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Ecological Impact Assessment Report

PRESENTED TO

Bartra Propco 23 Limited
Proposed Large-scale Residential Development at
Mountgorry, Swords, Co. Dublin

September 2024

Environmental Consultancy Services

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1 INTRODUCTION

Enviroguide Consulting was commissioned by Bartra Propco 23 Limited to undertake an Ecological Impact Assessment (EclA) in relation to a Proposed Large-scale Residential Development at Mountgorry, Swords, Co. Dublin, hereafter referred to as 'Proposed Development' or 'Site' when referring to the site area of the Proposed Development.

This 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 on or adjacent to the Site. This Report will describe the ecology of the Site, 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) and supplemented by the National Roads Authority (2009) guidelines for Assessment of Ecological Impacts of National Road Schemes. The purpose of this EclA is to:

- Set out the methodologies used to inform the assessment.
- Identify Key Ecological Receptors (KERs) within the Zone of Influence (ZOI).
- Assess the impacts from the Proposed Development on the KERs and the resulting significant effects.
- Set out measures to avoid or mitigate negative impacts.
- Assess the residual effects after the incorporation of agreed avoidance or mitigation measures to ensure legal compliance.
- Set out agreed measures to offset significant residual effects.
- Set out opportunities for ecological enhancement.

1.1 Quality Assurance and Competence

Enviroguide Consulting is a 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. SOB undertook the ecology surveys and desktop research and authored this report.

SOB 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.). SOB has prepared Stage I and Stage II Appropriate Assessment (AA) Reports, Invasive Species Surveys, Ecology Statements, Ecological Impact Assessments (EclAs), and Biodiversity Chapters of Environmental Impact Assessment Reports (EIARs).

1.2 Relevant Legislation and Policy Context

An EclA is a process of identifying, quantifying, and evaluating potential effects of development-related or other actions on habitats, species and ecosystems (CIEEM, 2018). The Proposed Development is sub-threshold for an Environmental Impact Assessment (EIA) under the Planning and Development Regulations 2001-2023, as amended.

When an EclA is undertaken as part of an EIA process it is subject to the EIA Regulations (under the Planning and Development Regulations 2001-2023). An EclA is not a statutory requirement, however it is a best practice evaluation. This EclA is provided to assist the Competent Authority with its decision making in respect of the Proposed Development.

There is a number of pieces of legislation, regulations and policies specific to ecology which underpin this assessment. These may be applicable at a European, National or Local level. Legislation at the International level relevant to the Proposed Development are listed below:

- *Council Directive 92/43/EEC* on the Conservation of Natural Habitats and of Wild Fauna and Flora; hereafter the 'Habitats Directive'.
- *Directive 2009/147/EEC*, hereafter the 'Birds Directive'.
- *Directive 2011/92/EU*, hereafter the 'EIA Directive'.
- EU Regulation 1143/2014, on Invasive Alien Species.
- *Convention on the Conservation of European Wildlife and Natural Habitats 1982*, hereafter the 'Bern Convention'
- *The Convention on the Conservation of Migratory Species of Wild Animals 1983*, hereafter the 'Bonn Convention'.
- *Ramsar Convention on Wetlands 1971*, hereafter referred to as 'Ramsar'.
- *Water Framework Directive 2000/60/EC*, hereafter the 'WFD'.

National legislation and policy relevant to the Proposed Development are listed below:

- Wildlife Act 1976, as amended in 2000.
- Flora (Protection) Order 2022.
- The Planning and Development Act 2000.
- National Biodiversity Action Plan 2017-2021.

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of SACs and the Birds Directive (79/409/EEC) seeks to protect birds of special importance by the designation of 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.

Additionally, 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 Special Areas of Conservation (SAC) and/or Special Protection Area (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.

Other International and National designated Sites were searched for within the ZOI, such as Ramsar Sites, Irish Wetland Bird Survey (I-WeBS) Areas, and Important Bird Areas (IBAs). All of which are recognised as important areas for the protection of wintering and migratory wildfowl.

Local plans and policies relevant to the Proposed Development are listed below:

- Fingal Development Plan (2023-2029).
- Fingal County Biodiversity Action Plan (2023-2030).
- All Ireland Pollinator Plan (2021-2025).

Further details on legislation and policy relevant to the Proposed Development are detailed in Appendix I.

2 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Site location

The Site of the Proposed Development is located off the Swords to Malahide Road (R106), immediately adjacent to the Swords Road/Mountgorry Way roundabout, approximately 60m west of the M1. The access road to the Applegreen (Mountgorry) petrol station bounds the east of the Site, while an open green space and an industrial estate abuts the west and north of the Site, respectively. The general surroundings of the Site are urban in nature.

The location of the Site is presented in Figure 1, while the Site Layout is shown in Figure 2 below.

2.2 Proposed Development Description

Bartra Propco 23 Limited intend to apply for permission for development for a Large-scale Residential Development (LRD) at this c. 0.8731 Ha site fronting the Swords to Malahide Road (R106), Mountgorry, Swords, Co. Dublin. The Site is bounded to the west by open space, with Seamount View Housing Estate further beyond, to the south by the R106, to the east by an access road to the Applegreen Service Station and to the north by Swords Business Park.

The development's surface water drainage network shall discharge from the Site into the respective existing manhole located along the access road to the east of the Site. The development Site area and drainage work areas will provide a total application Site area of c. 0.8792 Ha.

The Proposed Development will principally consist of: the construction of 123 No. residential units (55 No. one bed apartments and 68 No. two bed apartments). The development will be provided in a courtyard block arrangement ranging in height from part 4 No. to part 5 No. storeys. The Proposed Development has a gross floor area of c. 10,291 sq m.

The Proposed Development will also provide: vehicular access from the access road to the east; 24 No. car parking spaces; bicycle parking spaces; motorcycle parking spaces; pedestrian/cycle entrances at the south-west and north of the Site, and along the western boundary connecting into the adjoining open space; a footpath and bicycle path around the south, east and north of the Site perimeter and a shared cycle/pedestrian path along the western boundary; balconies and terraces facing all directions; hard and soft landscaping; boundary treatments; green roofs; lift overrun; PV panels; lighting; ESB substation; switchroom; plant; and all associated works above and below ground.

2.3 Description of the Construction Phase

As outlined in the Construction Environmental Management Plan (CEMP) (AWN Consulting Ltd., 2024) accompanying this application, construction works associated with the Proposed Development will be undertaken in a single phase, which is expected to take approximately 24 months for the earthworks and Construction Phase prior to commencement of full operations and occupation.

The project excavations will involve excavations for new foundations, Site levelling and excavations for roads and services. The works will include:

- Site set up, welfare facilities and compound establishment, decommissioning and movement of site compound and facilities as needed.
- Set up of hoarding around compound and the Site boundary.
- Erection of safety signage to all areas and implementation of traffic/pedestrian management plan.

Site development and building works will only be carried out between the hours of 07:00 to 19:00 Mondays to Fridays inclusive and between 08:00 and 14:00 hours on Saturdays. There will be no construction works carried out on Sundays or public holidays, and any deviation from these times will only take place when written approval is granted by Fingal County Council in exceptional circumstances.

2.4 Description of the Operational Phase

The Operational Phase will comprise residential use that is consistent with the existing urban land use in the area.

2.4.1 Drainage and Water Supply

2.4.1.1 Surface water

As outlined in the Engineering Services Report (O'Connor Sutton Cronin (OCSC), 2024) accompanying this application, while the Site of the Proposed Development is a greenfield site, an existing surface water drainage network runs in a northerly direction along the east boundary of the Site, with an additional surface water sewer crossing the southeast corner of the Site. It is proposed that surface water run-off from the Site will discharge to the existing surface water network located to the northeast of the Site during the Operational Phase after passing through the surface water management system outlined in the Engineering Services Report (OCSC, 2024) and summarised below.

It is proposed that Sustainable Drainage Systems (SuDS) features will be incorporated into the Proposed Development, including:

- pervious paving underlying the car parking spaces,
- a combination of blue and green roofs to intercept and retain rainfall which will slow the rate of surface water run-off into the local surface water network,
- tree pits to collect surface water run-off,
- filter drains along the west boundary of the Site bordering the existing green space,
- a detention basin within the northeast of the Site with 100m³ storage capacity prior to discharging via flow control manhole to the existing surface water network, and
- all drainage outside the building extent will pass through flow control devices prior to discharge to the local surface water drainage network.

Due to the Site location, it is likely surface water from the Proposed Development will ultimately enter Malahide estuary via the local surface sewer network.

2.4.1.2 Foul Drainage

As outlined in the Engineering Services Report (OCSC, 2024) accompanying this application, while a foul water sewer runs along the R106 to the south of the Site, there is also an existing foul water sewer to the northeast of the Site. It is proposed to discharge foul water from the Site to the foul water sewer network to the northeast of the Site. This foul water will be treated at the Swords Wastewater Treatment Plant (WwTP) and ultimately discharged to Malahide estuary.

2.4.2 Landscape Plan

The proposed landscaping of the Site has been prepared by Áit Urbanism + Landscape (2024) and can be seen in Figure 3. The landscape plan aims to implement as much green landscape as possible, intended to enhance both the biodiversity and aesthetics of the Proposed Development.

The landscape design includes reinforcing the existing treeline along the west boundary of the Site with additional planting comprised of native pollinator-friendly tree species, along with a wooded garden within the centre of the Site. This proposed tree planting includes species listed in the Pollinator Planting Code included as part of the All-Ireland Pollinator Plan (NBDC, 2022), including hazel (*Corylus avellana*) and rowan (*Sorbus aucuparia*).

It is also proposed to plant ornamental pollinator-friendly shrub and ground flora around the seating area within the north of the Site. Species will include hebe (*Hebe sp.*), winter-flower heather (*Erica carnea*), and mahonia (*Mahonia sp.*), and will provide forage resources for local pollinating species, such as bees, hoverflies, and butterflies.

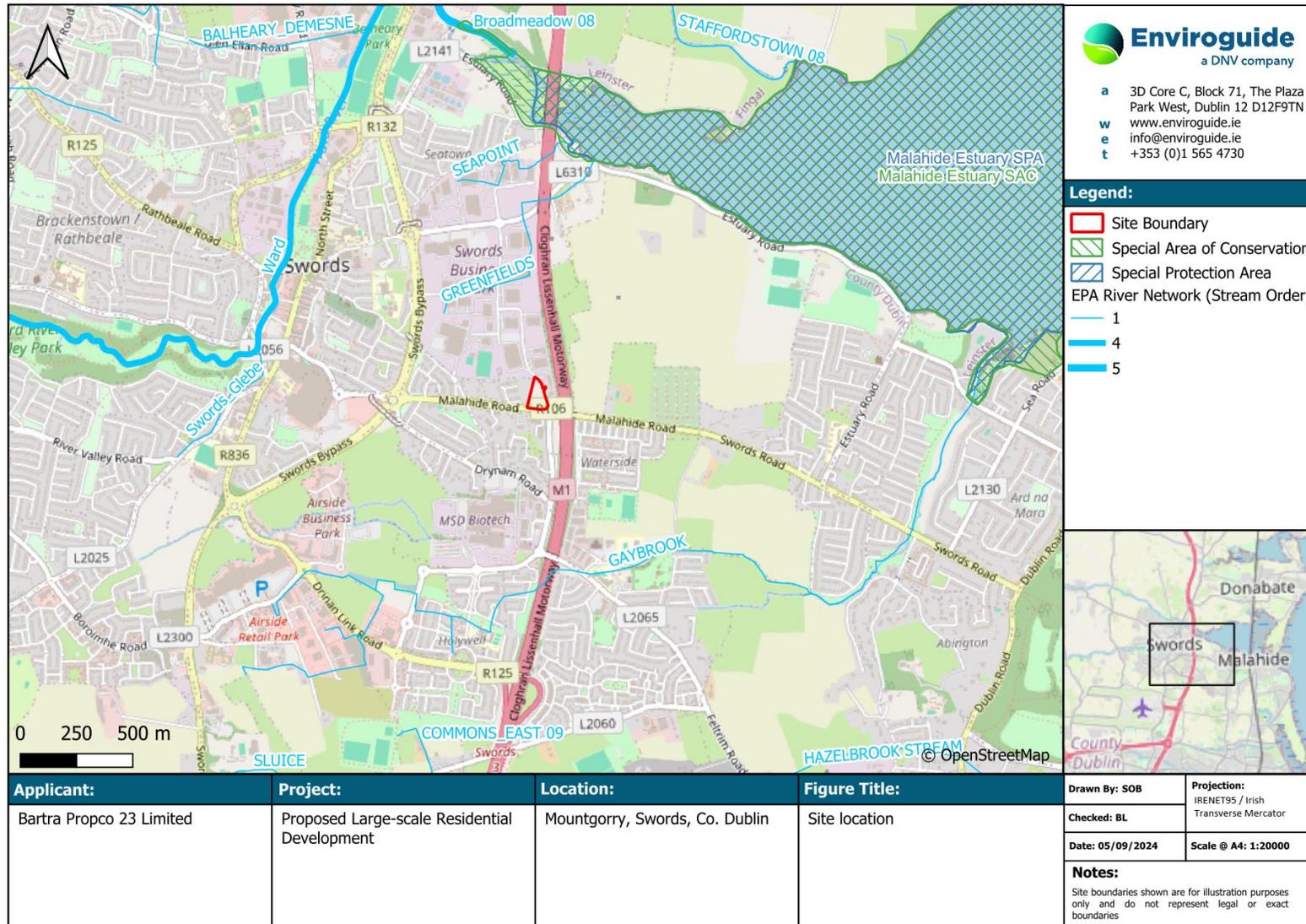


FIGURE 1. SITE LOCATION



FIGURE 2. PROPOSED SITE LAYOUT DRAWING NO. 2808-MOU-COA-ZZZ-ZZZ-DR-AR-0503 (COADY ARCHITECTS, 2024).

3 METHODOLOGY

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 section details the steps and methodology employed to undertake an ecological impact assessment of the Proposed Development.

3.1 Scope of Assessment

The specific objectives of the study were to:

- Undertake baseline ecological surveys and evaluate the nature conservation importance of the Site;
- 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 the development.

3.2 Desk Study

A desktop study was carried out in August 2024 to collate and review available information, datasets and documentation sources pertaining to the Site's natural environment. The desk study relied on the following sources:

- Information on species records¹ and distributions, obtained from the National Biodiversity Data Centre (NBDC) at maps.biodiversityireland.ie;
- Information on Fresh Water Pearl Mussel obtained from the National Parks and Wildlife Service (NPWS) at www.npws.ie;
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at 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 designated conservation sites, site 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, Bing and Ordnance Survey Ireland;
- Information on the existence of permitted development, or developments awaiting decision, in the vicinity of the Proposed Development from the National Planning Application Database available at:
<https://housinggov.ie/maps.arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de>; and

¹ The Site of the Proposed Development lies within the 10km grid square O24, the 2km grid square O24J and 1km O2349. Records from the last 20 years from available datasets are given in the relevant sections of this report.

- Information on the extent, nature and location of the Proposed Development, provided by the applicant and/or their design team.

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

3.3 Zone of Influence

The ZOI for a project is the area over which ecological features may be affected by changes as a result of the Proposed Development and associated activities. This is likely to extend beyond the development site, for example where there are ecological or hydrological links beyond the site boundaries (CIEEM, 2018). The ZOI will vary with different ecological features, depending on their sensitivities to an environmental change.

Furthermore, ZOI in relation to European sites is described as follows in the 'OPR Practice Note PN01 - Appropriate Assessment Screening for Development Management' (OPR, 2021):

"The zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site. This should be established on a case-by-case basis using the Source-Pathway-Receptor framework and not by arbitrary distances (such as 15 km)."

3.4 Identification of Relevant Designated Sites

To determine the ZOI of the Proposed Development for designated sites, reference was made to the OPR Practice Note PN01 - Appropriate Assessment Screening for Development Management' (OPR, 2021), a practice note produced by the Office of the Planning Regulator, Dublin. This note was published to provide guidance on screening for AA during the planning process, and although it focuses on the approach a planning authority should take in screening for AA, the methodology is also readily applied in the preparation of EclA reports such as this to identify all relevant designated sites potentially linked to the Proposed Development.

As noted above, the most recent guidance advises against the use of arbitrary distances that serve as precautionary ZOI (e.g., 15km), and instead recommends the application of the Source-Pathway-Receptor (S-P-R) model in the identification of designated sites, stating that *"This should avoid lengthy descriptions of European sites, regardless of whether they are relevant to the proposed development, and a lack of focus on the relevant European sites and issues of importance"*. Although this statement refers to European sites, it is also applicable to other designated sites.

Thus, the methodology used to identify relevant designated sites comprised the following:

- Identification of potential sources of effects based on the Proposed Development description and details;
- Identification of potential pathways between the Site of the Proposed Development and any designated sites within the ZOI of any of the identified sources of effects.
 - Water catchment data from the EPA (www.epa.ie) were used to establish or discount potential hydrological connectivity between the Proposed Development and any designated sites.

- Groundwater and bedrock information used to establish or discount potential hydrogeological connectivity between the Proposed Development and any designated sites.
- Air and land connectivity assessed based on Proposed Development details and proximity to designated sites.
- Consideration of potential indirect pathways, e.g., impacts to flight paths, *ex-situ* habitats, etc.
- Review of Ireland's designated sites to identify those sites which could potentially be affected by the Proposed Development in view of the identified pathways, using the following sources:
 - European sites and nationally designated sites (e.g., NHAs and pNHAs) from the NPWS (www.npws.ie);
 - Ramsar sites from the Irish Ramsar Wetland Committee (<https://irishwetlands.ie/irish-sites/>);
 - Other internationally designated sites e.g., UNESCO Biospheres; and
- Regional development plans to identify any remaining sites or areas designated for nature conservation at a local level.

3.5 Field Surveys

3.5.1 Habitat and Flora Surveys

The ecological walkover of the Site was conducted on the 2nd of February 2024. Where possible species compositions and abundance are described using the DAFOR (Dominant, Abundant, Frequent, Occasional or Rare) scale, a simple method of assigning abundance categories to species.

Habitats were categorised to level 3, according to the Heritage Council's 'A Guide to Habitats in Ireland' (Fossitt, 2000). The habitat mapping exercise had regard to the 'Best Practice Guidance for Habitat Survey and Mapping' (Smith et al., 2011) published by the Heritage Council, and the National Roads Association (now known as Transport Infrastructure Ireland (TII)) guidance on 'Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes' (TII, 2009). Habitats within the surrounding area of the Proposed Development were classified based on views from the Site and satellite imagery where necessary (Google Earth, Digital Globe and OSI). The habitat and flora surveys cover the period considered suitable for such surveys as per the abovementioned guidance (April-October). The surveys also included a search for any rare or protected plant species which may be present at the Site.

3.5.2 Invasive Alien Species Surveys

The invasive species survey was incorporated into the ecological walkover carried out at the Site. During the ecological walkover conducted on the 2nd of February 2024, the location of invasive species, where they were encountered, was documented on the field map or through the use of GPS in the field, along with the extent of the area they cover. The invasive plant species survey primarily focused on plant species that are listed on Schedule III of the

European Communities (Birds and Habitats) Regulations and considered to be 'High impact' invasive species e.g., Japanese Knotweed (*Reynoutria japonica*). Incidental observations of other terrestrial plant species known to be potentially invasive, such as Butterfly Bush (*Buddleja davidii*), were also recorded, where found.

3.5.3 Non-volant Mammals Surveys

Mammal surveys of the Site were carried out in conjunction with the habitat and bird surveys. The Site was searched for tracks and signs of non-volant mammals (i.e., mammals which are incapable of flight). Bat surveys were carried out separately and are described below. The habitat types recorded throughout the survey area were used to assist in identifying the fauna considered likely to utilise the area. During this survey, the Site was searched for tracks and signs of mammals as per Bang and Dahlstrom (2001).

3.5.4 Bat Surveys

3.5.4.1 Preliminary Bat Roost Assessment

A daytime inspection of the Site was undertaken on the 2nd of February 2024. The aim of the inspection was to search for an indication of the presence of roosting bats, and to assess the habitat for its ability to support commuting and foraging bats. Any buildings and trees on Site were visually assessed from the ground with the aid of a torch and binoculars. The roost inspection comprised a detailed inspection of structures and trees on Site. These were subject to exterior and interior inspections (where possible) to search for evidence of bat use. This includes live and dead specimens, droppings, feeding remains, oil staining and noise (Collins 2023). Trees were searched for Potential Roosting Features (PRFs) such as hollow trunks, knot holes, peeling bark, splits, cracks, and crevices (Collins 2023; Andrews 2018). Collins (2023) recommends that structures and trees are assessed for their ability to support roosting bats under separate categorisations using professional judgement and sub-categories as presented in Table 4.1 (Collins, 2023):

- Negligible – No suitable features observed, however, a small element of uncertainty remain;
- Low – A structure with one or more roost features as used by individual bats opportunistically at any time of year;
- Moderate – A structure with one or more roost features that could be used by bats on a regular basis or by a larger number of bats; and
- High – A structure with one or more roost features that are obviously suitable for use by a larger number of bats on a regular basis, and potentially for longer periods of time. These features have the potential to support high conservation status roosts.

Trees are categorized separately accordingly to Table 4.2 of Collins (2023). These classifications are:

- NONE – Either no PRFs in the tree or highly unlikely to be any;
- FAR – Further assessment required to establish if PRFs are present in the tree; and
- PRF – A tree with at least one PRF present.
- Where a tree contains at least one PRF, each PRF is further assessed according to Table 6.2 (Collins 2023). PRF's are scored as either:

- PRF-I – PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
- PRF-M – PRF is suitable for multiple bats and may therefore be used by a maternity colony.

For trees with PRF-Is only, no further surveys may be required, but appropriate compensation for all PRF-Is must be designed and incorporated in advance of impacts along with a Precautionary Working Method Statement (PWMS). As the Site increases in suitability for roosting bats e.g., PRF-Ms present, the survey effort increases accordingly. A PRF-M will require a detailed inspection, such as aerial inspection, conducted over three survey visits, a minimum of three weeks apart, which should be carried out between May and September with at least two in the period May to August. Where features are inaccessible by ladder, climbing, or mobile elevated work platforms (MEWP), or too extensive for a PRF inspection, the aerial inspection should be replaced with emergence surveys carried out between May and September with Night Vision Aids (NVA) where possible or otherwise surveyed using Advanced Licence Bat Survey Techniques (ALBST), such as trapping, tagging, and radio-tracking to inform of the importance of a roost.

3.5.4.2 Preliminary Bat Habitat Suitability Assessment

A Bat Habitat Suitability Assessment was carried out in conjunction with the roost assessment on the 2nd of February 2024. This assessment evaluated the habitats present on Site and in the wider area for bat foraging and commuting suitability. Habitat suitability is assessed qualitatively from Negligible to High:

- Negligible – No suitable foraging or commuting habitats on Site
- Low – Suitable but isolated habitats that could be used by small numbers of commuting and/or foraging bats, such as poorly connected gappy hedgerows, lone trees, unvegetated streams, etc.
- Moderate – Suitable continuous habitat connected to the wider landscape that could be used by commuting and/or foraging bats, such as treelines, scrub, grassland, water, etc.
- High – Continuous high-quality habitat that is well-connected to the wider landscape, and is likely used regularly by commuting and/or foraging bats, such as river valleys, broadleaved woodland, woodland edge, grazed parkland, etc.

3.5.4.3 Bat Landscape Suitability

The Bat Conservation Ireland Landscape Suitability Model (Lundy *et al.*, 2011) provides a habitat suitability index for bat species across Ireland. The model divides the country into 1 km grid squares and ranks the habitat within the squares according to its suitability for various bat species. The scores are divided into five qualitative categories of suitability, namely:

- 0.000000 - 13.000000: Low.
- 13.000001 - 21.333300: Low – Medium.
- 21.333301 - 28.111099: Medium.
- 28.111100 - 36.444401: Medium – High.
- 36.444402 - 58.555599: High.

3.5.4.4 Bat Activity Transect Surveys

A dusk transect bat activity survey was completed on the 31st of July 2024 and was undertaken to current best practice guidance (Collins, 2023 and Marnell et al., 2022).

Surveyors were equipped with a full spectrum Elekon Bat Logger M2 bat detector, along with a powerful L.E.D. torch and head torches. Echolocations were recorded and saved by the Elekon Batlogger for more detailed species analysis using BatExplorer analytical software.

To comply with best practice guidelines, the survey began 15 minutes before sunset and was sustained for a minimum of 1.5 hours under suitable weather conditions, (Collins, 2023). Weather conditions (Collins, 2023) and the time of year (Marnell *et al.*, 2022) were suitable for bat surveys, namely calm conditions with temperatures ranging from namely 18°C – 20°C throughout the survey.

The aim of the activity surveys was to determine if bats were present on Site and to record areas of relative activity. When found, bats were observed to monitor behaviours such as feeding, commuting, or roosting in order to provide detailed information on bat use of the Site. The survey comprised of a walked transect around the Site with particular attention being given to linear features. Echolocations were recorded and saved by the Elekon Batlogger for more detailed species analysis using BatExplorer analytical software.

3.5.4.5 Data Analysis

Species were identified from any Batlogger equipment using Elekon's BatExplorer software (Version 2.2.6.0) and species assigned to each record with reference to species identification guides such as Russ (2012).

Each record i.e., a sequence of bat calls/pulses, is noted as a bat pass and indicates the level of bat activity for each species recorded. It is important to note that bat passes are representative of activity levels and do not necessarily denote individual bats. For example, some bats such as pipistrelle species may continuously circle a treeline or hedgerow and multiple calls may represent one individual circling an area. Alternatively, lesser noctule bats recorded early in a survey are likely to be commuting high overhead, and each call may represent a singular bat. Therefore, a bat pass is a measure of activity and is not representative not of the number of bats present.

3.5.5 Bird Surveys

3.5.5.1 Scoping Bird Survey

During the habitat survey in 2nd of February 2024, a list of all bird species encountered was recorded. The survey methodology employed was based on that recommended in standard literature used by for example the British Trust for Ornithology (BTO) (Gillings et al, 2007; Bibby et al, 1992 and Gilbert et al, 1998), which has subsequently been adapted into guidelines for ecological consultants by the Bird Survey & Assessment Steering Group (2022). During the survey, the Site was walked slowly, approaching all habitats within and adjacent to the Proposed Development and scanning and listening for birds.

During this bird survey the Site was thoroughly assessed to determine potential roosting and nesting sites for birds. Special attention was given to identifying areas where birds were likely

to congregate or build nests, such as trees, hedgerows and scrub, and other habitable structures where they may occur.

During the inspection, any signs of bird activity were documented. This included the presence of birds themselves, their nests, feathers, droppings, and any other indicative evidence.

3.5.6 General Fauna Surveys

The Site was assessed for the presence of fauna other than mammals and birds in conjunction with the habitat surveys undertaken at the Site. The Site was searched for signs of aquatic fauna (incl. amphibians, fish and invertebrates), reptiles and rare/endangered invertebrates, and habitats were assessed for their potential suitability for same.

3.6 Ecological Assessment

This EclA has been undertaken following the methodology set out in Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018); and with reference to the National Roads Authority 'Guidelines for Assessment of Ecological Impacts of National Road Schemes' (NRA, 2009) the Environmental Protection Agency (EPA) 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (EPA, 2022) and BS 42020:2013 Biodiversity: Code of practice for planning and development (BSI, 2013).

The evaluation of significant effects should be based on available scientific evidence. Based on the precautionary principle, if the available information is not sufficient, then a significant effect may be assumed likely to occur.

3.6.1 Evaluation of Ecological Features

The value of the ecological features, i.e., the habitats and species present or potentially present, was determined using the ecological evaluation at different geographical scales (NRA, 2009), presented in Appendix II. 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. Based on best practice (CIEEM, 2018), any features considered to be less than of local value are not assessed within this EclA.

3.6.2 Impact Assessment

As per the NRA guidelines, impact assessment is only undertaken of KERs. The assessment of the potential impact of the Proposed Development on the identified KERs was carried out with regard to the criteria outlined in the EPA Guideline (EPA, 2022), presented in Appendix III. These guidelines set out a number of parameters that should be considered when determining which elements of the Proposed Development could constitute impact or sources of impacts. These include;

- Positive, neutral or negative effect;
- Significance;
- Extent;
- Probability;
- Duration;
- Timing;

- Frequency; and
- Reversibility.

The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process, or feature, e.g., the creation of roads which cause hydrological changes, which, in the absence of mitigation, could lead to an adverse effect of a sensitive habitat.

3.6.3 Assessment of Cumulative Impacts and Effects

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a Proposed Development results in individually insignificant impacts that, when considered in combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

Relevant plans and policies (see section 1.2) were reviewed to identify any potential for negative cumulative impacts with the Proposed Development. Additionally, existing planning permissions from the past five years (from 2018 onwards) within the ZOI of the Proposed Development were reviewed, with particular focus on potential cumulative impacts on the identified KERs. Long-term developments were also considered where applicable.

3.6.4 Avoidance, Mitigation, Compensation and Enhancement Measures

Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement. When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

It is important for the EclA to clearly differentiate between avoidance, mitigation, compensation and enhancement and these terms are defined here as follows:

- Avoidance is used where an impact has been avoided, e.g., through changes in scheme design. In practice, avoidance measures are typically implemented during the design stage via discussions and re-design (e.g., avoiding a sensitive habitat by relocating a building). Avoidance measures are therefore rarely reported within an EclA, which focuses on assessing the final design.
- Mitigation is used to refer to measures to reduce or remedy a specific negative impact in situ.

- Compensation describes measures taken to offset residual effects, i.e. where mitigation in situ is not possible.
- Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

3.7 Limitations

Every effort has been made to provide a comprehensive description of the Site; however, the following specific limitations apply to this assessment:

- 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 as many datasets are compiled by citizen scientists as opposed to qualified specialists in each species field that may identify more cryptic species. The absence of species from these datasets does not necessarily confirm an absence of species in the area, as many species can also be transient in nature.
- While the bird scoping survey was carried out outside of the breeding season, the habitats on Site were assessed for potential breeding suitability and suitable mitigation and enhancement measures are outlined in sections 6.1.2.2 and 6.3.2 below.
- One bat activity survey has been carried out on Site. However, due to the lack of potential roost habitat on Site and the measures outlined in sections 6.1.2 and 6.2.2 below, which are based on a precautionary approach, and will act to mitigate potential impacts to local bat species, this is not considered a significant limitation.

4 ECOLOGICAL BASELINE CONDITIONS

This section sets out the baseline conditions for the ecological features within the Site using the findings of the desk study and field surveys.

4.1 Hydrology, Geology and Hydrogeology

The Site of the Proposed Development is within the *Liffey and Dublin Bay* catchment (Catchment ID: 09) and within the *Mayne_SC_010* (Sub-Catchment ID: 09_17) sub-catchment (EPA, 2024). The closest mapped watercourse to the Site is a first order stream, known as Greenfields Stream (EU Code: IE_EA_08G080700), approximately 440m northwest of the Site, which enters Malahide Estuary, specifically the Broadmeadow Water transitional waterbody (EU Code: IE_EA_060_0100), 1km northeast of the Proposed Development.

During the most recent survey period of 2016 – 2021, the Greenfields Stream was assigned a ‘*Poor*’ ecological status, while the Malahide Estuary was assigned a ‘*Moderate*’ ecological status, and is currently ‘*At Risk*’ of not meeting its Water Framework Directive (WFD) objectives. The Greenfields Stream does not have an EPA monitoring station.

The Site is situated within the *Dublin* (EU Code: IE_EA_G_008) groundwater body, which is currently under review as to whether it will meet its WFD objectives. The aquifer type underlying the Site is ‘*Locally Important*’ (LI) on bedrock which is ‘*Moderately Productive in Local Zones Only*’. The groundwater rock units underlying the Site are classified as ‘*Dinantian Lower Impure Limestones*’ (GSI, 2024).

The level of vulnerability of the Site to groundwater contamination via human activities is ‘Low’ (L). The soil on Site is classified as Crosstown, and the subsoil is Limestone till (Carboniferous) (TLs) (EPA, 2024).

The Waterbody Status for river, transitional and groundwater water bodies relevant to the Site as recorded by the EPA (2024) in accordance with European Communities (Water Policy) Regulations 2003 (SI no. 722/2003) are provided in Table 1.

TABLE 1. WFD RISK AND WATER BODY STATUS

Waterbody Name	Water body; EU code	Location from Site	Distance from Site	WFD water body status (2016-2021)	WFD 3 rd cycle Risk Status	Hydraulic Connection to the Site
Surface Water Bodies						
Greenfields Stream	IE_EA_08 G080700	Northwest	440m	Poor	Under Review	Yes, via potential surface water run-off from the Site of the Proposed Development
Transitional Water Bodies						
Malahide Estuary	IE_EA_060_0100	Northeast	1.km	Moderate	At Risk	Yes, via surface water run-off from the Site of the Proposed Development
Groundwater Bodies						
Dublin	IE_EA_G_008	N/A	N/A	Good	Under Review	Underlying groundwater-body

4.2 Designated Sites

All European sites potentially linked to the Proposed Amendments have been identified and fully assessed in the AA Screening Report (Stage 1 AA) and subsequent Natura Impact Statement (NIS) (Stage 2 AA) accompanying this submission under separate cover. A summary of the AA conclusions is given below.

Other nationally or internationally designated sites potentially linked to the Proposed Development are identified in section 4.2.2 below.

4.2.1 European sites – Appropriate Assessment (AA)

The following conclusion is extracted from the AA accompanying this application under separate cover:

“The Proposed Development at Mountgorry, Swords, Co. Dublin has been assessed taking into account:

- *The nature, size and location of the proposed works and possible impacts arising from the construction works.*
- *The QIs and conservation objectives of the European sites.*

- *The potential for in-combination effects arising from other plans and projects.*

*In conclusion, upon the examination, analysis and evaluation of the relevant information and applying the precautionary principle, it is concluded by the authors of this report that the possibility **may be excluded** that the Proposed Development will have a significant effect on any of the European sites listed below:*

- *Malahide Estuary SAC (000205).*
- *Malahide Estuary SPA (004025).*
- *North-West Irish Sea SPA (004236).*

In carrying out this AA screening, mitigation measures have not been taken into account. Standard best practice construction measures which could have the effect of mitigating any effects on any European Sites have similarly not been taken into account.

On the basis of the screening exercise carried out above, it can be concluded, on the basis of the best scientific knowledge available and objective information, that the possibility of any significant effects on the above-listed European sites, whether arising from the project itself or in combination with other plans and projects, can be excluded in light of the above listed European sites' conservation objectives. Thus, there is no requirement to proceed to Stage 2 of the Appropriate Assessment process; and the preparation of an NIS is not required."

As such, European sites are not considered further in this Report.

4.2.2 S-P-R links to Designated Sites

Potential impact pathways are discussed in the following sections in the context of the Proposed Development.

4.2.2.1 Direct Pathways

4.2.2.1.1 Hydrological pathways

There are no drainage ditches or surface waterbodies within or immediately adjacent to the Site. The closest waterbody to the Site is the Greenfields Stream 440m northwest of the Proposed Development Site. Therefore, there is no potential for the propagation of significant effects to any designated sites via a hydrological pathway during the Construction Phase. However, during the Operational Phase, surface water from the Site will be discharged into the existing local surface water network, before ultimately discharging to the Malahide Estuary. Therefore, this constitutes a hydrological connection with **Malahide Estuary pNHA (000205)**.

However, this pathway is considered weak and insignificant. The surface water from the Site will pass through filter drains and underground attenuation within the Proposed Development Site. Therefore, these embedded design features (SuDS) will remove potential pollutants from surface waters prior to discharge to the local surface water drainage network. Therefore, there are no hydrological connections of note to any designated sites.

4.2.2.1.2 Hydrogeological pathways

During groundworks and other Construction Phase activities, the ground will be exposed and any potential accidental discharges to ground could potentially migrate vertically downward to the underlying bedrock aquifer and laterally within the aquifer to Malahide Estuary, and therefore reach **Malahide Estuary pNHA (000205)**.

However, the underlying aquifer is described as being ‘*Locally Important*’ (LI) on bedrock which is ‘*Moderately Productive in Local Zones Only*’. As per the groundwater report for the Dublin groundwater body, “*Flow path lengths are not considered to be on a regional scale, and are typically less than 1km in length. Groundwater discharges to the numerous streams and rivers crossing the aquifer, and to the springs and seeps towards the coast*” (GSI, 2004). As such, groundwater will likely reach the Greenfields Stream northwest of the Site rather than directly entering the Malahide Estuary and contribute to this potential hydrological pathway. In addition, the groundworks for the Proposed Development will be traditional in nature and will only involve relatively shallow excavations for the foundations and drainage networks. Therefore, there is no potential for significant impacts on any designated sites propagated via a hydrogeological pathway during Construction.

During Operation, a range of SuDS measures will be in place at the Site to capture surface water as outlined in section 2.4.1. As per the Engineering Services Report (OCSC, 2024) accompanying this application, the use of pervious paving, blue and green roofs, tree pits, and a detention basin will seek to achieve interception storage. As a result, water generated at the Site during Operation will undergo attenuation measures including the removal any sediments or chemical pollutants prior to its discharge from the Site at greenfield rates. Thus, there is no potential for significant impacts on any designated sites propagated via a hydrogeological pathway during Operation.

4.2.2.1.3 Air and land pathways

No air or land pathways from the Proposed Development to any European sites were identified, as the distance between the Site and the nearest designated site (Malahide Estuary pNHA (000205) approx. 1.1km northeast) is deemed sufficient to exclude any potential for impacts from increases in noise, lighting and/or dust or other airborne pollutants.

4.2.2.2 Indirect Pathways

4.2.2.2.1 Hydrological pathways

The Site of the Proposed Development will be connected to the existing public foul sewer. Therefore, there is a weak hydrological link between the Site and **Malahide Estuary pNHA (000205)** via discharges from Swords WwTP during the Operational Phase. Designated sites beyond Malahide Estuary, such as Portrane Shore pNHA (001215), have been disregarded due to distance and dilution factors within the estuary and the downstream marine habitats.

The potential for foul waters generated at the Site of the Proposed Development to reach designated sites in Malahide Estuary and cause significant effects, during the Operational Phase, is negligible due to:

- The Swords WwTP has additional hydraulic capacity and organic capacity, as the current annual max hydraulic loading is 56.9% of the peak hydraulic capacity as constructed, and the collected organic load is 85.9% of the organic capacity as constructed (Irish Water, 2023).
- The discharges from the wastewater treatment plant do not have an observable negative impact on the WFD status of the receiving waterbody (Irish Water, 2023).

4.2.2.2.2 Air and land pathways

No indirect pathways (e.g., disruptions to migratory paths) were identified, as detailed below.

4.2.2.2.2.1 Likelihood of Collision Impacts

From a review of available literature on the subject, bird collisions with man-made structures are common and well documented² with migratory passerine species the most prevalent collision victims³. Bird collision with buildings is generally associated with reflective material such as windows or large surfaces of glass which create a mirror and appear to show the continuation of the sky or surrounding landscape, an effect that can be exacerbated by lighting.

In addition, the physical location of buildings and structures can influence the likelihood of bird collisions, with structures placed on or near areas regularly used by large numbers of feeding, breeding, or roosting birds, or on local flight path; such as those located between important foraging and roosting areas, can present a higher risk of collision.

The Site in itself is not deemed to represent suitable *ex-situ* feeding/roosting habitat for any such species (Habitats present largely comprise of dense grassland and scrub). However, it should be noted that the Site is located approx. 1.1km from the Malahide Estuary pNHA (000205), which is designated for the protection of wetland bird populations.

4.2.2.2.2.2 Building Appearance

Whilst the design of the facades of the dwellings do include windows, no large surfaces of glass are proposed. Rather the overall façades of the proposed buildings are well broken up, with a varied material composition interspersing any reflective areas. These architectural design features provide important visible cues as to the presence and extent of the proposed structures to any commuting/foraging bird species should they be in the vicinity of the Site. This overall visual heterogeneity of the building façades will be sufficient to further ensure that the risk of bird collisions as a result of the Proposed Development is negligible. These architectural design features are part of the overall design of the Proposed Development and are not considered to represent specific mitigation measures to prevent collisions, however, they will contribute to the overall effect in this regard. It is noted that birds are not deemed to be at any particular risk of collisions with the proposed buildings at the Site.

As such, based on the physical appearance of the proposed structures and the nature of their location, it is deemed that birds including any 'at-risk' species, do not have the potential to be

² Banks, R.C (1979). Human related mortality of birds in the United States. U.S. Fish Wildl. Serv. Spec. Sci. Rep. Wildl. 215. 16 pp.

Jenkins, A., Smallie, J.J. and Diamond, M. (2010). Avian collisions with power lines: A global review of causes and mitigation with a South African perspective. *Bird Conservation International*, 20(03), 263 – 278.

Klem, D. (1990). Collisions between birds and windows: mortality and prevention. *Journal of Field Ornithology*, 61, 120–128.

Erickson, W.P., Johnson, G.D. and Young, P.D. (2005). A Summary and Comparison of Bird Mortality from Anthropogenic Causes with an Emphasis on Collisions. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191. 2005.

Erickson, W. P., G. D. Johnson, M. D. Strickland, D. P. Young, Jr., K. J. Sernka, and R. E. Good. (2001). Avian collisions with wind turbines: A summary of existing studies and comparisons to other sources of avian collision mortality in the United States. National Wind Coordinating Committee, c/o RESOLVE, Inc., Washington, D.C.

³ Bing G.-C., Choi C.-Y., Nam H.-Y., Park J.-G., Hong G.-P., Sung J.-K., Chae H.-Y & Choi Y.-B. (2012). Causes of mortality in birds at stopover islands. *Korean J. Ornithol.*, 19, 23–31.

Longcore, T. Rich, C., Mineau, P., MacDonald, B., Bert, D.G., Sullivan, L.M., Mutrie, E., et al. (2013). Avian mortality at communication towers in the United States and Canada: which species, how many, and where? *Biological Conservation*, 158, 410-419.

impacted by the Proposed Development in terms of collisions and the risk is therefore deemed to be **imperceptible** in the absence of any mitigation.

4.2.2.2.3 Building Height

With respect to SCI birds associated with the designated site within the zone of influence of the Proposed Development which regularly use or travel over inland areas (i.e. waders such as oystercatcher) in Swords, they navigate the urban environment with built structures daily.

To put some context on some of their avoidance capabilities, in a different setting and for use in collision risk modelling for onshore wind turbines, an avoidance rate of 99.5% is applied for large gull species and an avoidance rate of 99.2% is applied for small gull species (Furness, 2019) which essentially means that 99.5% and 99.2% of gull flights, respectively, will avoid collision with a moving turbine. For curlew the avoidance rate applied is 98% (SNH, 2018).

The risk of collision is even less with a static, clearly detectable building. The proposed buildings consist of glazing, broken up with with a varied material composition interspersing any reflective areas. While the presence of the Proposed Development might alter flight patterns of bird species slightly to avoid the proposed building structures the risk of collision is extremely low.

The Proposed Development entails the construction of relatively low level residential buildings ranging in height up to five storeys, and as such, the risk of migrating birds colliding with the structure due to its height is deemed to be negligible (Migrating species tend to commute far above this with Swans and Geese flying up to 2500ft (ca.750m) during migration along Irish Coasts (Irish Aviation Authority, 2020)).

It is considered that birds that fly over the Site to commute between feeding grounds at various locations would fly lower than this, however, once the proposed structures are made of visible materials i.e., not entirely comprised of reflective materials such as glass, the birds would simply fly around or over them.

4.2.2.3 Relevant Designated Sites

A designated site will only be at risk from likely significant effects where an S-P-R link of note exists between the Proposed Development and the designated site. All designated sites considered as part of the S-P-R method (excl. European sites) are listed in Table 2 and Figure 4. Those sites with notable S-P-R links to the Proposed Development are assessed further in this report as KERs of 'National Importance' (pNHAs and NHAs) or 'International Importance' (SACs/SPAs, UNESCO sites, Ramsar sites, etc.).

TABLE 2. DESIGNATED SITES CONSIDERED WITH THE SOURCE-PATHWAY-RECEPTOR (S-P-R) METHOD TO ESTABLISH NOTABLE LINKS BETWEEN THE SOURCES OF EFFECTS ARISING FROM THE PROPOSED AMENDMENTS, AND ANY RELEVANT DESIGNATED SITES. THOSE SITES WITH NOTABLE S-P-R LINKS THAT ARE FURTHER ASSESSED IN THIS REPORT ARE HIGHLIGHTED IN GREEN (IF ANY).

Site Name & Site Code	Qualifying Interests (*= priority habitats)	Potential Pathways
Proposed Natural Heritage Areas (pNHAs)		
<p>Malahide Estuary pNHA (000205)</p> <p>Linear Distance to Proposed Development: approx. 1.1km NE</p>	<p>None available, assumed to overlap with Malahide Estuary SAC (000205) (NPWS, 2013a) and Malahide Estuary SPA (004025) (NPWS, 2013b):</p> <p>Habitats Mudflats and sandflats not covered by seawater at low tide [1140] <i>Salicornia</i> and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] Mediterranean salt meadows (<i>Juncetalia 24etanus24</i>) [1410] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]</p> <p>Birds Great Crested Grebe (<i>Podiceps cristatus</i>) [A005] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Pintail (<i>Anas acuta</i>) [A054] Goldeneye (<i>Bucephala clangula</i>) [A067] Red-breasted Merganser (<i>Mergus serrator</i>) [A069] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa 24etanus</i>) [A162] Wetland and Waterbirds [A999]</p>	<p>Weak hydrological pathway via the Malahide Estuary, deemed insignificant.</p> <p>No <i>ex-situ</i> habitat for SCI birds on Site.</p> <p>No other potential pathways identified.</p>

Site Name & Site Code	Qualifying Interests (*= priority habitats)	Potential Pathways
<p>Portraine Shore pNHA (001215)</p> <p>Linear Distance to Proposed Development: approx. 6.5km NE</p>	<p>The site is mostly a stretch of rocky shore, with some intertidal sands at the south end. A narrow strip of coastal vegetation above the rocky shore is included.</p> <p>Geologically the rocky shore is an inlier – a structure in which older rock is surrounded by rock of younger age. The northern end is an area of volcanic rocks with limestone, shale and grit to the south.</p> <p>The grit series apparently forms the younger part of the exposure and the volcanic rocks the older.</p> <p>The flora and fauna of the rocky shore is typical of such a habitat, with brown, green and red algae, and marine invertebrates. Turnstones, Oystercatchers and Curlew feed along the shore.</p> <p>Above the rocky shore the following plant species were recorded: Thrift (<i>Armeria maritima</i>), Sea Campion (<i>Silene uniflora</i>), Sea Beet (<i>Beta vulgaris</i> subsp. <i>maritima</i>), Kidney Vetch (<i>Anthyllis vulneraria</i>), Sea Mayweed (<i>Tripleurospermum maritimum</i>), spurge (<i>Euphorbia</i> spp.), scurvygrass (<i>Cochlearia</i> spp.), Hoary Cress (<i>Cardaria draba</i>) and Tree-mallow (<i>Lavatera arborea</i>). Spring Squill (<i>Scilla verna</i>) was recorded along the cliff path. The narrow cliff path is used regularly by walkers.</p> <p>This site is a good example of a rocky bedrock shore with a typical flora and fauna. The grassy vegetation above the shore adds habitat diversity. The site is also an important geological site.</p>	<p>Weak hydrological pathway via the Malahide Estuary, deemed insignificant.</p> <p>No <i>ex-situ</i> habitat for SCI birds on Site.</p> <p>No other potential pathways identified.</p>

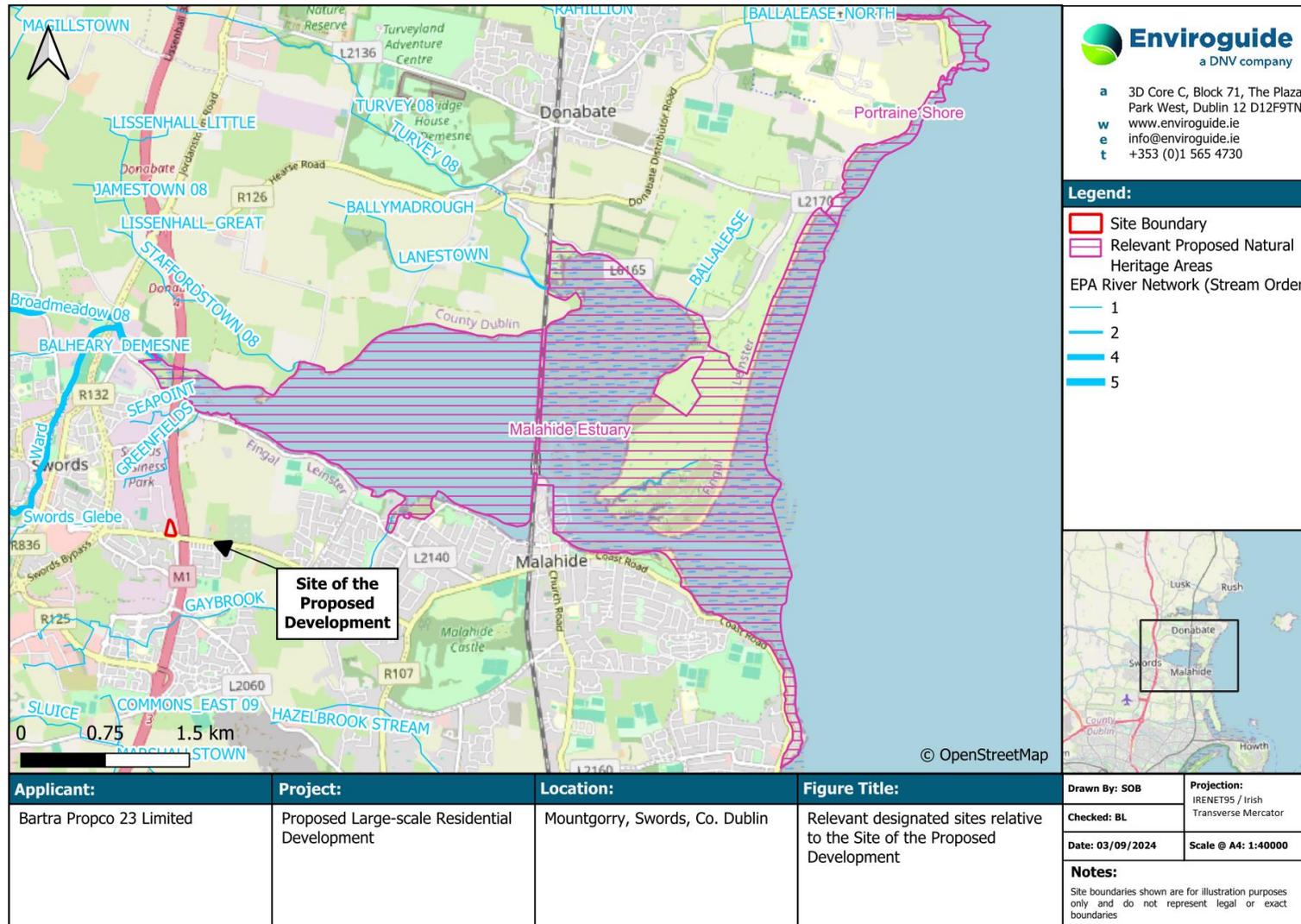


FIGURE 4. LOCATION OF RELEVANT DESIGNATED SITES RELATIVE TO THE PROPOSED DEVELOPMENT

4.2.3 Habitats

The habitats present within the Site, as recorded in the survey area during the field surveys, are described in this section and summarised below. A map of the habitats is presented in Figure 5.

The Site of the Proposed Development is primarily rank grassland (Dry Meadows and Grassy Verges (GS2)) habitat of varying sward height and contains common floral species such as meadow buttercup (*Ranunculus acris*), dock (*Rumex sp.*), thistle (*Cirsium sp.*), dandelion (*Taraxacum officinale agg.*), clover (*Trifolium sp.*), and teasel (*Dipsacus fullonum*), with winter heliotrope (*Petasites fragrans*) recorded along the east and southwest boundaries of the Site.

Scrub (WS1) habitat was recorded within the north and along the west and south boundaries of the Site. Bramble (*Rubus fruticosus agg.*) was the main species comprising this habitat, both in dense stands in the north, and as creeping mats moving towards the south of the Site. Other species noted within this habitat include young willow (*Salix alba*) and small to medium stands of butterfly bush (*Buddleja davidii*) scattered throughout the north of the scrub habitat on Site. A small number of early mature sycamore (*Acer pseudoplatanus*), birch (*Betula pendula*), ash (*Fraxinus excelsior*) trees were also recorded within the west of the Site scattered throughout the scrub on Site.

While oak (*Quercus robur*) and Norway maple (*Acer platanoides*) are present along the west of the Site, they are located outside the Site of the Proposed Development and overhang the Site.

Small pedestrian pathways along the south and the east of the Site creates Buildings and Artificial Surfaces (BL3) habitat.

No rare or protected plant species were observed during the ecological walkovers.

Winter heliotrope is listed as a 'Low Impact' invasive species, while both butterfly bush and sycamore are listed as 'Medium Impact' invasive species.

Sycamore is considered to be an invasive species due to its ability to outcompete native tree species, and its supposedly low contribution to local biodiversity by supporting fewer insect species than native tree species. However sycamore's invasiveness is considered to be more of an issue in some sensitive native woodland settings, and this species has been found to support relatively high numbers of lichen species, including rarer species, when compared to native tree species (Leslie, 2005). Sycamore is not considered to pose any risk of impacts at the Site of the Proposed Development.

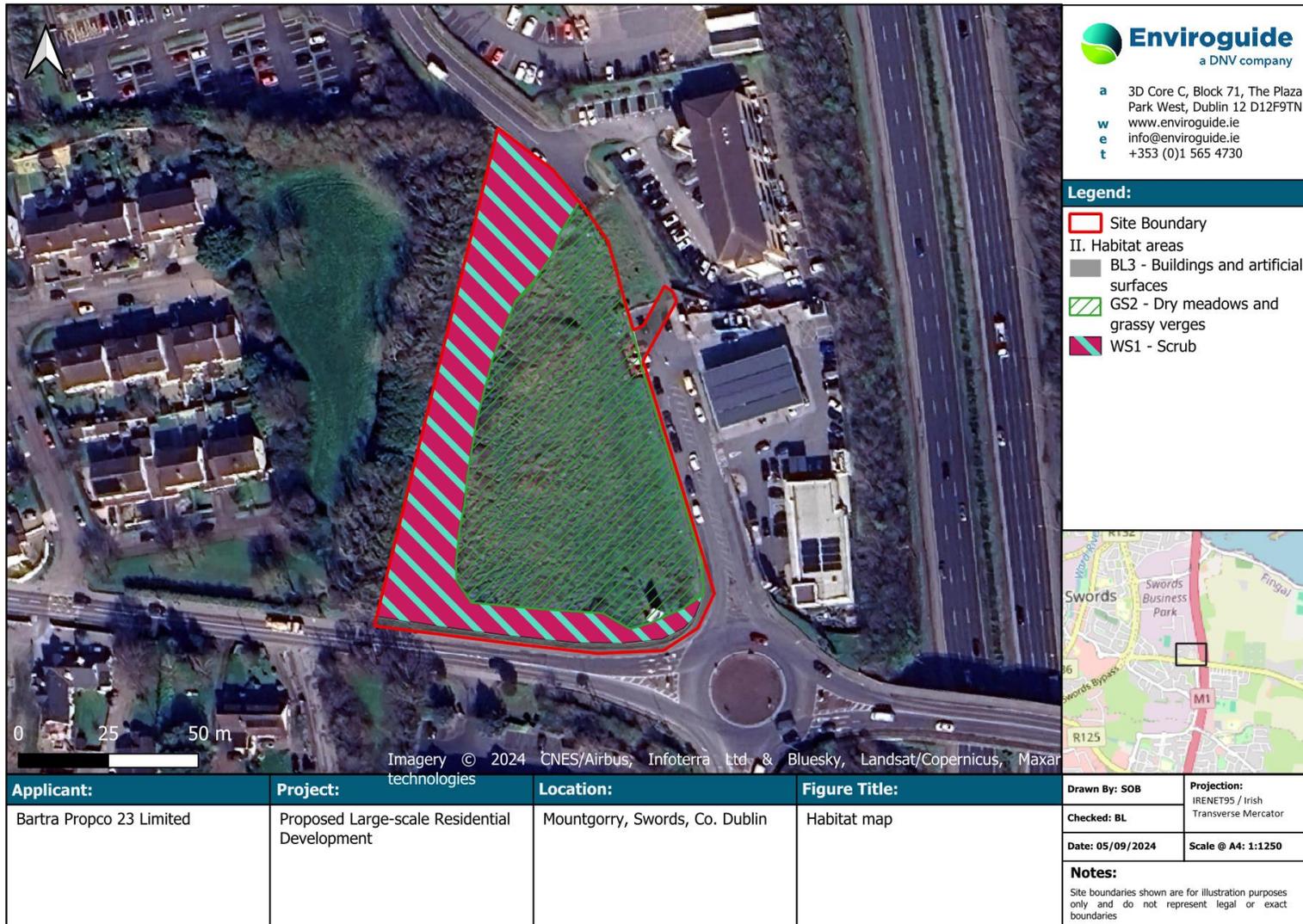


FIGURE 5. MAP OF HABITATS PRESENT AT THE PROPOSED DEVELOPMENT SITE

4.2.4 Flora

4.2.4.1 Rare and Protected Flora

The Site of the Proposed Development is located within the Ordnance Survey 10km Grid Square (O14), 2km Grid Square (O14Y) and 1km Grid Square (O1946). Species records from the NBDC online database show these grid squares were studied for the presence of rare and/or protected species within the last 20 years. This database contained no records of protected flora within the last 20 years, however, one vulnerable species occurred within the 10km Grid Square (O14) (Table 3). The FPO Bryophytes database was also checked for rare and protected flora records within the vicinity of the Proposed Development. No rare and/or protected bryophyte records exist within the vicinity of the Proposed Development.

TABLE 3. RECORDS OF THREATENED FLORA FOR THE SURROUNDING 10KM (O14) GRID SQUARES ASSOCIATED WITH THE SITE FROM THE NBDC

Species	Grid Square	Date of last record	Database	Designation
Smooth Brome (<i>Bromus racemosus</i>)	O14	31/07/2014	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	IUCN Red List 2016: Vulnerable

4.2.4.2 Invasive Species

4.2.4.2.1 Desk Study Results

There are records for 12 species of flora considered to be invasive within the 10km grid square, with nine of these species recorded across the 2km square which encompass the Site of the Proposed Development. Details of these records are listed in Table 4 below.

TABLE 4. RECORDS OF INVASIVE SPECIES OF FLOWERING PLANT FOR THE SURROUNDING 10KM (O14) AND 2KM (O14Y) GRID SQUARES ASSOCIATED WITH THE SITE FROM THE NBDC.

Species	Grid square	Date of last record	Source	Designations
Butterfly-bush (<i>Buddleja davidii</i>)	O14 O14Y	28/06/2019	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive
Canadian Fleabane (<i>Conyza canadensis</i>)	O14	09/07/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive
Cherry Laurel (<i>Prunus laurocerasus</i>)	O14 O14Y	26/01/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	High Impact Invasive
Common Cord-grass (<i>Spartina anglica</i>)	O14 O14Y	15/07/2014	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	High Impact Invasive Regulation S.I. 477 (Ireland)

Evergreen Oak (<i>Quercus ilex</i>)	O14 O14Y	07/05/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive
Giant Hogweed (<i>Heracleum mantegazzianum</i>)	O14 O14Y	05/05/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	High Impact Invasive Regulation S.I. 477 (Ireland)
Himalayan Honeysuckle (<i>Leycesteria formosa</i>)	O14 O14Y	21/09/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive
Japanese Knotweed (<i>Reynoutria japonica</i>)	O14 O14Y	18/05/2023	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	High Impact Invasive Regulation S.I. 477 (Ireland)
Russian-vine (<i>Fallopia baldschuanica</i>)	O14	21/08/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive
Sycamore (<i>Acer pseudoplatanus</i>)	O14 O14Y	29/11/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive
Three-cornered Garlic (<i>Allium triquetrum</i>)	O14 O14Y	20/04/2023	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive Regulation S.I. 477 (Ireland)
Wild Parsnip (<i>Pastinaca sativa</i>)	O14	22/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Medium Impact Invasive

4.2.5 Bats

4.2.5.1 Desk Study Results

A total of six bat species have been recorded within the 10km (O14) grid square which encompasses the Site (Table 5).

TABLE 5. RECORDS OF BATS FOR THE SURROUNDING 10KM GRID SQUARES (O24) ASSOCIATED WITH THE SITE FROM THE NBDC.

Species	Date of last record	Database	Designation
Brown Long-eared Bat (<i>Plecotus auritus</i>)	11/08/2017	National Bat Database of Ireland	EU Habitats Directive - Annex IV Wildlife Act 1976 (as amended)
Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)	24/06/2022	National Bat Database of Ireland	EU Habitats Directive - Annex IV Wildlife Act 1976 (as amended)

Daubenton's Bat (<i>Myotis daubentonii</i>)	31/08/2020	National Bat Database of Ireland	EU Habitats Directive - Annex IV Wildlife Act 1976 (as amended)
Lesser Noctule (<i>Nyctalus leisleri</i>)	24/06/2022	National Bat Database of Ireland	EU Habitats Directive - Annex IV Wildlife Act 1976 (as amended)
Natterer's Bat (<i>Myotis nattereri</i>)	31/08/2006	National Bat Database of Ireland	EU Habitats Directive - Annex IV Wildlife Act 1976 (as amended)
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	24/06/2022	National Bat Database of Ireland	EU Habitats Directive - Annex IV Wildlife Act 1976 (as amended)

The Proposed Development Site (Figure 6) is located in an area with an overall Medium-High (31.22) suitability for bats in general. The suitability index for specific bat species is presented in Table 6. The landscape suitability index is high for five bat species listed below, medium-high for two species and low for two species.

TABLE 6: LANDSCAPE SUITABILITY INDEX FOR INDIVIDUAL BAT SPECIES (SOURCE: NBDC). THOSE SPECIES THAT HAVE BEEN RECORDED IN THE NBDC DATABASE WITHIN THE O14 10KM GRID SQUARE ARE HIGHLIGHTED IN GREEN.

Bat Species	Suitability Index (2km Grid Square)
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	45 (High)
Brown Longed-Eared Bat (<i>Plecotus auritus</i>)	42 (High)
Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)	44 (High)
Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>)	0 (Low)
Lesser Noctule (<i>Nyctalus leisleri</i>)	46 (High)
Whiskered Bat (<i>Myotis mystacinus</i>)	38 (High)
Daubenton's Bat (<i>Myotis daubentonii</i>)	31 (Medium - High)
Nathusius' Pipistrelle (<i>Pipistrellus nathusii</i>)	1 (Low)
Natterer's Bat (<i>Myotis nattereri</i>)	34 (Medium - High)

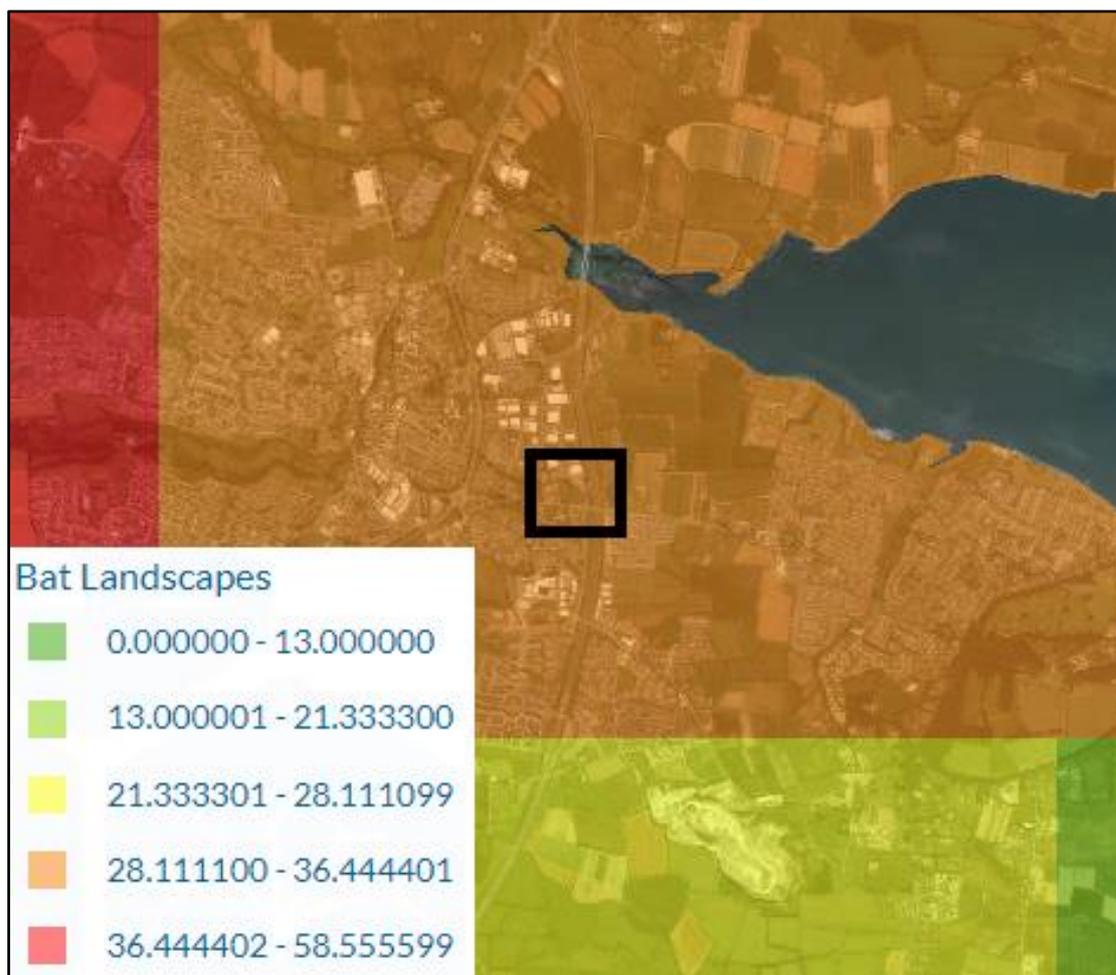


FIGURE 6: BAT LANDSCAPE SUITABILITY MODEL (ALL BATS) SURROUNDING THE PROPOSED DEVELOPMENT SITE (ADAPTED FROM NBDG).

4.2.5.2 Field Survey Results

4.2.5.2.1 Preliminary Bat Roost Assessment

During the Site visits on the 2nd of February and 31st of July 2024, bat roost assessments were conducted on all trees within the Site.

No evidence of bats was detected on Site and the trees present were assessed as having *None* value for roosting bats (Collins, 2023). No evidence of roosting bats was present, nor were any significant gaps or cracks evident on the seven early mature to mature trees potentially capable of supporting roosting bats.

4.2.5.2.2 Bat Habitat Suitability Assessment Survey

The habitats present on Site were also assessed for their potential to provide suitable features which could be used by commuting and foraging bat species which may be present in the area. The linear scrub and grassland on Site provide Moderate foraging and commuting habitat for local bats, with good connectivity to adjacent treeline habitat to the west of the Site.

4.2.5.2.3 Bat Activity Transect Survey Results

In total, the survey recorded relatively low bat activity, with only two species recorded on Site, namely lesser noctule (*Nyctalus leisleri*) and common pipistrelle (*Pipistrellus pipistrellus*), as seen in Table 7 below. These bats were recorded foraging and commuting along the treeline abutting the west of the Site and over the scrub habitat along the west and south of the Site, which had continued to encroach upon the grassland habitat on Site since initial survey carried out in February 2024. Lesser noctule was the most common species recorded during this survey, with 189 calls recorded, and was primarily commuting over the Site. A total of 66 calls were recorded for common pipistrelle and this species was foraging and commuting over the scrub habitat along the west of the Site, adjacent to the treeline to the west of the Site of the Proposed Development. Activity recorded during the July 2024 survey can be seen in Figure 7 below.

TABLE 7. SHOWING THE SPECIES AND THE NUMBER OF CALLS RECORDED FOR EACH SPECIES DURING THE JULY 2024 BAT ACTIVITY TRANSECT SURVEY.

Species Common Name	Species Latin Name	Number of Calls	Number of Recordings
Lesser Noctule	<i>Nyctalus leisleri</i>	189	19
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	66	4



FIGURE 7. MAP SHOWING THE LOCATION OF RECORDED BAT ACTIVITY DURING THE JULY 2024 TRANSECT

4.2.6 Birds

4.2.6.1 Desk Study Results

A total of 129 bird species have been recorded within the 10km grid square by the NBDC. Of these, 26 are red listed birds and 37 are amber listed birds as identified on the Birds of Conservational Concern in Ireland (BoCCI) (Gilbert et al. 2021). An additional 15 are not designated as they are considered rare visitors to Ireland. One species is a managed game bird, pheasant (*Phasianus colchicus*), and one is considered a High Impact Invasive species, namely ruddy duck (*Oxyura jamaicensis*). The remaining species are green listed. Details of amber and red listed species are detailed in Table 8.

TABLE 8. DETAILS OF AMBER AND RED LISTED BIRD SPECIES WITHIN THE 10KM GRID SQUARE (O14)

Species	Date of record	BoCCI Status
Barn Owl (<i>Tyto alba</i>)	31/12/2011	Red
Bar-tailed Godwit (<i>Limosa lapponica</i>)	31/12/2011	Red
Black-tailed Godwit (<i>Limosa limosa</i>)	31/12/2011	Red
Common Goldeneye (<i>Bucephala clangula</i>)	31/12/2011	Red
Common Kestrel (<i>Falco tinnunculus</i>)	15/03/2023	Red
Common Pochard (<i>Aythya ferina</i>)	31/12/2011	Red
Common Redshank (<i>Tringa totanus</i>)	31/07/2014	Red
Common Snipe (<i>Gallinago gallinago</i>)	24/03/2022	Red
Common Swift (<i>Apus apus</i>)	31/12/2011	Red
Curlew Sandpiper (<i>Calidris ferruginea</i>)	07/01/2006	Red
Dunlin (<i>Calidris alpina</i>)	31/12/2011	Red
Eurasian Curlew (<i>Numenius arquata</i>)	27/06/2018	Red
Eurasian Oystercatcher (<i>Haematopus ostralegus</i>)	31/12/2011	Red
European Golden Plover (<i>Pluvialis apricaria</i>)	31/12/2011	Red
Grey Partridge (<i>Perdix perdix</i>)	31/12/2011	Red
Grey Plover (<i>Pluvialis squatarola</i>)	31/12/2011	Red
Grey Wagtail (<i>Motacilla cinerea</i>)	23/03/2023	Red
Meadow Pipit (<i>Anthus pratensis</i>)	15/03/2023	Red
Northern Lapwing (<i>Vanellus vanellus</i>)	13/08/2017	Red
Red Kite (<i>Milvus milvus</i>)	09/09/2017	Red

Red Knot (<i>Calidris canutus</i>)	31/12/2011	Red
Redwing (<i>Turdus iliacus</i>)	31/12/2011	Red
Stock Pigeon (<i>Columba oenas</i>)	31/12/2011	Red
Velvet Scoter (<i>Melanitta fusca</i>)	31/12/2011	Red
White-tailed Eagle (<i>Haliaeetus albicilla</i>)	04/05/2021	Red
Yellowhammer (<i>Emberiza citrinella</i>)	02/05/2021	Red
Barn Swallow (<i>Hirundo rustica</i>)	24/07/2017	Amber
Black-headed Gull (<i>Larus ridibundus</i>)	31/12/2011	Amber
Brent Goose (<i>Branta bernicla subsp. hrota</i>)	31/12/2011	Amber
Brent Goose (<i>Branta bernicla</i>)	31/12/2011	Amber
Common Coot (<i>Fulica atra</i>)	31/12/2011	Amber
Common Kingfisher (<i>Alcedo atthis</i>)	23/03/2023	Amber
Common Linnet (<i>Carduelis cannabina</i>)	24/03/2022	Amber
Common Sandpiper (<i>Actitis hypoleucos</i>)	23/03/2023	Amber
Common Shelduck (<i>Tadorna tadorna</i>)	18/05/2012	Amber
Common Starling (<i>Sturnus vulgaris</i>)	04/09/2017	Amber
Eurasian Teal (<i>Anas crecca</i>)	31/12/2011	Amber
Eurasian Tree Sparrow (<i>Passer montanus</i>)	31/12/2011	Amber
Eurasian Wigeon (<i>Anas penelope</i>)	31/12/2011	Amber
European Greenfinch (<i>Carduelis chloris</i>)	27/05/2021	Amber
Goldcrest (<i>Regulus regulus</i>)	17/11/2017	Amber
Great Cormorant (<i>Phalacrocorax carbo</i>)	31/12/2011	Amber
Great Crested Grebe (<i>Podiceps cristatus</i>)	31/12/2011	Amber
Greater Scaup (<i>Aythya marila</i>)	31/12/2011	Amber
Hen Harrier (<i>Circus cyaneus</i>)	08/10/2016	Amber
Herring Gull (<i>Larus argentatus</i>)	22/06/2022	Amber
House Martin (<i>Delichon urbicum</i>)	22/06/2022	Amber
House Sparrow (<i>Passer domesticus</i>)	12/06/2018	Amber
Lesser Black-backed Gull (<i>Larus fuscus</i>)	31/12/2011	Amber

Little Gull (<i>Larus minutus</i>)	31/12/2011	Amber
Mallard (<i>Anas platyrhynchos</i>)	14/04/2012	Amber
Mew Gull (<i>Larus canus</i>)	31/12/2011	Amber
Mute Swan (<i>Cygnus olor</i>)	15/10/2017	Amber
Red-breasted Merganser (<i>Mergus serrator</i>)	31/12/2011	Amber
Ruddy Turnstone (<i>Arenaria interpres</i>)	31/12/2011	Amber
Ruff (<i>Philomachus pugnax</i>)	31/12/2011	Amber
Sand Martin (<i>Riparia riparia</i>)	23/03/2023	Amber
Short-eared Owl (<i>Asio flammeus</i>)	31/12/2011	Amber
Sky Lark (<i>Alauda arvensis</i>)	31/12/2011	Amber
Spotted Redshank (<i>Tringa erythropus</i>)	31/12/2011	Amber
Tufted Duck (<i>Aythya fuligula</i>)	31/12/2011	Amber
Whooper Swan (<i>Cygnus cygnus</i>)	31/12/2011	Amber
Willow Warbler (<i>Phylloscopus trochilus</i>)	31/12/2011	Amber

4.2.6.2 Field Survey Results

During the Site walkover on the 2nd of February 2024, four species of birds were recorded (Table 9) at the Site, all of which are green listed (Gilbert et al. 2021). The scrub and rank grassland habitats on Site offer foraging and breeding habitat for common and widespread passerine species.

TABLE 9. BIRD SPECIES RECORDED DURING WALKOVER SURVEY ON THE 2ND OF FEBRUARY 2024.

Species	BoCCI Status
Blackbird (<i>Turdus merula</i>)	Green
Buzzard (<i>Buteo buteo</i>)	Green
Robin (<i>Erithacus rubecula</i>)	Green
Woodpigeon (<i>Columba palumbus</i>)	Green

The Site does not offer *ex-situ* habitat for the bird species of Special Conservation Interest (SCI) associated with the closest European site, namely Malahide Estuary SPA (004025), due to the relatively small size of the Site, the habitats recorded on Site, and the intervening suitable *ex-situ* habitats between the Site and this European site.

Considering the variety of bird species recorded in the historical records and the habitats recorded on Site during the field surveys, it is considered that the Site contains resident and regularly occurring, locally important populations of breeding bird species protected under the Wildlife Act

4.2.7 Non-volant Mammals (excl. bats)

4.2.7.1 Desk Study Results

Records for terrestrial mammals were obtained from the NBDC online database. Table 10 lists these species, their date of last record and summarises their protected status/designation. In total, 13 mammal species (10 native and three non-native or invasive) were recorded within the 10km grid square which encompasses the Proposed Development Site.

TABLE 10. RECORDS OF TERRESTRIAL MAMMALS (NATIVE AND NON-NATIVE) FOR THE SURROUNDING 10KM (O14) GRID SQUARE ASSOCIATED WITH THE SITE FROM THE NBDC.

Species	Date of last record	Source	Designation
NATIVE SPECIES			
Eurasian Badger (<i>Meles meles</i>)	30/05/2015	Atlas of Mammals in Ireland 2010-2015	Wildlife Act 1976 (as amended)
Eurasian Pygmy Shrew (<i>Sorex minutus</i>)	07/09/2019	Mammals of Ireland 2016-2025	Wildlife Act 1976 (as amended)
Eurasian Red Squirrel (<i>Sciurus vulgaris</i>)	10/05/2011	Atlas of Mammals in Ireland 2010-2015	Wildlife Act 1976 (as amended)
European Otter (<i>Lutra lutra</i>)	02/05/2014	Atlas of Mammals in Ireland 2010-2015	Wildlife Act 1976 (as amended) EU Habitats Directive – Annex II & IV
Irish Hare (<i>Lepus timidus subsp. hibernicus</i>)	27/08/2023	Mammals of Ireland 2016-2025	Wildlife Act 1976 (as amended) EU Habitats Directive – Annex V
Irish Stoat (<i>Mustela erminea subsp. hibernica</i>)	05/06/2012	Atlas of Mammals in Ireland 2010-2015	Wildlife Act 1976 (as amended)
Pine Marten (<i>Martes martes</i>)	22/06/2020	Mammals of Ireland 2016-2025	Wildlife Act 1976 (as amended) EU Habitats Directive – Annex V
Red Fox (<i>Vulpes vulpes</i>)	01/01/2018	Mammals of Ireland 2016-2025	Not legally protected
West European Hedgehog (<i>Erinaceus europaeus</i>)	30/10/2022	Hedgehogs of Ireland	Wildlife Act 1976 (as amended)
Wood Mouse (<i>Apodemus sylvaticus</i>)	13/09/2011	Atlas of Mammals in Ireland 2010-2015	Not legally protected
NON-NATIVE AND INVASIVE SPECIES			
Brown Rat (<i>Rattus norvegicus</i>)	15/05/2017	Mammals of Ireland 2016-2025	High Impact Invasive Species Regulation S.I. 477/2011 (Ireland) – Offshore Islands Only

Species	Date of last record	Source	Designation
Eastern Grey Squirrel (<i>Sciurus carolinensis</i>)	07/07/2022	Mammals of Ireland 2016-2025	High Impact Invasive Species Regulation S.I. 477/2011 (Ireland)
European Rabbit (<i>Oryctolagus cuniculus</i>)	24/06/2018	Mammals of Ireland 2016-2025	Medium Impact Invasive Species

4.2.7.2 Field Survey Results

No evidence of rare or protected mammals, such as badger, was recorded within the Site in February 2024. Small mammal trails into the scrub habitat on Site may indicate the smaller mammals recorded in the desk study, i.e., pine marten (*Martes martes*), pygmy shrew (*Sorex minutus*), and hedgehog (*Erinaceus europaeus*) could potentially be utilising the Site and its immediate surrounding, such as the adjacent treeline and greenfield habitat to the west.

The Site is located in a relatively urban environment with high levels of human presence, and limited connectivity to the wider landscape, with the treeline adjacent to the west of the Site connecting to an amenity green space to the northwest of the Site.

It is noted that there are no waterbodies located within the Proposed Development Site. The nearest open watercourse is the Ward River, which is located 1.2km west of the Proposed Development Site. As a result, there are no waterbodies present in the vicinity of the Proposed Development capable of supporting otter or other aquatic/semi-aquatic species.

The Site could potentially support resident and regularly occurring and locally important populations of native small mammals.

4.2.8 Other Fauna

4.2.8.1 Amphibians

Both common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*) have been recorded in the 10km (O14) grid square encompassing the Site of the Proposed Development, however, neither species were recorded within the 2km or 1km grid squares that encompass the Site (NBDC: Amphibians and reptiles of Ireland).

The habitats observed were not suitable for breeding smooth newt as it typically prefers more established watercourses particularly small, vegetated, non-linear ponds of less than 200m² between 0.5m – 1.0m deep. In addition, no waterbodies, drainage ditches, or wet grassland habitats were recorded on Site, and as such, no suitable breeding habitat for frog is present on Site.

While no amphibians were observed during the Site walkovers, it is noted that the grassland habitat could potentially provide potentially suitable sheltering habitat for amphibians.

4.2.8.2 Reptiles

No records of common lizard (*Zootoca vivipara*) exist for the relevant 10km grid square. However, there is suitable habitat for this species within the Site of the Proposed Development, such as the grassland vegetation. As no targeted surveys for common lizard were carried out, it is assumed under the precautionary principle that a locally important

population of this species may be present at the Site as this species is ubiquitous throughout Irish landscapes and is likely to be present where suitable habitats are present.

4.2.8.3 Fish

The Site is weakly hydrologically linked to Malahide Estuary via the public surface water network however due to the nature of this weak hydrologically connection the Proposed Development does not have the potential to impact fish species within this, or any other waterbody.

There are records of European eel (*Anguilla anguilla*) within the Ward River, close to Malahide Estuary, approximately 1.6km northwest of the Proposed Development Site, however there is no direct hydrological connection between the Site and this watercourse.

4.2.9 Protected and/or Notable Species Unlikely to Occur at the Site

Other notable and/or rare species and species listed on Annex IV of the Habitats Directive that were considered but that are unlikely to occur at the Site include:

- **Flora**
 - Marsh Saxifrage (*Saxifraga hirculus*) – Known populations only in Co. Mayo.
 - Killarney Fern (*Vandenboschia speciosa*) – Nearest known populations in Co. Wicklow, not recorded at the Site, no suitably sheltered and moist habitats available.
 - Slender Naiad (*Najas flexilis*) – A clear water, lowland lake species. No suitable habitat available at the Site.
- **Fauna**
 - White-clawed Crayfish (*Austropotamobius pallipes*) – no waterbodies/suitable habitat present within the Site.
 - Freshwater Pearl Mussel (*Margaritifera margaritifera*) – Nearest known records from the Barrow catchment to the southwest of the Site, no hydrological connection to this catchment. Local watercourses are not listed as *M. margaritifera* sensitive areas.
 - Natterjack Toad (*Epidalea calamita*) – Distribution restricted to few coastal sites.
 - Kerry Slug (*Geomalacus maculosus*) – Distribution restricted to south and west of Ireland.

4.3 Evaluation of Ecological Features

Habitats have been evaluated for their conservation importance, based on the NRA evaluation scheme (NRA, 2009b). Those selected as KERs are those which are evaluated to be of at least local importance (higher value).

Fauna that has the potential to utilise the Site and immediate area of the Proposed Development, or for which records exist in the wider area, have been evaluated for their conservation importance. This evaluation follows the Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009b).

The impacts of the Proposed Development on the identified KERs are assessed in section 5. Table 11 below summarises the evaluation rating assigned to each ecological feature and the rationale behind these evaluations is also provided.

TABLE 11. EVALUATION OF DESIGNATED SITES, HABITATS, FLORA AND FAUNA RECORDED WITHIN THE SITE AND THE SURROUNDING AREA. THOSE IDENTIFIED AS KEY ECOLOGICAL RECEPTORS (KERs) ARE HIGHLIGHTED IN GREEN.

Species / Species Group	Evaluation	Rationale	Key Ecological Receptor (KER)
DESIGNATED SITES			
Malahide Estuary SAC (000205) Malahide Estuary SPA (004025)	International Importance	Weak hydrological pathway via the Malahide Estuary, deemed insignificant.	No
Malahide Estuary pMHA (000205) Portrairie Shore pNHA (001215)	National Importance	Weak hydrological pathway via the Malahide Estuary, deemed insignificant.	No
HABITATS			
GS2 – Dry Meadows and Grassy Verges	Local Importance (Lower Value)	Relatively low diversity grassland habitat of low biodiversity value.	No
Buildings and Artificial Surfaces (BL3)	Local Importance (Lower Value)	This man-made habitat is of negligible ecological value.	No
WS1 - Scrub	Local Importance (Higher Value)	Due to the low biodiversity context of habitats within the Site, this vegetation provides shelter, commuting, and foraging habitat for a variety of native species, including small mammals, and provides nesting habitat for breeding birds.	Yes
FLORA			
Rare & Protected Flora	Local Importance (Lower Value)	No designated rare or protected flora were recorded during the field surveys. Unlikely to be present in notable numbers/densities.	No
Invasive Species	Negligible value	One low and one medium impact invasive species of note recorded on Site.	No
NATIVE FAUNA			
Bat Assemblage	Local Importance (Higher Value)	Site assessed as negligible suitability for roosting bats, and moderate habitat suitability for commuting/foraging bats. Two species recorded using the Site during bat activity transect survey.	Yes
Bird Assemblage	Local Importance (Higher Value)	Suitable breeding habitat for a few notable species.	Yes
Badger	Local Importance (Lower Value)	The badger is an adaptable species of lowland grassland and woodland habitats (Marneil et al., 2009). No evidence of badger utilizing the Site of the Proposed Development and very limited habitat lies therein due to the relatively isolated nature of the Site.	No

Species / Species Group	Evaluation	Rationale	Key Ecological Receptor (KER)
Otter	Local Importance (Lower Value)	Not recorded at the Site of the Proposed Development. No waterbodies present on site or within the immediate vicinity of the Site that are capable of supporting this or other aquatic/semi aquatic species. Nearest watercourse is the Ward River which is located >1km away from the Site.	No
Fox	Local Importance (Lower Value)	Not legally protected in Ireland. No evidence of Fox at the Site.	No
Hedgehog	Local Importance (Higher Value)	Some commuting and foraging habitat suitability is present for these small native mammals at the Site.	Yes
Pygmy Shrew			
Pine Marten			
Irish Stoat			
Amphibians	Local Importance (Higher Value)	Suitable foraging and commuting habitats in grassland on Site. Considered likely to occur regularly at the Site.	Yes
Common Lizard	Local Importance (Higher Value)	Suitable habitats in areas dry meadows and grassy verges. Considered likely to occur regularly at the Site.	Yes
Fish Assemblage	Local Importance (Lower Value)	No suitable habitat at the Site for these species. Nearest watercourse is the Ward River which is located >1km away from the Site. No significant hydrological pathway to the Malahide Estuary.	No

5 ECOLOGICAL IMPACT ASSESSMENT

5.1 Avoidance and Mitigation Embedded in Project Design

The Proposed Development includes several embedded design features that may act to avoid or mitigate negative impacts that would likely occur in the absence of these features. However, as opposed to typical mitigation measures, the implementation of these features is integral to the design and completion of the Proposed Development, and as such the impact assessments are performed with consideration of these features as integrated parts of the Proposed Development. All considered embedded design features that may act to mitigate negative impacts on local ecology and environment are listed in Table 12.

TABLE 12. EMBEDDED DESIGN FEATURES AND THEIR POTENTIAL TO ACT TO AVOID OR MITIGATE NEGATIVE IMPACTS ON THE LOCAL ECOLOGY AND ENVIRONMENT.

Embedded Design Feature	Avoidance / Mitigation Potential
<p>SUDS:</p> <ul style="list-style-type: none"> • Permeable paving; • Blue and green roofs; • Tree pits; • Filter drains; • Detention basins, and; • Flow control devices. 	<p>The SUDS features included in the Project Design will ensure the surface water discharge from the Proposed Development is reduced to greenfield runoff rates. These features will be implemented as part of the surface water drainage design.</p>
<p>Landscape Design:</p> <ul style="list-style-type: none"> • The enhancement of biodiversity corridor along the west of the Site, and; • Pollinator-friendly tree, shrub and ground flora planting. 	<p>This will provide habitat for the biodiversity that currently exists on Site, and act to offset potential habitat loss due to vegetation removal.</p>
<p>Biosecurity Site Best Practice:</p> <ul style="list-style-type: none"> • Validation that all machinery / vehicles are free of IAPS, prior to their first introduction to site. • Certification from the suppliers that all imported soils and other fill/landscaping materials are free of IAPS. • A regular schedule of site inspections across the IAPS growing seasons, for the duration of the construction works programme. • Validation that all machinery / vehicles are free of IAPS, prior to leaving the site. • Appropriate and effective site biosecurity hygiene to ensure that no IAPS are transmitted off-site for the duration of the Proposed Works. 	<p>The introduction of IAS to the Site during the Construction Phase of the Proposed Development could have a negative, local, long term, significant impact on local habitats. However, the Proposed Development incorporates site best practice management measures to remove this risk.</p>

The below sections assess the potential impacts on the previously identified KERs of the Site and immediate surrounds during the Construction and Operational Phases of the Proposed Development. The KERs identified in the previous sections are identified in Section 3.6 above.

5.2 Construction Phase

5.2.1 Impacts on Habitats and Flora

There are no rare/protected floral species present at the Site.

As outlined in the Arboricultural Assessment and Impact Report (CMK Hort + Arb Ltd., 2023) accompanying this application, four early mature trees along the west of the Site will be removed from the Site, namely early mature ash, birch, and two sycamore trees. The ash and birch trees are to be removed to facilitate the Proposed Development, along with the scrub habitat throughout the Site, while the sycamore trees will be removed due to their poor condition. The removal of the scrub (WS1) habitat from the Site is considered to have a *negative, permanent, moderate* impact at a *local* scale due to the reduction of natural habitat from the Site.

Butterfly bush and winter heliotrope should be removed appropriately to avoid spread offsite. As these species are not known to cause significant impacts (spread by seed and can grow vigorously and cause nuisances in more natural environments, however can be easily managed/removed), spread off Site can be defined as a *short-term, negative, slight* impact if unmitigated.

5.2.2 Impacts on Native Fauna

5.2.2.1 Impacts on Bat Assemblage

There is potential for loss of foraging and commuting habitat for local bats through the removal of scrub vegetation as part of the Proposed Development. This could have a *negative, short-term, moderate* impact on local bats in the area.

As outlined in the CEMP (AWN Consulting Ltd., 2024) accompanying this application, construction works will typically be confined to daylight hours and night-time lighting will therefore not be required during the Construction Phase of the Proposed Development. However, where portable lighting is required, there is potential for a *negative, short-term, slight* impacts to local bats due to potential increased lighting associated with the Construction Phase of the Proposed Development, particularly if inadvertently directed to the linear vegetation bounding the west of the Site. Therefore, increased levels of lighting during the Construction Phase may deter bats from commuting and foraging within the vicinity of the Site.

5.2.2.2 Impacts on Bird Assemblage

Birds, particularly fledglings, present within the hedgerow and woodland habitats to be removed during the Construction Phase of the Proposed Development may be at risk of injury or death if clearance is carried out during the breeding season (1st March – 31st August, inclusive), which could have a *negative, short-term, significant* impact at a local level, in the absence of mitigation.

Local birds are likely to adapt to a certain degree of urban ambient noise due to the location of the Site, the Construction Phase of the Proposed Development will likely result in elevated noise levels associated with the demolition and construction works. As a result, there is a potential risk of noise disturbance to birds in the vicinity of the Site, representing a *short-term, negative, slight* impact in the absence of suitable mitigation.

There will be some loss of foraging and nesting habitat for birds at the Site of the Proposed Development through the removal of hedgerow and grassland habitat. This could have a *negative, permanent, moderate* impact on birds in the locality due to the loss of this foraging and nesting habitat.

5.2.2.3 Impacts on Small (Non-volant) Mammals

The Proposed Development could have a potential *negative, permanent, moderate* impact at a local level on mammals utilising the Site, such as hedgehog, in the absence of mitigation measures, through the habitat loss of the trees and grassland habitat within the Site of the Proposed Development.

Disturbance of species due to lighting, noise and dust generated during the Construction Phase, although unlikely, is possible and, as such, a precautionary approach is adopted with these disturbances representing potential *negative, short-term, slight* impacts at a local scale.

Small mammal species, particularly hedgehog, may be present on the Site during vegetation clearance or have the potential to become trapped in trenches and entangled in construction materials such as netting and plastic sheeting, as well as other waste materials, causing entrapment and injury or death. This constitutes a *negative, short-term, moderate* impact at a local level.

5.2.2.4 Impacts on Amphibians

There will be some loss of foraging and commuting habitat for amphibians potentially present at the Site of the Proposed Development through the removal of the hedgerow and grassland habitat on Site, and disturbance of species during the Construction Phase due to increase in noise and dust is possible. This could have a *negative, permanent, moderate* impact on this species in the locality.

There is also a potential risk of injury or death to any amphibians which may be present on the Site during vegetation clearance or become entrapped in construction-related rubbish, which constitutes a *negative, short-term, moderate* impact at a local level.

5.2.2.5 Impacts on Lizard

Similar to above, the clearance of vegetation during the Construction Phase of the Proposed Development has the potential to cause *negative, short-term, moderate* impacts in the form of loss of potential shelter/commuting habitat to common lizard at a local level, in the absence of suitable mitigation measures.

There is also a potential risk of injury or death to any lizards which may be present on the Site during vegetation clearance or become entrapped in construction-related rubbish, which constitutes a *negative, short-term, moderate* impact at a local level.

5.3 Operational Phase

5.3.1 Impacts to Habitats and Flora

No negative significant impacts on KER habitats are anticipated during the Operational Phase of the Proposed Development.

As outlined in section 2.4.2 above, the landscape design includes pollinator-friendly tree, shrub, and ground flora planting as part of the Proposed Development, with the tree planting along the west boundary contributing to the existing ecological corridor bordering the Site. This has the potential to result in a *positive, permanent, slight* impact after a period of establishment and will act to offset some of the negative impacts from habitat loss.

5.3.2 Impacts on Native Fauna

5.3.2.1 Impacts on Bat Assemblage

Given the presence of lighting in the immediate surrounding environment (i.e. within the Applegreen petrol station adjacent to the Site) and street lighting along the surrounding roads including the R106 road, the local bat population would be expected to be habituated to artificial light spill, especially as the most common species recorded within the Proposed Development site i.e. lesser noctule and common pipistrelle are some of the least sensitive species to artificial light spill, and are recorded in towns and cities across Ireland (Roche et al., 2014). However, the bat-friendly lighting measures in line with the Bat Conservation Trust guidelines on artificial lighting and bats (BCT, 2023) have been incorporated into the lighting design plan and are outlined below:

- There will be no light spill to the boundary habitats.
- All luminaires used will lack UV/IR elements to reduce impact.
- LED luminaires will be used due to the fact that they are highly directional, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (<2700 Kelvins will be used to reduce the blue light component of the LED spectrum).
- Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Only luminaires with an upward light ratio of 0% and with good optical control will be used.
- Luminaires will be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting will be set on motion-sensors and short (1min) timers.
- Light shields will be used to reduce light spill, particularly along the east boundary abutting the adjacent agricultural lands, and direct it only to where it is needed.

As such, the potential impact to bats within the vicinity of the Proposed Development as a result of the increase in lighting on Site is considered to be *negative, permanent, moderate* at a local level.

5.3.2.2 Impacts on Bird Assemblage

No significant impacts on birds are anticipated during the Operational Phase. The proposed planting included as part of the landscaping to take place on Site will offer potential foraging and nesting habitat for local birds and may act to offset the loss of suitable habitat from the Site. As such, the likely impact is considered *positive, permanent, not significant* at a local level.

5.3.2.2.1 Collision Risk

Tall structures such as electrical pylons, wind farms and tall buildings can lead to fatal collisions with commuting bird species. This is particularly true for those species considered to be “poor” fliers, with relatively low manoeuvrability compared to other more agile bird species (see Eirgrid, 2012).

Some of the most at-risk groups (classified as ‘medium’ and ‘high’ collision risk species) include wader species; waterfowl such as geese, swan and duck species; and some raptor species. Gulls such as black-headed gull (*Larus ridibundus*), herring gull (*Larus argentatus*),

and lesser black-backed gull (*Larus fuscus*) are classed as 'low' collision risk species due to their superior manoeuvrability when flying (Eirgrid, 2012).

Likelihood of Collision Impacts

The physical location of buildings and structures can influence the likelihood of bird collisions, with structures placed on or near areas regularly used by large numbers of feeding, breeding, or roosting birds, or on local flight path; such as those located between important foraging and roosting areas, can present a higher risk of collision.

The Site itself is located within agricultural lands and is not deemed to be located in a sensitive area in terms of bird flight paths i.e., it is not located along the coast, or adjacent to any SPAs designated for wetland bird populations. While wintering bird species utilise the adjacent fields as *ex-situ* habitat, the height of the buildings of the Proposed Development negates this potential impact, as outlined below.

Building Height

The Proposed Development entails the construction of low level residential buildings up to 5 storeys and as such, the risk of migrating birds colliding with the structure due to its height is deemed to be negligible (Migrating species tend to commute far above this 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 feeding grounds at various locations would fly lower than this, however, once the proposed structures are made of visible materials i.e., not entirely comprised of reflective materials such as glass, the birds would simply fly around or over them.

Building Appearance

The overall façades of the proposed buildings are well broken up, with a varied material composition interspersing any reflective areas. These architectural design features provide important visible cues as to the presence and extent of the proposed structures to any commuting/foraging bird species should they be in the vicinity of the Site. This overall visual heterogeneity of the building façades will be sufficient to further ensure that the risk of bird collisions as a result of the Proposed Development is negligible. These architectural design features are part of the overall design of the Proposed Development and are not considered to represent specific mitigation measures to prevent collisions, however, they will contribute to the overall effect in this regard. It is noted that birds are not deemed to be at any particular risk of collisions with the proposed buildings at the Site.

As such, based on the heights of the proposed structures, their physical appearance and the nature of their location, it is deemed that birds including any 'at-risk' species, do not have the potential to be impacted by the Proposed Development in terms of collisions and the risk is therefore deemed to be **imperceptible** in the absence of any mitigation.

5.3.2.3 Impacts on Small (Non-volant) Mammals

The Proposed Development has the potential to impact small mammals via the fragmentation of commuting and foraging habitat. This is largely attributed to the design nature of residential developments which comprise units, particularly garden spaces, which occur in distinct separate areas, that are not generally connected to each other. As such, in the absence of

suitable mitigation measures, this risk represents a *negative, permanent, moderate* impact on small mammals at a local scale.

5.3.2.4 Impacts on Amphibians

No significant impacts on amphibians are anticipated during the Operational Phase. The proposed planting included as part of the landscaping to take place on Site will offer potential foraging, commuting and sheltering habitat for local amphibians and may act to offset the loss of suitable habitat from the Site. As such, the likely impact is considered *positive, permanent, not significant* at a local level.

5.3.2.5 Impacts on Lizard

No significant impacts on lizards are anticipated during the Operational Phase. The proposed planting included as part of the landscaping to take place on Site will offer potential foraging, hibernating and breeding habitat for local reptiles and may act to offset the loss of suitable habitat from the Site. As such, the likely impact is considered *positive, permanent, not significant* at a local level.

5.4 Do Nothing Impact

If the Proposed Development was not to go ahead, the habitats on Site would continue to evolve. The scrub habitat would continue to grow and become denser as it colonises the grassland on Site and provide foraging, commuting, and nesting habitat for local wildlife. The invasive species on Site would also continue to spread across the Site, potentially outcompeting the native species on Site.

5.5 Potential for In-Combination Effects

5.5.1 Relevant Plans and Policies

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

- Fingal County Development Plan (2023-2029).
- Fingal Biodiversity Action Plan (2023-2030).
- All Ireland Pollinator Plan (2021-2025).

No specific projects or plans within the Fingal County Development Plan (CDP) 2023 – 2029 were identified that could act in-combination with the Proposed Development and cause adverse effects on the KERs identified in this Report. Additionally, the CDP has directly addressed the protection, enhancement and incorporation of biodiversity through specific Policies and Objectives, as well as through its Development Management Standards (see Appendix I for details). The Fingal Biodiversity Action Plan 2023 – 2030 is set out to protect and improve biodiversity in the north Dublin area, and as such will not result in negative in-combination effects with the Proposed Development.

Therefore, 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 to nearby ecological sensitivities.

5.5.2 Existing Planning Permissions

Any planning applications listed as granted or decision pending from within the last five years were assessed for their potential to act in-combination with the Proposed Development and cause likely significant effects on local biodiversity. Long-term developments granted outside of this time period were also considered where applicable.

There are several existing planning permissions on record in the area, approximately 500m surrounding the Site, ranging from small-scale extensions and alterations to existing residential and commercial properties to larger-scale developments. The larger scale developments identified either within 500m of the Proposed Development are outlined in Table 13 below.

TABLE 13. ASSESSMENT OF POTENTIAL IN-COMBINATION EFFECTS OF THE PROPOSED DEVELOPMENT AND OTHER DEVELOPMENTS PENDING OR GRANTED PERMISSION IN THE LAST 5 YEARS (2019-2024).

Planning Reference	Planning Authority	Status	Location
F24A/0159	Fingal County Council	Granted Permission & Grant Retention	295m SW
<p>Development Description</p> <p>Permission and retention permission for the re-organisation of on-site carsite car parking to increase of the total number of permitted car parking from 346 No. spaces to 416 No. spaces at MSD International GmbH (MSD Biotech Dublin), Drynam Road, Barrysparks, Swords, Co. Dublin. The proposed development includes:</p> <ol style="list-style-type: none"> 1. Retention permission for restoration of car parking spaces required to be removed under planning registration reference F18A/0198 together with realignment of the internal road network of the car park adjacent to the Drynam Road (North) campus entrance to provide a total of 240 No. spaces; 2. Permanent permission for 172 No. spaces and associated works located in the existing temporary construction car park adjacent to the Holywell Road (South) campus entrance; 3. Removal of 170 No. spaces from the permitted central car park area and use of this area to an open service yard and staging area; 4. Provision of a covered cycle store to accommodate 30 No. cycle spaces positioned to the south of the Drynam road car park; 5. Retention permission for existing covered cycle store for 40 No. cycle spaces located adjacent to the south entrance of the main facility building, and alignment of existing adjacent existing parking spaces to provide for 4 no Accessible car spaces. 			
F18A/0198	Fingal County Council	Granted Permission	295m SW
<p>Development Description</p> <p>Development at an existing pharmaceutical manufacturing facility (approximately 13.4 hectares). The development consists of the construction of a biopharmaceutical manufacturing campus with a total additional floor area of 12,046 square metres and specifically provides for:- (a) the conversion of an existing warehouse building to a biopharmaceutical manufacturing processes building which will require internal alterations, extension and modifications to the existing elevations; (b) the conversion of an existing manufacturing building to a central utilities and laboratory building requiring internal alterations, extension and modifications to the elevations including the addition of 3 no. flue stacks (to a maximum height of 18.68 metres); (c) construction of a two-storey quality control laboratory and single-storey with mezzanine warehouse building; (d) extension of the existing central spine corridor to provide connectivity to the new laboratory and warehouse buildings, including provision of new staff entrance; (e) demolition of existing utilities plant and buildings comprising 2 no.</p>			

boiler rooms, compressor room, electrical room, generator compound, water tank and pump house, and 2 no. store buildings; (f) provision of new logistics yard and new ancillary external utilities yard comprising 2 no. electrical switch room buildings, water pump and treatment building, bunded water tank, bunded gas and diesel storage tanks, 3 no. emergency generators and waste water management facility; (g) installation of mechanical plant to the roof of the existing administration, laboratory and canteen building (h) all ancillary site works including diversion and partially reopening of the existing culverted stream within the site; underground services; surface water attenuation tank; modifications to the internal road network, modifications to existing car parking including removal of 212 spaces; 2 no. new bicycle shelters; lighting; CCTV; soft and hard landscaping.

F18A/0350	Fingal County Council	Granted Permission	360m SE
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Development Description
Permission for the construction of 16 no. houses comprising of 2 no. 4 bedroomed 2 storey detached dwellings and 14 no. 4 bedroomed 2 storey semi-detached dwellings with total floor area of circa 2384m², in lieu of previously approved and expired planning permission Reg. Ref.: F02A/1561 (parent permission) and Reg. Ref.: F06A/1880 and all associated site development works.

The above-listed planning applications were all accompanied by the relevant environmental assessments that detail the potential impacts and the mitigation measures required to ensure the developments do not have a significant effect on local biodiversity, alone or in-combination with other developments. In addition, Fingal County Council granted permission for the above planning applications following evaluations of the potential ecological and environmental impacts of each application.

It is considered that there is no potential for the Proposed Development to act in-combination with other permitted developments in the vicinity that could cause likely significant effects on any nearby or linked KERs.

6 AVOIDANCE, MITIGATION, COMPENSATION AND ENHANCEMENT MEASURES

6.1 Construction Phase

Table 14 gives a summary of the best practice development standards and mitigation measures to be implemented during the Construction Phase of the Proposed Development. The measures listed are outlined in more detail in the CEMP accompanying this application under separate cover.

TABLE 14. SUMMARY OF BEST PRACTICE STANDARDS AND MITIGATION OUTLINED IN THE CEMP. WHERE SPECIFIC DETAILS RELATING TO PROTECTION OF KEY ECOLOGICAL RECEPTORS IS REQUIRED UNDER THESE MEASURES, REFERENCE IS MADE TO THE APPROPRIATE SECTION IN THIS REPORT.

Theme	Best Practice Standards and Mitigation	Ecology Specific Mitigation
Soils and Geology	<p>Appropriate measures to store and handle stripped topsoil and subsoil; consideration of weather conditions to minimise silt/sediment entering surface water network and dust control; and appropriate fill material import, storage and handling away from surface water features.</p> <p>Surface water discharge points for rain and groundwater pumped from excavations and directed to settlement ponds during Construction to be agreed with FCC prior to works commencing.</p> <p>Appropriate storage of fuels, oils and other chemicals, designated refueling and maintenance area, and preparation of emergency response procedure.</p>	No.
Water - Hydrogeology	<p>Measures for erosion and sediment control, prevention and control of accidental spills and leaks, and concrete handling.</p>	No.
Water - Water Supply, Drainage & Utilities	<p>Appropriate use of temporary drainage systems, foul water to be tankered off site for treatment until connection to foul network made, and all connections (wastewater, water supply, electrical, gas and telecommunications) to be made by authorized and qualified people.</p>	No.
Site Compound Facilities and Parking	<p>Location to be agreed with FCC prior to works.</p> <p>Appropriate measures to handle foul water generated, protect potable water supply, health and safety, separate areas for (i) machinery and plant; (ii) concrete batching; and (iii) staff parking.</p>	No.

Construction Waste Management	Managed according to the Department of the Environment, Heritage and Local Government's 2006 Publication – ' <i>Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects</i> '.	Yes – See section 6.1.2.3
Landscape and Visual Impact	Appointment of an Arborist to oversee works relating to trees, and post-construction tree assessment.	No.
Noise and Vibration	To comply with the requirements of BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014 (Code of Practice for Noise and Vibration Control on Construction and Open Sites) as well as Safety, Health and Welfare at Work (General Application) Regulations 2007, Part 5 Noise and Vibration.	No.
Air Quality	Dust Management Plan to include suppression via watering of areas identified as potential dust sources; road sweeping to remove aggregate materials; appropriate cover of transported materials; wheel washing; maintenance of public roads in relation to dust; and appropriate monitoring.	No.

In addition, to ensure the CEMP remains 'fit for purpose' for the duration of the project it should be reviewed and updated by the Project Manager in consultation with the Contractor's Ecologist during the life of the project to ensure that it remains suitable to facilitate efficient and effective delivery of the project's environmental commitments. The Contractor shall also designate a Site Engineer/Manager/Assistant Manager as the Construction Waste Manager and who will have overall responsibility for the implementation of the Project Waste Management Plan (WMP). This Plan will be prepared upon appointment of the Main Contractor.

Additional mitigation measures required for sufficient protection of the KERs identified in this Report, and/or details for the specific implementation of the mitigation measures as per the above table are given in the below sections.

6.1.1 Protection of Habitats

6.1.1.1 Mitigation 1: Tree Protection

Protective tree fencing in compliance with BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' will be erected prior to any Construction works being undertaken to prevent damage to the canopy and root protection areas of existing trees adjacent to the west boundary of the Site. The fencing will be signed off by a qualified arborist prior to Construction to ensure it has been properly erected. No ground clearance, earthworks, stock-piling or machinery movement will be undertaken within these areas.

6.1.1.2 Mitigation 2: Invasive Species Removal

It is recommended that non-native/invasive flora species recorded at the Site are controlled/removed as per the appropriate best-practice guidelines. Removal and disposal should be carried out in accordance with appropriate guidelines such as TII (formerly NRA) *The Management of Invasive Alien Plant Species on National Roads* (2020), with consideration given to the prevention of spread of these plants.

With regards to the invasives species present on Site, namely butterfly bush, the following is extracted from TII (2020):

Chemical control

“Foliar application of herbicide is capable of providing control with young plants and small infestations, but should be followed up at six-monthly intervals as regrowth is common.

Physical control

Removal of the flower heads before seed set (June or even July) is an important control method as it reduces the volume of seeds that are available to spread. Hand-picking of young plants will provide control but it is very tedious and should be undertaken with care to avoid soil disturbance, which can give rise to a flush of new seedling growth. Digging out plants is only practical with relatively minor infestations, at the initial stage of invasion, or where a site is to be excavated for development or road construction purposes. Mowing of young plants does not provide effective control as they re-sprout with vigour. The physical removal of mature stands is not recommended for the same reason. After uprooting, it is essential to plant the ground in order to prevent a flush of new seedling growth. When Buddleia plants are cut, regrowth from the stump can be very vigorous.

Combined chemical and physical control

Effective control can be achieved by cutting Buddleia plants to a basal stump during active growth (late spring to early summer) and immediately treating the total cut surface with herbicide concentrate. Monitoring will be required and retreatment, as necessary. Do not leave cut stems and branches on the ground as they will re-root and produce new plants.”

Recommended Management: Physical removal and off-site disposal of butterfly is recommended where it occurs within the survey area.

6.1.1.3 Mitigation 3: Biosecurity

It is also necessary to ensure that the potential spread of invasive alien species (IAS) into areas/sites where they are not present is prevented. Equally, this applies to the risk of contaminated material being brought onto the Site.

Unwashed construction equipment, plant and vehicles, and footwear can provide a vector for the spread of IAS within a site and from areas outside the site where infestation is present or where vector material potentially containing seed/root material is attached to plant. The following hygiene measures shall be undertaken:

- Known or potentially infested areas within the Site shall be clearly fenced off in advance of works and access restricted, until such time that the appointed specialist has commenced treatment;

- Erection of clear signage at relevant fenced off areas. The signage and notification should be easily understood so that Site users are aware of the measures to be taken for known non-native invasive species on Site, or what they should do in the case of suspected non-native invasive species identified on Site;
- Where possible, dedicated footwear and wheel-wash facilities should be identified. Where a dedicated/bespoke wheel-wash cannot be installed owing to space limitations, no excavated loose material is allowed offsite from within an exclusion zone. Similarly, where plant is used to excavate soils, it shall be visually checked for loose soil before movement to another part of the site (where possible, the movements of tracked machinery should be restricted within the IAS exclusion zone. Loose soil shall be scraped off and disposed of, and a solution of Virkon© (or similar approved disinfectant) applied to machinery to ensure that no obscured seed/root material remains viable;
- Machinery which has been used for the transport and/or excavation of infected/suspected infected vector material shall be thoroughly washed down and the washings captured for disposal. All such machinery/plant shall not be permitted to commence work elsewhere on or off-site until confirmation of same has been undertaken;
- Dedicated wash down and solution capture should be set up on Site. All washings should be stored in a quarantined bunded container that is rated for such storage, until such time that they are removed offsite for disposal and a facility that is authorised to accept such waste;
- Except in very particular circumstances and with the approval of the specialist treatment contractor, there should be no temporary storage of infected/suspected infected soils on-site. They must be removed offsite as per guidance outlined within this Report;
- Where small volumes e.g., volume capable of being double bagged in quarantine bags rated for such cut plant, bulbs or loose soil occur, it may be practical to bag the material and bring it to a clearly demarcated and dedicated quarantine area within the construction compound until such time that the material is disposed of to an authorised facility, similar to the process of disposing of bulk excavated infected soil.

6.1.2 Protection of Fauna

6.1.2.1 Mitigation 4: Construction Phase Lighting

As a precautionary measure, no overnight lighting will be directed to the natural habitats bounding the Site. Where overnight lighting cannot be avoided in these areas due to health and safety concerns, the lighting within the Site during the Construction Phase will be designed and installed to minimise the impact on local wildlife as agreed with the Ecologist and in accordance with the Bat Conservation Trust guidelines on artificial lighting and bats (BCT, 2023):

- There will be no light spill to the boundary habitats.
- All luminaires used will lack UV/IR elements to reduce impact.
- LED luminaires will be used due to the fact that they are highly directional, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (<2700 Kelvins will be used to reduce the blue light component of the LED spectrum).

- Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Column heights should be carefully considered to minimise light spill. The shortest column height allowed should be used where possible.
- Only luminaires with an upward light ratio of 0% and with good optical control will be used.
- Luminaires will be mounted on the horizontal, i.e., with no upward tilt.
- Any external security lighting will be set on motion-sensors and short (1min) timers.
- As a last resort, accessories such as baffles, hoods or louvres will be used to reduce light spill and direct it only to where it is needed.
- The treeline along the west boundary of the Site will be maintained as a dark corridor as it connects to the wider environment and acts as an ecological corridor.

6.1.2.2 Mitigation 5: Timing of Vegetation Clearance

Vegetation clearance of the hedgerow, treeline and grassland habitat will need to be cognisant of any potentially present fauna. Table 15 provides guidance for when vegetation clearance is permissible in relation to wintering, hibernating and breeding fauna. Information sources include British Hedgehog Preservation Society's *Hedgehogs and Development* and *The Wildlife (Amendment) Act, 2000*. The preferred period for vegetation clearance is within the months of September and October to avoid the main breeding bird season and bat maternity and roosting season as well as mammal hibernation.

Where this seasonal restriction cannot be observed, a check for active nests, will be carried out immediately prior to any Site clearance by an Ecological Clerk of Works (ECoW) and repeated as required to ensure compliance with legislative requirements. Where a breeding bird and an active nest is found, the nest will be protected, and no further works will take place in the vicinity of the nest until the young have fledged.

TABLE 15. SEASONAL RESTRICTIONS ON VEGETATION REMOVAL. RED BOXES INDICATE PERIODS WHEN CLEARANCE/WORKS ARE NOT ADVISED.

Ecological Feature	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Breeding Birds	Vegetation clearance permissible	Nesting bird season No clearance of vegetation or permitted unless confirmed to be devoid of nesting birds by an ecologist.							Vegetation clearance permissible			
Hibernating mammals (namely Hedgehog)	Mammal hibernation season No clearance of vegetation unless confirmed to be devoid of hibernating mammals by an ecologist.		Vegetation clearance permissible						Mammal hibernation season No clearance of vegetation permitted unless confirmed to be devoid of hibernating			

			mammals by an ecologist.
Amphibians	<u>Amphibian Hibernation Season</u> No habitat clearance permissible	<u>Amphibian breeding season</u> No habitat destruction unless confirmed to be devoid of tadpoles and other signs of amphibians	Vegetation / Site clearance permissible
Common Lizard	<u>Lizard Hibernation Season</u> No habitat clearance permissible	<u>Active period</u> Habitat (scrub, tall sward grass) clearance permissible	<u>Lizard Hibernation Season</u> No habitat clearance permissible

Additionally, all vegetation clearance will be carried out in sections working in a consistent direction to prevent entrapment of protected fauna potentially present (e.g., hedgehog, pygmy shrew). Logs and branches from this vegetation will be utilised for the creation of hibernacula on Site, see section 6.3.5 below. A phased cutting approach under the supervision of a suitably qualified ECoW will be used to allow wildlife (small mammals, reptiles and amphibians) to move away from any suitable habitat that will be removed:

- Phase 1 – Cutting vegetation to 150-200 mm and removing the arisings;
- Phase 2 – After a minimum of one hour, hand-searching the cut areas (conducted by an ECoW) and removing any sheltering habitat (e.g. logs or debris) then cutting vegetation to ground level and removing the arisings; and
- Phase 3 – Soil scrape.

Should any suitable refugia or day nesting habitats need to be removed, this will be carried out outside the most vulnerable breeding periods for hedgehogs wherever practicable (main hedgehog birthing months June and July) and will be supervised by the ECoW.

6.1.2.3 Mitigation 6: Waste Management

As best-practice, all construction-related rubbish on-site e.g., plastic sheeting, netting etc. should be kept in a designated area on-site and kept off ground level so as to protect small fauna (such as small mammals, amphibians and reptiles) from entrapment and death

6.2 Operational Phase

6.2.1 Protection of Habitats

6.2.1.1 Mitigation 7: Invasive Species Management

Certain plant species and their hybrids are listed as Invasive Alien Plant Species in Part 1 of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended). In addition, soils and other material containing such invasive plant material, are classified in Part 3 of the Third Schedule as vector materials and are subject to the same strict legal controls.

As such, it is recommended that any newly landscaped areas, particularly where infill materials and soils have been imported for soft landscaping, are assessed during the Operational Phase within the next botanical season for the presence of any inadvertently introduced invasive species, with particular focus on those listed on Schedule III of SI 477 of 2011. If invasive species are detected, an Invasive Species Management Plan will be prepared, agreed with the Local Authority and implemented at the earliest possibility to limit the potential for further spread.

6.2.2 Protection of Fauna

6.2.2.1 Mitigation 8: Lighting

In accordance with the best practise bat-friendly lighting guidelines (BCT, 2023), the below measures will be incorporated as part of the Lighting Design of the Proposed Development:

- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white light source (<2700K) should be adopted to reduce blue light component.
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards.
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered.
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

6.3 Biodiversity Enhancement Measures

6.3.1 Enhancement 1: Hedgehog Highways

By creating a number of separate private dwellings and gardens at a Site, the land becomes fragmented and largely inaccessible to species such as Hedgehog, which like to roam each night in search of food (garden pests e.g., slugs). This can easily be fixed by ensuring that the boundaries and barriers within and surrounding the Site i.e., garden fencing, railings and gates, are permeable for Hedgehogs. This can be achieved by:

- The use of fence panels with 13 x 13 cm holes at ground level (Hedgehog holes);
- Leaving a sufficient gap beneath gates, and;
- Leaving brick spaces at the base of brick walls.



FIGURE 8. EXAMPLES OF 'HEDGEHOG HIGHWAYS' THAT CAN MAINTAIN HABITAT CONNECTIVITY FOR HEDGEHOGS IN RESIDENTIAL DEVELOPMENTS (IMAGES: BHPS GUIDANCE DOCUMENT).

The inclusion of hedgehog highways will be considered as part of the landscape design of the Site, specifically the private garden boundary fencing. A variety of fence suppliers' stock specific hedgehog-friendly fencing options, which can be easily incorporated at little or no additional cost. These simple measures will provide habitat connectivity at the Site for Hedgehogs and reduce the impact of the land-use change on this species.

Including details of hedgehog-friendly features in the new homeowner's welcome pack will raise awareness and prevent homeowners from reversing these features, for instance blocking fence holes.

6.3.2 Enhancement 2: Swift Box Scheme

A Swift box scheme is proposed to be installed at the Site of the Proposed Development and should be implemented with the landscape plan so as to enhance the potential bird nesting habitat in the area during its Operational Phase.

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 Ireland.

Swift bricks/boxes:

- will be constructed of long-lasting material and securely fixed in position.
- will be erected at least five metres above ground level.
- will 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.
- will have a clear airspace in front for access.
- will be grouped (side by side in rows) as swifts are colony nesters.
- will avoid sites which can be accessed by predators- cats, squirrels, magpies, rats.
- will avoid sites near plate glass windows because they are a known collision hazard for birds.
- will not be placed directly above ledges or other obstructions. Swifts drop before taking flight and can collide with obstacles below the nest entrance.
- will not be one above the other.
- will not be near spotlights or later fit spotlights near them.

In addition, and as part of this scheme, it is proposed to include 6 No. Swift boxes on the apartment building. These nest bricks will be installed at least 5 metres above the ground, in safe areas where they will not be disturbed. The location of bird boxes will be advised by a suitably qualified ecologist.

Guidelines for the bird box scheme should also follow guidelines published by Swift Conservation Ireland, and those published by Birdwatch Ireland entitle "Saving Swifts" (2009/2010).

6.3.3 Enhancement 3: Bat Box Scheme

Four summer bat boxes (e.g., Woodcrete 1FF design) will be erected on Site as part of the Proposed Development. The number of boxes may increase should the pre-felling

assessment find evidence of roosting on Site to mitigate any loss of roost habitat. The boxes will be installed as part of the landscaping works, so as to not delay their deployment and potential positive impacts.

Bat boxes will be sited carefully, and this will be undertaken by a bat specialist. The bat ecologist will denote the locations, orientation and height of the bat boxes to be erected with assistance from the contractor. Some general points that will be followed include:

- Bat boxes will be erected on trees (or telegraph poles) with no crowding branches or other obstructions for at least 1 metre above and below the bat box.
- The diameter of the tree should be wide and strong enough to hold the required number of boxes.
- Locate bat boxes in areas where bats are known to forage or adjacent to suitable foraging areas. Locations will be sheltered from prevailing winds.
- Bat boxes will be erected at a height of 4-5 metres to reduce the potential for vandalism and predation of roosting bats.
- The recommended Woodcrete 1FF design is open at the bottom, allowing the droppings to fall out, and so does not need cleaning.

6.3.4 Enhancement 4: Pollinator Habitat

Pollinator/insect habitat, as seen in Figure 9, will be created on Site by:

- Creating an earth bank.
- Scraping back some bare earth.
- Leaving some areas to grow wild, and/or
- By drilling holes 10cm deep in unvarnished wood for solitary bees.



FIGURE 9. EXAMPLES OF SOLITARY BEE HABITAT. EXTRACTED FROM HOW-TO-GUIDE: CREATING WILD POLLINATOR NESTING HABITAT (NBDC, 2016).

Large bee or insect hotels will not be installed. Guidance from the All-Ireland Pollinator Plan states “Don’t install a large bee or insect hotel. Large bee hotels are attractive to humans, but not great for pollinators. They can encourage the spread of disease and attract predators. Avoid anything bigger than an average-sized bird box. There are many other ways to provide nesting habitats for pollinators, such as providing wild areas of undisturbed long grass, and scraping back some bare earth. If you want to make a bee hotel, make sure it is small, and position it away from bird feeders so the insects aren’t easy targets.” A link to a “How-to-guide

Creating wild pollinator nesting habitat” is provided for the development management company to put these habitats in place: [How-to-guide-Nesting-2018-WEB.pdf \(pollinators.ie\)](#). An appointed ecologist will oversee the creation of these habitats.

6.3.5 Enhancement 5: Hibernacula

It is recommended to enhance the landscaped areas by providing suitable refuge and hibernacula, along with providing log and brush piles for smaller mammals, such as hedgehog, adjacent to the woodland and shrub habitats to be planted within the Site. It is recommended that 2-3 areas of hibernacula are provided within the amenity greenspaces at areas furthest removed from likely human activity.

Hibernacula for hedgehogs, amphibians and reptiles is relatively easy to create from logs and soil, all of which can likely be sourced from the Site during works. Wood in various sizes should be piled either in a shallow depression in a disorganised way to create nooks and crevices. Larger tree trunks or rocks should be placed so that they will protrude through the final mound to provide open entrances to the mound. This pile should then be covered in soil to allow the inner crevices to maintain a stable temperature through the winter and allow for hibernation.

7 MONITORING

Table 16 below provides a summary of the required monitoring and pre-works inspections during the Construction Phase, as well as any surveys that should be completed during the Operational Phase. The monitoring, inspections and surveys will ensure that the identified mitigation measures are implemented and maintained efficiently and have the desired effect of protecting the local ecology from adverse impacts.

TABLE 16. MONITORING AND PRE-WORKS INSPECTIONS FOR THE IDENTIFIED MITIGATION MEASURES DURING CONSTRUCTION PHASE OF THE PROPOSED DEVELOPMENT. TO BE CARRIED OUT BY A SUITABLY QUALIFIED ECOLOGIST OR ECOLOGICAL CLERK OF WORKS (HIGHLIGHTED IN GREEN) OR BY THE DEVELOPMENT CONTRACTOR (NO HIGHLIGHT).

Measure	Monitoring
CONSTRUCTION PHASE	
Mitigation 1: Tree Protection	Ongoing monitoring by contractor.
Mitigation 2: Invasive Species Management	Ongoing monitoring by contractor.
Mitigation 3: Biosecurity	Ongoing monitoring by contractor.
Mitigation 4: Construction Phase Lighting	Ongoing monitoring by contractor.
Mitigation 5: Timing of Vegetation Clearance	Any Site vegetation clearance within the scrub, hedgerows, or grassland habitats subject to supervision by an Ecologist and a phased approach.
Mitigation 6: Waste Management	Ongoing monitoring by contractor.
OPERATIONAL PHASE	

Measure	Monitoring
Mitigation 7: Invasive Species Management	An Invasive Species Survey will be carried out by a qualified Ecologist during the next botanical season after soft landscaping has been completed.
Mitigation 8: Lighting	The location and placement of these structures should be carried out under the advisement and supervision of an Ecologist to ensure they are fit for purpose.
Enhancement 1: Hedgehog Highways	The placement and construction of these structures should be carried out under supervision of an Ecologist to ensure they are fit for purpose.
Enhancement 2: Swift Brick Scheme	The location and placement of these structures should be carried out under the advisement and supervision of an Ecologist to ensure they are fit for purpose.
Enhancement 3: Bat Box Scheme	The location and placement of these structures should be carried out under the advisement and supervision of an Ecologist to ensure they are fit for purpose.
Enhancement 4: Pollinator Habitat	The location and placement of these structures should be carried out under the advisement and supervision of an Ecologist to ensure they are fit for purpose.
Enhancement 5: Hibernacula	The location and placement of these structures should be carried out under the advisement and supervision of an Ecologist to ensure they are fit for purpose.

8 RESIDUAL IMPACTS

Residual impacts are impacts that remain once mitigation has been implemented or impacts that cannot be mitigated. Table 17 below provides a summary of the impact assessment for the identified KERs and details the nature of the impacts identified, the mitigation measures proposed, and the classification of any residual impacts.

Both standard Construction Phase control measures, and specific mitigation measures, have been outlined to ensure that the Proposed Development does not impact on any species, habitats or designated sites of conservation importance. It is essential that these measures are complied with, in order to ensure that the Proposed Development complies with National conservation legislation. Provided all recommended measures are implemented in full and remain effective throughout the lifetime of the Proposed Development, no significant negative residual impacts on the local ecology, or on any designated nature conservation sites, will occur as a result of the Proposed Development.

TABLE 17. SUMMARY OF POTENTIAL IMPACTS ON KER(S), MITIGATION PROPOSED AND RESIDUAL IMPACTS.

Key Ecological Resource	Evaluation	Potential Impact	Impact Without Mitigation				Proposed Mitigation / Mitigating Factors	Proposed Enhancements	Residual Impact
			Quality	Magnitude / Extent	Duration	Significance			
HABITATS									
Scrub (WS1)	Local importance (Higher value)	Construction Phase: Loss of habitat	Negative	Local	Permanent	Moderate	Mitigation 3: Tree Protection	None	Negative, Local, Permanent, Slight
		Operational Phase: Habitat creation.	Positive	Local	Permanent	Slight			
Invasive Species	Negligible	Construction Phase: Spread of invasive species.	Negative	Local	Short-term	Slight	Mitigation 4: Invasive Species Management Mitigation 3: Biosecurity Mitigation 7: Invasive Species Management	None	Imperceptible
		Operational Phase: Spread of invasive species.							
FAUNA									
Bat Assemblage	Local Importance (Higher Value)	Construction Phase: Loss of habitat.	Negative	Local	Permanent	Moderate	Mitigation 4: Construction Phase Lighting	Enhancement 3: Bat Box Scheme	Negative, Local, Permanent, Slight
		Increase in lighting during construction works.	Negative	Local	Short-term	Slight			
		Operational Phase: Increase lighting.	Negative	Local	Permanent	Moderate	Mitigation 8: Lighting		

Key Ecological Resource	Evaluation	Potential Impact	Impact Without Mitigation				Proposed Mitigation / Mitigating Factors	Proposed Enhancements	Residual Impact
			Quality	Magnitude / Extent	Duration	Significance			
Bird Assemblage	Local Importance (Higher Value)	Construction Phase: Habitat loss.	Negative	Local	Permanent	Moderate	Mitigation 5: Timing of Vegetation Clearance	Enhancement 2: Swift Brick Scheme	Negative, Local, Permanent, Slight
		Disturbance from noise, dust and/or lighting.	Negative	Local	Short-term	Slight			
		Risk of injury or death during vegetation clearance	Negative	Local	Short-term	Significant			
		Operational Phase: Habitat creation.	Positive	Local	Permanent	Not Significant			
Small Mammals (Irish Stoat, Irish Hare, Hedgehog, Pygmy Shrew)	Local Importance (Higher value)	Construction Phase: Habitat loss.	Negative	Local	Permanent	Moderate	Mitigation 5: Timing of Vegetation Clearance Mitigation 6: Waste Management	Enhancement 1: Hedgehog Highways Enhancement 5: Hibernacula	Negative, Local, Permanent, Slight
		Risk of injury or death during vegetation clearance and / or entrapment in construction-related rubbish.	Negative	Local	Short-term	Moderate			
		Disturbance from noise, dust and/or lighting.	Negative	Local	Short-term	Slight			
		Operational Phase: Disturbance due to human activity.	Negative	Local	Permanent	Moderate			

Key Ecological Resource	Evaluation	Potential Impact	Impact Without Mitigation				Proposed Mitigation / Mitigating Factors	Proposed Enhancements	Residual Impact
			Quality	Magnitude / Extent	Duration	Significance			
Amphibians	Local Importance (Higher Value)	Construction Phase: Loss of habitats.	Negative	Local	Permanent	Moderate	Mitigation 5: Timing of Vegetation Clearance Mitigation 6: Waste Management	Enhancement 5: Hibernacula	Negative, Local, Permanent, Not Significant
		Risk of injury or death during vegetation clearance or from other construction activities.	Negative	Local	Short-term	Moderate			
		Operational Phase: Habitat creation.	Positive	Local	Permanent	Not Significant			
Common Lizard	Local Importance (Higher Value)	Construction Phase: Loss of habitat	Negative	Local	Permanent	Moderate	Mitigation 5: Timing of Vegetation Clearance Mitigation 6: Waste Management	Enhancement 5: Hibernacula	Negative, Local, Permanent, Not Significant
		Risk of injury or death during vegetation clearance and / or entrapment in construction-related rubbish.	Negative	Local	Short-term	Moderate			
		Operational Phase: Habitat creation	Positive	Local	Permanent	Not Significant			

9 CONCLUSION

It is considered that, provided the mitigation measures proposed within this report together with all best practice development standards as outlined in the CEMP are carried out in full, there will be no significant negative impact to any KER habitat, species group or biodiversity as a result of the Proposed Development.

Additionally, the landscaping plan for the Proposed Development was designed to offset some of the habitat loss that will result from the Proposed Development and to further enhance the area and maintain ecological connectivity along the west boundary and the wider landscape.

Furthermore, the ecology parks proposed at the Site allows for additional habitat enhancements for small fauna such as reptiles and amphibians that may already be present at the Site to further offset the loss of habitats.

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APPENDIX I – LEGISLATION AND POLICY

International Legislation

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.

EU Habitats Directive

The Habitats Directive aims to protect some 220 habitats and approx. 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 (SACs) 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.

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 in order to give protection to migratory species across borders in Europe.

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 66,994ha.

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; the second cycle ran from 2016 – 2021, and the current (third) cycle runs from 2022-2027. 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.

National Legislation

Wildlife Act 1976 and amendments

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.

The current list of plant species protected by Section 21 of the Wildlife Act, 1976 (and amendments) is set out in the Flora (Protection) Order, 2022 (S.I. No. 235/2022). The Flora (Protection) Order affords protection to several species of plant in Ireland, including 89 vascular plants, 40 mosses, 25 liverworts, 2 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.

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.

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 regard 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.”

Invasive Species Legislation

Certain plant species and their hybrids are listed as Invasive Alien Plant Species in Part 1 of the Third Schedule of the *European Communities (Birds and Natural Habitats) Regulations 2011* (SI 477 of 2011, as amended). In addition, soils and other material containing such invasive plant material, are classified in Part 3 of the Third Schedule as vector materials and are subject to the same strict legal controls.

Failure to comply with the legal requirements set down in this legislation can result in either civil or criminal prosecution, or both, with very severe penalties accruing. Convicted parties under the Act can be fined up to €500,000.00, jailed for up to 3 years, or both.

Extracts from the relevant sections of the regulations are reproduced below.

“49(2) Save in accordance with a licence granted [by the Department of Arts, Heritage and the Gaeltacht], any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in anyplace [a restricted non-native plant], shall be guilty of an offence.

49(3) ... it shall be a defence to a charge of committing an offence under paragraph (1) or (2) to prove that the accused took all reasonable steps and exercised all due diligence to avoid committing the offence.

50(1) Save in accordance with a licence, a person shall be guilty of an offence if he or she [...] offers or exposes for sale, transportation, distribution, introduction, or release—

(a) an animal or plant listed in Part 1 or Part 2 of the Third Schedule,

(b) anything from which an animal or plant referred to in subparagraph (a) can be reproduced or propagated, or

(c) a vector material listed in the Third Schedule, in any place in the State specified in the third column of the Third Schedule in relation to such an animal, plant or vector material.”

National Biodiversity Action Plan 2023-2030

The National Biodiversity Plan (NBAP) 2023-2030, the fourth such plan for Ireland, captures the objectives, targets and actions for biodiversity that will be undertaken by a wide range of government, civil society and private sectors. Actions required to achieve the strategic objectives as well as the lead and key partners responsible for their implementation are set out for each of the objectives and their outcomes (Table A1).

TABLE A1: OBJECTIVES AND OUTCOMES OF THE NATIONAL BIODIVERSITY ACTION PLAN 2023-2030.

Objective	Outcome
1: Adopt a Whole-of-Government, Whole-of-Society Approach to Biodiversity	1A. Governance structures and reporting outputs have improved.
	1B. Organisational capacity and resources for biodiversity have increased at all levels of Government.
	1C. Responsibility for biodiversity is shared across the whole of government.
	1D. Biodiversity initiatives are supported across the whole of society.
	1E. The legislative framework for biodiversity conservation is robust, clear and enforceable.
2: Meet Urgent Conservation and Restoration Needs	2A: The protection of existing designated areas and protected species is strengthened and conservation and restoration within the existing protected area network are enhanced.

	2B: Biodiversity and ecosystem services in the wider countryside are conserved and restored – agriculture & forestry.
	2C: Biodiversity and ecosystem services in the wider countryside are conserved and restored – peatlands & climate action.
	2D: Biodiversity and ecosystem services in the marine and freshwater environment are conserved and restored.
	2E: Genetic diversity of wild and domesticated species is safeguarded.
	2F: A National Restoration Plan is in place to contribute to the ambition of the EU Biodiversity Strategy 2030 and global restoration targets.
	2H: Invasive alien species (IAS) are controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity and measures are undertaken to tackle the introduction and spread of new IAS to the environment.
3. Secure Nature's Contribution to People	3A: Ireland's natural heritage and biocultural diversity is recognised, valued, enhanced and promoted in policy and practice.
	3B: The role of biodiversity in supporting wellbeing, livelihoods, enterprise and employment is recognised and enhanced.
	3C: Planning and development will facilitate and secure biodiversity's contributions to people.
4. Enhance the Evidence Base for Action on Biodiversity	4A: Research funding bodies will have an improved understanding of the research and skills required to address biodiversity research gaps.
	4B: Data relevant to biodiversity and ecosystems, including conservation needs, is widely accessible and standardised.
	4C: Long-term monitoring programmes are in place to guide conservation and restoration goals.
	4D: Ireland has prepared national assessments of ecosystem services.
5. Strengthen Ireland's Contribution to International Biodiversity Initiatives	5A: Science, policy and action on biodiversity conservation and restoration is effectively coordinated in an all-island approach.
	5B: Ireland takes action internationally to cooperate with other countries, sectors, disciplines and communities to address the biodiversity crisis.
	5C: Ireland enhances its contributions to the international biodiversity data drive.

Fingal Development Plan (2023-2029)

Policies and objectives of the Fingal Development Plan (CDP) 2023-2029 that are of relevance to this Screening Report are outlined below:

- **Policy GINHP5:** *“Develop the green infrastructure network to ensure the conservation and enhancement of biodiversity, including the protection of European Sites, the provision of accessible parks, open spaces and recreational facilities (including allotments and community gardens), the sustainable management of water, the maintenance of*

landscape character including historic landscape character and the protection and enhancement of archaeological and heritage landscapes.”

- **Objective GINHO2:** *“Reduce fragmentation and enhance the resilience of Fingal’s green infrastructure network by strengthening ecological links between urban areas, Natura 2000 sites, proposed Natural Heritage Areas, parks and open spaces and the wider regional network by connecting all new developments into the wider green infrastructure network.”*
- **Policy GINHP12:** *“Protect areas designated or proposed to be designated as Natura 2000 sites (i.e., Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, and Refuges for Fauna.”*
- **Objective GINHO27:** *“Support the National Parks and Wildlife Service, in the maintenance and achievement of favourable conservation status for the habitats and species in Fingal by taking full account of the requirements of the Habitats and Birds Directives, in the performance of its functions.”*
- **Objective GINHO28:** *“Ensure that development does not have a significant adverse impact on proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Habitat Directive Annex I sites and Annex II species contained therein, and on rare and threatened species including those protected by law and their habitats.”*
- **Policy GINHP17:** *“Strictly protect areas designated or proposed to be designated as Natura 2000 sites (i.e., Special Areas of Conservation (SACs) and Special Protection Areas (SPAs); also known as European sites) including any areas that may be proposed for designation or designated during the lifetime of this Plan.”*
- **Objective GINHO35:** *“In accordance with Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities 2010, any plans or projects that are likely to have a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects, are subject to a screening for Appropriate Assessment unless they are directly connected with or necessary to the management of a Natura 2000 site.*
- **Objective GINHO79:** *“Ensure that there is appropriate public access to the coast including the provision of coastal walkways and cycleways, while taking full account of the need to conserve and enhance the natural and cultural heritage of the coast and the need to avoid significant adverse impacts on European Sites and species protected by law, through Screening for Appropriate Assessment, and examine the designation of traditional walking routes thereto as public rights of way.”*

Fingal County Biodiversity Action Plan (2023-2030)

The Fingal Biodiversity Action Plan (BAP) 2023-2030 is set out to protect and improve biodiversity through six topics:

- Delivery of the Ecological Network across Fingal;
- Building for Biodiversity;
- Climate change adaption and mitigation;
- Agri environment schemes and rewilding;
- Research & monitoring; and
- Raising awareness.

Note that the BAP is still in the consultation phase, and only a draft version has been made available online.

APPENDIX II – 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.

TABLE A2.1. DESCRIPTION OF VALUES FOR ECOLOGICAL RESOURCES BASED ON GEOGRAPHIC HIERARCHY OF IMPORTANCE (NRA, 2009B).

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 fulfils the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). - Features essential to maintaining the coherence of the Natura 2000 Network - Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive. - Resident or regularly occurring populations (assessed to be important at the national level) of the following: <ul style="list-style-type: none"> o Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or o 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"> o Species protected under the Wildlife Acts; and/or o Species listed on the relevant Red Data list.

	<ul style="list-style-type: none"> ○ 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. - 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; if this has been prepared. - Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county. - Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.
Local Importance (higher value)	<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.
Local Importance (lower value)	<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 is of some importance in maintaining habitat links.

APPENDIX III – EPA IMPACT ASSESSMENT CRITERIA

In line with the draft EPA Guidelines (EPA 2022), the following terms are defined when evaluating and quantifying the quality, significance, extent/context, probability and duration/frequency of effects.

TABLE A3.1. DEFINITION OF QUALITY, SIGNIFICANCE, EXTENT/CONTEXT, PROBABILITY AND DURATION/FREQUENCY OF EFFECTS.

Term	Definition
Quality of Effects	
Positive	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	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Negative/Adverse	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 or by causing nuisance).
Significance of Effects	
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 that 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, alters 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. No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error
Extent and Context of Effects	
Extent	Describe the size of the area, the number of sites and the proportion of a population affected by an effect.

Context	Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Probability of Effects	
Likely	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Duration and Frequency of Effects	
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	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.
Frequency	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).



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