protection Area			
South Dublin Bay and River Tolka Estuary SPA (004024)	3.6km	Indirect hydrological connection via surface water discharge to the Brewery Stream and via discharges from Ringsend WwTP during both the Construction and Operational Phases	<p>The potential for surface water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Construction and Operational Phases, is excluded due to:</p> <ul style="list-style-type: none"> Distance between the Site and Dublin Bay, and consequent potential for dilution in the surface water network. The surface water hydrological link will only exist during rainfall events <p>The potential for foul water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Operational Phase, is excluded due to:</p> <ul style="list-style-type: none"> The potential for dilution in the surface water network during heavy rainfall events. The upgrade works to Ringsend WWTP which will increase the capacity of the facility from 1.6 million PE to 2.4 million PE (see section 8.1.3).

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
			<ul style="list-style-type: none"> It is considered that effects on marine biodiversity and the European sites within Dublin Bay from the current operation of Ringsend WwTP are unlikely (see section 8.1.3) Even without treatment at Ringsend WWTP, the peak effluent discharge (3.12 litres/sec which would equate to 0.028% of the licensed discharge at Ringsend WWTP), would not impact on the overall water quality within Dublin Bay and therefore would not have a significant impact on the current Water Body Status (as defined within the Water Framework Directive).
Wicklow Mountains SPA (004040)	6.6km	No potential pathway	There is no hydrological connection with this SPA and the intervening distances between the Site and the SPA are sufficient to exclude the possibility of significant effects on the SPA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Dalkey Islands SPA (004172)	7.7km	No potential pathway	There is no hydrological connection with this SPA and the intervening distances between the Site and the SPA are sufficient to exclude the possibility of significant effects on the SPA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
North Bull Island SPA (004006)	8.6km	Indirect hydrological connection via surface water discharge to the Brewery Stream and via discharges from Ringsend WwTP during both the Construction and Operational Phases	<p>The potential for surface water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Construction and Operational Phases, is excluded due to:</p> <ul style="list-style-type: none"> Distance between the Site and Dublin Bay, and consequent potential for dilution in the surface water network. The surface water hydrological link will only exist during rainfall events <p>The potential for foul water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Operational Phase, is excluded due to:</p> <ul style="list-style-type: none"> The potential for dilution in the surface water network during heavy rainfall events.

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
			<ul style="list-style-type: none"> The upgrade works to Ringsend WWTP which will increase the capacity of the facility from 1.6 million PE to 2.4 million PE (see section 8.1.3). It is considered that effects on marine biodiversity and the European sites within Dublin Bay from the current operation of Ringsend WwTP are unlikely (see section 8.1.3) Even without treatment at Ringsend WWTP, the peak effluent discharge (3.12 litres/sec which would equate to 0.028% of the licensed discharge at Ringsend WWTP), would not impact on the overall water quality within Dublin Bay and therefore would not have a significant impact on the current Water Body Status (as defined within the Water Framework Directive).
Howth Head Coast SPA (004113)	14.2km	No potential pathway	There is no hydrological connection with this SPA and the intervening distances between the Site and the SPA are sufficient to exclude the possibility of significant effects on the SPA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Baldoyle Bay SPA (004016)	14.3km	No potential pathway	There is no hydrological connection with this SPA and the intervening distances between the Site and the SPA are sufficient to exclude the possibility of significant effects on the SPA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Proposed Natural Heritage Area			
Fitzsimon's Wood (001753)	1.6km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
South Dublin Bay (000210)	3.6km	Indirect hydrological connection via surface water discharge to the Brewery Stream and via discharges from Ringsend WwTP during both the Construction and Operational Phases	<p>The potential for surface water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Construction and Operational Phases, is excluded due to:</p> <ul style="list-style-type: none"> Distance between the Site and Dublin Bay, and consequent potential for dilution in the surface water network. The surface water hydrological link will only exist during rainfall events <p>The potential for foul water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Operational Phase, is excluded due to:</p> <ul style="list-style-type: none"> The potential for dilution in the surface water network during heavy rainfall events. The upgrade works to Ringsend WWTP which will increase the capacity of the facility from 1.6 million PE to 2.4 million PE (see section 8.1.3). It is considered that effects on marine biodiversity and the European sites within Dublin Bay from the current operation of Ringsend WwTP are unlikely (see section 8.1.3) Even without treatment at Ringsend WWTP, the peak effluent discharge (3.12 litres/sec which would equate to 0.028% of the licensed discharge at Ringsend WWTP), would not impact on the overall water quality within Dublin Bay and therefore would not have a significant impact on the current Water Body Status (as defined within the Water Framework Directive).
Boosterstown Marsh (001205)	3.7km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Dingle Glen (001207)	4.3km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
			human presence at the Site during Construction and Operational Phase.
Ballybetagh Bog (001202)	5.7km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Dalkey Coastal Zone And Killiney Hill (001206)	5.7km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Loughlinstown Woods (001211)	6.1km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Grand Canal (002104)	6.7km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
Knocksink Wood (000725)	7.2km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Dolphins, Dublin Docks (000201)	7.3km	Indirect hydrological connection via surface water discharge to the Brewery Stream and via discharges from Ringsend WwTP during both the Construction and Operational Phases	<p>The potential for surface water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Construction and Operational Phases, is excluded due to:</p> <ul style="list-style-type: none"> Distance between the Site and Dublin Bay, and consequent potential for dilution in the surface water network. The surface water hydrological link will only exist during rainfall events <p>The potential for foul water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Operational Phase, is excluded due to:</p> <ul style="list-style-type: none"> The potential for dilution in the surface water network during heavy rainfall events. The upgrade works to Ringsend WWTP which will increase the capacity of the facility from 1.6 million PE to 2.4 million PE (see section 8.1.3). It is considered that effects on marine biodiversity and the European sites within Dublin Bay from the current operation of Ringsend WwTP are unlikely (see section 8.1.3) <p>Even without treatment at Ringsend WWTP, the peak effluent discharge (3.12 litres/sec which would equate to 0.028% of the licensed discharge at Ringsend WWTP), would not impact on the overall water quality within Dublin Bay and therefore would not have a significant impact on the current Water Body Status (as defined within the Water Framework Directive).</p>
Dodder Valley (000991)	8.0km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
Royal Canal (002103)	8.1km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Ballyman Glen (000713)	8.2km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
North Dublin Bay (000206)	8.4km	Indirect hydrological connection via surface water discharge to the Brewery Stream and via discharges from Ringsend WwTP during both the Construction and Operational Phases	<p>The potential for surface water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Construction and Operational Phases, is excluded due to:</p> <ul style="list-style-type: none"> Distance between the Site and Dublin Bay, and consequent potential for dilution in the surface water network. The surface water hydrological link will only exist during rainfall events <p>The potential for foul water generated at the Site of the Proposed Development to reach Dublin Bay and cause significant effects, during the Operational Phase, is excluded due to:</p> <ul style="list-style-type: none"> The potential for dilution in the surface water network during heavy rainfall events. The upgrade works to Ringsend WWTP which will increase the capacity of the facility from 1.6 million PE to 2.4 million PE (see section 8.1.3). It is considered that effects on marine biodiversity and the European sites within Dublin Bay from the current operation of Ringsend WwTP are unlikely (see section 8.1.3) Even without treatment at Ringsend WWTP, the peak effluent discharge (3.12 litres/sec which would equate to 0.028% of the licensed discharge at Ringsend WWTP), would not impact on the overall water quality within Dublin Bay and therefore would not have a significant impact on the

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
			current Water Body Status (as defined within the Water Framework Directive).
Powerscourt Woodland (001768)	9.6km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Glenasmole Valley (001209)	10.4km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Glencree Valley (001755)	10.5km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Dargle River Valley (001754)	10.7km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
Great Sugar Loaf (001769)	11.5km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Bray Head (000714)	12.0km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Liffey Valley (000128)	12.6km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Howth Head (000202)	12.7km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Lugmore Glen (001212)	13.0km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
			of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Kilmacanoge Marsh (000724)	13.2km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Powerscourt Waterfall (001767)	13.3km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Santry Demesne (000178)	13.6km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.
Baldoyle Bay (000199)	14.3km	No potential pathway	There is no hydrological connection with this pNHA and the intervening distances between the Site and the pNHA are sufficient to exclude the possibility of significant effects on the pNHA arising from: emissions of noise, dust, pollutants and/or vibrations emitted from the Site during the Construction Phase; increased traffic volumes during the Construction and Operational Phase and associated emissions; potential

Site Name & Code (Receptor)	Distance to Proposed Development	Pathway	Potential Significant Impact on Receptor?
			increased lighting emitted from the Site during Construction and Operational Phase; and increased human presence at the Site during Construction and Operational Phase.

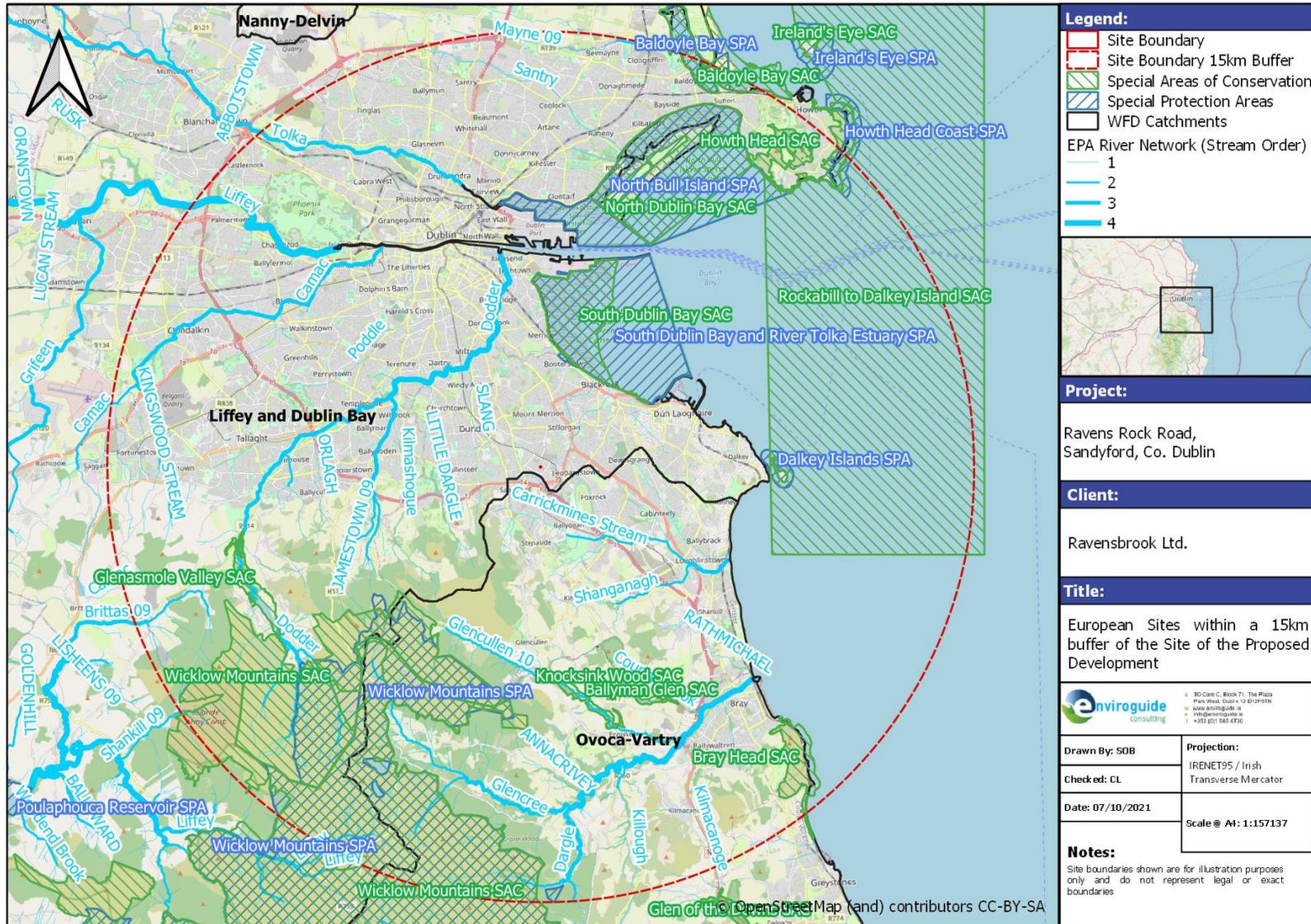


FIGURE 2. EUROPEAN SITES WITHIN 15KM OF THE PROPOSED DEVELOPMENT SITE.

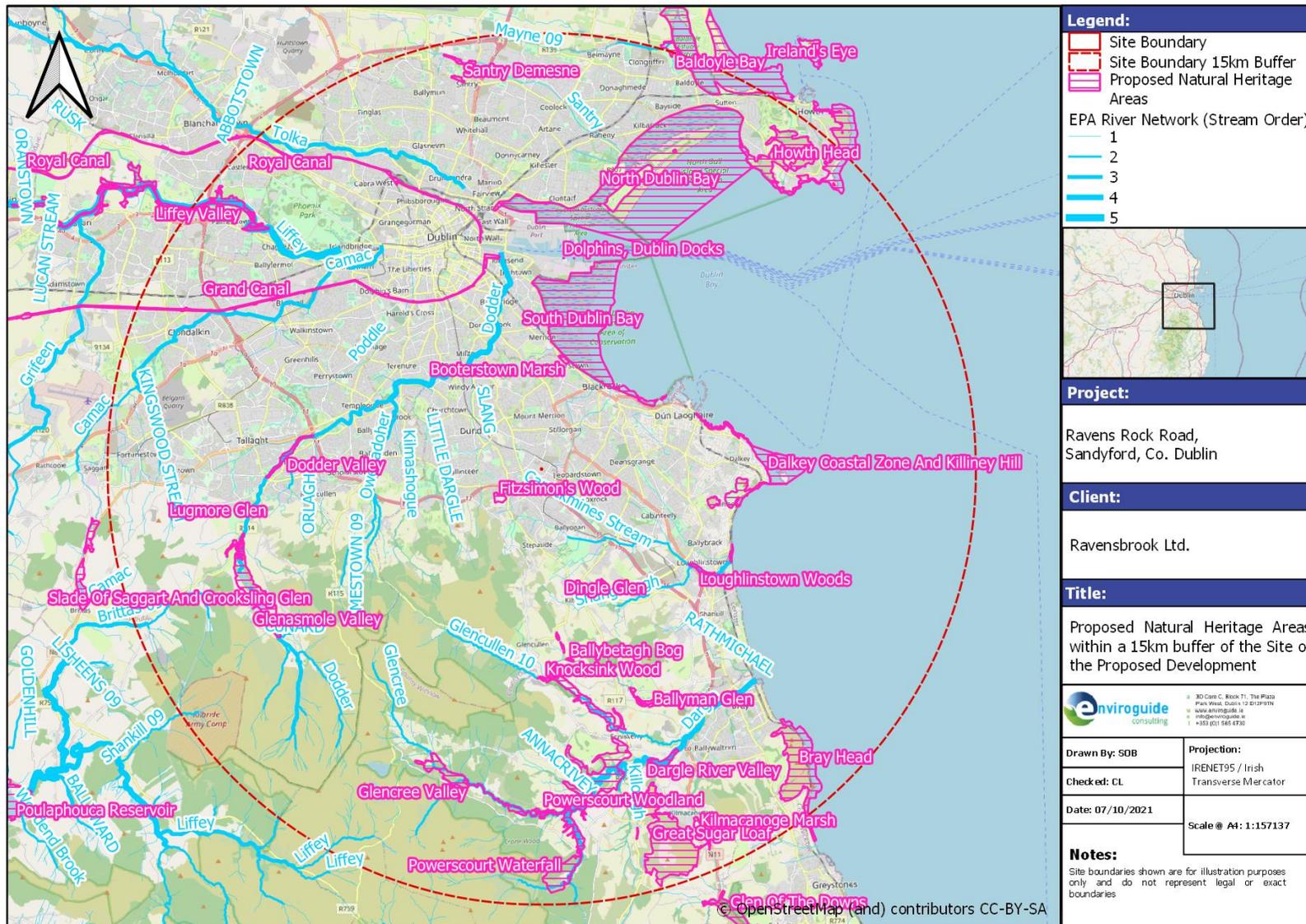


FIGURE 3. PROPOSED NATURAL HERITAGE AREAS WITHIN 15KM OF THE PROPOSED DEVELOPMENT SITE

5.3 Desk Study

5.3.1 Species and Species Groups

The Site of the Proposed Development is located within the Ordnance Survey Ireland National Grid 2km square O12Y. Species records from the National Biodiversity Data Centre (NBDC) online database for this grid square was studied for the presence of rare or protected flora and fauna. The following records were excluded:

- Records greater than 20 years old.
- Species records with no designation or conservation status (excluding mammals and birds).

In addition, data from various sources (e.g., Inland Fisheries Ireland) were used to determine the presence of species in the vicinity of the Proposed Development. The following sections outline the results of this assessment.

5.3.1.1 Flora

Rare and Protected Flora

Species records from the NBDC online database were studied for the presence of rare or protected flora and no records were found. There are no records for protected bryophytes within the area³.

Invasive Plant Species

The NBDC have records (dated within the last 20 years) of 2 *High Impact* and 5 *Medium Impact* invasive plant species within the 2km (O12Y) grid square (Table 2).

TABLE 2. INVASIVE PLANT SPECIES WITHIN THE 2KM (O12Y) GRID SQUARE. THE RECORDS ARE DATED WITHIN THE LAST 20 YEARS AND ARE PROVIDED BY THE NBDC.

Name	Date of last record	Database	Legal status / Designation
Giant Hogweed <i>Heracleum mantegazzianum</i>	04/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	- High Impact Invasive - Regulation S.I. 477 (Ireland)
Japanese Knotweed <i>Reynoutria japonica</i>	04/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	- High Impact Invasive - Regulation S.I. 477 (Ireland)
Black Currant <i>Ribes nigrum</i>	24/05/2015	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	- Medium Impact Invasive
Butterfly-bush <i>Buddleja davidii</i>	13/07/2019	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	- Medium Impact Invasive
Sycamore <i>Acer pseudoplatanus</i>	04/04/2017	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	- Medium Impact Invasive

³ <https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=71f8df33693f48edbb70369d7fb26b7e>

Name	Date of last record	Database	Legal status / Designation
Three-cornered Garlic <i>Allium triquetrum</i>	24/05/2015	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	- Medium Impact Invasive - Regulation S.I. 477 (Ireland)
Traveller's-joy <i>Clematis vitalba</i>	04/04/2017	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	- Medium Impact Invasive

5.3.1.2 Mammals (excl. bats)

Records for terrestrial mammals were retrieved from the NBDC online database. Table 3 lists these species, their last record date and summarises their legal status/designation. Six terrestrial mammals were recorded within the 2km grid square (O12Y), three of which are native, namely the Red Squirrel, Red Fox, and Hedgehog, and the remaining three species, Brown Rat, Grey Squirrel, and European Rabbit are invasive species.

TABLE 3. TERRESTRIAL MAMMAL SPECIES WITHIN THE 2KM (O12Y) GRID SQUARE. THE RECORDS ARE DATED WITHIN THE LAST 20 YEARS AND ARE PROVIDED BY THE NBDC.

Name	Date of last record	Database	Legal Status / Designation
Brown Rat <i>Rattus norvegicus</i>	12/07/2016	Mammals of Ireland 2016-2025	- High Impact Invasive - Regulation S.I. 477 (Ireland)
Eastern Grey Squirrel <i>Sciurus carolinensis</i>	09/08/2018	Mammals of Ireland 2016-2025	- High Impact Invasive - EU Regulation No. 1143/2014 - Regulation S.I. 477 (Ireland)
Eurasian Red Squirrel <i>Sciurus vulgaris</i>	15/09/2018	Mammals of Ireland 2016-2025	- Wildlife (Amendment) Act, 2000
European Rabbit <i>Oryctolagus cuniculus</i>	27/08/2017	Mammals of Ireland 2016-2025	- Medium Impact Invasive
Red Fox <i>Vulpes vulpes</i>	16/09/2018	Mammals of Ireland 2016-2025	- n/a
West European Hedgehog <i>Erinaceus europaeus</i>	02/08/2020	Hedgehogs of Ireland	- Wildlife (Amendment) Act, 2000

5.3.1.3 Bats

There are no bat species recorded within the NBDC 2km grid square associated with the Site (O12Y). The NBDC database is often reliant upon verifiable citizen science records, and therefore small nocturnal fauna, such as bats, may elude detection, particularly within highly urbanised areas that may not be regularly surveyed for wildlife. The NBDC maps landscape suitability for bats based on Lundy et al. (2011). The index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats. The overall habitat suitability index for bats in the area is 17.44. The species with the highest individual suitability scores for the area encompassing the Site are Lesser Noctule *Nyctalus leisleri* and Common Pipistrelle *Pipistrellus pipistrellus*, with 34 and 32, respectively.

5.3.1.4 Birds

A total of 26 bird species have been recorded within the 2km grid square by the NBDC. Of these, 4 are listed as *Red* and 3 are listed as *Amber* in *Birds of Conservation Concern in Ireland 2020-2026* (Gilbert et al., 2021).

Red listed species include:

- Redshank *Tringa totanus*
Snipe *Gallinago gallinago*
Swift *Apus apus*
Grey Wagtail *Motacilla cinerea*

Amber listed species include:

- Starling *Sturnus vulgaris*
Herring Gull *Larus argentatus*
Common Gull *Larus canus*

5.3.1.5 Fish

There were no fish species recorded within the 2km grid square by the NBDC.

Atlantic salmon (*Salmo salar*) & Brown trout (*Salmo trutta*)

There are three species of salmonid associated with freshwater habitats in Ireland, namely Atlantic Salmon (*Salmo salar*), Brown Trout (*Salmo trutta*) and Arctic Char (*Salvelinus alpinus*), the latter of which is only associated with lake waterbodies in Ireland. The Atlantic salmon is listed as an Annex II species under the Habitat Directive. The Carrickmines Stream and Shanganagh River system is a regionally important Salmonid system, with both a resident population of Brown Trout and a migratory population of Sea Trout supported by the Carrickmines system (CAAS Ltd, 2021).

Petromyzonidae (Lamprey sp.)

There are three lamprey species native to Ireland including Sea Lamprey (*Petromyzon marinus*), River Lamprey (*Lampetra fluviatilis*) and Brook Lamprey (*Lampetra planeri*). All three species are listed under Annex II of the Habitats Directive and are protected by the Fisheries Acts 1959 to 2006. There are no records of this species within the Carrickmines Stream/Shanganagh River system.

European eel (*Anguilla anguilla*)

European eel is a red listed species⁴ and are currently considered to be one of the most threatened fish species in Ireland (King *et al.* 2011). There are no records of this species within the Carrickmines Stream/Shanganagh River system.

There are no waterbodies within the Site of the Proposed Development itself.

5.3.1.6 Amphibians

There are several records of Common Frog *Rana temporaria* within the 2km (O12Y) grid square (NBDC: *Amphibians and reptiles of Ireland*). There are no Smooth Newt *Lissotriton vulgaris* species records within this area. No suitable habitat exists for either species at the Site, with no pooling, ditches or wet grassland type habitats present. The Site is considered unsuitable for amphibian usage and therefore these species are not assessed further in this report.

⁴ The status of a species is designated by the relevant authorities as Red, Amber or Green. Red list species range from vulnerable to extinct, Amber list species with unfavourable conservation status or declining population, and Green list species are those which are not currently of conservation concern.

5.3.1.7 Invertebrates

There are no NBDC records of protected invertebrates within the 2km (O12Y) grid square. There are records of one *High Impact* invasive, one *Vulnerable*, and one *Near Threatened* invertebrate species.

High Impact Invasive

- Harlequin Ladybird *Harmonia axyridis*

Vulnerable

- Buffish Mining Bee *Andrena nigroaenea*

Near Threatened

- Large Red-Tailed Bumblebee *Bombus lapidarius*

5.3.1.8 Other species and species groups

There are no records of Common Lizard *Zootoca vivipara* within the 2km grid square (O12Y). In addition, this species is associated with coastal and heathland habitats, but also locally in rural gardens, stone walls and roadside verges (King et al., 2011). The habitat at the Site of the Proposed Development is not considered suitable for this species.

5.4 Field Surveys

5.4.1 Habitats & Flora

The habitats encountered and identified at the Site of the Proposed Development have been classified and coded as per Fossitt (2000). These are described below.

- Buildings and artificial surfaces (BL3)
- Treelines (WL2)
- Amenity Grassland (Improved) (GA2)

Buildings and artificial surfaces (BL3) habitat exists on Site in the form of a two-storey commercial unit and a corresponding car park, with Ivy (*Hedera helix*) growing within small areas on the building. *Amenity Grassland (Improved) (GA2)* habitat is found along the east and partially along the south boundaries of the Site, and species observed within this habitat include Dandelion (*Taraxacum sp.*), Clover (*Trifolium sp.*), and Daisy (*Bellis perennis*). The *Treelines (WL2)* habitat along the north boundary of the Site is comprised of Sessile Oak (*Quercus petraea*), while the treelines within the northwest and south areas of the Site consist of Leyland Cypress (*Leylandii x Cupressocyparis leylandii*). The Leyland Cypress found along the south of the Site appear to be intensively managed and have been topped.



FIGURE 4. BUILDINGS AND ARTIFICIAL SURFACES (BL3) AT THE SITE OF THE PROPOSED DEVELOPMENT, WITH AMENITY GRASSLAND (IMPROVED) (GA2) IN THE FOREGROUND AND SESSILE OAK TREELINE (WL2) HABITAT IN THE BACKGROUND.



FIGURE 5 HIGHLY MANAGED LEYLAND CYPRESS TREELINE (WL2) ALONG THE SOUTH BOUNDARY OF THE SITE

5.4.1.1 Invasive Plant Species

Non-native species in Ireland have been assessed and assigned an impact rating of either 'High', 'Medium' or 'Low' impact based on a number of factors that determine a species' potential to become established in this country and have significant impacts (Kelly et al., 2013). Invasive species can also be rated as an 'Amber-list species', which signifies a 'Medium' impact potential or established invasive species that may pose a threat to conservation goals (Invasive Species Ireland). No non-native/invasive flora were recorded growing at the Site during the survey.

No species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations (S.I. 477 of 2011) including Japanese Knotweed (*Reynoutria japonica*) were recorded at the Site.



FIGURE 6 HABITATS FOUND WITHIN SITE OF THE PROPOSED DEVELOPMENT

5.4.2 Bats

Two bat species were recorded on the Site of the Proposed Development during the bat survey on the 27th of April 2021: Common Pipistrelle and Leisler's Bat. A low level of bat activity was recorded with a total of 6 passes by Common Pipistrelle and 2 passes by Leisler's Bat. The bat potential of the building on Site was found to be '*Negligible*' both on the 27th of April 2021 and the 21st of January 2022. One dead Beech on Site had '*Moderate*' bat potential, and may offer roosting habitat to local bats due to the dense Ivy cover.

5.4.3 Birds

The bird species recorded on site visit 6th of October 2021 are outlined in Table 4.

TABLE 4 BIRD SPECIES OBSERVED ON SITE - 6TH OCTOBER 2021

Species	Conservation Concern	Observations/Notes
Rook <i>Corvus frugilegus</i>	Green	Two individuals observed on the roof of the building on Site
Herring Gull <i>Larus argentatus</i>	Amber	Two adults and two juveniles observed on the roof of the building on Site

5.4.4 Mammals (excl. bats)

No mammals were recorded within the Site of the Proposed Development. As the majority of the Site is comprised of hard standing, it is unlikely that any mammal species would frequent or utilise the Site of the Proposed Development.

5.5 Designated sites, habitat and species evaluation

Fauna which have the potential to utilise habitat within the immediate area of the Proposed Development, or for which records exist in the wider area, have been evaluated below in Table 5 for their conservation importance. In addition, designated sites and habitats have been evaluated. This evaluation follows the Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009b). The rationale behind these evaluations is also provided. The term 'ecological receptors' is used when impacts upon them are likely.

TABLE 5. EVALUATION OF DESIGNATED SITES, HABITATS AND FAUNA RECORDED WITHIN THE SURROUNDING AREA.

Designated Sites/Species/Habitats	Evaluation	Key Ecological Receptor (KER)	Rationale
Designated Sites			
SACs & SPAs	International Importance	No	Significant effects on Natura 2000 sites ruled out in AA Screening.
pNHAs	National Importance	No	Refer to Table 1
Dublin Bay Biosphere	International Importance	No	No significant hydrological connection or otherwise to Dublin Bay Biosphere
Habitats			
Buildings and artificial surfaces (BL3)	Local importance (lower value)	No	Man-made habitat of negligible biodiversity value.
Treelines (WL2)	Local importance (lower value)	No	Short treeline habitat with similar treelines located within the encompassing industrial estate. As such, the removal of this habitat will not significantly impact biodiversity in the surrounding area.
Amenity Grassland (Improved) (GA2)	Local importance (lower value)	No	Low diversity grassland, considered of low biodiversity value.
Fauna			
Eurasian Red Squirrel <i>Sciurus vulgaris</i>	Local importance (lower value)	No	No suitable habitat at the Site for this species (eg., broadleaved woodland)
Red Fox <i>Vulpes vulpes</i>	Local importance (lower value)	No	This species is not considered to be of conservation concern, and therefore is not assessed further in this report.
West European Hedgehog <i>Erinaceus europaeus</i>	Local importance (lower value)	No	No evidence of this species was recorded during the Site survey and no suitable habitat was present on Site.
Bat Assemblage	Local importance (higher value)	Yes	Two bat species were recorded on Site on the 27 th of April.
Bird Assemblage	Local importance (lower value)	Yes	General bird activity was recorded on Site on the 6 th of October. No SCI bird species associated with the SPAs listed above were recorded utilising the Site
Amphibian Assemblage	Local importance (lower value)	No	No suitable habitat at the Site for this species (e.g., ditches, ponds).
European Eel <i>Anguilla anguilla</i> ; Atlantic Salmon <i>Salmo salar</i>	County Importance	No	No hydrological connection to the Carrickmines Stream or Shanganagh River

6 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

As per the relevant guidelines, likely significant effects have been assessed for Key Ecological Receptors only, as listed in Table 5. An impact is considered to be significant if it is predicted to affect the integrity or conservation status of a KER at a given geographical scale. All impacts are described in the absence of mitigation.

6.1 Construction Phase

6.1.1 Impacts on fauna

6.1.1.1 Bats

There will be minimal loss of habitat for bats at the Site of the Proposed Development through the removal of vegetation at the Site, and disturbance of local bats during the Construction Phase is possible. This could have a *negative, permanent, insignificant impact* on bats in the locality.

6.1.1.2 Birds

There will be some loss of habitat for birds at the Site of the Proposed Development through the removal of vegetation at the Site, and disturbance of species during the Construction Phase is possible. This could have a *negative, permanent, moderate impact* on birds in the locality.

The increased noise and dust levels associated with the Construction Phase of the Proposed Development may have the potential to cause *negative, short-term, slight impacts* to local bird populations.

6.2 Operational Phase

6.2.1 Impacts on Fauna

6.2.1.1 Birds

The height of the building, coupled with the use of glass in the proposed design has the potential to cause negative, permanent, moderate impacts on birds due to collisions. The design proposal stipulates building will be 11 storeys. Glass in buildings can pose a potentially lethal threat to bird species. This is a result of birds being unable to distinguish between reflections in glass and the natural environment (resulting in birds flying into windows that appear to be trees or sky), and their inability to perceive clear glass as a solid object (Toronto City Bird-Friendly Best Practices: Glass). Birds will strike clear glass while attempting to reach habitat and sky seen through corridors, windows positioned opposite each other in a room, ground floor lobbies, glass balconies or glass corners. The impact of striking a reflective or clear window in full flight often results in death. In general, the lower stories of buildings are the most dangerous because they are at the same level as trees and other landscape features that attract birds. Nevertheless, monitoring programs assessing setbacks and roofs of tall buildings are finding that birds also collide with higher levels especially during bad weather at night. It is especially important that glass near rooftop gardens, green roofs, and other features such as green walls, is treated to be bird friendly.

6.3 Do nothing impact

Under the do-nothing scenario, the Site would remain as is. The recolonisation of hard standing habitat by native flora is likely occur and potentially offer suitable habitat for a small number of species, such as pollinating insects, although limited by the urban surrounds. Given the large proportion of built land on the Site, the ecological value of this Site is and would remain relatively low.

7 MITIGATION AND ENHANCEMENT MEASURES

7.1 Construction Phase

7.1.1 Planting of native flora and protecting pollinators

The planting of pollinator-friendly flora will improve local biodiversity and increase insect abundance. This will provide additional food for bats and birds at the Site.

The following measures have been incorporated into the landscape design:

- Existing trees along the north boundary are to be retained.
- Planting will include wildflower areas, which will provide forage for local pollinator species.

7.1.2 Aquatic Fauna & Surface Waters

The following measures set out below will protect surface waters throughout the Construction Phase:

General Surface water mitigation measures

- There will be no direct discharge to surface water courses or drains during the construction works. There are no open surface water courses at the Site and the closest watercourse is the Carrickmines Stream approximately 400m to the southwest.
- Run-off from the working site or any areas of exposed soil must be channelled and intercepted at regular intervals for discharge to silt-traps or lagoons. Surface water run-off will be treated using silt trays/settlement ponds and temporary interceptors and traps will be installed (if deemed necessary) to treat water until such time as permanent drainage infrastructure is constructed.
- Any discharge of treated water to public surface water sewer will be under consent from Irish Water.
- Pumping of concrete will be monitored to ensure that there is no accidental discharge.
- There will be no mixer washings or excess concrete discharged on site. All excess concrete is to be removed from Site and all washout of concrete chutes to be captured in a tank which shall be removed offsite for disposal at an authorised waste facility.
- If cast-in-place concrete is required near watercourses, all work must be carried out in the dry and effectively isolated from any water courses, drainage and groundwater.
- If dewatering is required during groundwater
- A regular review of weather forecasts of extreme heavy rainfall will be conducted, and a contingency plan will be prepared for before and after such events to minimise any potential nuisances. As the risk of the break-out of silt laden run-off is higher during these weather conditions, no work will be carried out during such periods where possible.

- Any imported materials will be placed on site in designated locations and double handling will be avoided. Where this is not possible, designated temporary material storage areas will be used.
- Temporary storage areas will be located at least 10m away from any open drains which will be protected for the duration of the works or temporary diversion put in place.
- All containment and treatment facilities will be regularly inspected and maintained.
- Refuelling of plant and machinery on site will take place in a designated, impermeable area with appropriate containment in place.
- Refuelling of plant during the Construction Phase will only be carried out at designated refuelling station locations on site. Each station will be fully equipped for spill response and a specially trained and dedicated Environmental and Emergency Spill Response team will be appointed before the commencement of works on site.
- Where possible any oil and lubricant changes and maintenance will take place offsite.
- Only emergency breakdown maintenance will be carried out on site. Drip trays and spill kits will be available on site to ensure that any spills from vehicles are contained and removed off site.
- All personnel working on site will be trained in pollution incident control response. Emergency silt control & spillage response procedures contained within the CEMP will ensure that appropriate information will be available on site outlining the spillage response procedures and a contingency plan to contain silt during an incident.
- Any other diesel, fuel or hydraulic oils stored on site will be stored in bunded storage tanks- the bunded area will have a volume of at least 110% of the volume of the stored materials as per best practice guidelines (Enterprise Ireland, BPGCS005).
- Portaloos and/or containerised toilets and welfare units will be used to provide facilities for site personnel. All associated waste will be removed from site by a licenced waste disposal contractor and records will be maintained.
- In the unlikely event that material becomes contaminated for example by a fuel spill onsite or a burst / leaking hydraulic hose, a documented procedure for contaminated material will be prepared and adopted by the appointed contractor prior to excavation works commencing on site. These documents will detail how contaminated material will be appropriately handled during the excavation phase.
- Any wastewater generated on-site during the Construction Phase will be stored and disposed of appropriately by discharge to foul sewer (OCMP, CS Consulting Group, 2021). Under no circumstances will any untreated wastewater generated onsite (from equipment washing, road sweeping etc.) be released into nearby ditches or watercourses.
- Groundwater may be encountered during the construction works. Where water must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA – C750) and regulatory consents.

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

All wastewater generated on-site during the Construction Phase will be stored and disposed of appropriately. Under no circumstances will any untreated wastewater generated onsite (from equipment washing, road sweeping etc.) be released into the foul/surface water drainage network.

Contaminated soils if encountered will be segregated. If dewatering is required groundwater will be treated as required prior to discharge as agreed with Local Authority.

7.1.3 Bats

One dead tree on Site was found to have moderate bat potential, while the remaining trees were found to have low bat potential, and the building on Site offered negligible roosting habitat.

7.1.3.1 Habitat removal

Where tree felling is absolutely necessary along the northeast boundary, the following protocol should be followed for trees classed as 'Low' and 'Moderate'. No trees of 'High' potential were identified:

- Tree-felling should be undertaken in the period late August to late October/early November. During this period bats are capable of flight, and this may avoid risks associated with tree-felling.
- Felling during the winter months should be avoided as this creates the additional risk that bats may be in hibernation and thus unable to escape from a tree that is being felled. Additionally, disturbance during winter may reduce the likelihood of survival as the bats' body temperature is too low and they may have to consume too much body fat to survive.
- Tree-felling should be undertaken using heavy plant and chainsaw. There is a wide range of machinery available with the weight and stability to safely fell a tree. Normally trees are pushed over, with a need to excavate and sever roots in some cases. In order to ensure the optimum warning for any roosting bats that may still be present, an affected tree will be pushed lightly two to three times, with a pause of approximately 30 seconds between each nudge to allow bats to become active. Any affected trees should then be pushed to the ground slowly and should remain in place for a period of at least 24 hours, and preferably 48 hours to allow bats to escape.
- A derogation licence from the National Parks and Wildlife Services (NPWS) may be required for felling if, during tree removal works bats are found to be roosting in any affected trees.
- A pre-felling survey of the dead tree with 'Moderate' potential should be undertaken if it is to be removed.

7.1.4 Birds

7.1.4.1 Habitat removal

Any clearance of vegetation should ideally be carried out outside the main breeding season, i.e., 1st March to 31st August, in compliance with the Wildlife Act 2000. Should any vegetation removal be required during this period, this vegetation should be checked for birds, and if any

are noted during this evaluation prior to removal, a derogation licence is required from the NPWS. This would note the section of habitat that is a nest site, the precise location within the hedgerow/trees, the species of bird present; and also elaborate the means by which the birds would be protected prior to nest removal. If eggs have been laid, the nest should be protected until the young have fledged after which time the nest could be destroyed (under licence from the NPWS only). This would also require further compensatory measures including nesting sites for birds if practicable.

7.1.4.2 Bird collision risk

The Proposed Development entails the construction of an 11-storey structure, and as such, the risk of migrating birds colliding with the structures due to their height is deemed to be negligible as migrating species tend to commute far above this level with Swans and Geese flying up to 2500ft (ca.750m) during migration along Irish Coasts (Irish Aviation Authority, 2020). Birds that fly over the Site to commute between ex-situ feeding grounds at various locations would fly lower than this, however, once the proposed structure is made of visible materials i.e., not entirely comprised of reflective materials such as glass, the birds would simply fly around or over them.

The physical location of buildings and structures can also affect the likelihood of bird collisions. Structures placed on or near areas regularly used by large numbers of feeding, breeding, or roosting birds, or on local flight paths, such as those between foraging and roosting areas can present a higher risk of collision. The Site itself is not located in a sensitive area in terms of bird flight paths i.e., it is not located along the coast, or near any Special Protected Areas (SPAs) designated for wetland bird populations and is in itself does not offer suitable ex-situ feeding/roosting habitat for any such species, as the most dominant habitat on Site is built land.

In general birds will fly at a height that is higher than the tallest obstruction in their flightpath. Birds on a daily commute to feed become very familiar with the topography of their flight paths and as a result few if any collisions occur. Birds which regularly fly over the Site will adapt to any changes to the nature of the Site including the topography. Therefore, it is considered that any bird species using the areas adjacent to the planning application site (i.e. South Dublin Bay and River Tolka Estuary SPA, Dalkey Islands SPA) will adapt to the changing nature of the site as the construction phase progresses and for this reason the risk of bird collisions is *negligible*.

7.1.5 Reduction of noise and dust related impacts

To minimise the potential effect of noise and vibration from the construction phase, the development shall comply with British Standard 5228 'Noise Control on Construction and open sites Part 1. Code of practice for basic information and procedures for noise control. Guidance on best practice control measures from construction sites for noise and vibration from the following documents:

- BS 5228 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2.
- Guidelines for the Treatment of Noise & Vibration in National Road Schemes, National Roads Authority, Revision 1, 25th October 2004.

- British Standard BS 7385: 1993: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration.

7.1.5.1 Control of Noise

Short-term increases in disturbance levels as a direct result of human activity and through increased generation of noise during the Construction Phase can have a range of impacts depending upon the sensitivity of the ecological receptor, the nature and duration of the disturbance and its timing.

Noise generated during the Construction Phase of the Proposed Development could cause temporary disturbance to a number of faunal species in the vicinity of the Site of the Proposed Development. To mitigate this disturbance, the following measures will be implemented:

Noise mitigation measures will include where deemed necessary, but not be limited to:

- Establish channels of communication between the Contactor, local authority, and other stakeholders where appropriate.
- Limiting the hours and duration which site activities likely to create high levels of noise are permitted.
- Erection of site hoarding.
- No plant used on site will be permitted to cause an ongoing public nuisance due to noise.
- The maintenance of plant will be employed to minimise the noise produced by on site operations.
- Selection of plant with low inherent potential for generating noise. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures.
- Assessment of any item of plant to generate noise will be assessed prior to the item being brought onto the site with regard to the following:
 - Consideration of Alternatives.
 - Information to be submitted by the Contractor; and
 - In-situ Noise Measurement.
- Use of alternative reversing alarm systems on plant machinery.
- Siting of plant as far away from sensitive receptors as permitted by site constraints.
- Avoidance of unnecessary revving of engines and switch off plant items when not required.
- Identification of dedicated delivery areas.
- Keep vehicles adequately maintained and serviced.
- Keep internal routes well maintained and avoid steep gradients.
- Appointing a site representative responsible for matters relating to noise; and
- Noise monitoring if required during critical activities and times of potential increased noise generating activities and during critical periods and at sensitive locations (e.g., rock breaking or demolition of the existing buildings).
- Appointing a site representative responsible for matters relating to noise; and
- Monitoring typical levels of noise during critical periods and at sensitive locations.

All construction works will be required to operate within the Construction Noise Limits outlined in *Table 7-1* as follows:

Table 7-1: Maximum Permissible Noise Levels at the Facade of Dwellings during Construction

Days and Times	Noise Levels (dB re. 2x10 ⁻⁵ Pa)	
	L _{Aeq} (1hr)	L _{Amax}
Monday to Friday 07:00 to 19:00hrs	70	80
Monday to Friday 19:00 to 22:00hrs	60	65*
Saturdays 08:00 to 16:30hrs	65	75
Sundays & Bank Holidays 08:00 to 16:30hrs	60	65*
*Construction activity at these marked times, other than that required in respect of emergency works, will require the explicit permission of the relevant local authority. Source: National Roads Authority Guidelines for the Treatment of Noise and Vibration in National Road Schemes, 2004		

The Contractor will be required to take specific noise abatement measures where deemed necessary, and to comply with the recommendations of BS 5228-1:2009+A1:2014.

7.1.5.2 Control of Vibration

All construction works will be required to comply with the vibration mitigation measures defined in the OCEMP and the recommendations of BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001.

The following measures will be taken as appropriate to ensure that no significant vibration levels occur, and that all appropriate steps are taken to assist in effective vibration level management:

- Vehicle engines shall be switched off when not in use.
- Machines will be fitted with suitable silencers.
- Appropriate, acoustic screens will be deployed.
- In method statement/risk assessment the contractor will highlight any activity that may cause significant vibration levels and include measures in helping to mitigate these emission levels.
- Equipment is to be task-specific; and
- Screening provided to adjoining properties.

7.1.5.3 Monitoring for Noise and Vibration

Noise and vibration monitoring should be undertaken during critical activities as required by the planning conditions (once known). Monitoring will be carried out by a specialist sub-contractor engaged by the Main Contractor to monitor, collate and report on noise vibration results for the duration of critical work activities as outlined in Section 6.4 of the OCMP (CS Consulting Group, 2021).

7.1.5.4 Liaison with the Public

The Environmental Officer will act as the designated noise liaison officer and liaison will be carried out in accordance with a Communication Management Plan (refer to Section **Error! Reference source not found.**). Any noise complaints will be managed in accordance with the complaints procedure, reported to the designated sub-contractor as applicable, and followed up in a prompt fashion. In addition, prior to particularly noisy construction activity, e.g.,

demolition, breaking, etc., the designated Contractor will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

7.1.5.5 Noise and Vibration Control Inspections

Noise control inspections will be conducted at regular intervals through the construction phase of the Proposed Development.

The purpose of the inspections will be to ensure that all appropriate steps are being taken to control construction noise emissions including identifying any issues such as the following:

- Hours of operation being correctly observed.
- Opportunities for noise control 'at source'.
- Optimum siting of plant items.
- Plant items being left to run unnecessarily.
- Correct use of proprietary noise control measures.
- Materials handling.
- Poor maintenance; and
- Correct use of screening provided and opportunities for provision of additional screening.

7.1.6 Control of Air Quality and Dust

In order to sufficiently mitigate any likely air quality impact, a schedule of air control measures has been formulated for the construction phase associated with the Proposed Development set out in the following sections.

7.1.6.1 Dust Control Measures -General

The aim is to ensure good site management by avoiding dust becoming airborne at source.

At the Construction Phase, the siting of construction activities and storage piles will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions (e.g. wind) by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs:

- During working hours, technical staff shall be on site and available to implement dust control methods as appropriate;
- Complaint registers will be maintained on site detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out;
- It will be the responsibility of the contractor at all times to demonstrate full compliance with the dust control conditions. Regular Toolbox Talks / briefings will be given to construction staff, subcontractors and operatives to raise awareness of the need to

minimise dust. The implementation of dust suppression will be monitored, reviewed and any actions required addressed on an ongoing basis; and

- At all times, the procedures put in place will be strictly monitored and assessed.

The dust minimisation measures shall be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practise and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed and satisfactory procedures implemented to rectify the problem. Specific dust control measures to be employed are highlighted below.

7.1.6.2 Dust Control -Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

7.1.6.3 Dust Control – Site Roads and Track Out

Site roads (particularly unpaved) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25 to 80%.

- A speed restriction of 15 km/hr will be applied as an effective control measure for dust for on-site vehicles.
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.

- Vehicles entering and leaving sites will be covered to prevent escape of materials during transport.
- On-site haul routes will be inspected for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- All inspections of haul routes will be inspected and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- A wheel washing system will be implemented (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors..

Bowsers will be available during periods of dry weather throughout the construction period. Research has found that the effect of watering is to reduce dust emissions by 50%. The bowser will be used during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use; and any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.

7.1.6.4 Dust Control – Public Roads

Spillage and blow-off of debris, aggregates and fine material onto public roads should be reduced to a minimum by employing the following measures:

- Vehicles transporting material with potential for dust emissions to an off-site location shall be enclosed or covered with a tarpaulin at all times to restrict the escape of dust;
- Public roads outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. A road sweeper will be deployed to ensure that public roads are kept free of debris; and
- The wheels of all Lorries will be washed / cleaned prior to leaving the site so that traffic leaving the site compound will not generate dust or cause the build-up of aggregates and fine material in the public domain.

7.1.6.5 Dust Control -Operating Vehicles / Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles.

- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 20 kph haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking etc.).

7.1.6.6 Dust Control -Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

7.1.6.7 Dust Control -Waste Management

- Bonfires and burning of waste materials are prohibited.

7.1.6.8 Dust Control -Measures Specific to Demolition

- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled that can produce fine water droplets that effectively bring the dust particles to the ground will also be used where needed.

- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.

7.1.6.9 Dust Control -Measures Specific to Earthworks / Groundworks

Land clearing / earth-moving during periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will be used to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

7.1.6.10 Dust Control – Stockpiles

Stockpiling of excavated soils and imported materials (e.g. quarry stone, sand) will be avoided. However, should stockpiling of materials be required on site during the development, the location and moisture content of stockpiles are important factors which determine their potential for dust emissions. The following dust control measures will be employed as best practice where stockpiling of materials is required:

- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the site; and
- Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust. The regular watering of stockpiles has been found to have an 80% control efficiency.

7.1.6.11 Dust Control -Measures Specific to Construction

- Avoid scabbling (roughening of concrete surfaces).

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

7.1.6.12 Dust Control -Site Management

- Regular inspections of the site and boundary should be carried out to monitor dust, records and notes on these inspections should be logged.
- Records will be kept of all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.
- Regular liaison meetings will be held with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

7.1.6.13 Dust Monitoring

Daily on-site and off-site inspections will be carried out, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This will include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.

Where required dust monitoring will be carried out at the site during critical activities. If deemed necessary dust monitoring will be conducted using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/(m²*day) during the monitoring period between 28-32 days.

7.1.6.14 Dust Management Summary

The proactive control of fugitive dust it is necessary to ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the achievement of no dust nuisance occurring during the construction phase. The key features with respect to control of dust emissions and nuisance dust will be:

- The implementation of dust management measures as outlined in this OCEMP
- Assigning responsibility for implementing dust control measures;
- The development of a documented system for managing site practices with regard to dust control;
- The development of a means by which the performance of the DMP can be monitored and assessed; and
- The specification of the measures to be taken to control dust emissions before it occurs and effective measures to deal with any complaints received.

7.1.7 Invasive Species

While no invasive species were encountered on Site during the field survey, any non-native/invasive flora encountered at the Site during the Construction and Operational Phases of the Proposed Development should be controlled/removed as per the appropriate best-practice guidelines and in consultation with the relevant qualified invasive species professional. Removal and disposal should be carried out in accordance with appropriate guidelines such as TII (formerly NRA) Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (2010), with consideration given to the prevention of spread of these plants.

7.1.8 Biosecurity

The following will be adhered to, to avoid the introduction of invasive species to the Proposed Development site.

- Any material required on the site will be sourced from a stock that has been screened for the presence of any invasive species by a suitably qualified ecologist and where it is confirmed that none are present.
- All machinery will be thoroughly cleaned and disinfected prior to arrival on site to prevent the spread of invasive species.

7.2 Operational Phase

7.2.1 Bats

In order to minimise disturbance to bats utilising the site in general, the lighting and layout of the proposed development should be designed to minimise light-spill onto habitats used by the local bat population foraging or commuting. This can be achieved by ensuring that the design of lighting accords with guidelines presented in the Bat Conservation Trust & Institute of Lighting Engineers 'Bats and Lighting in the UK - Bats and Built Environment Series', the

Bat Conservation Trust 'Artificial Lighting and Wildlife Interim Guidance' and the Bat Conservation Trust 'Statement on the impact and design of artificial light on bats'. Therefore, where possible, the lighting scheme should include the following:

- The avoidance of direct lighting of proposed areas of habitat creation / landscape planting, or on existing trees to be retained.
- Unnecessary light spill controlled through a combination of directional-lighting and hooded / shielded luminaires or strategic planting to provide screening vegetation.
- Lights should be of low intensity. It is better to use several low intensity lights than one strong light spilling light across the entire area.
- Narrow spectrum lighting should be used with a low UV component. Glass also helps reduce the UV component emitted by lights.
- The colour rendering of the selected light fitting should be 3000k making the LED fittings a warmer light, helping to further minimize the impact on the local wildlife.

7.2.2 Birds

It is recommended that Swift Boxes or Bricks are incorporated into the Proposed Development where possible. The incorporation of Swift Boxes or Bricks would help recover the declining swift population, which are now Red Listed in Ireland (Gilbert et al., 2021). The following recommendations are extracted from "Saving Swifts" by Birdwatch Ireland⁵.

Swift bricks/boxes:

- **should be** constructed of long-lasting material and securely fixed in position.
- **should be** erected at least five metres above ground level
- **should be** erected in sheltered cool areas out of the sun, or under an overhang and /or under the eaves. Bricks can be placed at any aspect, however, as they tend not to overheat the way that externally fitted boxes can.
- **should have** a clear airspace in front for access
- **should be** grouped (side by side in rows) as swifts are colony nesters
- **should avoid** sites which can be accessed by predators- cats, squirrels, magpies, rats.
- **should avoid** sites near plate glass windows because they are a known collision hazard for birds.
- **should not be** placed directly above ledges or other obstructions. Swifts drop before taking flight and can collide with obstacles below the nest entrance.
- **should not be** one above the other.
- **should not be** near spotlights or later fit spotlights near them.

It is advised to install a Swift calling system to attract Swifts and encourage them to take up residence at a new site.

The potential negative impact of buildings collision risk will be resolved with the architect.

⁵ https://birdwatchireland.ie/app/uploads/2019/10/Saving-Swifts-Guide_pdf.pdf

8 CUMULATIVE IMPACTS

If the Proposed Development and existing or proposed projects or plans impact on the same KERs, there is potential to lead to cumulative impacts which could be of a higher level of significance. For example, potential impacts on bats due to the combined loss of suitable commuting and/or foraging habitat in the locality and potential impacts on birds due to the combined loss of nesting or foraging habitat in the locality.

8.1.1 Existing granted planning permissions

There are several existing planning permissions on record in the area ranging from small-scale extensions and alterations to existing residential properties to some larger-scale developments. The larger-scale developments within the area are outlined below:

Planning Application Reference: ABP30440519.

Permission for a strategic housing development with an application site area of c. 2.02 ha (excluding basements), including the extent of Carmanhall Road required for proposed flood mitigation works, on lands forming part of a development generally known as Rockbrook, located at the junction of Blackthorn Drive and Carmanhall Road, Sandyford Business District, Sandyford, Dublin 18, principally bounded by existing mixed use and residential development to the north (Grande Central and South Central); Carmanhall Road to the south; undeveloped lands to the east (known as the Tivway site) and an existing part-constructed office development to the west (The Sentinel). The development, which is known as RB Central with a total gross floor area of c. 41,347 sq m (excluding basements) will consist of 428 no. apartments comprising two blocks arranged around two courtyards ranging in height from five to fourteen storeys (including ground floor mezzanine, all over three existing part-constructed basement levels) comprising 32 no. studio apartments; 122 no. 1 bedroom apartments; 251 no. 2 bedroom apartments and 23 no. 3 bedroom apartments. The development will also include a crèche (486 sq m) with ancillary outdoor play areas; 4 no. ground floor local/neighbourhood retail units (862 sq m); communal community residents' facilities (934 sq m in total) including a multi-purpose space (184 sq m), laundry and community co-working area (97 sq m) at ground floor level, and residents' exercise area, break-out/meeting areas, book and media sharing areas, reading/seating areas, play area and TV/games area located at various levels throughout the proposed development (653 sq m); entrance halls; private, communal and public open space provision including balconies, winter gardens and terraces to be provided on all elevations at all levels as required; roof gardens; courtyards; boulevards; urban plaza; amenity lawn and play areas; basement car parking (508 no. spaces in total); 3 no. surface crèche drop-off parking spaces; car club spaces; 593 no. cycle parking spaces (long and short stay spaces including secure stands); motorcycle parking; storage areas; internal roads and pathways; pedestrian access points; hard and soft landscaping, street furniture and boundary treatments; changes in level; services provision and related pipework including diversions; plant (including rooftop plant); electric vehicle charging points; ESB substations and switchrooms; waste management areas; green roofs; attenuation tank; flood mitigation measures to Carmanhall Road including footpath upgrade and flood wall; car park ventilation areas; set-down areas; signage; completion and re-configuration of the existing basement levels including related site clearance works and removal of services; public lighting and all site development and excavation works above and below ground. Vehicular access to

the site will be from Blackthorn Drive and Carmanhall Road with dedicated bicycle access from Blackthorn Drive. **(Decision: Grant Permission. Decision Date: 19/08/2019).**

Planning Application Reference: ABP30594019.

Permission for a strategic housing development, which will have a Gross Floor Area of 49,342 sqm m will principally consist of: the demolition of the existing structures on site and the provision of a Build-to-Rent residential development comprising 564 No. apartments (46 No. studio apartments, 205 No. one bed apartments, 295 No. two bed apartments and 18 No. three bed apartments) in 6 No. blocks as follows: Block A (144 No. apartments) is part 10 to part 11 No. storeys over basement; Block B (68 No. apartments) is 8 No. storeys over basement; Block C (33 No. apartments) is 5 No. storeys over lower ground; Block D (103 No. apartments) is part 16 to part 17 No. storeys over lower ground; Block E (48 No. apartments) is 10 No. storeys over semi-basement; and Block F (168 No. apartments) is 14 No. storeys over semi basement. The development provides resident amenity spaces (1,095 sqm) in Blocks A, C and D including concierge, gymnasium, lounges, games room and a panoramic function room at Roof Level of Block D; a creche (354 sqm); café (141 sqm); a pedestrian thoroughfare from Carmanhall Road to Blackthorn Drive also connecting into the boulevard at Rockbrook to the west; principal vehicular access off Carmanhall Road with servicing and bicycle access also provided off Blackthorn Drive; 285 No. car parking spaces (254 No. at basement level and 31 No. at ground level); 21 No. motorcycle spaces; set-down areas; bicycle parking; bin storage; boundary treatments; hard and soft landscaping; lighting; plant; ESB substations and switchrooms; sedum roofs; and all other associated site works above and below ground. The application contains a statement setting out how the proposal will be consistent with the objectives of the Dún Laoghaire - Rathdown County Development Plan 2016-2022. The application contains a statement indicating why permission should be granted for the proposed development, having regard to a consideration specified in section 37(2)(b) of the Planning and Development Act, 2000, as amended, notwithstanding that the proposed development materially contravenes a relevant development plan or local area plan other than in relation to the zoning of the land. An Environmental Impact Assessment Report has been prepared in respect of the proposed development. The application together with an Environmental Impact Assessment Report may be inspected or purchased at a fee not exceeding the reasonable cost of making a copy, during public opening hours at the offices of An Bord Pleanála and Dún Laoghaire - Rathdown County Council. **(Decision: Grant Permission. Decision Date: 12/03/2020).**

Planning Application Reference: D19A/0946

Permission for demolition of existing two storey over basement commercial building of 1507m² and construction of a new six storey plus roof plant over basement commercial office building with ancillary café and retail use at ground floor; overall new building area proposed is 5982.51m² and basement of 1370.50m² (total is 7353.01m²) with 29 car spaces; New civic plaza accessible to public at junction of Corrig Road and Carmanhall Road, all ancillary landscaping services and bicycle parking at plaza and within building, and all ancillary civil engineering and drainage connections on a site of 0.2ha. **(Decision: Grant Permission. Decision Date: 31/08/2020).**

Planning Application Reference: D18A/1080

Permission for the construction of two no. single storey pavilion buildings to the west and east of the existing single storey retail and café building. Pavilion building 1 is for Class 1 Shop use (GFA of c.140 sqm) and Pavilion building 2 is for café/restaurant use (GFA of c.140 sqm). The proposal includes 2 no. signage zones for each unit, associated outdoor seating/terrace area, cycle parking and all associated site works. **(Decision: Grant Permission. Decision Date: 20/02/2019).**

Planning Application Reference: ABP30346719

Application to An Bord Pleanála for permission for a strategic housing development, consisting of: (i) construction of a student accommodation development with an overall gross floor area of 25,459sqm in 1 no. seven to nine no. storey block. The development will include: 17 no. two-bed units; 1 no. three-bed units; 8 no. four-bed units; 42 no. five-bed units; 21 no. six-bed units; 35 no. seven-bed units; and 7 no. eight-bed units, providing a total of 817 no. bedspaces. Ancillary student support facilities are also proposed, including: an entrance/reception (101sqm); management office (55sqm); and gym (297sqm) located at ground floor level, and 21 no. communal spaces (internal), including movie room, study and hang-out spaces (comprising a total of 842sqm) across all levels of the building; (ii) The provision of 2 no. commercial units fronting Blackthorn Road - a café/lounge (119sqm) and a laundrette (85sqm) at ground floor level fronting Blackthorn Road; (iii) The provision of 57 no. car-parking spaces (3 no. of which are disabled car-parking spaces), 586 no. bicycle parking spaces (560 no. provided within the ground floor parking area and 26 no. provided along the Carmanhall Road and Blackthorn Road frontages), 5 no. motorcycle parking spaces; bin stores, plant rooms, switch room and ESB sub-station at ground floor level; alterations to the existing vehicular entrance from Carmanhall Road; creation of a new vehicular entrance from the Blackthorn Road which will serve as an entrance for bin collection and emergency services only; and creation of a new cycle path along the Carmanhall Road and Blackthorn Road frontages; (vi) All ancillary works, including landscaped areas, comprising an internal courtyard and public open space along the Carmanhall Road and Blackthorn Road frontages; boundary treatments, all ancillary drainage works, including SuDS drainage, lighting; public footpath works; and all other associated site services, site infrastructure and site development works. The application contains a statement setting out how the proposal will be consistent with the objectives of the Dun Laoghaire- Rathdown Development Plan 2016-2022. **(Decision: Grant Permission. Decision Date: 30/04/2019).**

Planning Application Reference: D18A/0785

Permission for development. The proposed development will substantially complete the Beacon South Quarter scheme and will be constructed over 3 no. existing basement levels which extend beneath the subject site as permitted under Dun Laoghaire-Rathdown County Council Planning Reg. Ref. D04A/0618 as amended. The proposed development comprises a mixed-use scheme (c. 13,076 m²) ranging in height from 1 – 14 storeys, including a ground floor mezzanine level, arranged around a communal area of open space of c. 1,014 m². The proposed development will include; 3 no. neighbourhood retail units at ground floor level (c. 781 m², c.559 m² and c.181 m² respectively), plant and refuse store rooms; a two-storey crèche unit at the ground and mezzanine floor levels (c. 390 m²); and 84 no. apartment units arranged across the 1st to 13th floors (12 no. 1-bedroom units, 59 no. 2-bedroom units and 13 no. 3-bedroom units) with balconies, terraces or winter gardens provided to all elevations.

The proposed development will include the provision of 65 no. car parking spaces in lieu of the previously permitted storage use at the existing basement level -3; 5 no. motorcycle spaces in the permitted, existing basement level -2; and, 136 no. bicycle parking spaces and 3 no. dedicated crèche car parking spaces in the permitted existing basement level -1. A new lift access is proposed in basement level -1 to serve the proposed apartment units. Vehicular access to the basement levels will be from the existing ramp to the east of the site via Blackthorn road, with pedestrian access to the proposed development provided from Blackthorn Drive and Blackthorn Road. The development will also include piped infrastructure and ducting; green roofs; 84 no. solar panels and plant at roof level; site landscaping; on-street cycle parking facilities; boundary treatments; and, all associated site development and excavation works above and below ground. The development will also include minor hard and soft landscaping works to the public footpaths adjoining the site at Blackthorn Drive and Blackthorn Road. **(Decision: Grant Permission. Decision Date: 25/01/2019).**

Planning Application Reference: D20A/0921

Permission is sought to vary the previously approved development Reg. Ref. D15A/0560. The proposed changes to the previously approved are: (a) building height increased by one floor on all five Blocks, A to E, resulting in an increase of floor area from 41,871 sq. m to 54,730 sq. m (b) minor realignment of basement boundary at the south west and south east corners of the site (c) minor realignment of all blocks (d) revised facade treatment on all blocks (e) modifications to hard and soft landscaping at ground floor level and to increase the size and number of landscaped terrace areas at upper floors. (f) internal reconfiguration to building core layouts to comply with Building Regulations and Industry Standards and (g) provision of totem identification sign. All other works approved shall be carried out in accordance with the plans and particulars lodged with the parent application, Reg. Ref. D15A/0560, subject to the conditions attached. (Final Grant Order: P/2275/16). The application is accompanied by an Environmental Impact Assessment Report updated from that lodged with the 2015 parent application. **(Decision: Pending. Decision Date: 08/02/2021).**

Planning Application Reference: D20A/0526

Permission for development to comprise the construction of a new two storey storage / workshop building to the side of the existing part two storey, part single storey (double height) warehouse building along with the formation of a new site entrance from Spruce Avenue, all with associated site works and landscaping. **(Decision: Grant Permission. Decision Date: 12/11/2020).**

At the time of writing, there are no proposed or permitted forestry operations (thinning, clear felling, road construction) in close proximity to the Site of the Proposed Development⁶.

Given the lack of natural habitat within the proposed sites and distance and urban buffer between the Proposed Development site and the above-mentioned permitted developments, it is concluded that there is no potential for in-combination effects to arise as a result of the Proposed Development on local ecology.

⁶ <https://forestry-maps.apps.rhos.agriculture.gov.ie/>

8.1.2 Relevant policies and plans

The following policies and plans were reviewed and considered for possible in-combination effects with the Proposed Development.

- Dublin City Development Plan 2016 – 2022
- Dún Laoghaire-Rathdown County Council County Development Plan 2016 – 2022
- South Dublin County Council Development Plan 2016 – 2022
- Dublin City Biodiversity Action Plan 2015 – 2020
- Dún Laoghaire-Rathdown County Biodiversity Action Plan 2021 – 2025 Draft Summary Consultation Document
- Connecting with Nature – Draft Biodiversity Action Plan for South Dublin County 2020 – 2026

Dublin City Biodiversity Action Plan 2015-2020, Dún Laoghaire – Rathdown County Biodiversity Action Plan 2021 – 2025 Draft, and the Connecting with Nature – Draft Biodiversity Action Plan for South Dublin County 2020 – 2026 are all set out to protect and improve biodiversity, and as such will not result in negative in-combination effects with the Proposed Development. The Dublin City Development Plan 2016-2022 has directly addressed the protection of European Sites through specific policies (GI2), as has the Dún Laoghaire-Rathdown County Council County Development Plan 2016 – 2022 (LHB 1; LHB 12; LHB 20; LHB 22; LHB 24) and the South Dublin County Council Development Plan 2016 – 2022 (HCL12 Obj1-Obj2, HCL13 Obj1-Obj2).

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

In addition, sustainable development including SuDS measures for all new developments is inherent in the objectives of all development plans within the Greater Dublin Area.

8.1.3 Operation of Ringsend WwTP

In June 2018 Irish Water applied for (and subsequently received) planning permission for upgrade works to the Ringsend Wastewater Treatment (WwTP) facility. These are currently on-going and will increase the capacity of the facility from 1.6 million PE to 2.4 million PE. This plant upgrade will result in an overall reduction in the final effluent discharge of several parameters from the facility including BOD, suspended solids, ammonia, DIN and MRP. An Environmental Impact Assessment Report (EIAR) was submitted by Irish Water as part of this application. The EIAR contains sections relating to Marine Biodiversity and Terrestrial Biodiversity, and each contains a section on the ‘do-nothing scenario’. These review the effects of the WwTP on biodiversity in Dublin Bay in the absence of the upgrade works and so are relevant to this report.

The EIAR report acknowledges that under the do-nothing scenario “the areas in the Tolka Estuary and North Bull Island channel will continue to be affected by the cumulative nutrient loads from the river Liffey and Tolka and the effluent from the Ringsend WwTP”, which could result in a decline in biodiversity (Irish Water, 2018). Nevertheless, the negative impacts of nutrient over-enrichment, which could result in the deterioration of the biological status of Dublin Bay are considered “unlikely” (Irish Water, 2018). This is because historical data suggests that pollution in Dublin Bay has had little or no effect on the composition and richness

of the benthic macroinvertebrate fauna. The EIAR notes that “although a localised decline could occur, it is not envisaged to be to a scale that could pose a threat to the shellfish, fish, bird or marine mammal populations that occur in the area.” Furthermore, the EIAR notes that significant impacts on waterbird populations foraging on invertebrates in Dublin Bay due to nutrient over-enrichment are “unlikely” to occur (Irish Water, 2018). What is important in the context of this EclA is that the do-nothing scenario predicts that nutrient and suspended solid loads from the WwTP will “continue at the same levels and the impact of these loadings should maintain the same level of effects on marine biodiversity” and that “if the *status quo* is maintained there will be little or no change in the majority of the intertidal faunal assemblages found in Dublin Bay which would likely continue to be relatively diverse and rich across the bay.”

Therefore, it can be concluded that significant effects on marine biodiversity and the Natura 2000 sites within Dublin Bay from the *current* operation of Ringsend WwTP are unlikely. Importantly, this conclusion is not dependent upon any future works to be undertaken at Ringsend. Thus, in the absence of any upgrading works, significant effects to habitats, fauna and Natura 2000 sites are not likely to arise. The operation of the Ringsend WWTP is addressed in more detail in the AA screening report and Awn Hydrological Risk Assessment accompanying this application.

9 RESIDUAL IMPACTS

Residual impacts are impacts that remain once mitigation has been implemented or impacts that cannot be mitigated. **Error! Reference source not found.** provides a summary of the impact assessment for the identified Key Ecological Resources (KERs) and details the nature of the impacts identified, mitigation proposed and the classification of any residual impacts.

Provided all mitigation measures are implemented in full and remain effective throughout the lifetime of the Development, no significant negative residual impacts on the local ecology or on any designated nature conservation sites are predicted from the Proposed Development (see more detailed description in Table 7 below).

TABLE 2 SUMMARY OF POTENTIAL IMPACTS ON KER(S), MITIGATION PROPOSED AND RESIDUAL IMPACTS.

Key Ecological Resource	Level of Significance	Potential Impact	Impact Without Mitigation				Proposed Mitigation	Residual Impact
			Quality	Magnitude / Extent	Duration	Significance		
Bat assemblage	Local Importance (lower value)	Mortality during vegetation clearance	Negative	Local	Permanent	Significant	Pre-demolition bat survey to be carried out on vegetation on Site	Negligible
		Minimal loss of foraging/commuting habitat for local bat population	Negative	Local	Permanent	Insignificant	Planting of shrub and tree species to take place as part of project design.	
Breeding-Bird assemblage	Local Importance (lower value)	Loss of potential foraging and nesting habitat.	Negative	Local	Permanent	Moderate	Planting of shrub and tree species to take place as part of project design. No removal of vegetation to take place during the nesting season.	Positive; Permanent. Negligible.
		Disturbance due to noise generated during Construction Phase.			Short-term	Slight	Construction related noise control/minimisation measures to be implemented.	
		Collision with Site buildings during the Operational Phase			Permanent	Significant	<i>The potential negative impact of collision risk will be resolved with the architect.</i>	

10 CONCLUSION

It is considered that provided the mitigation measures proposed are carried out in full, there will be no significant negative impact to any valued habitats, designated sites or individual or group of species as a result of the Proposed Development.

Based on the successful implementation of these measures and proposed works, to be carried out in accordance with the landscape plan, there will be no significant negative ecological impacts arising from Construction and Operational Phases of the Proposed Development.

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APPENDIX I – VALUE OF ECOLOGICAL RESOURCES

The criteria outlined in the table below, taken from the Guidelines for *Assessment of Ecological Impacts of National Road Schemes* published by the NRA, were used for assigning value to designated sites, habitats and species within the Site of the Proposed Development and surrounding area.

Importance	Criteria
International Importance	<ul style="list-style-type: none"> - 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation. - Proposed Special Protection Area (pSPA). - Site that fulfills the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). - Features essential to maintaining the coherence of the Natura 2000 Network. - Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive. - Resident or regularly occurring populations (assessed to be important at the national level) of the following: <ul style="list-style-type: none"> - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. - Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). - World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). - Biosphere Reserve (UNESCO Man & The Biosphere Programme). - Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). - Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). - Biogenetic Reserve under the Council of Europe. - European Diploma Site under the Council of Europe. - Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).
National Importance	<ul style="list-style-type: none"> - Site designated or proposed as a Natural Heritage Area (NHA). - Statutory Nature Reserve. - Refuge for Fauna and Flora protected under the Wildlife Acts. - National Park. - Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park. - Resident or regularly occurring populations (assessed to be important at the national level) of the following: <ul style="list-style-type: none"> - Species protected under the Wildlife Acts; and/or - Species listed on the relevant Red Data list. - Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive.
County Importance	<ul style="list-style-type: none"> - Area of Special Amenity. - Area subject to a Tree Preservation Order.

	<ul style="list-style-type: none"> - Area of High Amenity, or equivalent, designated under the County Development Plan. - Resident or regularly occurring populations (assessed to be important at the County level) of the following: <ul style="list-style-type: none"> - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive. - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. - Species protected under the Wildlife Acts; and/or - Species listed on the relevant Red Data list. - Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance. - County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP (Biodiversity Action Plan), if this has been prepared. - Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county. - Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.
<p>Local Importance (Higher Value)</p>	<ul style="list-style-type: none"> - Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared. - Resident or regularly occurring populations (assessed to be important at the Local level) of the following: <ul style="list-style-type: none"> - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive. - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. - Species protected under the Wildlife Acts; and/or - Species listed on the relevant Red Data list. - Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality. - Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.
<p>Local Importance (Lower Value)</p>	<ul style="list-style-type: none"> - Sites containing small areas of semi-natural habitat that are of some local importance for wildlife. - Sites or features containing non-native species that are of some importance in maintaining habitat links.

APPENDIX II – EPA IMPACT ASSESSMENT CRITERIA

Criteria used to define quality of effects.

In line with the draft EPA Guidelines (EPA, 2017), the following terms are defined when quantifying the quality of effects:

Quality	Definition
Positive Effects	A change which improves the quality of the environment (for example by increasing species diversity; or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
Neutral Effects	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Negative/adverse Effects	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property by causing nuisance).

Criteria used to define significance of effects.

In line with the draft EPA Guidelines (EPA, 2017), the following terms are defined when quantifying significance of impacts:

Significance of Effects	Definition
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect which alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Very significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics.

Criteria used to define duration of effects.

In line with the draft EPA Guidelines (EPA, 2017), the following terms are defined when quantifying duration and frequency of effects:

Quality of Effects	Definition
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting less than a year
Short-term	Effects lasting one to seven years

Medium term	Effects lasting seven to fifteen years
Long-term	Effects lasting fifteen to sixty years
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration.

APPENDIX III – BAT REPORT

Bat Survey Report



**Nos. 31 & 31a
Ravens Rock Road
Sandyford Bus. Pk.
Dublin 18**



Bat Survey Report – Ravens Rock Road, Sandyford, Dublin 18

Contents

1. INTRODUCTION	4
1.1 Purpose of the Report	4
1.2 Competency of Assessor	6
1.3 Bat Legislation	6
2. METHODOLOGY	7
2.1 Information Sources	7
2.2 Desk Study	8
2.2.1 PREVIOUS RECORDS	8
2.2.2 SPECIES BACKGROUND	9
2.2.3 LANDSCAPE SUITABILITY	12
2.2.4 BAT ROOSTS	13
2.3 General Activity Survey	14
2.4 Buildings Assessment Methodology	15
2.5 Bat Potential Tree Assessment	16
2.6 Landscape Evaluation	21
3. RESULTS	21
3.1 General Activity Survey	21
3.2 Buildings Assessment Survey	22
3.3 Bat Roost Potential: Tree Assessment	23
3.4 Landscape Evaluation	24
4. RECOMMENDATIONS	24
4.1 Tree Removal	24
4.2 Lighting for Bats	25
4.3 Roosting Opportunities	26
5. CONCLUSION	27

Tables

Table 1	Historical Bat Records in 10km ² Grid Ref O12 (NBDC website www.nbdc.ie accessed 28/04/2021)
Table 2	Suitability of the study area for the bat species found in the Sandyford area (based on the NBDC data) with Irish Red list status indicated.

Table 3	Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of roost features within the landscape, to be applied using professional judgement.
Table 4	Classification and Survey Requirements for Bats in Trees
Table 5	Bat Results Summary Data – April 27 th 2021

Figures

Figure 1	Site Location Map
Figure 2	Aerial Photo of Site showing highly Urbanised Landscape
Figure 3	Tree Works Plan (McCorkell, Nov 2021)
Figure 4	Bat Activity Map with legend

Appendices

Appendix A Plates (April 2021, January 2022)

Appendix B Bat Data (April 2021)

1. INTRODUCTION

1.1 Purpose of the Report

Ravensbrook Ltd, intend to apply to An Bord Pleanála for permission for a strategic housing development at this site of approximately 0.31ha on lands at IVM House, nos. 31 Ravens Rock Road (D18H304) and 31a Ravens Rock Road (D18C8P2), Sandyford Business Park, Dublin 18.

The development will consist of the demolition of the existing 2 no. storey building (c.717sqm) and hard surface parking area on the site and construction of a Build to Rent residential development comprising 101 no. residential apartments as follows:

- 101 no. build to rent apartments within a part 5, part 6 to part 11 no. storey building over partial basement comprising 65 no. 1 bedroom apartments and 36 no. 2 bedroom apartments (balconies on all elevations);
 - 734sqm of external communal amenity space provided in the form of a podium courtyard at first floor level and a series of rooftop terraces at fifth, sixth and tenth floor levels, c. 514sqm of public open space provided fronting Carmanhall Road;
 - 511 sqm of resident support facilities/ services and amenities space provided at ground and first floor levels;
 - Vehicular access to the development will be from the upgraded existing access from Ravens Rock Road;
 - Provision of 10 no. car parking spaces [1 no. accessible], 2 no. motorcycle spaces; in an undercroft carpark and 234 no. cycle parking spaces;
 - Provision of 4 no. Ø0.3m Microwave link dishes to be mounted on 2 No. steel support pole affixed to lift shaft overrun, all enclosed in radio friendly GRP shrouds, together with associated equipment at roof level;
 - Provision of an ESB substation, switch room and plant room at ground floor level, hard and soft landscaped areas, public lighting, attenuation, service connections and all ancillary site development works (including public realm updates on Carmanhall Road and Ravens Rock Road).
- Ash Ecology and Environmental Ltd (AEE) was commissioned to carry out a bat activity survey on behalf of Enviroguide Consulting during April 2021 and January 2022 as part of a proposed development.

The site is located at nos. 31 and 31a Ravens Rock Road, Sandyford Business Park, Dublin 18 (Grid Ref 53.276623, -6.211005); see Figure 1. An aerial photo is shown as Figure 2.

A bat survey was required to assess the value of the site for bats, to include any habitats, trees and buildings present on the site.

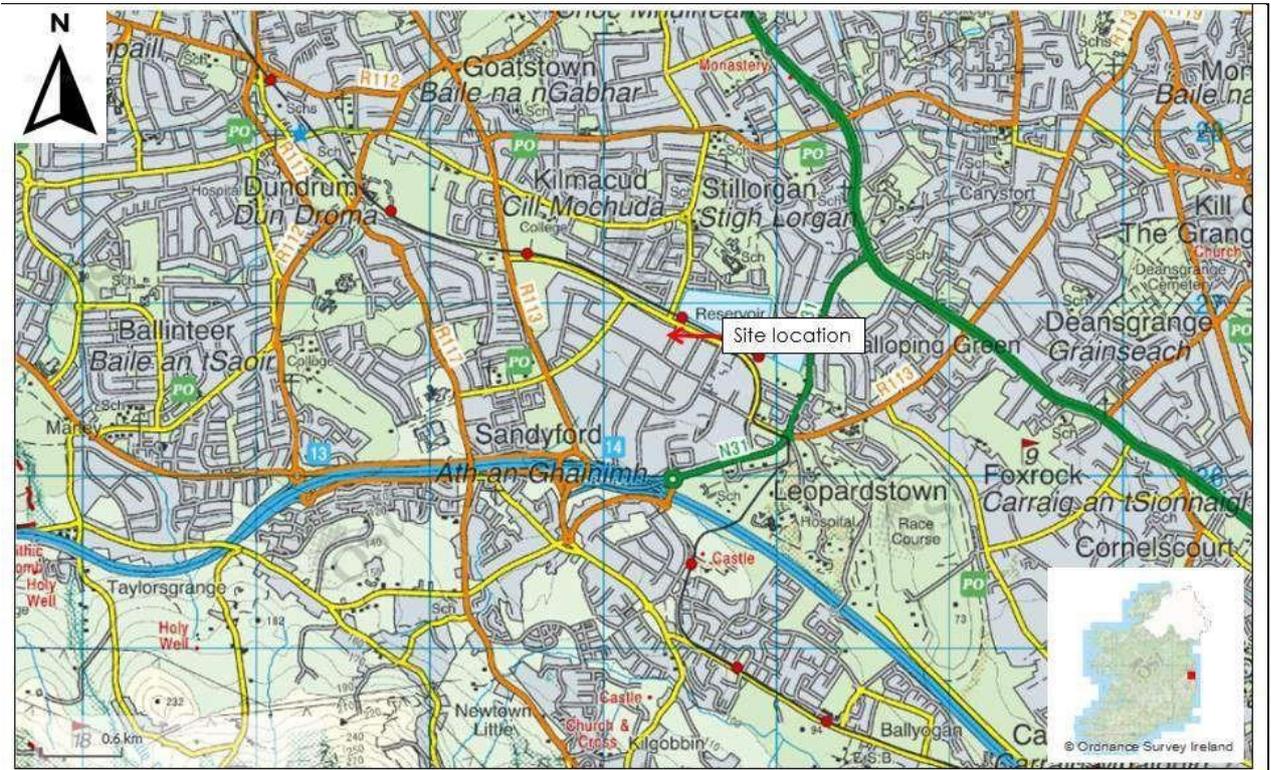


Figure 1 Site Location Map



Figure 2 Aerial Photo of Site showing highly urbanised landscape.

1.2 Competency of Assessor

This report has been prepared by Ash Ecology & Environmental Ltd (AEE), whose managing director and leading ecologist is Aisling Walsh. Aisling is a full member of the Chartered Institute of Ecological & Environmental Management (CIEEM) and whose qualifications include M.Sc. (Dist) in Biodiversity and Conservation (TCD) and B.Sc. (Hons) Zoology (NUIG). She has over 15 years of experience providing environmental consultancy and environmental assessment services. Aisling has written numerous Ecological Impact Assessments (EIA), Screening for Appropriate Assessment Stage I and Stage II Natura Impact Statement, Environmental Impact Assessments/Statements, Badger Surveys, Bat Surveys, Habitat Surveys. She has also provided input and reviewed Ecological and Environmental assessments for several EIS and EIA Reports and conducted numerous noise surveys for EPA licensed facilities. AEE is listed as a Registered Practice by the CIEEM and a member of Bat Conservation Ireland. Aisling Walsh is a licenced bat ecologist (DER/BAT 2020 – 46 EUROPEAN, DER/BAT 2020 – 48 EUROPEAN).

1.3 Bat Legislation

In view of their sensitive status across Europe, all species of bat have been listed on Annex IV of the EC 'Habitats and Species Directive' and some, such as the lesser horseshoe bat, are given further protection and listed on Annex II of this Directive.

Article 51(2) of the EC Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011) which provides:

(2) Notwithstanding any consent, statutory or otherwise, given to a person by a public authority or held by a person, except in accordance with a licence granted by the Minister under Regulation 54, a person who in respect of the species referred to in Part 1 of the First Schedule—

(a) deliberately captures or kills any specimen of these species in the wild, (b) deliberately disturbs these species particularly during the period of breeding, rearing, hibernation and migration,

(c) deliberately takes or destroys eggs of those species from the wild,

(d) damages or destroys a breeding site or resting place of such an animal, or

- (e) *keeps, transports, sells, exchanges, offers for sale or offers for exchange any specimen of these species taken in the wild, other than those taken legally as referred to in Article 12(2) of the Habitats Directive,*

shall be guilty of an offence.

The grant of planning permission does not permit the commission of any of the above acts or render the requirement for a derogation licence unnecessary in respect of any of those acts, having regard to section 10(6) of the Planning and Development (Housing) and Residential Tenancies Act 2016 which provides:

“(6) A person shall not be entitled solely by reason of a permission under section 9 to carry out any development.”

2. METHODOLOGY

2.1 Information Sources

A desk-based review of information sources was completed. Information contained on the websites of the National Parks and Wildlife Service (NPWS)⁷ and the National Biodiversity Data Centre (NBDC)⁸ was reviewed.

The following publications and websites were also reviewed and consulted:

- Bat Conservation Ireland <https://www.batconservationireland.org/>
- Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals (2018)
- Bat Conservation Trust (2018) Bats and artificial lighting in the UK Bats and the Built Environment series⁹
- Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- Mitchell-Jones, A.J, & McLeish, A.P. (eds). 2004., 3rd Edition Bat Workers' Manual, JNCC, Peterborough, ISBN 1 86107 558 8

⁷ The National Parks and Wildlife Services map viewer <http://webgis.npws.ie/npwsviewer/>

⁸ The National Biodiversity Data Centre www.NBDC.ie

⁹ <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

⁴https://www.batconservationireland.org/wp-content/uploads/2013/09/BCIreland-AAGuidelines_Version1.pdf

- Bat Conservation Ireland (2012) Bats and Appropriate Assessment Guidelines, Version 1, December 2012. Bat Conservation Ireland, www.batconservationireland.org⁴
- Bat Conservation Trust (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition
- Bat Conservation Ireland (2010) Bats & Lighting Guidance Notes for: Planners, engineers, architects and developers¹⁰
- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (National Roads Authority, 2005).
- Guidelines for the Treatment of Bats during the Construction of National Road Schemes (National Roads Authority, 2005).
- Bats and Lighting in the UK – Bats and the Built Environment Series (Institute of Lighting Professionals, September 2011)
- Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011).
- Bats and Lighting – Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland);
- The Eurobats Mitigation of Lighting Document
- Arboricultural Report Tree Survey, Arboricultural Impact Assessment Arboricultural Method Statement In relation to the development proposal at: 31 31a Ravensrock Road Sandyford, Dublin (Charles McCorkell, Nov 2021)

2.2 Desk Study

2.2.1 Previous Records

A desktop review was carried out to identify the previous records of Bat species within the Proposed Development Site and its environs. The study area occurs in 10km² Grid Square O12. The website the NBDC (www.nbdc.ie) was accessed on 28/04/2021 to establish any previous bat records and shown below in Table 1.

¹⁰ https://www.batconservationireland.org/wpcontent/uploads/2013/09/BCIrelandGuidelines_Lighting.pdf

Table 1 Historical Bat Records in 10km² Grid Square O12 (NBDC website www.nbdc.ie accessed 28/04/2021)

Species Name - Common	Species Name - Latin	Last Documented Record O12
Brown Long-eared Bat	<i>Plecotus auritus</i>	08/06/2010
Daubenton's Bat	<i>Myotis daubentonii</i>	05/09/2014
Lesser Noctule	<i>Nyctalus leisleri</i>	31/10/2014
Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>	04/08/2012
Natterer's Bat	<i>Myotis nattereri</i>	04/08/2011
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	31/10/2014
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	31/10/2014
Whiskered Bat	<i>Myotis mystacinus</i>	01/06/2004

2.2.2 Species Background

Ireland had ten known bat species until February 2013, when a single live greater horseshoe bat (*Rhinolophus ferrumequinum*) was found roosting in Co. Wexford¹¹. On 8th June 2020, a single audio recording was confirmed in the Glendalough area, Co. Wicklow. It was found on two more occasions in the same area in early July 2020 (Bat Conservation Ireland, July 2020).

The ten species (excluding the greater horseshoe) are briefly described overleaf.

For a more comprehensive overview see McAney, 2006.¹²

The dependence of Irish bat species on insect prey has left them vulnerable to habitat destruction, land drainage, agricultural intensification and increase use of pesticides. Also, their reliance on buildings as roosting sites has made them particularly vulnerable to renovation works and the use of timber chemical treatment. Buildings are highly important as roosting sites for bats and all Irish bat species use buildings for all roost types. Most significant in terms of roosts in houses are maternity roosts, but cellars and even attics may serve as hibernation sites for bats. Roosts within buildings can far exceed the numbers encountered in trees, bridges, caves or cliffs and roosts of over 1,000 bats have been recorded in buildings.¹³

¹¹ National Biodiversity Data Centre <http://www.biodiversityireland.ie/new-bat-species-found-inireland/>

¹² McAney, K. (2006) A Conservation Plan for Irish Vesper Bats. Irish Wildlife Manual No.20. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government.

¹³ NRA (2005) Guidelines for the Treatment of Bats Prior to the Construction of National Road Schemes. National Roads Authority, Dublin

2.2.2.1 Family Vespertilionidae:

Common pipistrelle *Pipistrellus pipistrellus*

This species was only recently separated from its sibling, the soprano or brown pipistrelle *P. pygmaeus*¹⁴, which is detailed below. The common pipistrelle's echolocation calls peak at 45 kHz. The species forages along linear landscape features such as hedgerows and treelines as well as within woodland.

Soprano pipistrelle *Pipistrellus pygmaeus*

The soprano pipistrelle's echolocation calls peak at 55 kHz, which distinguishes it readily from the common pipistrelle on detector. The pipistrelles are the smallest and most often seen of our bats, flying at head height and taking small prey such as midges and small moths. Summer roost sites are usually in buildings, but tree holes and heavy ivy are also used. Roost numbers can exceed 1,500 animals in midsummer.

Nathusius' pipistrelle *Pipistrellus nathusii*

Nathusius' pipistrelle is a recent addition to the Irish fauna and has mainly been recorded from the north-east of the island in Counties Antrim and Down¹⁵ and also in Fermanagh, Longford and Cavan. It has also recently been recorded in Counties Cork and Kerry.¹⁶ However, the known resident population is enhanced in the autumn months by an influx of animals from Scandinavian countries. The status of the species has not yet been determined.

Leisler's bat *Nyctalus leisleri*

This species is Ireland's largest bat, with a wingspan of up to 320mm; it is also the third most common bat, preferring to roost in buildings, although it is sometimes found in trees and bat boxes. It is the earliest bat to emerge in the evening, flying fast and high with occasional steep dives to ground level, feeding on moths, caddisflies and beetles. The echolocation calls are sometimes audible to the human ear being around 15 kHz at their lowest. The audible chatter from their roost on hot summer days is sometimes an aid to location. This species is uncommon in Europe and as Ireland holds the largest national population the species is considered as Near Threatened here.

Brown long-eared bat *Plecotus auritus*

¹⁴ Barratt, E. M., Deauville, R., Burland, T. M., Bruford, M. W., Jones, G., Racey, P. A., & Wayne, R. K. (1997) DNA Answers the Call of Pipistrelle Bat Species. *Nature* 387: 138 - 139.

¹⁵ Richardson, P. (2000) *Distribution Atlas of Bats in Britain and Ireland 1980 - 1999*. The Bat Conservation Trust, London, England.

¹⁶ Kelleher, C. (2005) *International Bat Fieldcraft Workshop*, Killarney, Co. Kerry. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government.

This species of bat is a 'gleaner', hunting amongst the foliage of trees and shrubs, and hovering briefly to pick a moth or spider off a leaf, which it then takes to a sheltered perch to consume. They often land on the ground to capture their prey. Using its nose to emit its echolocation, the long-eared bat 'whispers' its calls so that the insects, upon which it preys, cannot hear its approach (and hence, it needs oversized ears to hear the returning echoes). As this is a whispering species, it is extremely difficult to monitor in the field as it is seldom heard on a bat detector. Furthermore, keeping within the foliage, as it does, it is easily overlooked. It prefers to roost in old buildings.

Natterer's bat *Myotis nattereri*

This species has a slow to medium flight, usually over trees but sometimes over water. It usually follows hedges and treelines to its feeding sites, consuming flies, moths, caddisflies and spiders. Known roosts are usually in old stone buildings but they have been found in trees and bat boxes. The Natterer's bat is one of our least studied species and further work is required to establish its status in Ireland.

Daubenton's bat *Myotis daubentonii*

This bat species feeds close to the surface of water, either over rivers, canals, ponds, lakes or reservoirs but it can also be found foraging in woodlands. Flying at 15 kilometres per hour, it gaffs insects with its over-sized feet as they emerge from the surface of the water - feeding on caddis flies, moths, mosquitoes, midges etc. It is often found roosting beneath bridges or in tunnels and also makes use of hollows in trees.

Whiskered bat *Myotis mystacinus*

This species, although widely distributed, has been rarely recorded in Ireland. It is often found in woodland, frequently near water. Flying high, near the canopy, it maintains a steady beat and sometimes glides as it hunts. It also gleans spiders from the foliage of trees. Whiskered bats prefer to roost in buildings, under slates, lead flashing or exposed beneath the ridge beam within attics. However, they also use cracks and holes in trees and sometimes bat boxes. The whiskered bat is one of our least studied species and further work is required to establish its status in Ireland.

Brandt's bat *Myotis brandtii*

This species is known from five specimens found in Counties Wicklow (Mullen, 2007), Cavan, and Clare in 2003, a specimen in Kerry in 2005¹⁷ and another in Tipperary in 2006.¹⁸ No maternity roosts have yet been found. It is very similar to the whiskered bat and cannot be separated by the use of detectors. Its habits are similar to its sibling.

2.2.2.2 Family Rhinolophidae:

Lesser horseshoe bat *Rhinolophus hipposideros*

This species is the only representative of the Rhinolophidae or horseshoe bat family in Ireland. It differs from our other species in both habits and looks, having a unique nose leaf with which it projects its echolocation calls. It is also quite small and, at rest, wraps its wings around its body. Lesser horseshoe bats feed close to the ground, gleaning their prey from branches and stones. It often carries its prey to a perch to consume, leaving the remains beneath as an indication of its presence.

The echolocation call of this species is of constant frequency and, on a heterodyne bat detector, sounds like a melodious warble. The species is confined to six counties along the Atlantic seaboard: Mayo, Galway, Clare, Limerick, Kerry and Cork. The current Irish national population is estimated at 12,500 animals. This species is listed on Annex II of the EC Habitats Directive and 41 Special Areas of Conservation have been designated in Ireland for its protection. Where it occurs, it is often found roosting within farm buildings.

2.2.3 Landscape Suitability

The National Biodiversity Data Centre (NBDC) maps landscape suitability bats based on Lundy et al. (2011). The maps are a visualisation of the results of the analyses based on a 'habitat suitability' index. The index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats. The overall assessment of bat habitats for the current study area is given as 17.44, relatively low, with the highest average score for all bat species in Ireland being 58.56. Table 2 gives the suitability of the study area for the

¹⁷ Kelleher, C. 2006a *Nathusius pipistrelle* *Pipistrellus nathusii* and Brandt's Bat *Myotis brandtii* - New Bat Species to Co. Kerry – Irish Naturalists' Journal 28: 258.

¹⁸ Kelleher, C. 2006b Brandt's Bat *Myotis brandtii*, New Bat Species to Co. Tipperary. Irish Naturalists' Journal 28: 345.

bat species found in the study area (based on NBDC) along with their Irish Red List Status (from Marnell et al., 2019).¹⁹

Table 2 Suitability of the study area for the bat species found in the Sandyford area (based on the NBDC data) with Irish Red list status indicated.

Common name	Scientific name	Suitability index	Irish red list status
All bats	-	17.44	Least Concern
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	30	Least Concern
Brown long-eared bat	<i>Plecotus auritus</i>	23	Least Concern
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	32	Least Concern
Lesser-horseshoe bat	<i>Rhinolophus hipposideros</i>	0	Least Concern
Leisler's bat	<i>Nyctalus leisleri</i>	34	Least Concern
Whiskered bat	<i>Myotis mystacinus</i>	14	Least Concern
Daubenton's bat	<i>Myotis daubentonii</i>	3	Least Concern
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	10	Least Concern
Natterer's bat	<i>Myotis nattereri</i>	11	Least Concern

2.2.4 Bat Roosts

Bats were originally cave and tree dwelling animals but many now find buildings just as suitable for their needs. Bats are social animals and most species congregate in large colonies during summer. These colonies consist mostly of females of every reproductive class, with some juvenile males from the previous year. Male bats normally roost individually or in small groups meeting up with the females in the late autumn-early winter, when it is time to mate. In summer, bats seek warm dry buildings in which they can give birth and suckle their young. In winter, they seek out places with a constant low temperature and high humidity where they can become torpid and hibernate during adverse weather conditions. However, bats do not hibernate continuously during winter and will awake and hunt during mild nights when there are insects available, and it is energetically advantageous to forage.

¹⁹ Marnell, F., Looney, D. & Lawton, C. (2019) Ireland Red List No. 12: Terrestrial Mammals. National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland.

2.2.4.1 Maternity Roosts

Maternity roosts are the most significant roosts and they are predominantly all-female aggregations that are formed from late May onwards and remain as a relatively cohesive unit until mid to late August. Not all female bats give birth annually. These females that do bear young in a given year avail of a suitable building, tree and sometimes cave (or equivalent). The young are flightless for several weeks and hence are vulnerable to dangers such as tree felling and restoration, reinforcement or demolition of structures such as buildings and bridges.

2.2.4.2 Mating Roosts

Most bat species mate in autumn but pregnancy does not occur until the following spring. During this time males will take possession of a cavity in a building, tree, bridge, cave or mine and attract females to these sites to establish a harem. Male bats call both from a perch and in flight in much the same manner that male birds sing.

2.2.4.3 Hibernation Roosts

Bats have a high metabolic rate and in temperate countries, such as Ireland, flying insects are not available in sufficient numbers during winter to sustain bats. Therefore, bats hibernate during winter. In hibernation sites, bats are often completely inactive for several days and are extremely vulnerable to disturbance by human activities due to the time taken for them to become sufficiently active to allow escape. Hibernation may extend from November to the end of March, during which time bat activity will take place sporadically.

2.2.4.4 Night Roosts

These are roosts which are used as resting places for bats between foraging bouts. They also provide retreats for bats from predators or during inclement weather conditions. They also function as feeding perches and may be important for socialising.

2.3 General Activity Survey

A general bat activity survey was undertaken on the 27th April 2021 from 20.30 to 22.15 (sunset was 20.48) by walking the Site boundary to include the brick and metal clad building on the site. The weather was optimal for a bat survey with temperatures on the night 10°C in calm conditions. Bat

activity and emergence surveys are best carried out from mid-March to end of September in suitable weather conditions²⁰ which this survey was.

The equipment used for the bat activity survey included a Elekon Bat Logger M detector. Visual observations were taken with the aid of a powerful L.E.D. torch (AP Pros-Series 220 Lumens High Performance Spotlight).

General Site photos are contained in Appendix A.

2.4 Buildings Assessment Methodology

An assessment for bat potential of the main building and other smaller structures on site was carried out on the 27th April 2021. A Seek Thermal Reveal Pro HighResolution Thermal Imaging Camera, along with a RIDGID 36848 Micro CA-150 Hand-Held Borescope was available for any inspection of any crevices/roof spaces on the building (where accessible). The borescope is fitted with a camera and allows visibility of confined spaces and narrow passages potentially used by hibernating/roosting bats. It allows spaces up to 3m from ground level to be inspected. The buildings were assessed again in January 2022 to ensure no changes had occurred in the intervening period.

The BCT guidelines were followed for the assessment rating²¹ and classified using Table 4.1 of the BCT guidelines (2016) which is shown as Table 3 overleaf. The results of the assessment are given in Section 3, Results.

²⁰ Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

²¹ Bat Surveys for Professional Ecologists, Good Practice Guidelines (2016)

Table 3 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of roost features within the landscape, to be applied using professional judgement.

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^a and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation ^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential. ^c	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^a and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

^a For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

^b Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

^c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

2.5 Bat Potential Tree Assessment

The Arboricultural Report (McCorkell, Nov, 2021) describes 14 individual trees (T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14) and 2 x Leyland Cypress treelines comprising of 8 trees and 10 trees respectively, identified as G15 and H8 on the Tree Works Plan, See Figure 3. Of these, those for removal include the two Leyland Cypress treelines (G15 and H8), comprising of 18 trees, and 1 x Common Beech tree (T14) which is dead.

- Bat or bird boxes.
- Other suitable places of rest or shelter.

Certain factors such as orientation of the feature, height from the ground, the direct surroundings and its location in respect to other features may enhance or reduce the potential value.

The 19 trees for removal were then classified into general bat roost potential groups based upon the presence of these features. An evaluation table is shown as Table 4 below. The results are outlined in Section 3.3, Tree Assessment.

Table 4 Classification and Survey Requirements for Bats in Trees²²

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey Work / Actions
Confirmed Roost	Evidence of roosting bats in the form of live / dead bats, droppings, urine staining, mammalian fur oil staining, etc.	<p>A National Parks and Wildlife (NPWS) derogation licence application will be required if the tree or roost site is affected by the development or proposed arboricultural works. This will require a combination of aerial assessment by roped access bat workers (where possible, health and safety constraints allowing) and nocturnal survey during appropriate periods (e.g. nocturnal survey - May to August) to inform on the licence.</p> <p>Works to tree undertaken under supervision in accordance with the approved good practice method statement provided within the licence.</p> <p>However, where confirmed roost site(s) are not affected by works, work under a precautionary good</p>

²² Bat Surveys for Professional Ecologists: Good Practice Guidelines (J., Collins (Bat Conservation Trust), 2016¹⁷).

		<p>practice method statement may be possible.</p>
<p>High Potential</p>	<p>A tree with one or more Potential Roosting Features that are obviously suitable for larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter protection, conditions (height above ground level, light levels, etc.) and surrounding habitat. Examples include (but are not limited to); woodpecker holes, larger cavities, hollow trunks, hazard beams, etc.</p>	<p>Aerial assessment by roped access bat workers (if appropriate) and / or nocturnal survey during appropriate period (May to August).</p> <p>Following additional assessments, tree may be upgraded or downgraded based on findings.</p> <p>If roost sites are confirmed and</p>

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey Work / Actions
		<p>the tree or roost is to be affected by proposals a licence from the NPWS will be required.</p> <p>After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate.</p>
Moderate Potential	<p>A tree with Potential Roosting Features which could support one or more potential roost sites due to their size, shelter protection, conditions (height above ground level, light levels, etc.) and surrounding habitat but unlikely to support a roost of high conservation status (i.e., larger roost, irrespective of wider conservation status).</p> <p>Examples include (but are not limited to); woodpecker holes, rot cavities, branch socket cavities, etc.</p>	<p>A combination of aerial assessment by roped access bat workers and / or nocturnal survey during appropriate period (May to August).</p> <p>Following additional assessments, tree may be upgraded or downgraded based on findings.</p> <p>After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate.</p> <p>If a roost site/s is confirmed a licence from the NPWS will be required.</p>

Low Potential	A tree of sufficient size and age to contain Potential Roosting Features but with none seen from ground or features seen only very limited potential. Examples include (but are not limited to); loose/lifted bark, shallow splits exposed to elements or upward facing holes.	No further survey required but a precautionary working method statement may be appropriate.
Negligible/No potential	Negligible/no habitat features likely to be used by roosting bats	None.

2.6 Landscape Evaluation

Ecological survey results were evaluated to determine the significance of identified features located in the study area on an importance scale ranging from international-national-county-local (from NRA, 2009) The local scale is approximately equivalent to one 10km square but can be operationally defined to reflect the character of the area of interest. Because most sites will fall within the local scale, this is sub-divided into two categories: local importance (higher value) and local importance (lower value).

3. RESULTS

3.1 General Activity Survey

The results of the bat survey carried out in April 2021 are summarised in Table 5 with the complete dataset of bat species identified in real time in the field using the Elekon Batlogger M detector presented in Appendix B. A map outlining the locations of the bat calls for April 2021 is shown as Figure 4.

In total two species of bat were detected (8 bat passes) for April 2021. As expected due to the lighting regime on the Site and surrounds, a low rate of bat activity was recorded. The most frequent bat species heard was Common Pipistrelle.

The majority of bat activity was along the existing mature treeline to the northeast boundary of site. These trees are to be all retained except for Tree T14 (dead).

Table 5 Bat Results Summary Data – 27th April 2021

Species Common	Name – Species Latin	Name –	Total Number of Calls	Number of Passes	Peak Frequency (kHz)
Common Pipistrelle	Pipistrellus pipistrellus		10	6	46.5
Leisler's Bat	Nyctalus leisleri		6	2	26.9

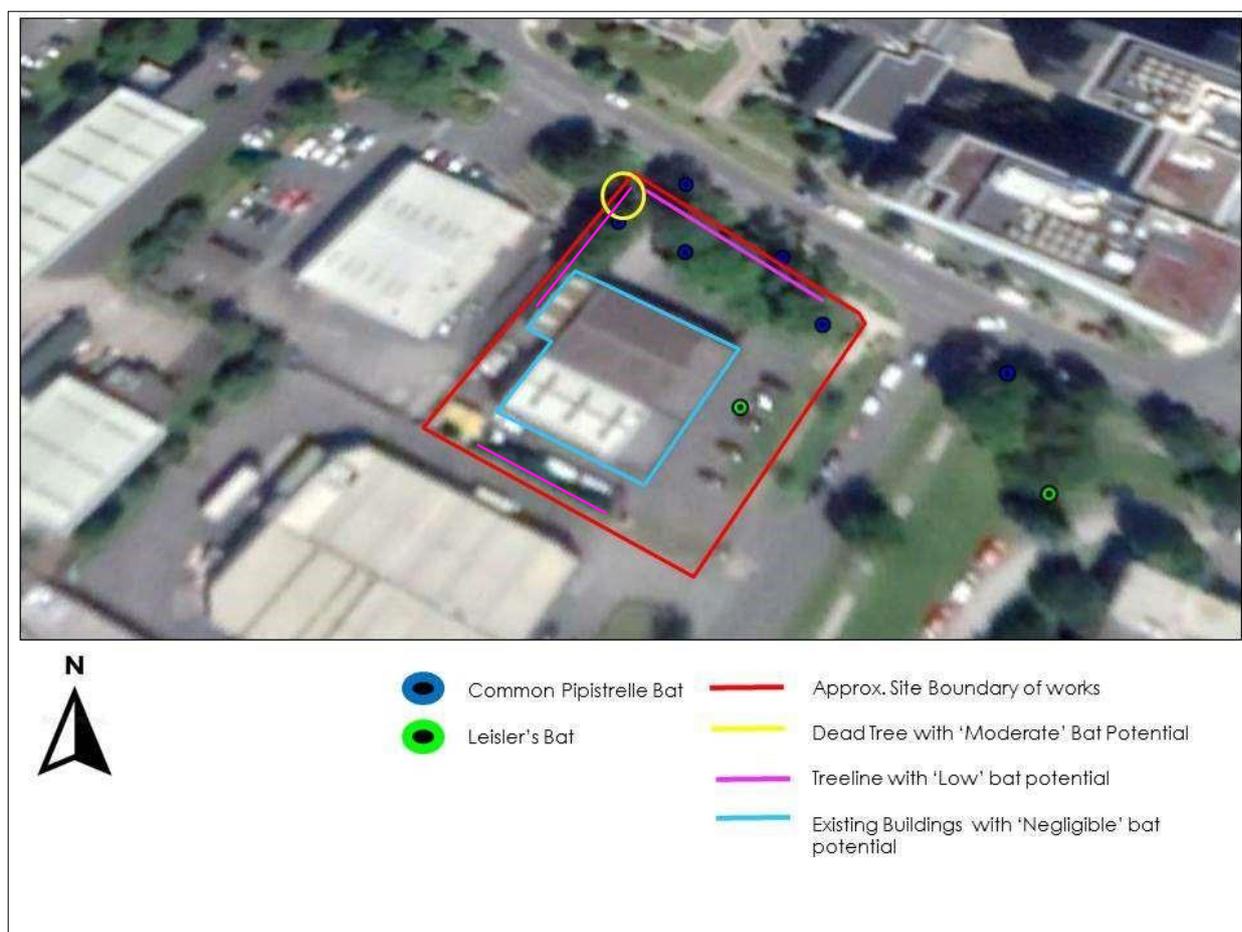


Figure 3 Bat Activity Map with Legend – [Where the legend refers to “Bat potential”, this should be “bat roost potential”]

3.2 Buildings Assessment Survey

The building on site was inspected as per the methodology set out in Section 2.4 on April 27th 2021 and January 21st 2022. All spaces that could potentially allow bats access the building were visually examined in detail

for bats, signs of bats, or evidence of bat activity, using a torch where necessary. Cracks, crevices etc. were investigated for ingress / egress points and evidence of bat habitation, such as smearing lines, droppings, and staining.

The building onsite was a modern red brick and metal clad. It was well sealed with no visual entry points that could be used by bats. No bat emergence was detected or observed from the building onsite during the emergence survey on April 27th 2021 (from 20.30 to 22.15).

The bat potential of the building on site was deemed to be 'Negligible' (Table 3) with no suitable bat roost features observed on careful external examination. No bat droppings were noted around the building on the ground or other surfaces.

The building was assessed visually for a second time on January 21st 2022 and the same conclusion was reached with no changes in the intervening period.

3.3 Bat Roost Potential: Tree Assessment

The mature deciduous treeline (Tree T13, T12, T11, T10 and T9) along the northeast boundary was classed as 'Low' bat potential as even though the trees were mature they lacked PRFs (see Table 4):

"A tree/s of sufficient size and age to contain Potential Roosting Features but with none seen from ground or features seen only very limited potential."

The Leyland Cypress topped treeline (H8) comprising 10 trees, along the southwest boundary had no bat potential for roosts. Similarly, the Leyland Cypress treeline (G15) comprising 8 trees along the northwest boundary, had no bat potential for roosts .

There was only one tree, a dead Beech tree (T14) with bat potential. This is located in the northwest corner (see Figure 3 and 4) which had 'Moderate' bat roost potential due to a high cover of ivy (Plate 8, Appendix A) defined as (Table 4):

"Trees with Potential Roosting Features which could support one or more potential roost sites due to their size, shelter protection, conditions (height above ground level, light levels, etc.) and surrounding habitat but unlikely to support a roost of high conservation status (i.e., larger roost, irrespective of wider conservation status)."

This tree (T14) had no bats emerge during the survey or droppings noted. However, the tree may contain bats at other times and so the absence of bats at other times cannot be ruled out.

Overall the bat roost tree assessment concludes that just one tree, T14 (a dead Common Beech) will require a pre-felling survey for bats due to the 'Moderate' bat roost potential of the tree - using criteria gleaned from Table 4.

3.4 Landscape Evaluation

The landscape is considered of local importance (Lower value) for bats due to the highly urbanised location which is also assigned a low landscape suitability score for bats. The trees along the northeast boundary would provide some commuting element to the wider urban landscape. The removal of trees may impact negatively upon foraging and commuting habitat for bats in the local area.

4. RECOMMENDATIONS

4.1 Tree Removal

The following tree felling procedure should be followed for Tree T14 – a tree identified as having 'Moderate' bat roost potential.

- The felling of Tree T14 should be undertaken in the period late August to late October/early November. During this period bats are capable of flight and this may avoid risks associated with tree-felling.
- Felling Tree T14 during the winter months should be avoided as this creates the additional risk that bats may be in hibernation and thus unable to escape from a tree that is being felled. Additionally, disturbance during winter may reduce the likelihood of survival as the

bats' body temperature is too low and they may have to consume too much body fat to survive.

Felling Tree T14 should be undertaken using heavy plant and chainsaw. There is a wide range of machinery available with the weight and stability to safely fell a tree. The tree should be pushed over, with a need to excavate and sever roots in some cases. In order to ensure the optimum warning for any roosting bats that may still be present, the affected tree, T14, should be pushed lightly two to three times, with a pause of approximately 30 seconds between each nudge to allow bats to become active. Tree T14 should then be pushed to the ground slowly and should remain in place for a period 48 hours to allow bats to escape. No mulching of Tree T14 should take place until after this period of time.

A pre-felling survey of Tree T14 should be undertaken the night prior to felling.

- A derogation licence from the National Parks and Wildlife Services (NPWS) will be required if bats are noted roosting in Tree T14 during the pre-felling emergence survey.

4.2 Lighting for Bats

In order to minimise disturbance to bats utilising the site in general, the lighting and layout of the proposed development should be designed to minimise light-spill onto habitats used by the local bat population foraging or commuting. This can be achieved by ensuring that the design of lighting accords with guidelines presented in the Bat Conservation Trust & Institute of Lighting Engineers 'Bats and Lighting in the UK - Bats and Built Environment Series', the Bat Conservation Trust 'Artificial Lighting and Wildlife Interim Guidance' and the Bat Conservation Trust 'Statement on the impact and design of artificial light on bats'. Therefore, where possible, the lighting scheme should include the following:

- The avoidance of direct lighting of proposed areas of habitat creation / landscape planting, or on existing trees to be retained
- Unnecessary light spill controlled through a combination of directional lighting and hooded / shielded luminaires or strategic planting to provide screening vegetation.

- Lights should be of low intensity. It is better to use several low intensity lights than one strong light spilling light across the entire area.
- Narrow spectrum lighting should be used with a low UV component. Glass also helps reduce the UV component emitted by lights.
- The colour rendering of the selected light fitting should be 3000k making the LED fittings a warmer light, helping to further minimize the impact on the local wildlife

4.3 Roosting Opportunities

A series of 3 No. bat boxes will be erected on suitable substrates around the Site to provide future roosting opportunities for bats. The type recommended is the 2F Schwegler Bat Box. Providing additional roosting opportunities for bats will be a positive impact for bats in an urban landscape.

5. CONCLUSION

The Site itself is considered to be of Lower Importance for bats for the following reasons:

- The Site is currently well lit up.
- Bat activity of the site was low on the night of survey (April 27th 2021)
 - The buildings onsite have negligible bat potential.
- The surrounding landscape is highly urbanised with a low bat suitability score (of all bat species in Ireland) of 17.44, see Section 2.2.3.
- A total of one dead tree, tagged as 'T14' was deemed to have Moderate Bat potential due to a thick covering of ivy.

On the basis of the findings of the survey works completed April 2021 and January 2022, it is concluded that the overall impact on bats, arising from the Proposed Development, will most likely be negligible for bats if:

- A bat friendly lighting design is implemented.
- Bat boxes (x3) should be erected on suitable substrates e.g. trees to be retained, such as T13, T12 and T10 (see Figure 3) during the operational phase.
- A pre-felling bat survey of tree T14 with moderate bat potential should be carried out the night before felling (see Plate 8).

APPENDICES

APPENDIX A



Plate 1 The Building had Negligible Bat Roost Potential (Photo taken April 2021).



Plate 2 The Building onsite (see red arrow) had Negligible Bat Roost Potential (Photo taken January 2022). Large Oak trees in background to be retained.





Plate 3 Southwest boundary of topped 10 x Leyland Cypress (H8). No Bat Roost Potential (Photo taken January 2022).

Plate 4 Trees and green space across the road to the southeast (Photo taken April 2021).



Plate 5 Affected Leyland Cypress treeline (G15) to the rear (x 8 trees) of no bat roost potential on northwest boundary. Note the dead Common Beech (T14) to left of Plate, also affected and of Moderate Bat Potential (Photo taken January 2022).

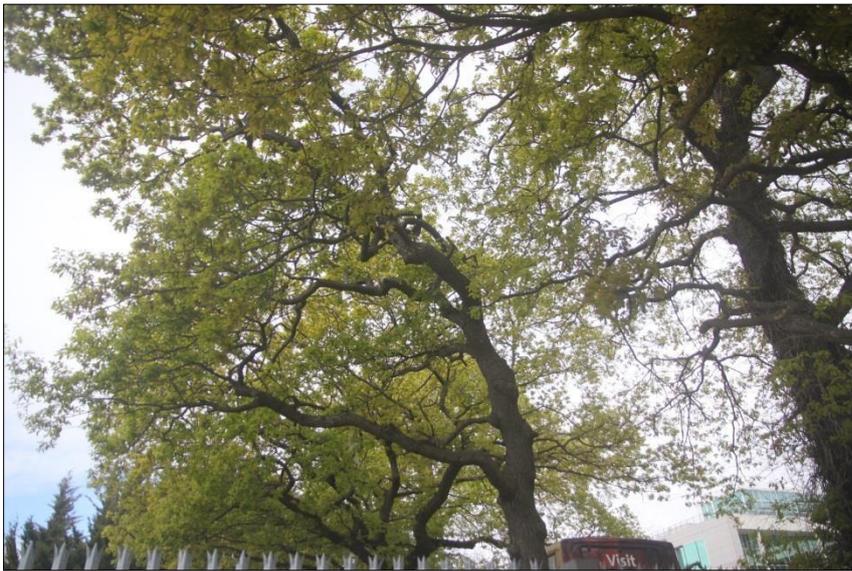


Plate 6 Northeast boundary of site had mature treeline and the most bat activity during survey (Photo taken April 2021). This treeline had 'Low' Bat Roosting potential.

Plate 7 Northeast boundary of site has treeline (to be retained) and most bat activity (Photo taken April 2021). This treeline had 'Low' Bat Roosting potential.



Plate 8 Dead Beech tree (T14) with 'Moderate' bat potential in north corner of site. To be removed as part of the site development. (Photo taken January 2022).

APPENDIX B

27/04/2021	Species	Mean Peak Calls [#]	Mean Peak Frequency [kHz]	Mean Max Frequency [kHz]	Mean Min Frequency [kHz]	Mean Call Length [ms]	Mean Call Distance [ms]	Temp[°C]	Latitude [WGS84]	Longitude [WGS84]
21:00:11	Leisler's Bat	3	25.3	32.9	24.2	12	245	10	53.2766	-6.211
21:05:18	Leisler's Bat	3	27.5	37.3	26.5	5	153	10	53.27647	-6.2104
21:15:40	Common Pipistrelle	2	44.7	49	44.4	3.9	262	10	53.27685	-6.2109
21:22:44	Common Pipistrelle	1	45.1	48.8	44.8	5.2	0	10	53.27686	-6.2112
21:35:29	Common Pipistrelle	1	44.5	45.4	44.5	4.6	0	10	53.27698	-6.2112
21:45:27	Common Pipistrelle	2	46.2	55.5	45.8	4	175	10	53.27665	-6.2105
21:55:16	Common Pipistrelle	1	44.4	48.2	44.1	5.2	371	10	53.27691	-6.2113
22:11:45	Common Pipistrelle	3	47	57.9	46.6	4	170	10	53.27673	-6.2108