January 2026

Ecological Impact Assessment

Large-scale Residential Development

at

Ardshanavooly, Killarney, Co. Kerry

On behalf of

Wrightwood Development Ltd.

MALONE O'REGAN ENVIRONMENTAL

MALONE O'REGAN

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Ecological Impact Assessment

Large-scale Residential Development

Wrightwood Development Ltd.

Ardshanavooly, Killarney, Co. Kerry

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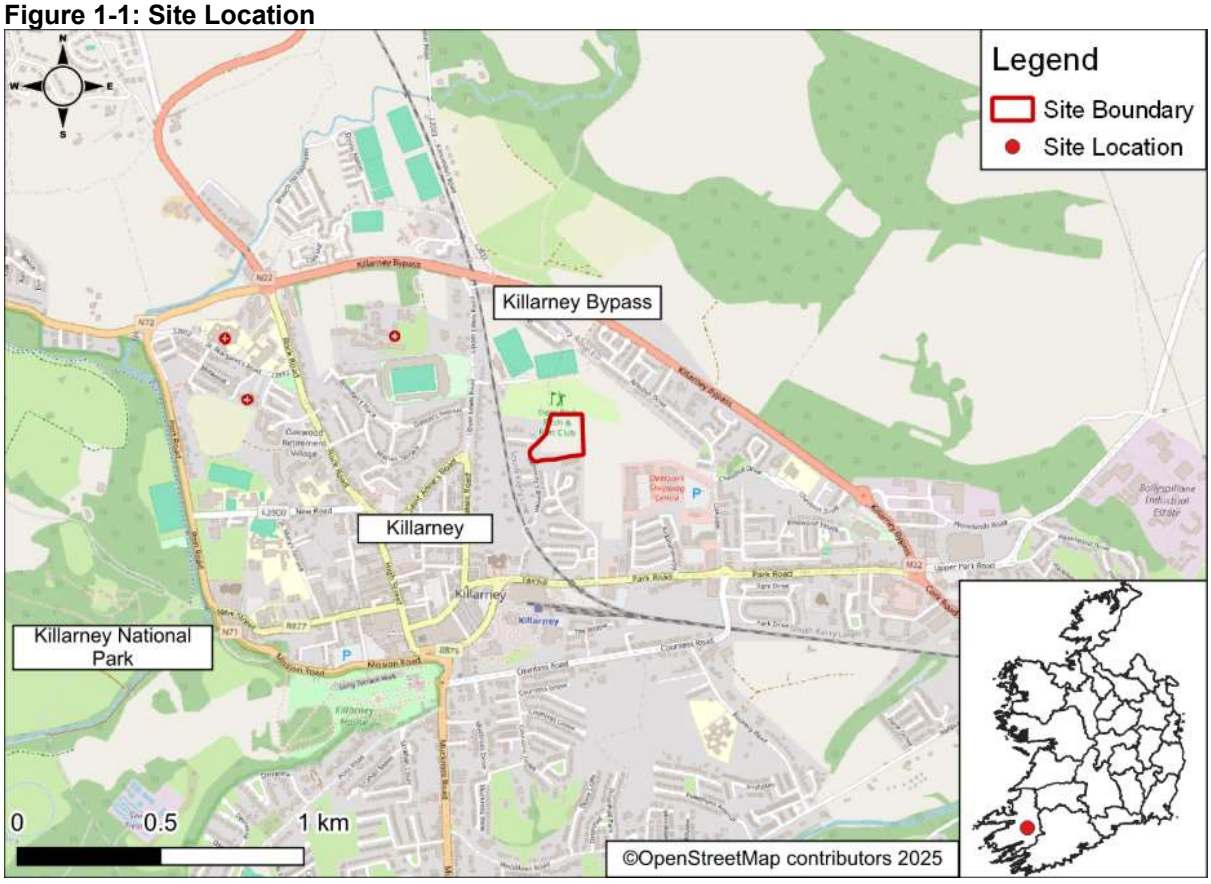
1 INTRODUCTION

1.1 Background and Purpose of Report

Malone O'Regan Environmental ('MOR Environmental') was commissioned by Wrightwood Development Ltd. ('the Applicant') to undertake an Ecological Impact Assessment ('EcIA') for the Construction and Operational Phases of the proposed Large-scale Residential Development ('LRD') and all associated works ('the Proposed Development) at Ardshanavooly, Killarney, Co. Kerry.

The Proposed Development will be located on a site that is circa ('ca.') 2.23 hectares ('ha') in size and is located within the townland of Killarney, Co. Kerry, ca. 30km southeast of Tralee, Co. Kerry, and is shown in Figure 1-1 ('the Site') (ITM OS Reference X 97077 Y: 91284).

Figure 1-1: Site Location



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

This report will be submitted as part of a planning application for the Proposed Development to the Planning Authority. A Stage 1: Appropriate Assessment Screening Report has also been submitted in support of the planning application.

1.2 Statement of Authority

This report was prepared by Ms. Alannah Warren, Environmental Consultant. Alannah has over one year's experience working in the environmental consultancy sector. As part of her role, Alannah is involved in the preparation of environmental assessments and reports, including Ecological Impact Assessments ('EcIAs') and Appropriate Assessments ('AAs'). She regularly undertakes field survey work, data analysis and report writing, and is continuing to

develop her expertise in habitat classification and protected species surveys. Her experience to date has given her a strong foundation in the processes and regulatory requirements that inform environmental assessments.

This report was reviewed and approved by Ms. Kathryn Broderick, Principal Consultant - Ecologist. Kathryn has over eight years' experience working in the ecological consultancy sector. As part of her role, Kathryn is required to undertake habitat surveys and appraisals, as well as specialist surveys for protected species, in support of Ecological Impact Assessments and Appropriate Assessments. Kathryn has also completed a diploma in Environmental Law and Planning, which had a focus on EIA and AA assessment, which has provided her with a comprehensive understanding of the legal context and requirements of these types of assessments.

1.3 Site Context

The Site is located on the outskirts of Killarney town. The Site is accessed via the local road 'Dennehy's Bohereen', via the regional road R875 that connects to the national road N22 ('Killarney Bypass'). The N22 is the main road connecting County Kerry and County Cork. The Site is currently zoned as "*New / proposed residential*" under the Kerry County Development Plan ('KCDP') [6].

The Site is a greenfield site comprised entirely of agricultural grassland. The Site is bordered to the west by existing residential properties, followed by the Iarnród Eireann Railway (South Kerry Line: Mallow-Cobh) and further residential properties. The Site is bordered to the east by agricultural grassland, followed by the Deerpark Shopping Centre and residential properties. The Site is bordered to the south by existing residential properties.

The Deerpark Pitch & Putt Club is located to the north of the Site, followed by Dr. Crokes GAA Club, further residential properties and the National Road N22. The surrounding area is a mix of private residential properties, commercial properties and sports venues such as Fitzgerald Stadium and the local GAA club. Refer to Figure 1-2 for context.

Figure 1-2: Site Context and Overview

1.4 Watercourses within the Vicinity of the Site

The Site is situated within the Laune-Maine-Dingle Bay WFD Catchment [Catchment_ID: 22] and the Laune_SC_010 subcatchment [Subcatchment_ID: 22_14] [13].

As per EPA Maps, there are no hydrological features of note within 1km of the Site. There are two hydrological features within 1.5km of the Site, which are presented below.

1. Deenagh_020

The Deenagh_020 is located ca. 1km west of the Site, at its closest point. The river flows in a southwesterly direction and drains into Lough Leane, ca. 2.4km downstream of the Site. Lough Leane forms part of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment Special Area of Conservation ('SAC') and the Killarney National Park Special Protection Area ('SPA').

Under the Water Framework Directive ('WFD') 2000/60/EC, as amended, the EPA classifies the status and the risk of not achieving good water quality status for all waterbodies in Ireland [13]. According to the WFD 2016-2021 monitoring events, the most up-to-date data at the time of writing this report, the water quality within the Deenagh_020 is considered to be '*good,'* and the status of this river is considered *'at risk'* [13].

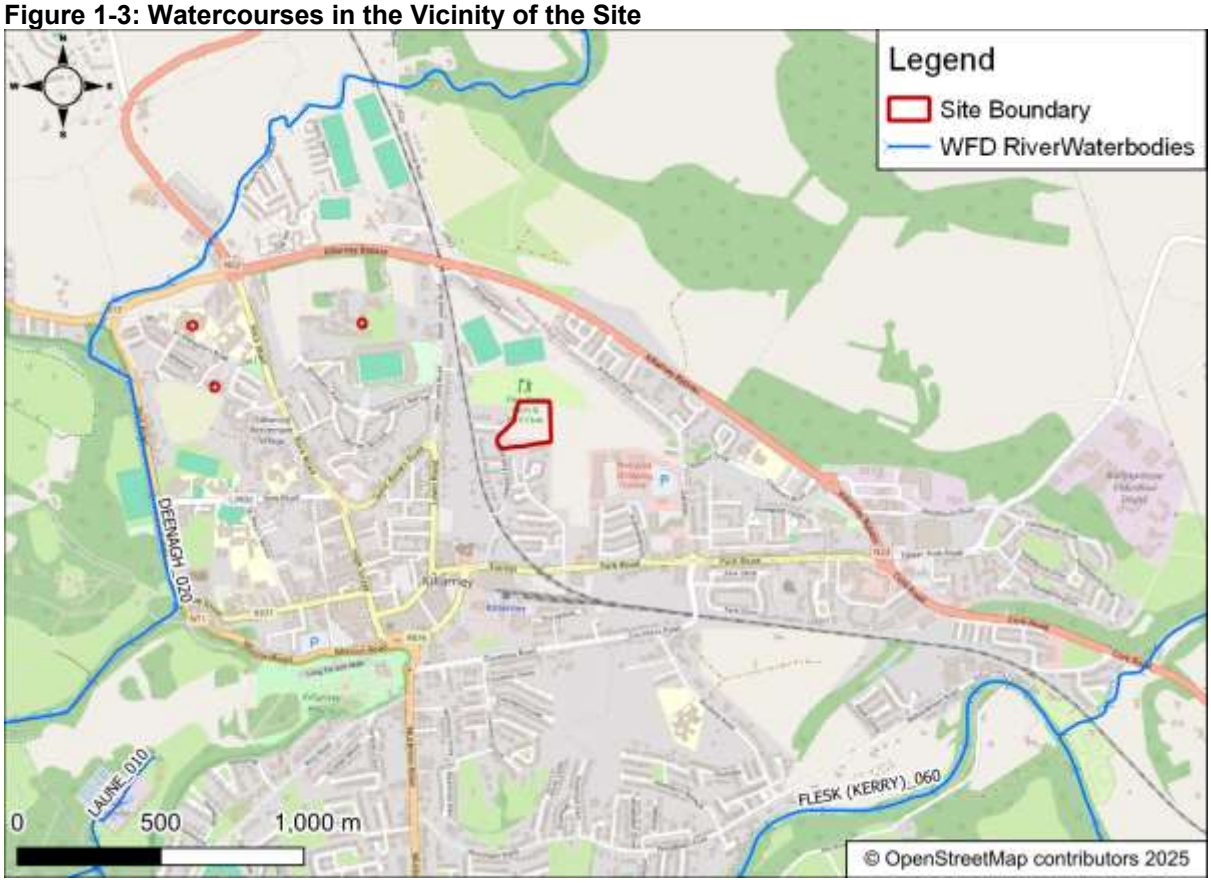
2. Flesk (Kerry)_060

The Flesk (Kerry)_060 is located ca. 1.5km southeast of the Site, at its closest point. The river flows in a southwesterly direction and drains into Lough Leane, ca. 3.5km downstream of the Site. Both the Flesk (Kerry)_060 and Lough Leane form part of the Killarney National Park. Macgillycuddy's Reeks and Caragh River Catchment SAC and Lough Leane form part of the Killarney National Park SPA.

Under the WFD 2000/60/EC, as amended, the EPA classifies the status and the risk of not achieving good water quality status for all waterbodies in Ireland [13]. According to the WFD 2016-2021 monitoring events, the most up-to-date data at the time of writing this report, the water quality within the Flesk (Kerry)_060 is considered to be '*good,'* and the status of this river is considered *'not at risk'* [13].

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

Figure 1-3: Watercourses in the Vicinity of the Site



1.4.1 OPW Flood Maps

The OPW Flood Maps identify Drainage Districts, Arterial Drainage Schemes and Benefited Areas [30]. Arterial Drainage Schemes were works that were carried out under the Arterial Drainage Act, 1945, to improve land for agriculture and to mitigate flooding. The benefitted land identifies land that was drained as part of the Drainage District with the aim of improving land for agriculture and mitigating flooding.

As per OPW Flood Maps, there are no Drainage Districts, Arterial Drainage Schemes or Benefited Areas located within the vicinity of the Site.

1.4.2 Drainage Ditches

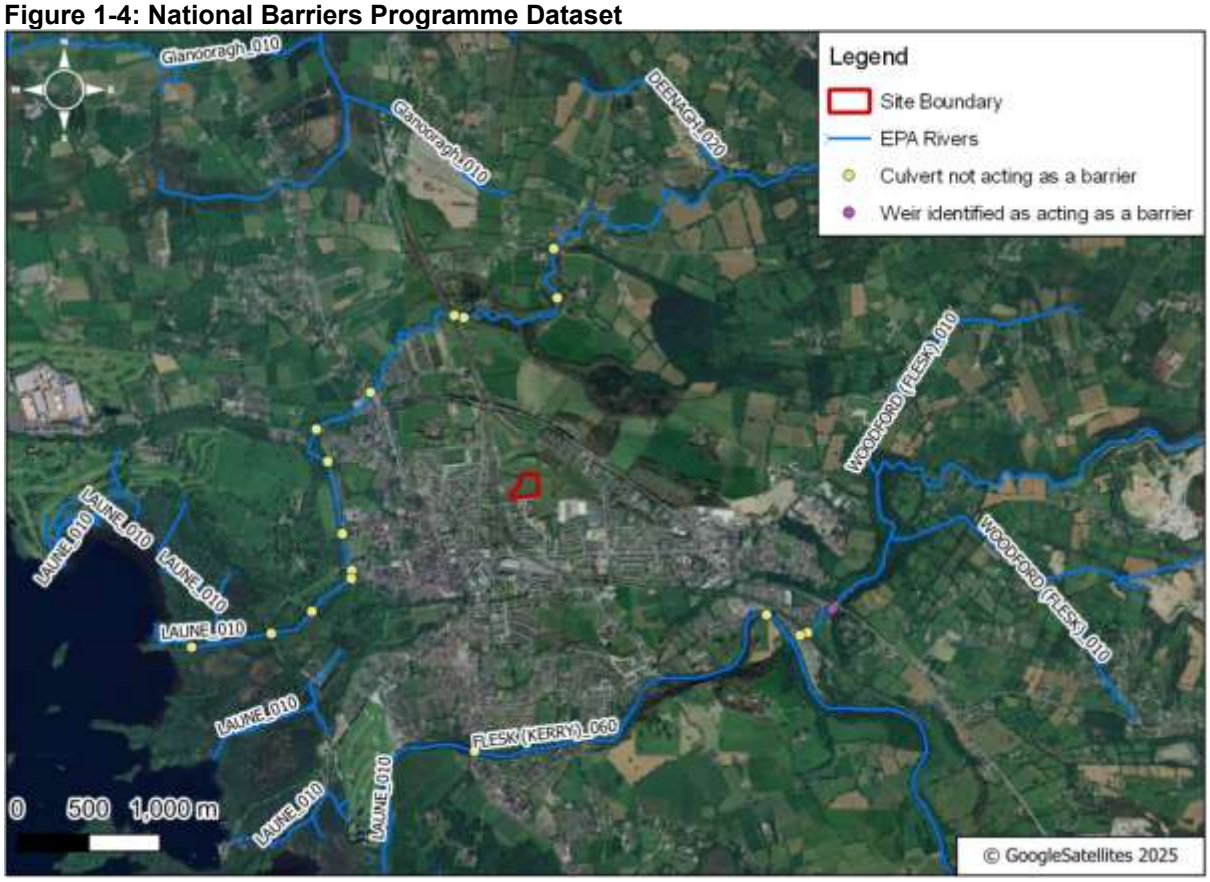
No drainage ditches were identified during the Site walkover.

1.4.3 National Barrier Programme

Irish rivers are heavily fragmented by weirs, dams, sluices, culverts, bridges and other artificial barriers. Therefore, the National Barriers Programme ('NBP') database was created as a national database of potential barriers to fish passage and includes assessing structures which can impact on both fish passage and hydromorphology [31].

As per the NBP Dataset, 13 barriers were identified along the Deenagh_020 watercourse. All of these barriers were identified as culverts and do not act as barriers. Five barriers were identified along the Flesk (Kerry)_060 watercourse. Four of these barriers were identified as culverts, and do not act as barriers. However, one weir located downstream of the Site was identified as a barrier and further assessment is required by Inland Fisheries Ireland ('IFI').

Figure 1-4: National Barriers Programme Dataset



1.5 Legislation and Planning Policy Context

1.5.1 Legislation Policy Context

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

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

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

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

Internationally important sites may also be designated as:

- Special Areas of Conservation ('SACs') and Candidate Special Area of Conservation ('cSACs'): the legal requirements relating to the designation and management of SACs in Ireland are set out in the European Communities (Birds and Natural Habitats) Regulations 2011-2021.
- Special Protection Areas ('SPAs') and candidate Special Protected Areas ('cSPAs'): strictly protected sites classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (209/147/EC), also known as the Birds Directive; and,

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

- Ramsar sites: wetlands of international importance designated under the Ramsar Convention, to which Ireland is a signatory.

Other statutory site designations relating to nature conservation are:

- Natural Heritage Areas ('NHAs'): these represent examples of some of the most important natural and semi-natural terrestrial and coastal habitats in the country and are afforded protection under the Wildlife (Amendment) Act 2000. NHAs are legally protected from damage and receive protection from the date they are formally proposed for designation; and,
- Proposed Natural Heritage Areas ('pNHAs'): these sites are not afforded the same protection as NHAs. These sites are proposed by the NPWS but are not statutorily proposed or designated. Prior to statutory designation these are subject to a very limited legal protection. They are, however, sites of significance for wildlife and habitats and are important for the purposes of this EclA report.

Legally protected species

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

- Species included in the Wildlife (Amendment) Act 2000, excluding species that are only protected in relation to their sale, reflecting the fact that the site disposal will not include any proposals relating to the sale of species; and,
- Species afforded protection under the Flora Protection Order 2022 (S.I.No.235/2022).

Other notable habitat/species categories

- Biodiversity Action Plan ('BAP') species: those targeted in local or national BAPs as being of particular conservation concern (priority species);
- Red and Amber List birds: those listed as being of high or medium conservation concern as listed by Birdwatch Ireland on the Birds of Conservation Concern in Ireland 2020-2026 [1]; and,
- Other Irish Red Data Book [2] species and Nationally / Regionally / Locally Notable species where appropriate.

1.5.2 National Planning Context

A study of biodiversity-related planning policy at the national and local level has been undertaken for the Site and locality to highlight any potential conflicts with the relevant legislation and guidance documents as outlined in Box 1.

1.5.2.1 Planning Policy Statement

The Government launched Project Ireland 2040 in February 2018 [3] and incorporates two policy documents - the National Planning Framework ('NPF') and the National Development Plan ('NDP').

Following a decision of the Government in June 2023, the preparation of a revised NPF [4] commenced to take account of changes that have occurred since it was published (in 2018) and to build on the existing framework. Public consultation took place from 10th July 2024 to 12th September 2024, following which the Government agreed to progress and publish a draft schedule of amendments to the First Revision to the NPF in November 2024. On 8th April 2025, the Government approved the revised NPF following the conclusion of environmental assessments, which included a Strategic Environmental Assessment ('SEA'), NIS and Appropriate Assessment Determination and a Strategic Flood Risk Assessment ('SFRA'). Both houses of the Oireachtas, the Seanad and the Dáil, approved this document as of 30th April 2025. The revised NPF is a direct replacement of the NPF and is detailed further below.

Revised National Planning Framework (April 2025)

Objectives under the 'Strategic Planning for Biodiversity' section of this draft framework include the following:

National Policy Objective 84:

> *'In line with the National Biodiversity Action Plan and European Union Nature Restoration Law, and best available scientific information, regional and local planning authorities shall support the preparation and implementation of the National Restoration Plan.'*

National Policy Objective 85:

'In line with the National Biodiversity Action Plan; the conservation, enhancement, mitigation and restoration of biodiversity is to be supported by:

- *Integrating policies and objectives for the protection and restoration of biodiversity, including the principles of the mitigation hierarchy of - avoid, minimise, restore and offset - of potential biodiversity impacts, in statutory land-use plan.*
- *Retention of existing habitats which are currently important for maintaining biodiversity (at local/regional/national/international levels), in the first instance, is preferable to replacement/restoration of habitats, in the interests of ensuring continuity of habitat provision and reduction of associated risks and costs.'*

National Policy Objective 86:

'In line with the objectives of the National Biodiversity Action Plan, planning authorities should seek to address no net loss of biodiversity within their plan making functions.'

National Policy Objective 87:

'Enhance the conservation status and improve the management of protected areas and protected species by:

- *Implementing relevant EU Directives to protect Ireland's environment and wildlife and support the objectives of the National Biodiversity Action Plan;*
- *Developing and utilising licensing and consent systems to facilitate sustainable activities within Natura 2000 sites;*
- *Continued research, survey programmes and monitoring of habitats and species.'*

National Policy Objective 88:

Facilitate the protection and restoration of biodiversity [including in European sites and the habitats and species for which they are selected] through the preparation of national guidance in relation to Planning and Biodiversity to:

- *Plan and manage for integration of biodiversity protection and restoration in future planning and development;*
- *Ensure a consistent and strategic approach to biodiversity protection and restoration across planning authorities and administrative boundaries, and*
- *Support the implementation of the National Biodiversity Action Plan (2023-2030) and the forthcoming National Restoration Plan.*

<u>The National Development Plan (2021-2030) ('NDP')</u>

The NPF and the NDP will continue to align and form a single vision for Ireland under Project Ireland 2040.

The NDP also lists the following items as strategic investment priorities in relation to National Heritage and biodiversity:

- *'Implementation of the current and future National Biodiversity Action Plan, delivery of National Parks and Wildlife Service Farm Plans and LIFE projects, enhanced wildlife crime investigation capacity and identification and delivery conservation measures at designated sites as identified in the Prioritised Action Framework for Ireland (2021-2027).'*

- *'Investment in nature and biodiversity, to improve the quality of natural habitats and support native plants and animals, including those under threat, and to bolster broader societal wellness and sustainability goals.'*
- *'Future-proofing obligations under the Biodiversity Strategy 2030, including potential national designations and the preparation and delivery of a National Restoration Plan.'*

1.5.2.2 Ireland's National Biodiversity Action Plan, 2023 – 2030

The 4th National Biodiversity Action Plan ('NBAP') 2023-2030 sets out a number of strategic objectives and it lays out a clear framework for Irelands approach to biodiversity and demonstrates Ireland's commitment to protect our biodiversity and also halt decline [5].

'This National Biodiversity Action Plan 2023-2030 builds upon the achievements of the previous Plan. It will continue to implement actions within the framework of five strategic objectives, while addressing new and emerging issues.'

The NBAP was reviewed as part of this report and the following objectives were considered relevant to the Proposed Development.

Objective 2 of the NBAP aims to:

> *'Meet urgent conservation and restoration needs.'*

There are two targeted outcomes are listed under this objective which are considered relevant to the Proposed Development. These outcomes are as follows:

Outcome 2A:

> '*The protection of existing designated areas and species is strengthened and conservation and restoration within the existing protected are network are enhanced'.*

Outcome 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.'*

Objective 3 of the NBAP aims to:

> *'Secure natures contribution to people'*

There are two targeted outcomes are listed under this objective which are considered relevant to the Proposed Development. These outcomes are as follows:

Outcome 3B:

> *'The role of biodiversity in supporting wellbeing, livelihoods, enterprise and employment is recognised and enhanced.'*

Outcome 3C:

> *'Planning and development will facilitate and secure biodiversity's contributions to people.'*

1.5.3 Regional Planning Context

The Regional Spatial and Economic Strategy for the Southern Region ('RSES') recognises the need to conserve and enhance biodiversity through co-ordinated spatial planning between the counties within the southern region of Ireland [7]. This strategy came into effect on 31st January 2020.

Under the biodiversity section, Regional Policy Objective 126 states that the Southern Regional Assembly will:

- *'Promote biodiversity protection and habitat connectivity both within protected areas and in the landscape through promoting the integration of green infrastructure and ecosystem services, including landscape, heritage, biodiversity and management of invasive and alien species in the preparation of statutory and non-statutory land-use plans. The RSES recognises the role of the National Biodiversity Data Centre through its Citizen Science initiatives;*
- *Support local authorities acting together with relevant stakeholders in implementing measures designed to identify, conserve and enhance the biodiversity of the Region; seek and support the implementation of the All-Ireland Pollinator Plan, National Biodiversity Action Plan and National Raised Bog SAC Management Plan;*
- *Local Authorities are required to carry out required screening of proposed projects and any draft land-use plan or amendment/ variation to any such plan for any potential ecological impact on areas designated or proposed for inclusion as Natura 2000/ European Sites and shall decide if an Appropriate Assessment is necessary, of the potential impacts of the project or plan on the conservation objectives of any Natura 2000/European Site;*
- *Support local authorities to carry out, monitor and review biodiversity plans throughout the Region. Planning authorities should set objectives in their land use plans to implement and monitor the actions as set out in the National and County Biodiversity Plans, as the conservation of biodiversity is an essential component of sustainable development. Local authorities should address the issue of fisheries protection and invasive introduced species and encourage the use of native species for landscape planting in rural areas, in the review of their biodiversity plans; and,*
- *Support local authorities to work with all stakeholders to conserve, manage and where possible enhance the Regions natural heritage including all habitats, species, landscapes and geological heritage of conservation interest and to promote increased understanding and awareness of the natural heritage of the Region.'*

The RSES also contains policies relating to invasive species. Regional Policy Objective 127 states that it is an objective to:

- *'Support coordination between the Region's local authorities in terms of their measures to survey invasive species in their counties and coordinate regional responses;*
- *Encourage greater awareness of potential threats caused by invasive species and how they are spread; and,*
- *Carefully consider and implement the management of invasive species where there is a corridor, such as hydrological connections to European Sites in order to prevent the spread of invasive to sensitive sites*.'

1.5.4 Local Planning Context

1.5.4.1 Kerry County Development Plan 2022-2028

The Kerry County Development Plan 2022-2028 ('KCDP') contains several policies and objectives that relate directly to the protection of biodiversity and natural heritage in the context of proposed developments [6]. The policies and objectives of the KCDP regarding the natural environment that are relevant to the Proposed Development are as follows:

Objective 2-4:

'Support measures to build resilience to climate change throughout the county to address impact reduction, adaptive capacity, awareness raising, emergency planning, and giving priority, where feasible, to integrated nature-based solutions and biodiversity.'

Objective 2-5:

'Support the development of sustainable communities that enhance the health and well-being of our peoples and places, giving priority to local biodiversity and integrated nature-based solutions.'

Objective 2-10:

'Support integrated nature-based solutions and biodiversity to climate change challenges, as well as initiatives aimed at increasing soil carbon retention, sequestration, and storage.'

Objective 4-23:

'Encourage and facilitate, in consultation with relevant stakeholders, the development of green infrastructure that recognises the synergies that can be achieved with regard to the following:

- *Provision of open space amenities;*
- *Sustainable management of water;*
- *Protection and management of biodiversity;*
- *Protection of cultural heritage; and,*
- *Protection of protected landscape sensitivities.'*

Objective 11-1:

'Ensure that the requirements of relevant EU and national legislation, are complied with by the Council in undertaking its functions, including the requirements of the EU Birds and Habitats Directives.'

Objective 11-2:

'Maintain the nature conservation value and integrity of Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs). This shall include any other sites that may be designated at the national level during the lifetime of the plan in co-operation with relevant state agencies.'

Objective 11-3:

'Work with all stakeholders in order to conserve, manage and where possible enhance the County's natural heritage including all habitats, species, landscapes and geological heritage of conservation interest and to promote increased understanding and awareness of the natural heritage of the County.'

Objective 11-5:

'Support and facilitate the actions in the National Biodiversity Action Plan and Kerry County Council's Biodiversity Action Plan 2022 – 2028.'

Objective 11-16:

'Ensure invasive species are managed in compliance with the provisions of the EC (Birds and Habitats) Regulations (SI 477 of 2011), as amended, particularly Sections 49, 50 and the Third Schedule. Best practices, as produced and updated by relevant authorities, are

to be adhered to in the management of invasive species, particularly on sites proposed for development.'

Objective 11-19:

'Support actions from the All-Ireland Pollinator Plan, including the plan's recommendations for grassland management and pollinator-friendly species.'

Objective 11-20:

'Support the management of appropriate green areas to become natural biodiversity areas to encourage natural wildflowers to recolonise and support enhanced bee and insect populations.'

Objective 11-25:

'Support projects such as the swift nesting project (that are compatible with the protection of our architectural heritage); pollinator-friendly initiatives, tree planting, nature based sustainable urban drainage systems and other actions that seek to enhance urban wildlife.'

Objective 11-27:

*'Support the preservation and enhancement of the general level of broadleaf tree cover throughout the County in both urban and rural areas and ensure that development proposals satisfactorily retain existing trees and/or provide additional native planting. A Tree Survey Report shall inform applications where appropriate.'***Objective 11-28:**

'Encourage the provision of locally provenanced native tree species, including those recommended by the All-Ireland Pollinator Plan, as part of the development of landscaping schemes.'

Objective 11-44:

'Take into consideration the Bat Conservation Trust 2018 Note 08/18 Bats and Artificial Lighting in the UK Guidelines when choosing lighting specifications for developments and/or Bat specialist advice, so as to ensure the requirements of the Habitats Directive are adhered to, including Article 10.'

Objective 11-78:

'Protect the landscapes of the County by ensuring that any new developments do not detrimentally impact on the character, integrity, distinctiveness or scenic value of their area. Any development which could unduly impact upon such landscapes will not be permitted.'

It should be noted that Proposed Variation No. 1 and No. 2 to the Kerry County Development Plan 2022-2028 and associated environmental reports have been reviewed as part of this EcIA. The adopted variation refers to the Tralee Municipal District Settlement Plan. Nonetheless, as Killarney has been identified as large scale 'Key Towns' in the RSES/KCDP the following objectives in relation to biodiversity were considered:

KCDP SP-27

'Promote and support an increase in the provision of green and blue spaces and tree canopy cover in settlements'

KCDP SP-28

'Identify and protect Locally Important Biodiversity (LIBS) sites through data collection and mapping in accordance with Heritage Council guidelines.'

KCDP SP-29

'*Ensure that opportunities for biodiversity protection, enhancement and creation are identified and incorporated into development proposals, as appropriate'.*

1.5.4.2 County Kerry Biodiversity Action Plan 2022-2028

The Biodiversity Action Plan ('BAP') for County Kerry was published in 2021 and is the second such plan for County Kerry. The BAP forms part of the KCDP and highlights the key role biodiversity plays in meeting the challenges of climate change, with a particular emphasis on nature-based solutions to meet the requirements of the Climate Action and Low Carbon Development (Amendment) Act of 2021. The County Kerry BAP [7] Identifies six key objectives to maintain and improve biodiversity across the county:

Objective 1:

Mainstreaming biodiversity into decision-making within the Local Authority.

Objective 2:

To conserve, protect and enhance biodiversity and ecosystem service in the county.

Objective 3:

That biodiversity underpins KCC's responses to the challenges of climate change.

Objective 4:

Work with a range of stakeholders to ensure the protection and enhancement of biodiversity in the county.

Objective 5:

Increase awareness and appreciation of biodiversity within KCC and the community.

Objective 6:

Support the strengthening of the knowledge base, information and data on biodiversity in the county.

2 METHODOLOGY

2.1 Assessment Methodology for Prediction of Effects

Desk study data collection and field survey work were carried out as part of the EcIA process, with the objective of ensuring that sufficient data was collected to identify the designated sites, habitat areas and species that could be significantly affected by the Proposed Development. This information then informed the assessment of effects on the potential biodiversity receptors.

The area for which biological data was collected was based on an assessment of the ecological zone of influence of the Proposed Development. The ecological zone of influence is the area that could be affected by the Proposed Development, within which there is the potential for significant ecological effects. All SPAs and SACs within 15km have been considered to assess their ecological pathways and functional links. As acknowledged in the OPR guidelines [8], few projects have a Zone of Influence this large; however, the identification of European sites within 15km and NHAs and pNHAs within 5km has become widely accepted as the starting point. For this reason, all SPAs and SACs in 15km and NHAs and pNHAs in 5km have been identified for consideration. Desk study data were collected for this area (See Section 4.1), whilst field surveys focused on the lands within and adjacent to the Site (See Section 4.2).

It should be noted that there was the potential for the Zone of Influence to be redefined during the assessment process in response to new design or environmental information, and / or for the geographical extent of field surveys to be extended to cover a greater extent of the desk study area (e.g., if the desk study identified species occurring offsite that could be significantly affected by the Proposed Development). In the end, such an increase in the study area was not required for this assessment.

The next stage of the assessment was to determine which, if any, of the sites, habitats and species within the Zone of Influence (referred to in this report as 'potential biodiversity receptors') had the potential to be significantly affected by the Proposed Development (see Section 5). A high-level 'scoping' assessment was then undertaken (see Section 5.2) to differentiate effects that were sufficiently likely to be significant as to merit more detailed assessment, from those that could be assessed at a less detailed level as they were classified as not likely to be significant (referred to as 'screened-out' effects).

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

2.2 Desk Study

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

- Review of aerial maps of the Site and surrounding area;
- The National Parks and Wildlife Service ('NPWS') website was consulted with regard to the most up-to-date details on conservation objectives for the Natura 2000 sites relevant to this assessment [9];
- The Kerry County Council Planning Portal to obtain details about existing / proposed developments in the vicinity of the Site [10];

- The Department of Housing, Local Government and Heritage's planning portal – the National Planning Application Database to obtain details about existing / proposed developments in the vicinity of the Site [11];
- The National Biodiversity Data Centre ('NBDC') website was consulted with regard to species distributions [12];
- The EPA Maps website was consulted to obtain details about watercourses in the vicinity of the Site [13].

2.3 Field Survey

2.3.1 Habitat Survey

A habitat survey of the Site was undertaken on 14th November 2024 by two suitably qualified and experienced MOR Environmental Ecologists. This survey was undertaken for the Site using the Heritage Council's '*A Guide to Habitats in Ireland'* [14]. This is the standard habitat classification system used in Ireland and includes both a desk-based and field-based assessment. All the surveys were conducted in line with the Heritage Council's '*Best Practice Guidance for Habitat Survey & Mapping*' [15].

The Site was walked slowly and carefully, allowing surveyors to note, categorise and map the habitats present on the Site. All habitats present on the Site were assessed for their potential to support features of national conservation importance.

Following the completion of the habitat survey, it was deemed necessary to undertake additional specialist surveys for breeding and wintering birds; see details below.

2.3.2 Protected / Notable Species

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

2.3.2.1 Flora

The Site was assessed for the presence of notable / protected flora species in accordance with the following:

- Flora (Protection) Order 2022 (S.I. No. 235/2022); and,
- Ireland Red List No. 10: Vascular Plants [16].

2.3.2.2 Amphibians

The Site was assessed for its potential to provide sheltering, foraging and breeding habitat for amphibians in line with the National Roads Authority ('NRA'), now Transport Infrastructure Ireland ('TII'), '*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes,*' [17]. These included waterbodies suitable for egg-laying, and terrestrial habitats comprising open areas with mixed-height vegetation, such as heathland, rough grassland, open scrub or waterbody margins. Suitable well drained and frost-free areas are needed to enable amphibians to survive the winter.

2.3.2.3 Badgers

During the Site walkover, the Site was assessed for its potential to support badger (*Meles meles*). The survey aimed to identify and examine areas where badgers might occur by noting any evidence of badger activity. This included:

- Mammal paths;
- Badger hairs caught in sett entrances / fences / vegetation;

- Paw prints;
- Evidence of foraging (usually in the form of 'snuffle holes');
- Badger Scat (isolated badger droppings);
- Latrines (shallow pits/holes occurring together comprised of exposed badger droppings); and,
- Badger setts.

A mammal path was assumed to be used by badgers if the character of the path (in terms of size) was appropriate and / or if any other signs were in close vicinity (e.g., a badger sett).

The field survey of the Site was conducted in line with the following relevant guidance for badger:

- Scottish Badgers, '*Surveying for Badgers: Good Practice Guidelines,*' [18];
- The Mammal Society, 'Surveying Badgers,' [19]; and,
- NRA, now TII, '*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*,' [17].

2.3.2.4 Bats

An initial assessment was carried out during the Site walkover on 14th November 2024 for the suitability of the habitats on the Site to support bat roosting, foraging and commuting. The following criteria were used to assess the mature trees on-site:

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

The trees were inspected in accordance with recognised best practice as outlined below:

- DoEHLG, 'Bat Mitigation Guidelines for Ireland' [20];
- NRA, 'Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes' [21];
- Irish Wildlife Manual No.20 'A Conservation Plan for Irish Vesper Bats' [22];
- UK Bat Mitigation Guidelines: A guide to impact assessment, mitigation and compensation for developments affecting bats [23]; and,

- Bat Conservation Trust ('BCT'), 'Bat Surveys for Professional Ecologists Good Practice Guidelines (4th ed.)' [24].

Assessment criteria for evaluating the onsite habitats for foraging and commuting bats and the onsite structure for roosting bats were carried out in line with *'Bat Surveys for professional Ecologists: Good Practice Guidelines'* [24].

Table 2-1: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement [24].

Potential Suitability	Description of Roosting habitats in structures	Description of Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevice/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade / protection for flight-lines, or generate / shelter insect populations available to foraging bats).
Negligible[1]	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on-site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[2] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats[3]).	Habitat that could be used by small numbers of bats as flight-paths, such as a gappy hedgerow or unvegetated stream, but isolated, i.e., not very well connected to the surrounding landscape by another habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats, such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous, high-quality habitat that is well connected to the wider landscape, which is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape, which is likely to be used regularly by foraging bats, such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

[1] Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).

[2] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

[3] Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments ([95] and [96]).Common pipistrelle swarming has been observed in the UK ([97] and [98]) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland ([99]). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.

Potential Suitability	Description of Roosting habitats in structures	Description of Potential flight-paths and foraging habitats
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roost, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape, which is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape, which is likely to be used regularly by foraging bats, such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

Ground Level Tree Inspection

As part of the walkover, all trees within the Site and adjoining lands were assessed for the presence of features that could be utilised by roosting bats, using close-focusing binoculars and a powerful focused-beam light source. The following criteria were used:

The following criteria were used to assess mature trees onsite:

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

The potential suitability of any Potential Roost Features ('PRFs') identified were then categorised as per Table 5-2 below (Table 6.2 in BCT guidance [48]).

Table 2-2: Guidelines for Categorising the Potential Suitability of PRFs

PRF Suitability	Description
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.

2.3.2.5 Birds

The Site was assessed for its potential to support important assemblages of birds of rare or notable species, as well as designated bird species. Surveys aimed to identify and examine the suitability of the Site for potential wintering and breeding birds. Any bird activity onsite and potential nesting habitats were noted. Following the desk-based assessment and the initial habitat assessment, it was deemed necessary to undertake:

- Winter bird vantage point ('VP') and transect surveys during the 2024/2025 winter bird season; and,
- Breeding bird point count transect surveys during the 2025 breeding bird season.

Wintering Bird Surveys

Wintering bird surveys were undertaken by a suitably qualified and experienced MOR Environmental Ecologist on 2nd January, 21st January and 7th February 2025 to assess the potential use of the Site by wintering bird species.

The surveys utilised adapted methods from the Scottish Natural Heritage ('SNH') bird survey methods [25] and Bird Monitoring Methods [26]. One pre-determined vantage point ('VP') was selected that had sufficient views of the Site (see Figure 2-1). Following the completion of the survey at the VP, a transect survey was undertaken to flush out any birds that may not have been visible during the vantage point survey (see Figure 2-1). All species observed utilising the Site were recorded, and their locations were marked on the maps.

During the surveys, all birds were recorded using a standard BTO code through sight and sound and optical equipment, such as telescopes and binoculars, was used to minimise disturbance to wintering birds. The behaviours and activities of the birds were recorded to identify whether the birds were roosting or feeding within the Site. Any roosts identified within the Site were recorded.

Full details of the methodology used for these surveys are outlined in Appendix A – Bird Report.

Figure 2-1: Wintering Bird Survey VP and Transect

Breeding Bird Surveys

Three breeding bird transect surveys were undertaken on 11th April, 2nd May and 11th June 2025 by a suitably qualified MOR Environmental Ecologist. The breeding bird surveys were conducted in line with the methodology described in:

- British Trust of Ornithology ('BTO') – A Field Guide to Monitoring Nests [27]; and,

- Common Bird Census in Bird Monitoring Methods [26].

The breeding bird surveys employed a point count methodology. Multiple predetermined count points were selected to ensure comprehensive visual coverage of the entire Site, with the surveyor remaining at each fixed location for a standardised period to record all species seen or heard. Throughout the survey period, every bird utilising the Site was identified, and its location was mapped.

All birds were recorded through sight and sound. Optical equipment was used, including binoculars, in order to minimise disturbance to potentially breeding birds. Suitable vegetation onsite was examined for the presence of nests. During the survey, the behavioural activity of the recorded birds was noted using the BTO breeding status codes. Birds that displayed non-territorial behaviours were recorded as well (i.e. birds that were flying over the Site, birds that were foraging and not calling, birds that were loafing).

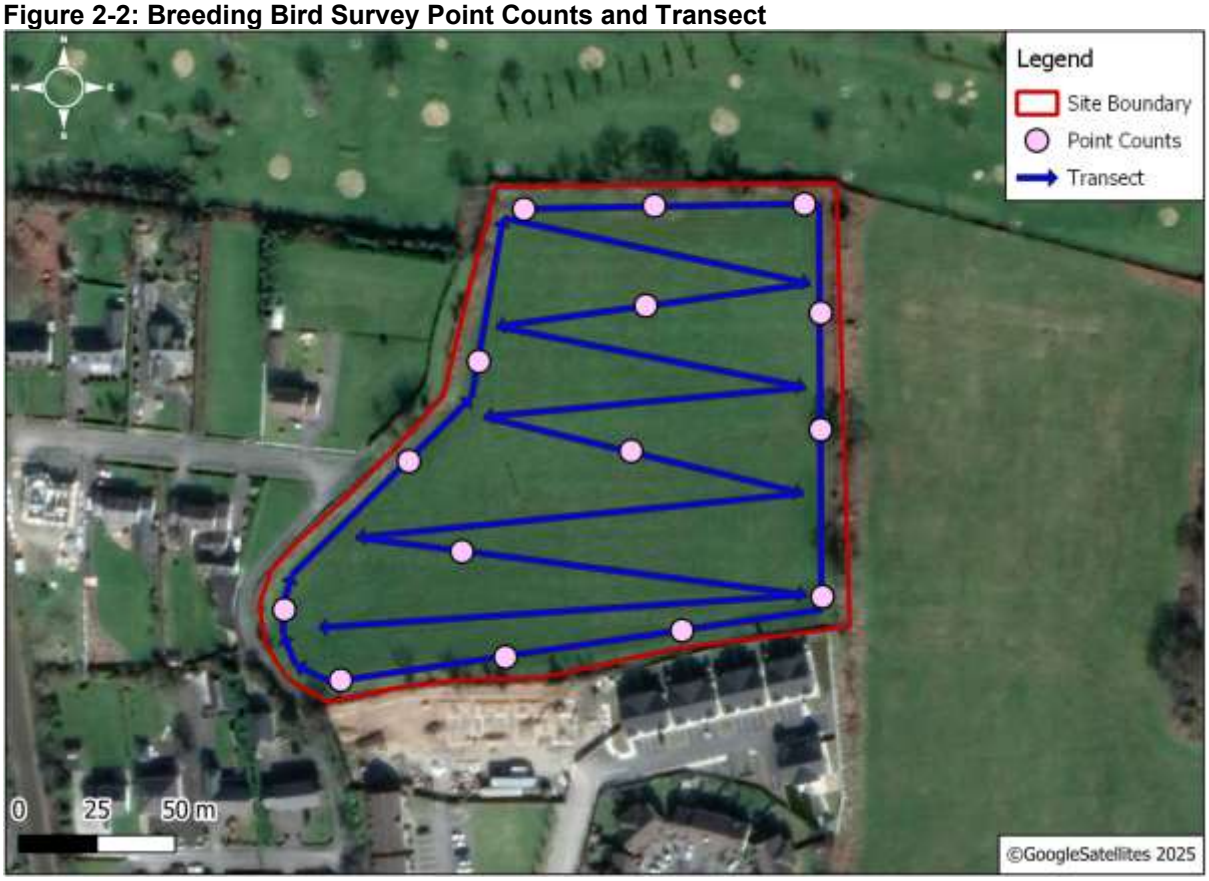
Birds were classified as non-breeding, possibly breeding and confirmed breeding based on the behaviours exhibited. The criteria for each classification are described below:

- Non-breeding – Birds that were flying over the Site, birds that were foraging and not calling, birds that were loafing;
- Possible Breeding – Birds observed in suitable nesting habitat and displaying either territorial and/or courtship behaviours, nest building behaviours or observed visiting a possible nest; and,
- Confirmed Breeding – Birds observed either on the nest or carrying faecal sac or food, sighting of a nest with eggs / chicks, used nests, eggshells or recently fledged young.

The location of the point counts and transects are in Figure 2-2, below.

Full details on survey methodology are presented in Appendix A – Bird Report.

Figure 2-2: Breeding Bird Survey Point Counts and Transect



2.3.2.6 Hedgehogs and Pygmy Shrews

The habitats within and adjacent to the Site were appraised for their potential to support hedgehogs (*Erinaceus europaeus)* and pygmy shrews (*Sorex minutus)* in line with the NRA, now TII, '*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*,' [18].

2.3.2.7 Invasive species

The Site was visually assessed for the presence of any noxious / invasive species that are regulated under the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374/2024) [28], such as Japanese knotweed (*Reynoutria japonica*) and Himalayan balsam (*Impatiens glandulifera*).

The Site was also assessed for the presence of non-regulated invasive species that have the potential to impact local biodiversity.

2.3.2.8 Other Species

In addition, an assessment was carried out of the potential for the Site to support any other species considered to be of value for biodiversity, including those that were identified as occurring locally based on the findings of the desktop study and professional judgment.

2.3.3 Survey Limitations

The initial habitat assessment and Site walkover were undertaken in November, outside the optimal season for flowering plants. However, this is not considered to have impacted the outcome of the habitat assessment as the Site was mainly comprised of improved agricultural grassland with low species diversity.

Therefore, no further habitat surveys were considered necessary in the production of this EcIA.

2.4 Assessment Methodology

The current Guidelines for Ecological Impact Assessment in the UK and Ireland [29] recognise that an ecological assessment cannot consider in detail every individual species or habitat that may potentially be affected by a Proposed Development.

The EcIA process aims to identify those ecological receptors that could be significantly affected by the Proposed Development, i.e., where the effects on the receptor are of sufficient concern that they could influence the planning decision, or for which the development could result in the breach of relevant legislation.

The effects of the Proposed Development on these receptors are then assessed, taking into account the sensitive design measures (avoidance measures) and, where necessary, the mitigation measures incorporated as part of the Proposed Development. The scope of the EcIA is determined iteratively.

2.4.1 Consultation

Consultation was undertaken with Kerry County Council as part of the LRD process, including a pre-planning meeting on 18th October 2024. All comments and opinions received from Kerry County Council were considered as part of this assessment.

2.4.2 Significance Evaluation Methodology

As part of the high-level assessment reported in Section 4.1, the conclusion about whether effects are sufficiently likely to be significant as to merit more detailed assessment is informed by a judgement about whether:

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

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

2.4.2.1 Negative Effects

For biodiversity receptors, an effect is assessed as being significant if the favourable conservation status of the specified biodiversity receptor is compromised by the Proposed Development. Conservation status is defined by Chartered Institute of Ecology and Environmental Management ('CIEEM') (2016) as follows:

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

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

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

2.4.2.2 Positive Effects

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

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

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

2.5 Identification of Potential Biodiversity Receptors

The assessment of the ecological Zone of Influence of the Proposed Development concluded that the development would be likely to result in changes in the extent and / or condition of the existing land cover on the Site, with potential effects on habitats and species on the Site. There is also the potential for effects on any areas that adjoin the site, where fauna may utilise the land cover on-site.

In summary, therefore, the ecological Zone of Influence of the Proposed Development is defined as:

- The Site of the Proposed Development (fauna and flora); and,
- Habitats adjoining the Site (fauna).

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

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

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

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

Drawing upon the biological data assembled for the purposes of this EcIA (Section 4), the potential receptors in relation to the Proposed Development are discussed in Section 5.1.

3 DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 Description of the Proposed Development

The Applicant intends to apply for permission for development at Ardshanavooly, Killarney, Co. Kerry. The development will consist of the following:

1. Construction of a 124 no. dwellings in a mix of duplex, maisonette and apartment typologies comprising 16 no. 1 bed apartments, 6 no. 2 bed apartments, 16 no. 1 bed duplex apartments, 16 no. 2 bed duplex maisonettes, 33 no. 2 bed duplex apartments, 33 no. 3 bed maisonettes and 4 no. 3 bed terrace houses, all in building heights ranging from 2 to 4 storeys.
2. A total of 143 no. surface car parking spaces, including 4 no. car-share parking spaces, 6 no. visitor spaces, and 5 no. assigned Part M/accessible spaces.
3. Bicycle parking comprising of 272 no spaces in total, comprising 118 no. spaces within the private open space of ground floor residential units and 102 no. spaces within secure sheltered structures and designated secure bicycle parking areas, and 52 no. short stay/visitor spaces.
4. 3,636 sq.m of public open space, including arrival pocket park, central pocket park and amenity landscape areas (including 117 sq.m of play), grass lawns, kickabout areas, picnic areas and seating areas;
5. 956 sq.m of communal external open space, including seating areas, nature trails, and amenity grass lawns.
6. Additional environmental open space of 1,790 sq.m, including landscape buffers, protection and enhancement of existing hedgerows and trees.
7. A new vehicular, pedestrian and cyclist access from the existing estate road adjoining the site to the south.
8. Infrastructure works to serve the proposed development to include the internal road and footpath network, ESB cabinets/substations/switchrooms, site and external building lighting, site drainage works, hard and soft landscaping, boundary treatments, communal bin stores, and all ancillary site services and development works above and below ground.

Vehicular access to the Proposed Development will be via one new entrance located in the Carraig Midhe estate to the south of the Site. The Proposed Development also includes a separate pedestrian entrance at the southeast corner of the Site via Corbally Road.

Please refer to the Proposed Site Layout Plan, Drawing No. 924-008K-02-L00-DR-RAE-AR-103, submitted with the planning application.

3.1.1 Drainage

An Engineering Assessment and Drainage Design Report was prepared by Teicniuil-Priory Consulting Engineers Ltd. and submitted as part of this planning application. Please refer to this report for full drainage details.

Surface Water Drainage

It is proposed that no surface water will be discharged from the Site to the existing public drainage network. It is proposed to treat all surface water on-site. Should any controlled surface water flow discharge from the Site be required, this will be limited to greenfield run-off rates.

Sustainable Urban Drainage Systems ('SuDS')

The Proposed Development has been assessed in relation to the SuDS Construction Industry Research and Information Association ('CIRIA') Manual C753 [22]. The aim of the proposed drainage system is to replicate the natural characteristics of rainfall run-off, minimising the environmental impact from rainfall events by reducing the run-off leaving the Site for small rainfall events.

Based on the existing site topography, proposed Site layout and nature of the Proposed Development, alternative SuDS measures have been proposed to treat the surface water runoff, to replicate the natural characteristics of the greenfield runoff and minimise the environmental impact. The proposed SuDS are listed below:

- Soakaways;
- Attenuation tanks / crates;
- Swales;
- Permeable paving;
- Bio-retention area
- Petrol / Oil Interceptor;
- Detention Basins; and,
- Tree pits.

For further information, refer to the Teicniuil-Priory Consulting Engineers Ltd. Engineering Assessment and Drainage Design Report submitted as part of this planning application. Refer to Teicniuil-Priory Consulting Engineers Ltd. Drawing 91-24-0-210 for the proposed SuDS layout.

Stormwater Drainage

Whole on-site infiltration is proposed, within the development, with no off-site discharge of stormwater to the public sewer.

Stormwater will be collected from the building roofs, via guttering, with discharge to rainwater down pipes – this above-ground drainage to be designed to BS EN 12056-3:2000, *Gravity Drainage Systems Inside Buildings.* The receiving gullies are to be of the bottle type gullies (rather than P-trap Gullies); this facilitates ease of maintenance and provides an initial removal of silt and organic deposits from the roof area.

Thereafter, the stormwater is to be conveyed via 100mm diameter PVCu pipes laid to a 1:60 gradient, bedded in suitable pea gravel, for a short run, linked to a larger 150mm diameter pipe via a saddle connection. This main drainage pipe will be connected either to an underground soakaway or a bioretention (rain garden) system, via a silt trap manhole, with a minimum 400mm silt trap base.

Stormwater from a portion of the road area will be conveyed via 'open channel' flow directly to individual tree pits. The stormwater from the remainder, larger portion of the road, is to be conveyed to a detention basin area, at the 'front' of the Site (south), via suitably sized PVC drainage pipes.

Carparking areas will discharge directly to the ground, via permeable paving, laid over a stone sub-base, with direct infiltration to the ground.

Foul Water

The proposed foul water drainage system is to be connected to the existing public mains system to the south of the Site. The final discharge pipe from the Development is sized at 225mm diameter, which had been sized for a peak flow of 4.89 L/s. This connects to an existing main sewer pipe 225mm in diameter, serving several small housing estates. The drainage pipe running around each block will be designed and sized to BS EN 12056-2:2000 – *Gravity Drainage Systems Inside Buildings*.

No stormwater run-off will enter the foul water system; all stormwater will be treated separately to the foul drainage system and will be designed and constructed to Irish Water Standards.

Uisce Éireann

A feasibility application has been submitted to Irish Water regarding the proposed foul water drainage. The foul water drainage system, which will be completely separate from the stormwater drainage system, will be designed and constructed to Irish Water Standards. It is proposed to treat all on-site surface water. A Confirmation of Feasibility has been received from Uisce Éireann. Based on this pre-connection enquiry, Uisce Éireann deemed this proposal "*Feasible, without infrastructure upgrade".*

Water Supply

The proposed water supply system is to be connected to the existing Uisce Éireann water mains system to the south of the Site. It is proposed to provide a new 150mm (internal diameter) water connection to the public water main in the Saill Ardán estate with associated valves and metering requirements. Internally within the Proposed Development, a series of 100mm branches and loops, along with associated hydrants, valves and metering requirements, is proposed. Water distribution supply to each building will be sized to cater for the requirements of those particular uses. Metered connections will be made to the main in accordance with Uisce Éireann specifications and details.

All works will be in accordance with the Irish Water Code of Practice for Water Supply and the Water Infrastructure Standard Details Document Number: IW-CDS-5020-01.

3.1.2 Site Access

Vehicular access to the Proposed Development will be via the existing road system currently serving the small residential estates of Friary Downs and Saill Ardán to the south of the Site. This will lead to the main Park Road R876. This access point will be used for construction traffic and will form the main access point that will be used upon completion of the Proposed Development. All construction traffic, including construction plant, cars, vans and trucks, will be provided with on-site parking.

3.1.3 External Lighting

As the Site is located within a residential and public area, public lighting will be positioned accordingly within this scheme. All lighting will face away from existing residential developments, and away from ecological corridors such as boundary / trees.

3.1.4 Landscaping

A Landscape Management Plan ('LMP') has been prepared by Gannon & Associated Landscape Architecture and should be read in conjunction with this EcIA. The LMP includes:

- Proposed Trees, Multi-Stem Trees and Ornamental Shrubs;
- Native Boundary Woodland Mix;
- Ornamental Planting Mix,

- Rain Garden Mix,
- Amenity grassland areas;
- Native ecological habitat seed mix; and,
- Nature Play area; and,
- Seating & Relaxing Area.

Any trees shown on planning drawings to be retained will be protected for the duration of the construction activities on site and in accordance with BS 5837. Protective measures will include the erection of a protective fence beyond the branch spread of the trees, and no construction activities will take place within the protective barrier, except for perimeter fencing along the site boundaries.

3.1.5 Earthworks

Bulk excavation activities will consist of the removal of the made ground, topsoil and the excavation of drainage, services and building foundations, underneath the footprint of the proposed structures. A total of ca. 7000m^3 of bulk excavation will be required to remove topsoil, with an average depth of 350mm.

All vegetation, predominantly grass, which has a shallow root system, will be stripped from the Site and removed. The remaining topsoil will be stockpiled for reinstatement where required (for gardens, amenity areas, etc.). Ca. 1500m^3-2000m^3 of topsoil will be removed from the Site for re-use elsewhere.

Excavated made ground, soil / stone will be carefully stored in segregated piles on the Site for subsequent reuse within the development, where it is deemed acceptable by the site engineer to do so. Excess material will be removed from the Site to a suitably permitted C&D recovery / disposal site, or an Article 27 by-product notification will be submitted to the EPA for approval.

3.1.6 Waste Management

The contractor will implement effective waste management and prevention, minimisation, reuse, recycling, recovery and disposal of waste generated during the Construction Phase. Given the type of development, these will be mostly waste blockwork material and prefabricated metal structures, with minimal waste generated during construction.

Waste generated on-site is to be managed by the Developer, in order of priority, in accordance with section 21A of the Waste Management Act 1996 [33].

3.2 Construction Procedures

During the Construction Phase of the Proposed Development, all works will comply with the relevant legislation, construction industry guidelines and best practice to reduce potential environmental adverse effects. The Proposed Development has five construction phases. The Proposed Development will take ca. 36 months to complete.

The following standard guidance will be followed during the Construction Phase of the project to prevent environmental pollution that may occur within the area:

- C532 – Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors (Construction Industry Research and Information Association) [34]; and,
- C811 - Environmental Good Practice on Site (5th edition) [35];

The construction compound for the development will be located within the green space area of the Site. The compound will include a site office and welfare facilities for construction

workers. Portaloos will be provided in the compound initially, with a dedicated toilet block installed at a later date. Electrical and potable water supply will be provided from the existing connections. Car parking will be located adjacent to the construction compound, as shown within the Construction Environmental Management Plan ('CEMP') prepared by Teicniuil-Priory Consulting Engineers Ltd. Once planning is granted, construction works are expected to commence immediately.

The proposed works will aim to be completed in approximately 36 months from the grant of planning conditions. Working hours will generally be restricted to between 08:00 – 18:00 hours Monday to Friday inclusive and between 08:00 – 14:00 hours on Saturdays. Construction work will not be permitted on Sundays, public holidays or at night-time except where safety concerns necessitate it or if agreed in advance with the Planning Authority.

4 STUDY RESULTS

4.1 Desk-Based Study

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

4.1.1 European Sites

In accordance with the European Commission Methodological Guidance [36] and policy objectives 11-1, 11-2 and 11-3 of the KCDP [6], a list of European sites that can be potentially affected by the Proposed Development has been compiled. Guidance for Planning Authorities prepared by the Department of Environment, Heritage and Local Government [37] states that defining the likely zone of impact for the screening and the approach used will depend on the nature, size, location and the likely significant effects of the project. The key variables determining whether or not a particular European site is likely to be negatively affected by a project are:

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

All SPAs and SACs within 15km have been considered to assess their ecological pathways and functional links. As acknowledged in the OPR guidelines [8], few projects have a zone of influence this large; however, the identification of European sites within 15km has become widely accepted as the starting point for the screening process. For this reason, all SPAs and SACs within 15km have been identified for consideration as part of the screening.

Five European sites were located within 15km of the Site - these are identified in Figure 4-1 and Table 4-1.

Figure 4-1: European sites within 15km of the Site

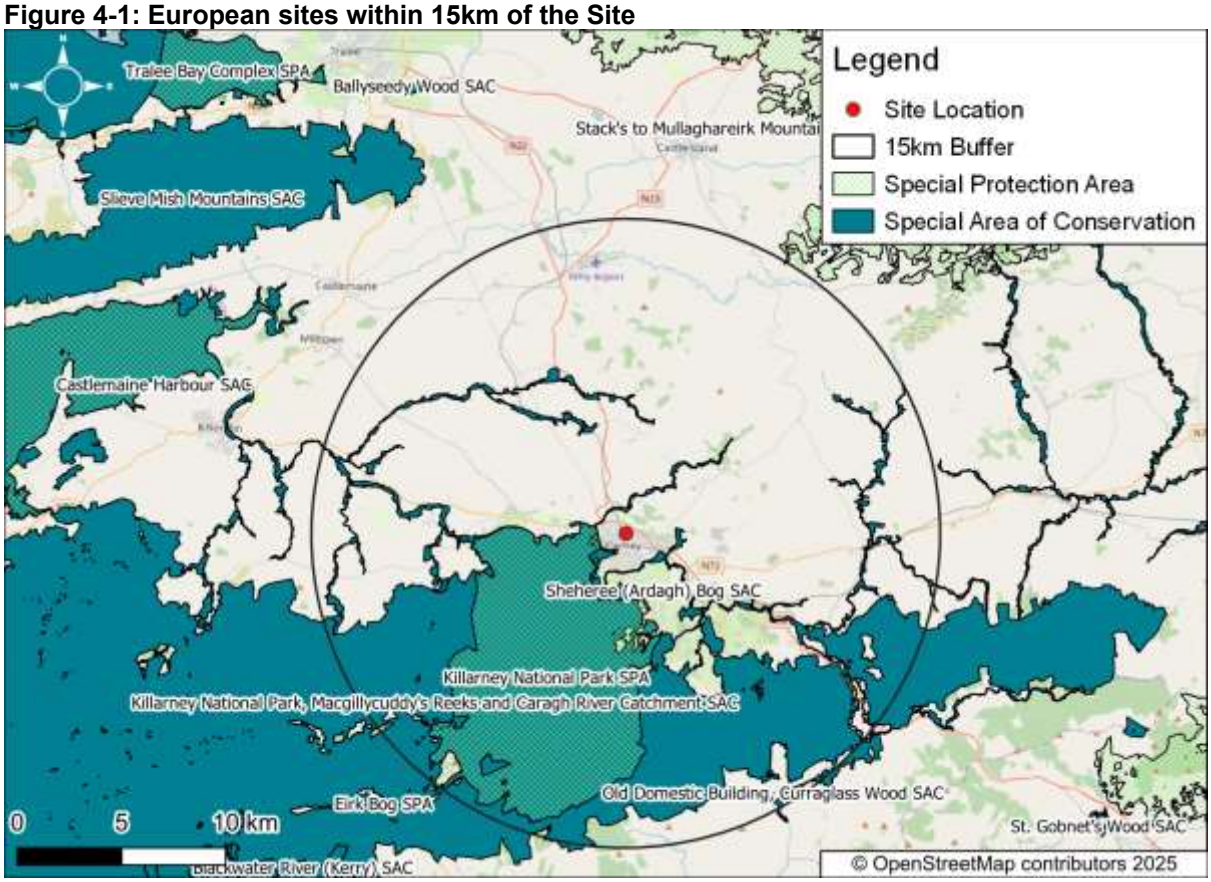


Table 4-1: Natura 2000 Sites within 15km of the Site

Site Name	Code	Distance (km)	Direction from the Site
Special Areas of Conservation ('SAC')			
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC	000365	0.75km	W/SW
Sheheree (Ardagh) Bog SAC	000382	2.7km	SE
Castlemaine Harbour SAC	000343	5.5km	NW/W
Old Domestic Building	002041	14.24km	SE
Special Protection Area ('SPA')			
Killarney National Park SPA	004038	0.75km	W/SW

Further consideration to the European sites listed in Table 4-1, above, is provided in the Stage 1: Appropriate Assessment – Screening Report that has been submitted as part of the overall planning application.

4.1.2 Nationally Designated Sites

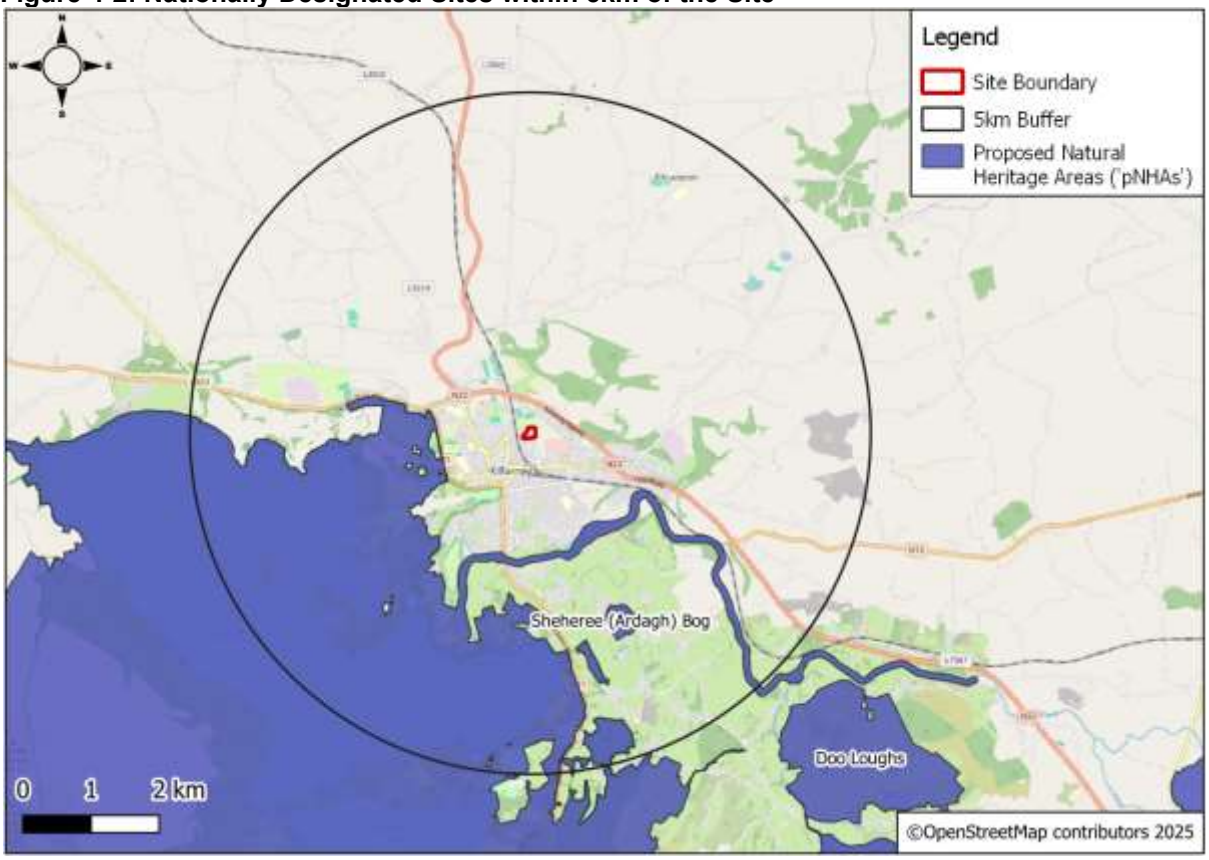
Nationally designated sites within 5km of the Site were investigated as per Policy Objective 11-2 of the KCDP [6].

Two proposed Natural Heritage Areas ('pNHAs') were identified within 5km of the Site, while no Natural Heritage Areas ('NHAs') were identified within 5km of the Site. Refer to Table 4-2 and Figure 4-2 for context.

Table 4-2: Proposed Natural Heritage Areas within 5km of the Site

Site Name	Code	Distance (km) & Direction	Qualifying Interest
Proposed National Heritage Areas (pNHA)			
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment	000365	1.23km W / SW	As per Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC
Sheheree (Ardagh) Bog	000382	2.75km SE	As per Sheheree (Ardagh) Bog SAC

Figure 4-2: Nationally Designated Sites within 5km of the Site



4.1.3 NBDC Protected Species

Table 4-3 provides a summary of records of legally protected or otherwise notable species that occurred within 2km of the Site at the time of writing this report [12]. The NBDC records were checked on 9th January 2026. The following NBDC 2km grids have been checked: V99Q, V99R, V99V, V99W, V99K and V98U [12].

Only species recorded within the past 10 years were included in Table 4-3. The parameter of 10 years was chosen based on habitat adaption and modification; it is considered that any

records over 10 years old are not representative of the current distribution of species populations.

Table 4-3: NBDC Notable / Protected Species within 2km of the Site (V99Q, V99R, V99V, V99W, V99K and V98U)

Common Name	*Scientific Name*	Date of Last Record *	Designation
Bird Species			
Barn Owl	*Tyto alba*	10/08/2021	Wildlife Acts 1976 / 2000
			Birds of Conservation Concern Red List
Barn Swallow	*Hirundo rustica*	08/08/2022	Wildlife Acts 1976 / 2000
			Birds of Conservation Concern Amber List
Black-headed Gull	*Chroicocephalus ridibundus*	02/02/2019	Wildlife Acts 1976 / 2000
			Birds of Conservation Concern Amber List
Black Legged Kittiwake	*Rissa tridactyla*	30/12/2022	Wildlife Acts 1976 / 2000
			Birds of Conservation Concern Red List
			Threatened Species: OSPAR Convention
Common Goldeneye	*Bucephala clangula*	25/02/2024	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex II Section II Bird Species
			Birds of Conservation Concern Red List
Common Grasshopper Warbler	*Locustella naevia*	07/05/2024	Wildlife Acts 1976 / 2000
			Birds of Conservation Concern Green List
Common Kestrel	*Falco tinnunculus*	13/03/2020	Wildlife Acts 1976 / 2000
			Birds of Conservation Concern Red List
Common Kingfisher	*Alcedo atthis*	29/09/2018	Wildlife Acts 1976 / 2000
			EU Birds Directive Annex I Bird Species
			Birds of Conservation Concern Amber List
Common Linnet	*Linaria cannabina*	18/07/2020	Wildlife Acts 1976 / 2000
			Birds of Conservation Concern Amber List
Common Pheasant	*Phasianus colchicus*	12/05/2021	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex II Section I and Annex III and Section I Bird Species
			Birds of Conservation Concern Green List
Common Pochard	*Aythya ferina*	25/12/2021	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex II Section I and Annex III Section II Bird Species
			Birds of Conservation Concern Red List

Common Name	*Scientific Name*	Date of Last Record *	Designation
Common Redshank	*Tringa totanus*	21/09/2024	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Red List
Common Snipe	*Gallinago gallinago*	21/10/2018	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II Section I and Annex III and Section III Bird Species Birds of Conservation Concern Red List
Common Starling	*Sturnus vulgaris*	02/05/2021	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Swift	*Apus apus*	04/05/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Red List
Common Wood Pigeon	*Columba palumbus*	12/05/2021	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II Section I and Annex III Section I Bird Species Birds of Conservation Concern Green List
Gadwall	*Mareca strepera*	25/12/2021	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II Section I Bird Species Birds of Conservation Concern Amber List
Great Cormorant	*Phalacrocorax carbo*	02/02/2019	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
House Martin	*Delichon urbicum*	14/08/2024	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
House Sparrow	*Passer domesticus*	23/08/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Jack Snipe	*Lymnocryptes minimus*	13/03/2020	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II Section I and Annex III and Section III Bird Species Birds of Conservation Concern Green List
Lesser Black-backed Gull	*Larus fuscus*	22/07/2021	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Little Egret	*Egretta garzetta*	16/10/2016	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex I Bird Species Birds of Conservation Concern Green List
Mallard	*Anas platyrhynchos*	12/05/2021	Wildlife Acts 1976 / 2000

Common Name	*Scientific Name*	Date of Last Record *	Designation
			EU Birds Directive Annex II Section I and Annex III and Section I Bird Species
			Birds of Conservation Concern Amber List
Meadow Pipit	*Anthus pratensis*	30/11/2022	Wildlife Acts 1976 / 2000
			Birds of Conservation Concern Red List
Mediterranean Gull	*Ichthyaetus melanocephalus*	03/09/2022	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex I Bird Species
			Birds of Conservation Concern Amber List
Northern Lapwing	*Vanellus vanellus*	03/03/2018	Wildlife Acts 1976 / 2000
			EU Birds Directive Annex II Section II Bird Species
			Birds of Conservation Concern Red List
Northern Shoveler	*Spatula clypeata*	03/02/2023	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex II Section I and Annex III Section III Bird Species
			Birds of Conservation Concern Red List
Peregrine Falcon	*Falco peregrinus*	03/05/2024	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex I Bird Species
			Birds of Conservation Concern Green List
Rock Pigeon	*Columba livia*	09/09/2016	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex II Section I Bird Species
			Birds of Conservation Concern Green List
Sand Martin	*Riparia riparia*	30/06/2024	Wildlife Acts 1976 / 2000
			Birds of Conservation Concern Amber List
Sandwich Tern	*Thalasseus sandvicensis*	03/09/2022	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex I Bird Species
			Birds of Conservation Concern Amber List
Spotted Flycatcher	*Muscicapa striata*	18/07/2024	Wildlife Acts 1976 / 2000
			Birds of Conservation Concern Amber List
Tufted Duck	*Aythya fuligula*	04/03/2022	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex II Section I and Annex III and Section II Bird Species
			Birds of Conservation Concern Amber List

Common Name	*Scientific Name*	Date of Last Record *	Designation
Bat Species			
Brown Long-eared Bat	*Plecotus auritus*	14/05/2021	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex IV
Daubenton's Bat	*Myotis daubentonii*	24/08/2021	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex IV
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	21/05/2021	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex IV
Leisler's Bat	*Nyctalus leisleri*	21/07/2021	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex IV
Common Pipistrelle	*Pipistrellus pipistrellus sensu stricto*	21/05/2021	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex IV
Natterer's Bat	*Myotis nattereri*	02/08/2019	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex IV
Soprano Pipistrelle	*Pipistrellus pygmaeus*	21/05/2022	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex IV
Whiskered Bat	*Myotis mystacinus*	14/05/2021	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex IV
Terrestrial Mammals			
Eurasian Badger	*Meles meles*	02/02/2017	Wildlife Acts 1976 / 2000
Eurasian Red Squirrel	*Sciurus vulgaris*	20/10/2018	Wildlife Acts 1976 / 2000
Pine Marten	*Martes martes*	13/06/2021	Wildlife Acts 1976 / 2000
			EU Habitats Directive Annex V
Western European Hedgehog	*Erinaceus europaeus*	29/09/2022	Wildlife Acts 1976 / 2000
Invasive species**			
Harlequin Ladybird	*Harmonia axyridis*	30/10/2023	High Impact Invasive Species
			Regulation S.I. 374 (Ireland)
Japanese Knotweed	*Reynoutria japonica*	21/09/2024	High Impact Invasive Species
			Regulation S.I. 374 (Ireland)
Rhododendron	*Rhododendron ponticum*	23/05/2023	High Impact Invasive Species
			Regulation S.I. 374 (Ireland)
Sika Deer	*Cervus nippon*	01/08/2018	High Impact Invasive Species
			Regulation S.I. 374 (Ireland)
Spanish Bluebell	*Hyacinthoides hispanica*	28/04/2022	Invasive Species
			Regulation S.I. 374 (Ireland)
Three-cornered Garlic	*Allium triquetrum*	11/03/2025	Medium Impact Invasive Species
			Regulation S.I. 374 (Ireland)

*Note that only species recorded within the past 10 years were included in this table. The parameter of 10 years was chosen to allow for habitat adaptation and modification. It is considered that any records over 10 years are not representative of the current distribution of species populations

**This table includes only invasive species that are regulated under S.I. 477 (Ireland)

4.2 Field Survey

4.2.1 Habitats

The following section provides details of the field-based assessment that was undertaken for the Site on 14th November 2024. A description of the habitats and features of ecological significance is outlined below and illustrated in Figure 4-3.

Improved Agricultural Grassland (GA1)

The majority of the Site was comprised of improved agricultural grassland.

The grassland was comprised primarily of perennial ryegrass (*Lolium perenne*), with sorrel (*Rumex acetosa*), cow parsley (*Anthriscus sylvestris*), dandelion (*Taraxacum officinale*), herb Robert (*Geranium robertianum*), common ragwort (*Senecio jacobaea*) and stinging nettle (*Urtica dioica*).

Dense Bracken (HD1)

Areas of dense bracken were identified within the Site, primarily along the eastern boundary with small sections recorded along the north-western boundary.

This habitat was comprised primarily of bracken (*Pteridium aquilinium*), Other species included hawthorn (*Crataegus monogyna*), gorse (*Ulex europaeus*), bramble (*Rubus fruticosus*) lesser stitchwort (*Stellaria graminea*) and bent grass (*Agrostis sp.*).

Scrub (WS1)

Scrub was recorded along the southern boundary of the Site.

Species identified included goat willow (*Salix caprea*), butterfly bush (*Buddleja davidii*), noble yarrow (*Achillea nobilis*), bracken, stinging nettle, hazel (*Corylus avellana*), field mustard (*Brassica rapa*), red clover (*Trifolium pratense*) and bush vetch (*Vicia sepium*).

Hedgerow / Treeline (WL1 / WL2)

A hedgerow / treeline comprised the northern and eastern perimeters of the Site. This habitat was heavily managed in places, most notably within the northwest, northeast and southeast corners of the habitat, with evidence of tree-felling and bracken removal.

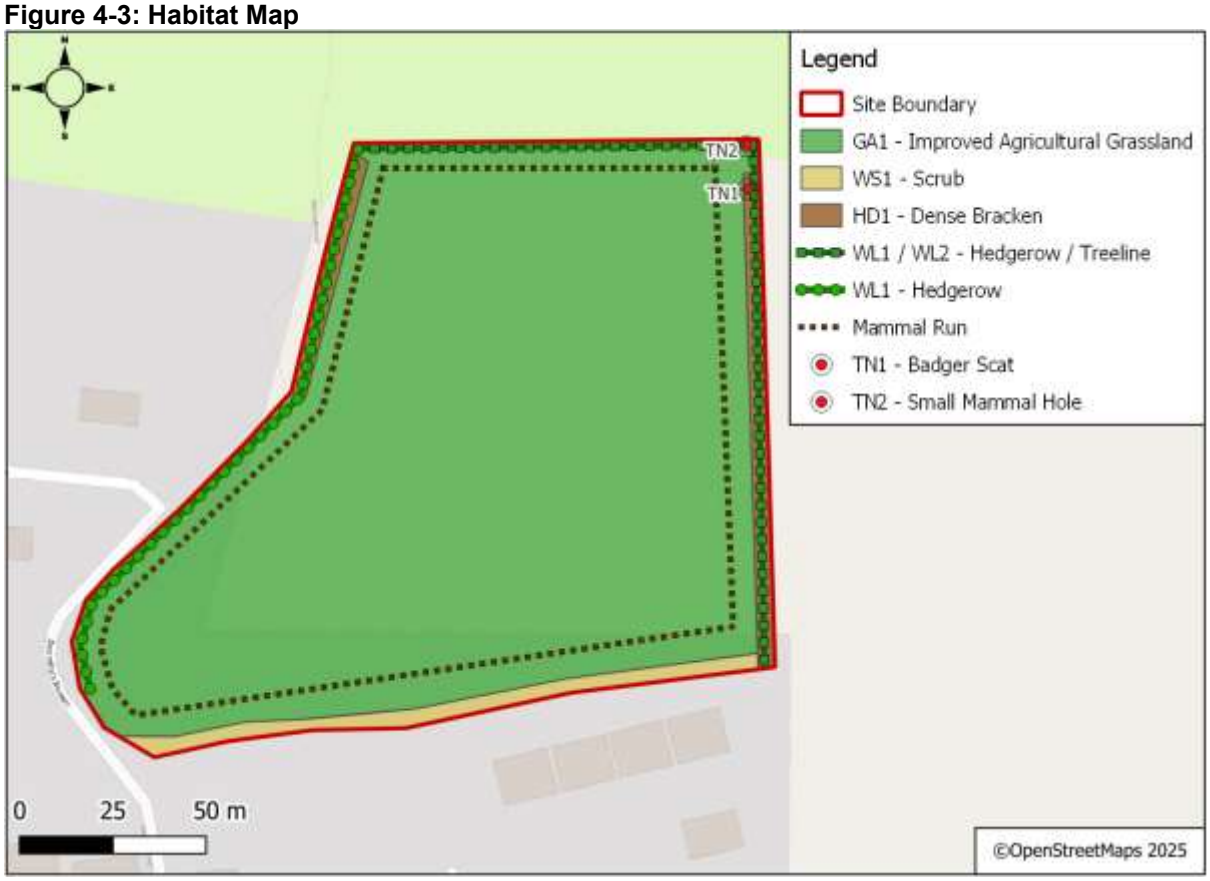
Species identified included sessile oak (*Quercus petraea*), silver birch (*Betula pendula*) and elder (*Sambucus nigra*).

The understory of the hedgerows / treelines comprised of raspberry (*Rubus idaeus*), bracken, bramble, common polypody (*Polypodium vulgare*), pennywort (*Centella asiatica*), honeysuckle (*Lonicera periclymenum*), holly (*Ilex aquifolium*), elder (*Sambucus nigra*) and foxglove (*Digitalis purpurea*).

A section of defunct hedgerow was identified along the western boundary. This habitat was classed as defunct due to large gaps that were present at the time of the survey. The habitat was also heavily managed with clear signs of vegetation removal.

Species identified here included sessile oak, ash (*Fraxinus excelsior*), elder, hawthorn, brambles, ivy (*Hedera helix*), black spleenwort (*Asplenium adiantum-nigrum*), cleavers (*Galium aparine*), stinging nettle and herb Robert.

Figure 4-3: Habitat Map



4.2.2 Protected / Notable Species

4.2.2.1 Flora

No plant species protected under the Flora Protection Order were recorded on-site.

Invasive Species

The NBDC held records of a number of invasive species within 2km of the Site within the last 10 years, including Japanese knotweed (*Reynoutria japonica*), rhododendron (*Rhododendron ponticum*), Spanish bluebell (*Hyacinthoides hispanica*), harlequin ladybird (*Harmonia axyridis*), sika deer (*Cervis nippon*) and three-cornered garlic (*Allium triquetrum*) [12]

The aforementioned species, along with other species as per Table 4-3, are non-native, highly invasive plant species, many of which are subject to restrictions under the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374/2024) [28]

A stand of butterfly bush was identified onsite, within a small area of scrub on the southern boundary of the Site. This species is classed as a medium impact invasive species but is not currently regulated under the EU (Invasive Alien Species) Regulations S.I. No 374/2024. No other invasive species were identified onsite.

4.2.2.2 Amphibians

The NBDC contained no records for amphibians within 2km of the Site over the last 10 years [12]. Amphibians require static or slow-moving water bodies in order to successfully lay their eggs and tend to favour shallow areas where they are less susceptible to being preyed on by fish.

During the Site walkover, no evidence of amphibians was recorded during the field surveys.

Although the improved agricultural grasslands and areas of scrub have the potential to provide suitable habitat for amphibians during the terrestrial phase of their life cycle, the lack of suitable waterbodies within the vicinity of the Site denotes that the Site does not provide suitable habitat for amphibians.

4.2.2.3 Badgers

The NBDC held records for badgers within 2km of the Site within the last 10 years [12]. However, no evidence of badger activity was recorded on the Site.

No latrines or other field signs which definitively confirm that badgers have utilised the Site for anything other than foraging purposes were noted. Mammal tracks were identified on-site, as illustrated in Figure 4-4; however, it is considered likely that these are from both rabbits and foxes, which were noted within the locality. Mammal holes identified were not of sufficient size for badger.

As badger are common and widespread across Ireland, it is considered possible that they may commute through the Site or forage within the Site. However, it is considered unlikely that the Site is of value to this species due to high levels of human activity within the surrounding area.

4.2.2.4 Bats

NBDC Records and Landscape Suitability

The NBDC held records of eight of the nine bat species found in Ireland within 2km of the Site in the past 10 years: brown long-eared bat, common pipstrelle, Daubenton's bat, lesser horseshoe bat, Leisler's bat, natterer's bat, soprano pipstrelle and whiskered bat [12]. Furthermore, as per the NBDC landscape suitability metric, the Site and surrounding area are considered to be of very high suitability for bats (Landscape Suitability Metric Score: 36 – 58).

Please note that the landscape suitability metric is calculated using a desk-based model only and is a regional-scale assessment. The metric is not tailored to local site-specific ecological features or conditions but rather averages over a much larger landscape. The metric is an average score; it does not guarantee that the Site itself is of high bat suitability.

The predictor layers are constructed from this database, ranging in scale from 0.5km to 20.5km, which identifies suitable regions for each species to exist; however, it makes large generalisations of species occurrence rather than site-specific details obtained during field surveys. This metric is not a substitute for a Site visit to assess bat suitability by a suitably qualified and experienced ecologist following the current best practice guidelines [38].

Based on the site visit undertaken, the ground-based tree assessment supplemented by desk-based research, it was concluded that the suitability metric does not reflect the current site-specific conditions. Based on the field-based assessment, it was determined that further bat surveys were not required.

Bat Commuting and Foraging Suitability

Bats are known to follow linear features as they commute through the landscape. Therefore, the well-established hedgerow / treelines within the Site and surrounding area provide suitable foraging habitat and connectivity to the wider landscape for commuting bats.

Bat Roost Suitability

Bats are known to roost in mature trees and buildings with suitable access points and potential roost features ('PRFs'). A ground-level tree assessment and preliminary roost assessment was undertaken to assess the Site for bat roost suitability.

All trees on the Site were visually inspected from ground level for potential PRFs using binoculars in line with '*Bat Surveys for the Professional Ecologist Good Practice Guidelines (4th edition)*' [39].

Eight trees along the perimeter of the Site were identified as providing suitable features for roosting bats.

Lesser horseshoe bat

It should be noted that there is a known lesser horseshoe bat roost within 1.3km of the Site. The core sustenance zone (the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost [24]) for lesser horseshoe bats is indicated to be 2km.

This indicates that lesser horseshoe bats within this known roost may be affected by the Proposed Development.

4.2.2.5 Birds

The hedgerows / treelines onsite are considered suitable for a range of nesting birds. Birds recorded during the initial field survey on 14th November 2024, were considered to be species common to the countryside, and it was deemed necessary to carry out wintering and breeding bird surveys in order to determine whether breeding or overwintering birds utilise the Site.

Wintering Bird Surveys

During the wintering bird surveys, 28 bird species were recorded:

- 19 Birds of Conservation Concern in Ireland ('BoCCI') green-listed species – blackbird, blue tit, bullfinch, chaffinch, coal tit, dunnock, great tit, goldfinch, hooded crow, jackdaw, magpie, mistle thrush, pied wagtail, robin, rook, song thrush, stonechat, wren and woodpigeon;
- Five BoCCI amber-listed species – goldcrest, greenfinch, herring gull, house sparrow and starling; and,
- Four BoCCI red-listed species – kestrel, meadow pipit, redwing and snipe.

Of the species recorded, none were designated species under the Killarney National Park SPA. However, under the EU Birds Directive, snipe are classified as an Annex II (Section I) & Annex III (Section III) bird species.

Breeding Bird Surveys

During the breeding bird surveys, 24 bird species were recorded:

- 17 Green-listed BoCCI, non-Annex I species were recorded – blackbird, blue tit, bullfinch, chaffinch, chiffchaff, dunnock, goldfinch, great tit, hooded crow, jackdaw, magpie, robin, rook, song thrush, stonechat, wren, woodpigeon;
- Six Amber-listed BoCCI, non-Annex I species were recorded – black-headed gull, goldcrest, greenfinch, house sparrow, linnet and willow warbler; and,
- One Red-listed BoCCI, Annex or non-Annex I species was recorded – meadow pipit.

Of the species recorded during the breeding bird surveys:

- One was classed as 'Confirmed Breeding' - stonechat;
- 18 were classed as 'Possibly Breeding'; and,
- Five were classed as 'Non-breeding'.

Of the species recorded, none were designated species under the Killarney National Park SPA. No Annex I bird species were recorded during the breeding bird surveys.

4.2.2.6 Otters

The NBDC held records of otter within 2km of the Site over the past 10 years [12].

However, no evidence of otter was identified, and no suitable habitat for otter was identified within the Site. The nearest watercourse to the Site is the Deenagh_020, which is located ca. 1.0km away at its nearest point. Furthermore, the intervening lands are comprised of urban and residential properties.

4.2.2.7 Hedgehogs and Pygmy Shrews

Hedgehogs and pygmy shrews are common and widespread species that typically occur in scrub, woodland, and rank grassland habitats. The NBDC held records of hedgehogs within 2km of the Site; however, it held no records of pygmy shrews within 2km of the Site within the last 10 years. [12]

The hedgerow / treelines bounding the Site and agricultural fields to the east of the Site have the potential to support foraging and commuting hedgehogs. Although no direct evidence of this species was recorded onsite, it should be noted that small mammal paths were identified that may be utilised by this species.

4.2.2.8 Other Species

No other notable or protected species listed in either the Wildlife Acts 1976 / 2000 or EU Habitats or Birds Directives were observed onsite.

However, a number of small mammal holes were identified in areas of cleared hedgerow on the Site. The hedgerow / treelines onsite and nearby agricultural grasslands provide suitable foraging habitats and connectivity to the wider landscape for a range of commonly occurring species such as rabbit and fox.

Although the NBDC held records for terrestrial mammals such as red deer, sika deer, red squirrel and pine marten within 2km of the Site in the last 10 years, the habitats identified onsite do not provide suitable habitat for species such as these.

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

5.1 Sensitive Design

Specialist ecological input was a key element of the proposed design, to ensure that the design layout of the Proposed Development is sensitive to valued ecological features that occur or may occur within the Site and the surrounding landscape.

In order to minimise the adverse effects of the Proposed Development on biodiversity and, where possible, enhance the ecological value of the Site, a range of environmental measures has been incorporated into the project at the design stage. The key measures relevant to biodiversity for this project have been detailed below.

- A comprehensive Landscape Plan has been developed for the Proposed Development, which includes ecological enhancement measures. For full details refer Section 5.4 below;
- All vegetation removal required on-site will be undertaken in accordance with relevant legislation to avoid potential disturbance to nesting birds. These works will be undertaken outside the period of 1st March to 31st August;
- All boundary trees and hedgerow / treelines that are to be retained will be protected from unnecessary damage; and,
- The Proposed Development has been designed to include a range of nature-based SuDS measures and drainage infrastructure to filter pollutants prior to reaching any EPA-designated watercourse, along with existing public storm and sewage systems as described in Section 3.4; and,
- All external lighting will be positioned facing away from ecological corridors such as the retained hedgerow / treelines onsite.

5.2 Identification of Potentially Significant Effects on Identified Receptors

Based on the methodology outlined in Section 2.4, Table 5-1 presents the findings of the evaluation of important and legally protected receptors. Each receptor is assessed, and a scoping justification for each receptor is provided for the Construction and Operational Phases of the Proposed Development.

Table 5-1: Valuation of Potential Ecological Receptors

Potential Biodiversity Receptor	Relevant Legislation	Valuation	Scoping Justification	Screening Result
Protected Sites				
European sites	European Communities (Natural Habitats) Regulations 1997 (as amended)	Internationally designated sites for conservation.	A Stage 1: Appropriate Assessment Screening ('AA') has been prepared as part of the overall planning application in line with policies 11-1, 11-2 and 11-16 of the KCDP [6]. The AA concluded that the Proposed Development would not cause any adverse effects on any European sites or any of their designated features of interest and that progression to Stage 2 of the Appropriate Assessment process (i.e., preparation of a Natura Impact Statement) was not considered necessary. For full details on the assessment of impacts to European sites, refer to the AA submitted as part of planning.	European sites have been screened out for further consideration. Refer to the AA report submitted as part of planning for further details.
Nationally Designated Sites	Wildlife Act 2000 (as amended)	Nationally designated sites for conservation.	Nationally designated conservation sites within 5km of the Site were investigated as per Objective 11-2 of the KCDP [6].There are two pNHAs within 5km of the Site. Impacts on these sites can be discounted given the intervening urban land, the lack of direct hydrological connection and the distance separating these sites from the Proposed Development.	Nationally Designated Sites have been screened out from further consideration
Habitats				
Improved Agricultural Grassland (GA1)	N/A	Low Local Value	This is a common habitat type throughout Ireland and provides limited ecological value. Although this habitat has the potential to provide foraging habitat for birds, this habitat is not of significant conservation value, and its loss is not considered to be significant. Therefore, the impact of the Proposed Development on this habitat is not significant, and this receptor has been screened out from further consideration.	Improved Agricultural Grassland has been screened out from further consideration
Scrub (WS1)	Wildlife Act 2000 (as amended)	Low Local Value	This is a common habitat type throughout Ireland and is not of significant conservation value. A small section of scrub habitat was identified within the Site and will be lost in order to facilitate the Proposed Development. Given the small size of the area and low species diversity, it is not considered to be of significant conservation value. Nonetheless,	Scrub has been scoped out from further consideration

Potential Biodiversity Receptor	Relevant Legislation	Valuation	Scoping Justification	Screening Result
			it does have the potential to support protected / notable species, such as nesting birds. Restrictions apply with regard to the time of year in which vegetation can be cut; this will be given further consideration below (see Nesting Birds). Additional planting as part of the Proposed Development will be undertaken to compensate for the loss of vegetation removed. It is proposed to plant the following: • Ca. 1,570m^2 Native Ecological Habitat Seed Mix; and, • Ca. 480m^2 Rain Garden Planting Mix. Therefore, the impact of the Proposed Development on this habitat is not significant and this receptor has been scoped out from further consideration.	
Dense Bracken (HD1)	N/A	Low Value Local	A small area of dense bracken was identified within the Site and will be lost in order to facilitate the Proposed Development. Please note that at the time of the survey, areas had been partially removed. Given the small size of the area and low species diversity, it is not considered to be of significant conservation value. Nonetheless, it does have the potential to provide suitable habitat and cover for breeding birds and mammals. Restrictions apply with regard to the time of year in which vegetation can be cut; this will be given further consideration below (see Nesting Birds). Additional planting as part of the Proposed Development will be undertaken to compensate for the loss of vegetation removed. It is proposed to plant the following: • Ca. 1,570m^2 Native Ecological Habitat Seed Mix; and, • Ca. 480m^2 Rain Garden Planting Mix. Therefore, the impact of the Proposed Development on this habitat is not significant, and this receptor has been scoped out from further consideration	Dense bracken has been screened out from further consideration.
Hedgerow / Treelines (WL1 / WL2)	Wildlife Act 2000 (as amended)	Low Value Local	In order to facilitate the Proposed Development, a single ash tree is to be removed. Please note that the majority of hedgerow / treeline is to be retained as part of the Proposed Development. As part of the mitigation and compensation measures along with onsite enhancement, in line with policies 11-20, 11-25, 11-27, and 11-28 of the KCDP [6]. It is proposed to plant the following:	Hedgerow / Treelines have been screened in for further consideration

Potential Biodiversity Receptor	Relevant Legislation	Valuation	Scoping Justification	Screening Result
			• Ca. 1,693m^2 Native Boundary Woodland • Ca. 65 Proposed Trees; and, • Ca. 140 linear meters of Native Structural Hedgerow. The proposed tree planting will greatly increase species diversity on the Site to provide a more resilient tree population in the local landscape. The vegetation onsite has been designed to maintain a degree of connectivity to the wider landscape (where possible) through the retention of the hedgerow / treeline and additional planting. As part of construction works, an arboricultural method statement and Tree Impact and Protection Plan have been prepared with the purpose of providing a system of working to ensure retained trees are protected at all times during construction, see Section 5.3 below. Mitigation measures will also be implemented, considering notable/protected species. These mitigation measures will also be implemented for any vegetation removal on the Site; refer to Section 5.3.1 for further details.	
Flora and Fauna				
Flora	Flora (Protection) Order 2022 (S.I. No. 235/2022)	N/A	No plant species protected under the Flora Protection Order were noted on the Site. Overall, the impact of the Proposed Development on protected flora is considered unlikely to be significant. Therefore, this receptor has been screened out from further consideration.	Flora species have been screened out from further consideration
Amphibians	Wildlife Act 2000 (as amended) EU Habitats Directive Annex V	Low Local Value	The NBDC holds no records for amphibians on-site, and no evidence of amphibians were recorded during the Site walkover. Amphibians are commonly associated with agricultural grassland habitats. It should be noted that these species are relatively widespread and abundant in Ireland; however, they are of conservational interest and are protected under Schedule V of the Wildlife Act. The Site is not considered to be of significant value to amphibians, given the fact that no evidence of amphibians was identified on-site and no suitable waterbodies / drainage ditches for breeding amphibians were recorded. Overall, the Site is considered sub-optimal for this species.	Amphibians have been screened out from further consideration

Potential Biodiversity Receptor	Relevant Legislation	Valuation	Scoping Justification	Screening Result
			It should be noted that, as part of on-site enhancement, it is proposed to create a rain garden within the Site, which will include ponding zones to allow water to collect. Native plants that are suitable for both wet and dry conditions will be utilised within the rain gardens. This will create habitats that are suitable for amphibians. Nonetheless, should any amphibians be discovered onsite during the construction works, the Ecological Clerk of Works ('ECoW') will be consulted for advice, and any works that have the potential to impact on amphibians will cease until appropriate mitigation measures are in place. However, no species-specific mitigation is required at this stage, and this receptor has been screened out from further consideration.	
Bats	Wildlife Act 2000 (as amended) EU Habitats Directive Annex IV	Low Local Value	The NBDC contains records of eight bat species within 10km of the Site in the last 10 years. <u>Roosting Bats</u> As part of the ground-level tree assessment and bat roost suitability assessment, it was established that: • Eight trees within the hedgerows / treelines with bat roost potential were identified, of which none are to be removed; and, • Targeted bat surveys were not deemed necessary. In order to facilitate the Proposed Development, a single ash tree is to be removed. This tree had no potential roost features. <u>Commuting and Foraging</u> The Site is located within a residential area and is considered to be suboptimal for foraging and commuting bats. However, there is potential for bats to utilise the hedgerow / treeline on-site for foraging and commuting purposes. The hedgerow / treelines on-site provide habitat connectivity between the Site and the surrounding habitats to facilitate foraging and commuting. During the site inspection, the existing hedgerows and trees that could potentially act as foraging or commuting routes for bats were assessed. It was established that: • The hedgerows / treelines within the Site provide suitable foraging habitat and connectivity to the wider landscape for commuting bats; and,	Bats have been screened in for further consideration

Potential Biodiversity Receptor	Relevant Legislation	Valuation	Scoping Justification	Screening Result
			• The areas of improved agricultural grassland are also suitable foraging habitats for bats. As part of the Landscape Plan, as part of compensation measures and in order to maintain connectivity in the Site and within the wider landscape, it is proposed to plant: • Ca. 1,570m^2 Native Ecological Habitat Seed Mix; • Ca. 480m^2 Rain Garden Planting Mix; • Ca. 1,693m^2 Native Boundary Woodland; • Ca. 65 Proposed Trees; and, • Ca. 140 linear meters of Native Structural Hedgerow. This will result in a net gain of vegetation, which will provide opportunities for commuting bats. Native Ecological Habitat Seed Mix will also be introduced onsite alongside native hedgerows and trees. It is considered that these habitats will attract insects and therefore, will provide suitable foraging habitats for bats. Furthermore, based on the current Site and due to the presence of suitable foraging and commuting habitat on-site, it is recommended that the installation of bat boxes be considered in the Site design along with suitable commuting and foraging routes in line with Kerry Development Plan objectives in relation to biodiversity. Please refer to section 5.4. However, as mitigation measures are required to compensate for the removal of suitable foraging and commuting habitat for bats, bats have been screened in for further consideration. <u>Lighting Impacts</u> Bats are averse to excessive lighting. The foraging and roosting behaviour or bats can be adversely affected by luminance. Inappropriate lighting can result in delayed emergence and, subsequently, bats missing peak insect levels at dusk. The foraging behaviour of bats can also be altered by short wave frequency ('UV') light, causing insect populations to congregate around the light and increasing the chances of bats being preyed on. Excess luminance can also cause bats to desert roosts due to light spillage on roost exit points. Any lighting proposed as part of the Proposed Development will be faced away from existing residential developments and away from ecological corridors such as hedgerow / treelines.	

Potential Biodiversity Receptor	Relevant Legislation	Valuation	Scoping Justification	Screening Result
			Prior to the commencement of the Construction Phase of the Proposed Development, baseline Lux levels will be recorded to establish current conditions on the Site. Following the installation of the lighting onsite, Lux levels will be recorded again to compare pre and post development lighting levels to ensure no negative impacts occur on bat species. However, to ensure that no negative impacts occur to bats as a result of the installation of lighting onsite, bats have been screened in for further consideration <u>Lesser Horseshoe Bats</u> Eight trees within the hedgerows / treelines with bat roost potential were identified, of which none are to be removed. However, an SAC designated for lesser horseshoe bats is located ca. 750m from the Site at its closest point. While linear connectivity exists between the Site and the nearest known lesser horseshoe roost, this route is approximately 3.2km in length and is fragmented by multiple road crossings, which significantly diminish its suitability for commuting bats. The intervening landscape is also largely made up of Killarney town, characterised by extensive lighting and busy roads. Additionally, lesser horseshoe bats are known to roost in buildings, and no buildings were recorded on Site. However, as a precautionary approach and in recognition of the proximity to a known lesser horseshoe bat roost, this receptor has been screened in for further consideration.	
Badgers	Wildlife Act 2000 (as amended)	Low Value Local	The NBDC holds records for badger within 2km within the last ten years. However, following the badger suitability assessments, no badger evidence was recorded within the Site. Furthermore, no signs of badger setts were noted during the field survey within any sections of hedgerow / treeline. However, given the presence of suitable commuting and foraging habitats onsite and within the wider area for badger and other small mammals, and the potential for this species to become entrapped in trenches / excavations, appropriate measures to prevent or minimise impacts on badger are required. Therefore, taking a precautionary approach, measures will be implemented during the construction works, refer to Section 5.3.1. This is in line with KCDP Policy 11-3.	Badgers have been screened in for further consideration
Birds	Wildlife Act 2000 (as amended)	Low Value Local	<u>Wintering Birds</u>	Breeding birds have been screened in for

Potential Biodiversity Receptor	Relevant Legislation	Valuation	Scoping Justification	Screening Result
			It is not anticipated that the Proposed Development will have any significant impact on wintering birds in the vicinity of the Site, given the absence of any significant numbers of bird species recorded onsite – see Appendix A – Bird Report. Any temporary disturbance arising from the proposed works is not considered significant due to the nature of the Site and suitable habitats within the vicinity of the Site. No mitigation is considered necessary for wintering birds as part of the Proposed Development. Please refer to Appendix A – Bird Report for a full breakdown of the potential impacts of the Proposed Development on Wintering Birds. <u>Breeding Birds</u> The treelines / hedgerows along the Site are considered to provide suitable nesting habitat for breeding bird species. It should be noted, however, that given the level of use of the Site, it is reasonable to conclude that birds will not favour the hedgerows within close proximity to the road for breeding purposes. Studies have shown that traffic noise can result in acoustic interference or masking of bird songs and that bird abundance, occurrence and species richness are reduced near roads, so the loss of these hedgerows / treelines is not considered to be significant [40] [41] [42]. Any temporary disturbance arising from the proposed construction works is not considered to be significant, given the nature of the Site and associated use. In addition, there are alternative / more suitable habitats within the wider area for any birds affected by the proposed works to disperse into. Nonetheless, precautionary mitigation will be implemented to avoid any potential impacts to breeding birds; refer to Appendix A – Bird Report and Section 5.2.1 below for further details. Precautionary mitigation measures will be incorporated into the proposed works to ensure no adverse effects to breeding birds occur.	further consideration
Otter	Wildlife Act 2000 (as amended)	Low Local Value	No otter activity or suitable habitat was noted within or directly adjacent to the Site. Given that the nearest hydrological feature (the Deenagh River) is located ca. 1km from the Site and there is no direct hydrological connection between the Site and the Deenagh River, and the surrounding urban area, it can be concluded that the Site is of no value to otter. Should any otter be discovered onsite during the construction works, the ECoW will be consulted for advice, and any works that have the potential to impact on otter will cease until appropriate mitigation measures are in place. However, no species-specific mitigation is required at this stage, and this receptor has been scoped out from further consideration.	Otter have been screened out from consideration

Potential Biodiversity Receptor	Relevant Legislation	Valuation	Scoping Justification	Screening Result
Hedgehogs and Pygmy Shrews	Wildlife Act 2000 (as amended)	Low Local Value	Given the presence of suitable habitats on-site and within the wider area for hedgehogs and other nocturnal and terrestrial species, standard protection measures for these species will be incorporated into the construction works. Refer to Section 5.3for details.	Hedgehogs and Pygmy Shrews have been screened in for further consideration
Invasive Species	N/A	N/A	Although no high-impact invasive species was identified onsite, given the potential for invasive species within the wider area entering the proposed construction area, standard measures will be implemented in order to ensure no invasive species are introduced on-site during the Construction Phase (see Section 5.3).	Invasive Species have been screened in for further consideration
Other Species	N/A	N/A	No other species of conservation interest were noted onsite. However, given the presence of suitable habitats onsite and within the adjacent lands for common species such as foxes, rabbits and other terrestrial mammals, standard protection measures for these species will be incorporated into the works.	Other Species have been screened in for further consideration

5.2.1 Summary of Potential Impacts

Following a detailed assessment, the following receptors were identified as having the potential to be impacted by the Proposed Development and were brought forward for further consideration:

- Hedgerows (WL2) / Treelines (WL1);
- Bats;
- Badgers;
- Breeding Birds;
- Hedgehogs and Pygmy Shrews;
- Invasive Species; and,
- Other species.

As per the scoping justification outlined in Table 5-1, further consideration was required for each of the receptors listed above in order to develop appropriate mitigation to protect these receptors and avoid impacts arising from the Proposed Development. Refer to Section 5.2 below for further details.

5.3 Mitigation Measures

5.3.1 Construction Phase

During the Construction Phase, all works will comply with all relevant legislation and best practice to reduce any potential environmental impacts. The appointed main contractor will prepare a Construction Environmental Management Plan ('CEMP') and will be submitted to the planning authority in advance of works commencing as detailed in Section 3.6.

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

- All activities will comply with all relevant legislation and best practice to reduce any potential environmental impacts. The mitigation measures detailed within this EcIA and the NIS will be fully adhered to;
- The Site manager shall ensure that all personnel working onsite will be trained and made aware of the mitigation measures detailed within this EcIA and the NIS;
- An Ecological Clerk of Works ('ECoW') will inspect the Sites in advance of works commencing and will undertake Site inspections as required during the works to ensure that they will be completed in line with the mitigation measures detailed within this EcIA, the NIS and the CEMP;
- If protected or notable species are encountered during operations at the Site, the ECoW will be contacted for advice; and,
- In advance of works, all Site personnel will receive a toolbox talk regarding notable and protected species. Everybody working onsite must understand the role and authority of the ECoW.

5.3.1.1 Protection Measures for Trees and Root Systems

The Proposed Development will require the removal of a single ash tree. All other hedgerows and trees that will be retained as part of the Proposed Development will be protected from any damage or impacts.

During the Construction Phase, any boundary hedgerows / treelines to be retained will be protected for the duration of the construction activities on site and in accordance with BS 5837. All retained hedge / treeline will be protected from unnecessary damage, and care will be taken to protect these features from both direct and indirect disturbance. The following protection measures will be adhered to during the works:

- Trees, treelines and hedgerows to be retained and located within close proximity to the construction areas will be fenced off by effective construction proof barriers before construction works commence. These barriers will remain in place for the duration of the works to prevent accidental disturbance and define the limits of the construction area;
- Care will be taken to prevent any damage / disturbance to root systems through the implementation of a buffer zone / construction exclusion zone of unexcavated ground will be maintained along the retained features;
- Where machinery access has to encroach treeline / hedgerow features that are being retained, a root protection area will be established. Additionally, suitable ground protection will be put in place to prevent any significant soil compaction or root damage. This should take the form of suitable ground protection mats or cellular confinement system capable of supporting appropriate weight;
- All weather notices will be erected on the fences and fencing will be inspected on a regular basis during the construction process;
- Trench digging or other excavation works will not be permitted within close proximity to retained trees and hedgerows unless approved and supervised by the project ECoW;
- No materials, equipment or machinery will be stored within close proximity to retained treelines / hedgerows;
- Notice boards, wires, etc. will not be attached to any trees; and,
- Site offices, materials and contractor parking will be outside of the Construction exclusion zone.

Following the completion of the construction works, the project ECoW will assess the retained trees and hedgerows to ensure that the above mitigation measures have been complied with. As part of the Landscape Plan prepared for the Proposed Development, additional planting will take place throughout the Site.

5.3.1.2 Protection Measures for Species

Protection Measures for Bats

In order to ensure that the works in relation to the Proposed Development do not have significant impacts on bats, the following construction procedures and mitigation measures will be implemented:

- Prior to construction commencing, an updated tree inspection survey will be required;
- An updated walkover of the Site is required prior to any vegetation clearance works to re-assess all trees to be removed and to confirm the presence or absence of Potential Roost Features (‘PRF’);
- Any trees with Potential Roost Features (‘PRF’) to be removed will be supervised by the ECoW. The tree will be felled using hand tools only. The ECoW will visually inspect the trees following felling for the presence of bats;

- If bats were found to be roosting within the tree, further measures may need to be considered in order to protect bats against any disturbance. The NPWS will be consulted for advice, and a derogation licence will be obtained if required;
- Any felled trees should be pushed gently to allow any potential bats within to become active. Felled trees should then be left in place for at least 24 hours to allow any potential bats to escape before removal off-site;
- Where possible, the trees which are to be removed should be felled on mild days during the autumn months of October – November or during spring months of February - March (felling during the spring or autumn avoids the periods when bats are most active); and,
- Following the installation of the lighting for the Proposed Development, a suitably qualified Ecologist should undertake a further Site inspection in order to check the lighting patterns and lux levels along the Site boundaries.

Protection Measures for Breeding Birds

In order to ensure no impacts occur to breeding bird species, the following measures will be implemented:

- As per Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, the cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or in hedges or ditches will be restricted during the nesting and breeding season for birds and wildlife, from 1st March to 31st August;
- In the event that works need to be undertaken within the main breeding season, the following measures will be implemented:
    - Prior to the works commencing, consultation with the NPWS will be undertaken by the ECoW;
    - Prior to the vegetation removal, the ECoW will inspect the Site; and,
    - All vegetation clearance works will be undertaken in a systematic way under the direction of the ECoW.
- In the unlikely event birds nest within the active working area during the works, all works will stop within the immediate area and the project ECoW will be consulted.

Protection Measures for Non-volant Mammals

Given the presence of on-site habitats with features that have the potential to support sheltering, foraging and commuting mammals such as badger and hedgehogs, in order to ensure that the works in relation to the Proposed Development will not have significant impacts on terrestrial mammals, general construction procedures and mitigation measures will be undertaken. These mitigation measures are in line with the NRA (now TII) guidance for badgers. These include the following measures:

- Should construction works be required outside of daylight hours, the appointed project ECoW will be consulted as required;
- All vegetation clearance will be undertaken in a systematic way to allow any potential species that may be utilising these areas to disperse naturally as works progress;
- New drainage infrastructure will be laid in sections and backfilled;
- Waste will be kept contained in a designated area to avoid animals becoming trapped in litter;

- Where deep excavations will be required on-site, appropriate measures to protect mammals from ingress will be installed; and,
- If unidentified burrows are identified within the works area during construction, the project ECoW will be contacted for advice.

Construction noise can also impact species such as badger, which include disturbance, behavioural impacts, stress, and displacement from feeding grounds. Although terrestrial mammals are highly mobile and are likely they move away from any temporary disturbances, in order to ensure that impacts can be avoided, the following mitigation will be implemented:

- Construction will be limited to the hours detailed in Section 3.4, which will minimise adverse effects on nocturnal fauna;
- In advance of works, all Site personnel will receive a Site induction or toolbox talk, which will include reference to measures detailed in the CEMP;
- Activities and deliveries to the Site to occur only during permitted hours;
- All plant where possible shall be low noise rated
- Avoid unnecessary revving of engines and switch off equipment when not required;
- Minimise the drop height of materials;
- Start-up plant and vehicles sequentially rather than all together;
- Review equipment onsite to ensure that they are the quietest versions available for the required purpose;
- On-site policy for all plant and equipment, including Site delivery vehicles, to power off rather than to be left with idling engines;
- All plant and vehicles on the Site will be in a fit condition for use, to prevent the addition of noise from maintenance issues;
- Management of deliveries and vehicles to minimise vehicles idling on-site;
- Positioning of hoarding and enclosures around noisy works or plant as required; and,
- Handling of all materials will take place in a manner which minimises noise emissions.

Given the location of the Proposed Development in a semi-urban area and the relatively high levels of human activity, any species utilising the area is likely to be habituated to elevated noise levels or will avoid this area. It is therefore concluded that, provided the above mitigation measures are followed during the construction works, no impacts will occur.

Protection Measures for Nocturnal Species

All temporary lighting installed within the Site will be completed with sensitivity for local wildlife while still providing the necessary lighting for human usage during construction. Therefore, appropriate lighting, as detailed below, should be used during construction:

- Construction should be limited to daylight hours in order to minimise adverse effects on nocturnal fauna;
- Light Emitting Diodes (‘LED’s’) will be used, and the brightness will be set as low as possible;
- Lighting will be kept to the minimum necessary for health and safety purposes;
- Lighting will only be utilised during working periods where required and will be shut down during non-working periods;

- Lighting will be directed away from landscaped areas and retained sections of hedgerows, treelines;
- LED luminaires will be used because they are highly directional, lower intensity, good colour rendition and dimming capability;
- Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
- The use of specialist bollard or low-level downward directional luminaires should be considered in bat-sensitive areas to retain darkness above;
- 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 should be used;
- Luminaires should always be mounted horizontally, i.e. no upward tilt;
- Any external security lighting should be set on motion-sensors and short (1min) timers; and,
- Accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

Monitoring of light levels along the treelines and hedgerow areas will be undertaken pre-construction, during-construction and post-construction to identify any areas where light spill is affecting background levels. Where monitoring detects that light spill is affecting these habitat areas, remedial measures will be implemented to ensure that background light levels are maintained.

Invasive Species

A small stand of butterfly bush was present on-site. However, no species subject to restrictions under the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374/2024) [28] were identified on-site.

However, to mitigate against the unintentional introduction of invasive species during construction, the following biosecurity measures will be implemented. These measures are in line with NRA (now TII) *Guidance for the Management of Noxious Weeds and Non-Native Invasive Plant Species* [43]:

- All vehicles, machinery and any other equipment that may be used for the works will be washed prior to their use on-site to prevent the import of plant material and seeds;
- Before machinery or equipment is unloaded at the Site, equipment will be visually inspected to ensure that all adherent material and debris has been removed;
- Any vehicles and machinery that are not clean will not be permitted entry to the Site;
- All materials to be imported to the Site, including additional planting, will be sourced from a reputable supplier and records of all material / supplies to the Site will be maintained; and,
- In advance of works, all site personnel will receive an induction regarding invasive species.

Other Species

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

5.3.2 Operational Phase

Operational phase impacts for the Proposed Development relate only to water quality impairment and nocturnal species (i.e. bats and nocturnal mammals).

5.3.2.1 Protection of Water Quality

It is proposed that no surface water will be discharged from the Site to the existing public drainage network. It is proposed to treat all on-site surface water. Should any controlled surface water flow discharge from the Site be required, this will be limited to greenfield run-off rates.

The proposed foul water drainage system is to be connected to the existing public mains system to the south of the Site.

The stormwater system for the roads and buildings within the Proposed Development will involve PVCu pipework, which will outlet to respective soakaways or bioretention systems such as rain gardens. Some portion of the road will discharge directly to tree pits. This will be open-channel flow, and no pipework will be required. A direct discharge of stormwater will apply to carparking areas. These areas will discharge directly into the ground via permeable paving laid over a stone sub-base.

For further information, refer to the Teicniuil-Priory Consulting Engineers Ltd. Engineering Assessment and Drainage Design Report submitted as part of this planning application.

5.3.2.2 Potential Noise Disturbance

During the Operational Phase, vehicle activity will be the predominant source of noise emissions. The Site is within close proximity to the N22 National Road. This road experiences a high volume of traffic; however, no changes will be made to the speed limit in this area, and therefore, it is not expected that traffic noise will be elevated beyond the current existing levels. Therefore, it can be concluded that there will be no adverse effects or significant disturbance from elevated noise emissions to local wildlife during the Operational Phase of the Proposed Development.

Nonetheless, the use of low-noise road surfacing, such as stone-mastic material, is recommended to reduce noise emissions further.

5.3.2.3 Protection of Fauna

Nocturnal Species

Nocturnal species, such as bats, are impacted by lighting. Therefore, it is important that the lighting installed onsite is completed with sensitivity for local wildlife whilst still providing the necessary lighting for human usage.

The lighting strategy has been designed to mitigate against any potential impacts on nocturnal species in line with the Bat Conservation Trust ('BCT') Guidelines on 'Bats and Artificial Lighting in the UK' [44]. A Lighting Impact Assessment was completed and submitted by DKP project as part of the planning submission. The lighting strategy involves avoiding excessive lighting. The following measures have been incorporated into the lighting design:

- Avoidance of excessive lighting;
- Lighting has only been installed where necessary for public safety;

- Sensitive lamp design to reduce light reflectance;
- Lighting will be aimed only where it is needed, with upward lighting shielded and a preference for downward directional focus;
- Light Emitting Diodes ('LED's') will be used, and the brightness will be set as low as possible;
- Lighting will be directed away from landscaped areas and retained sections of mixed broadleaved woodland;
- Hoods / cowling will be installed, and this will greatly reduce back spillage of lighting; and,
- Lighting will be turned down / off when not required;
- Use of bat-sensitive lighting in the form of 'warm white' ≤2700°K luminaires. Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats; and,
- Lighting has been designed and selected with specific shutters and filters to minimise any potential for back spills into the sensitive locations.

Following the installation of the lighting for the Proposed Development, the ECoW will undertake a further Site inspection in order to check the lighting patterns and lux levels along the Site boundaries to ensure that there will be no impacts to bats or other nocturnal species.

5.4 Ecological Enhancement Measures

A comprehensive Landscape Plan has been prepared by Gannon & Associated Landscape Architecture, which includes the following:

- Proposed Trees, Multi Stem Trees and Ornamental Shrubs;
- Native Boundary Woodland Mix;
- Ornamental Planting Mix,
- Rain Garden Mix,
- Amenity grassland areas;
- Native ecological habitat seed mix; and,
- Nature Play area; and,
- Seating & Relaxing Area.

All proposed planting will be native and, where practically possible, of local providence and / or those that have a known attraction or benefit to local fauna. A Landscape Plan and drawings have been prepared, outlining planting locations and including a schedule of proposed ornamental planting and trees. Please refer to the Landscape Report and Plan for full details.

The plan has been designed to maintain a degree of connectivity to the wider landscape (where possible) through the retention of the hedge / treeline and additional planting. Additional planting will be introduced onsite to compensate for the removal of vegetation during the site clearance work. The total planting area of the Proposed Development is detailed below.

5.4.1 Proposed Tree Pit

Bioretention tree pits provide a sustainable and effective means of managing stormwater runoff, improving water quality, and supporting tree growth in urban environments. By combining the benefits of stormwater management and tree establishment, these tree pits contribute to the overall sustainability and resilience of the landscape.

Bioretention tree pits will be implemented throughout the site and will work in conjunction with the rain garden described above. Full details are outlined in the submitted landscape drawings.

Table 5-2: Tree Pit and Rain Garden planting mix

Common Name	Scientific Name
Downy Birch	*Betula pubescens*
Birch	*Betula pendula*
Maidenhair Tree	*Gingko biloba*
Ornamental Pear	*Pyrus calleryana* 'Chanticleer'
Small-leaved Lime	*Tilla cordata* 'Greenspire'

5.4.2 Proposed Tree Planting

As part of the Landscape Plan, ca. 79 trees are proposed. All planting will consist of a mix of native species, of local providence and / or those that have a known attraction or benefit to local fauna will provide shelter and a source of food for a variety of species throughout the year, including birds, small mammals, amphibians and pollinators. It will also allow movement of species such as badger and other small mammals and provide connectivity to the wider landscape. The proposed native mix is outlined in Table 5-3 below.

The prepared Landscape Plan show planting locations and includes a schedule of proposed trees. These trees have been chosen based on their suitability for the site, considering factors such as climate, soil conditions, ecological benefits, and aesthetic value.

Table 5-3: Parkland/ Ornamental Trees

Common Name	Scientific Name
Strawberry tree	*Arbutus unedo*
Silver Birch	*Betula pendula*
Downy Birch	*Betula pubescens*
Hazel	*Corylus avellana*
Hawthorn	*Crataegus monogyna*
Holly	*Ilex aquifolium*
Cherry	*Prunus avium*
Sessile Oak	*Quercus petraea*
Oak	*Quercus robur*

Common Name	Scientific Name
Whitebeam	*Sorbus aria majestica*
Flowering Crabapple	*Malus 'Evereste'*
Scots Pine	*Pinus sylvestris*

5.4.3 Woodland Planting

Areas of native boundary woodland planting (ca. 1,660m^2) will also be implemented as part of the Proposed Development. The proposed planting mix for this habitat is outlined in Table 5-4 below.

Table 5-4: Proposed Native Boundary Woodland Mix

Common Name	Scientific Name	Percentage
Hawthorn	*Crataegus monogyna*	40%
Rowan	*Sorbus aucuparia*	20%
Holly	*Ilex aquifolium*	10%
Native Privet	*Ligustrum vulgare*	20%

5.4.4 Proposed Hedgerow

The prepared landscape plans show planting locations and include a schedule of proposed planting for Hawthorn and Hornbeam. A total of ca. 114m of hedge will be planted onsite.

Benefits of these hedgerow species include enhanced privacy, seasonal interest, support for biodiversity, aesthetic appeal, and low maintenance. The proposed native hedgerow mix is outlined in Table 5-5 below.

Table 5-5: Native Hedgerow Mix

Common Name	Scientific Name
Hawthorn	*Crataegus monogyna*
Hornbeam	*Carpinus betulus*

5.4.5 Ornamental Planting / Screening

Amenity Area Lawn and Native Grasses

As part of the Proposed Development, native grass species will be seeded onsite and will contain a selection of ornamental grasses and perennials.

Table 5-6: Ornamental Planting / Screening

Common Name	Scientific Name
Michaelmas Daisy	*Aster 'Little Carlow'*
Meadowsweet	*Filipendula ulmaria*
Primrose	*Primula vulgaris*
Meadow Cranesbill	*Geranium pratense*
Purple Loosestrife	*Lythrum salicaria*
Hemp Agrimony	*Eupatorium cannabinum*
Bugleherb	*Ajuga reptans*
Swamp Milkweed	*Asclepias incarnata*
Tufted Hair Grass 'Goldtau'	*Deschampsia cespitosa 'Goldtau'*
Shrubs – Focal points, strategically to create structure and evergreen interest	
Japanese Holly	*Ilex crenata*
Guelder Rose	*Viburnum opulus*
Myrtle	*Myrtus communis*

5.4.6 Wildflower and Grassland Planting

Wildflower meadows are not only visually attractive but can also significantly enhance the local biodiversity and support a rich community of wildlife. A total area of ca. 1,725m^2 of Native Seed Mix will be created on-site. Planting a range of flowering plants, including night-scented plants, can provide a source of nectar for a range of species such as butterflies and bumblebees and will attract insects for bats to feed on.

A mix of wildflowers and grasses will be planted along the proposed route as per the landscape drawings submitted with the overall planning application. All species introduced as part of the landscaping works will consist of a mixture of native species as per Table 5-7 below.

Table 5-7: Native Seed Mix

Common Name	Scientific Name
Common Bentgrass	*Agrostis capillaris*
Sweet Vernal Grass	*Anthoxanthum Odoratum*
Common Knapweed	*Centaurea nigra*
Crested Dogstail	*Cynosurus cristatus*
Slender Creeping Red Fescue	*Festuca rubra*
Lady's Bedstraw	*Galium verum*
Autumn Hawkbit	*Leontodon autumnalis*

Common Name	Scientific Name
Rough Hawkbit	*Leontodon hispisus*
Oxeye Daisy	*Leucanthanum vulgaris*
Birdsfoot trefoil	*Lotus corniculatus*
Burnet Saxifrage	*Pimpinella saxifraga*
Ribwort Plantain	*Plantago lanceolata*
Smooth-stalked Meadow-grass	*Poa pratensis*
Cowslip	*Primula veris*
Red Clover	*Trifolium pratense*
Meadow Buttercup	*Ranunculus acris*
Bulbous Buttercup	*Ranunculus bulbosus*
Yellow Rattle	*Rhinanthus minor*
Common sorrel	*Rumex acetosa*

5.4.7 Rain Garden

In addition to the bioretention tree pits, it is proposed to create several rain garden areas to complement the proposed attenuation system, which will include ponding zones to allow water to collect. Rain gardens of varying sizes will be integrated into green spaces, ca. 460m^2 total.

Native plants that are suitable for both wet and dry conditions will be utilised within the rain gardens. This will act as a Biodiversity feature and will also provide the opportunity to include a wide range of perennials, which will attract and help develop habitats for invertebrates, amphibians and birds. Full details and species list are outlined in the submitted landscape drawings.

Table 5-8: Rain Garden planting mix

Common Name	Scientific Name
Tufted Hair Grass	*Deschampsia cespitosa*
Purple Moor Grass ‘Transparent’	*Molinia caerulea ‘Transparent’*
Pendulous Sedge	*Carex pendula*
Feather Reed Grass	*Calamagrostis × acutiflora ‘Karl Foerster’*
Water Avens	*Geum rivale*
Cranesbill ‘Rozanne’	*Geranium ‘Rozanne’*
Bistort ‘Superba’	*Persicaria bistorta ‘Superba’*

Common Name	Scientific Name
Great Masterwort	*Astrantia major*

5.4.8 Ecological Enhancement Measures

A number of ecological enhancement measures will be incorporated into the overall Site and include:

- Provision of artificial roosting sites;
- Lighting Restrictions;
- Bird Boxes; and,
- Fauna and Wildlife Shelters.

The recommendations proposed below detail measures that will enhance the attractiveness of the Site to wildlife in the surrounding areas. The locations and quantity of the following measures will be specified by an ecologist following the completion of works.

5.4.8.1 Re-use of Coarse Woody Debris

Felled timber from the required clearances will be re-used for habitat enhancement and to maximise the salvage of resources for beneficial reuse.

The reuse will be used to enhance habitat values in existing vegetation and rehabilitated areas, including native grassland and scrub areas. The re-use of the woody debris can provide:

- Habitat for micro-invertebrates;
- Habitat for macro-invertebrates;
- Habitat for vertebrates using fallen timber for shelter;
- Habitat for vertebrates using fallen timber for foraging; and,
- Increased habitat complexity.

The woody debris will be placed throughout the Site.

5.4.8.2 Insect Hotels and Creating Deadwood Habitat

The primary purpose of insect hotels, also referred to as biodiversity towers, is to provide additional habitat space for small organisms, insects and other invertebrates. The objective is to create a diversity of habitats within the Proposed Development.

They can be built from a variety of natural and/or repurposed materials. Dead wood provides habitat for beetles, centipedes, woodlice and spiders and materials with holes act as shelter for solitary bees, which are crucial for pollination. The artificial shelters can come in a variety of sizes and can be used by a range of smaller animals, such as toads and hedgehogs, who can use these artificial habitats for hibernation or breeding (see Figure 5-1).

Insect hotels should be positioned in areas sheltered from wind and rain and with access to sunlight. The artificial shelters should be placed 1.5m off the ground to reduce access to insect predators. Insect hotels can be free-standing or attached to existing features such as trees, posts or walls.

The exact location of the insect hotels will be determined by an experienced ecologist after the completion of the proposed works. This is to allow the ecologist to assess the exact

conditions that have been created and thus to ensure that the insect hotels are situated in the most appropriate location.

Figure 5-1: Artificial Deadwood Habitats

5.5 Fauna

The recommendations proposed below detail measures that will enhance the attractiveness of the Site to wildlife in the surrounding areas. The locations and quantity of the following measures are indicative and are to be specified by an ecologist following the completion of works.

5.5.1 Bats

The enhancement measures proposed for bat species are distinct from mitigation measures and align with the principles outlined in the Guidelines for Ecological Impact Assessment ('EcIA') in the UK and Ireland. The guidelines distinguish between:

- Measures to address predicted impacts (mitigation); and,
- Measures to deliver additional benefits (enhancement).

Although the initial Site survey did not identify trees on-site with bat roost potential, adopting bat-friendly measures supports the National Biodiversity Objectives and aligns with Kerry Development Plan objectives in relation to biodiversity. These measures include:

- Minimising disturbance to mature trees and other habitat features that could attract bats over time;
- Using bat-friendly lighting designs to limit disruption during nocturnal hours; and,
- Creating alternative habitats, such as bat boxes, which may encourage bats to use the area safely while reducing impacts on nearby habitats.

These are actions aimed at improving the ecological value or biodiversity of a Site beyond baseline conditions and to provide suitable habitats for nocturnal species on the Site post-construction. These enhancement measures are not required to address specific adverse impacts but aim to contribute positively to environmental and ecological objectives post-construction.

5.5.1.1 Provision of Artificial Roosting Sites

It is proposed to install artificial bat boxes within the Site. Artificial bat boxes will also be erected on suitable mature trees within the Site. Artificial bat boxes can provide vital roosting places

in habitats devoid of natural roosting opportunities. Bat boxes can also provide additional suitable roosting habitats for bats in an area.

Bat boxes should be placed in a position sheltered from strong winds and exposed to the sun for part of the day. The boxes will be located in / close to linear features, such as the treelines and placed a minimum of 2m above the ground. Figure 5-2 below shows suitable bat roost box examples, including a Pole Mounted Bat Box, Bat Box Schwegler 1FF and Vivara Small Bat Box.

An experienced ecologist will determine the exact location of the bat boxes after the proposed works are completed. This is to allow the ecologist to assess the exact conditions that have been created and thus to ensure that the bat boxes are sited in the most appropriate location possible.

Figure 5-2: Suitable Bat Boxes

5.5.1.2 Lighting Restrictions

Many bats are averse to light and will avoid areas with high-intensity lighting. Therefore, in order to minimise any potential impacts from light spillage, consideration should be given to the lighting strategy on-site.

Lighting will be installed with consideration to fauna by keeping the light colour of the light fitting between 2700K and 3000K, in line with recommendations from the NPWS guidance.

Where lighting is essential, i.e., for security reasons, low-pressure sodium lamps would be preferable to high-pressure sodium or mercury lamps in order to keep the brightness as low as possible. The lighting should also be directional, aimed only where it is needed (with no upward lighting).

5.5.2 Birds

5.5.2.1 Bird Boxes

A variety of bird nest boxes designed to attract a variety of nesting bird species will be erected on suitable trees within the Site. The creation of nesting habitat, along with the creation of species-rich habitat, will encourage an abundance of invertebrate life (a potential food source) will be beneficial to local birds. General bird boxes designed to cater for a variety of species will be used, the number and location of which will be specified by an ecologist. Refer to the examples provided in Figure 5-3.

An example is the 1B Schwelger Nest Box - This nest box will attract a wide range of species and is available with different entrance hole sizes to prevent birds from competing with each other for the boxes.

Different bird species require different entrance sizes as outlined below:

- The circular 26mm entrance hole suits blue and coal tit and possibly wren. All other species are prevented from using the nest box due to the smaller entrance hole;
- The circular 32mm entrance hole will attract great, blue and coal tit, tree and house sparrow;
- The 45mm entrance hole will attract starling; and,
- Open-fronted nest boxes will attract robins, wrens, pied and grey wagtail, song thrush and blackbirds.

The exact location of the bird boxes will be determined by an experienced ecologist after the completion of the proposed works. This is to allow the ecologist to assess the exact conditions that have been created and thus to ensure that the bird boxes are sited in the most appropriate location possible. However, it is recommended that bird boxes face north and southeast to avoid strong winds, rain and sunshine. In addition, bird boxes should be tilted slightly forward to ensure that rain runs off the top, and there should be a clear flight path to access the nestbox hole. Also, bird boxes with a hole should be placed ca. 2-4m off the ground, whereas open-fronted bird boxes should be placed lower than 2m among dense vegetation where predators won't easily see them.

It should be noted that the distance between nest boxes can vary. Species such as house sparrow and starling have a preference for nesting in colonies, and therefore, the bird boxes should be placed closer to each other, whereas species of robins and tits can be highly territorial, and therefore, the nest boxes should be separated by a greater distance.

Figure 5-3: Bird Box Examples

5.6 Proposed Enhancement Locations

The indicative locations provided in Landscape Plan and should be considered as provisional until the end of the Construction Phase of the Proposed Development. On completion of the Construction Phase, an ecologist will review these locations and relocate enhancement measures as appropriate.

6 CONCLUSIONS

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

- The Site itself is currently considered to be of low local ecological value;
- The Site is not considered to be of high suitability or a site of importance for any Annex I or Annex II species or Red-listed birds;
- The Proposed Development will not result in any significant impacts on ecological receptors identified both on-site and in the surrounding area following the implementation of appropriate mitigation measures; and,
- The proposed Landscape Plan has been designed to compensate for any vegetation removed during Site clearance works.

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APPENDICES

APPENDIX A

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January 2026

Breeding and Wintering Bird Report

Large-scale Residential Development

at

Ardshanavooly, Killarney, Co. Kerry

On behalf of

Wrightwood Development Ltd.

MALONE O'REGAN ENVIRONMENTAL

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Form ES - 04

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Revision Record

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01	13/01/2026	Bird Report	Final	AW	AK	KB

Breeding and Wintering Bird Report
Large-scale Residential Development
Wrightwood Development Ltd.
Ardshanavooly, Killarney, Co. Kerry

Contents

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TABLES

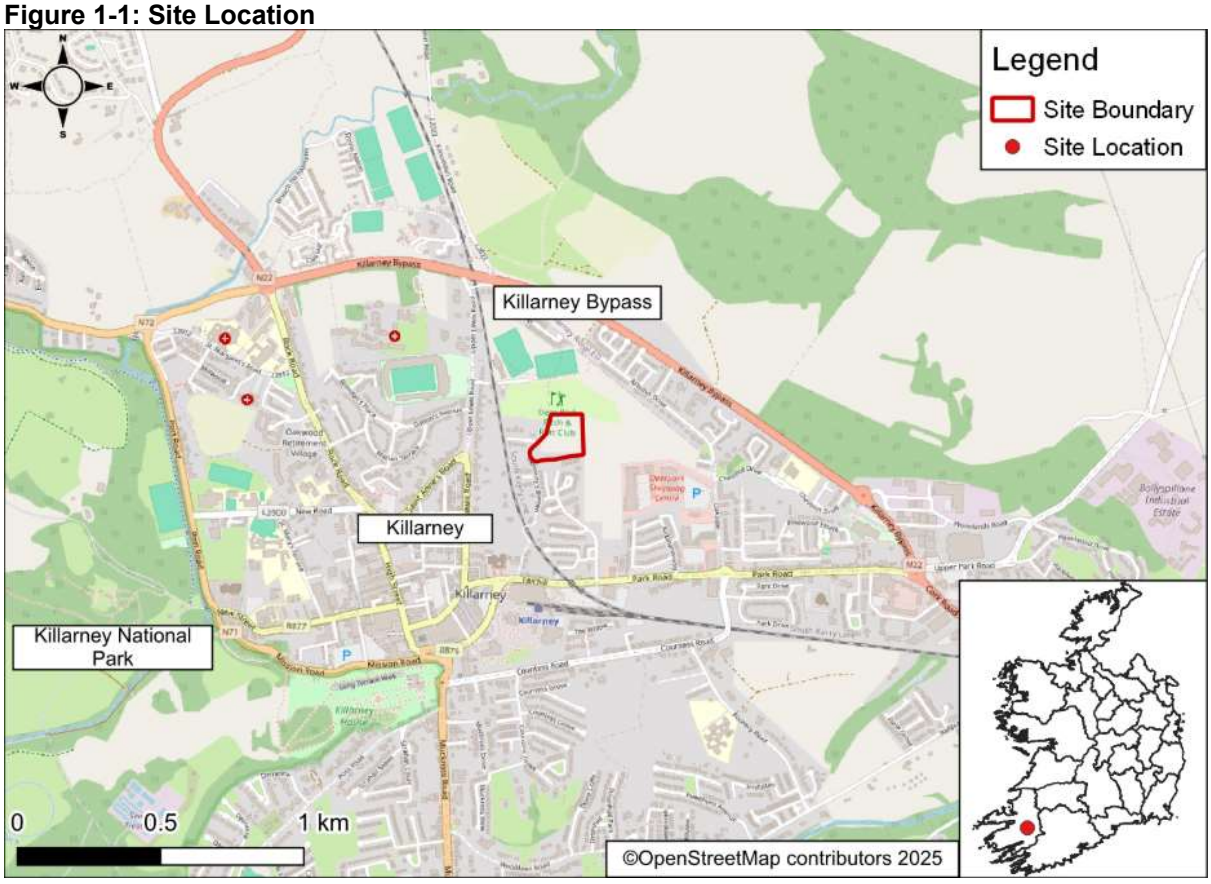
1 INTRODUCTION

Malone O'Regan Environmental ('MOR Environmental') has been commissioned by Wrightwood Development Ltd. ('the Applicant') to undertake wintering bird surveys in respect of the Construction and Operational Phases of the proposed Large-scale Residential Development ('LRD') and all associated works at Ardshanavooly, Killarney, Co. Kerry (ITM Reference: X: 97077 Y: 91284).

The Proposed Development is located on a site that is circa ('ca.') 2.2 hectares ('ha') in size and is located within the townland of Killarney, Co. Kerry, ca. 30km southeast of Tralee, Co. Kerry and is shown in Figure 1-1 ('the Site').

This bird report is an appendix to an Ecological Impact Assessment ('EcIA') that has been submitted in support of this planning application. This bird report should be read in conjunction with the EcIA.

Figure 1-1: Site Location



The Site is a greenfield site comprised predominantly of agricultural grassland and is bordered to the west and south by existing residential properties, to the east by a second agricultural field and to the north by the Deerpark Pitch & Putt Club and golf course. The surrounding area is a mix of private residential properties, commercial properties and sports venues such as Fitzgerald Stadium and the local GAA club. There were no watercourses or drainage ditches identified on-site or in the immediate surroundings of the Site.

Refer to Figure 1-2 below for context.

Figure 1-2: Site Context and Overview

1.1 Relevant Legislation

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

- Kill or injure a wild bird;
- Disturb, damage or remove a wild bird nest or eggs; and,
- Disturb any wild bird while at the nest.

In addition to domestic legislation, birds are also protected under the EU Birds Directive (2009/147/EC). The Birds Directive provides for a network of sites to protect birds at their breeding, feeding, roosting and wintering areas.

For the purposes of this report, a species was considered to be of 'conservation concern' should it be included in one or more of the following:

- Annex 1 of the EU Birds Directive;
- Part 1 of the Fourth Schedule of the Wildlife Act, 1976 (as amended);
- Birds of Conservation Concern in Ireland ('BoCCI') Red list; and,
- BoCCI Amber list.

1.2 Objectives of this Report

The bird surveys aimed to assess the following:

Wintering / Breeding Bird Suitability Assessment

- To ascertain the potential of the Survey Area to provide suitable habitat for breeding birds, to support important assemblages of wintering birds or support rare or notable species.

Breeding Birds

- To identify and assess the number of active breeding bird territories within the Site;
- To map active nests, where present, within the Site;
- To evaluate the overall bird community within the Site by recording all behavioural activity of birds;
- Utilise the information in order to identify and assess any areas of the Site that may require special consideration during the breeding bird season;
- Assess all potential impacts, if any, of the Proposed Development on breeding bird species; and,
- Provide additional mitigation measures, should they be required.

Wintering Birds

- To identify, if any, overwintering bird species utilise the Site;
- To determine the potential of overwintering bird species, especially wetland bird species, to utilise the Site as an inland feeding / roosting Site; and,
- To assess all potential impacts, if any, of the Proposed Development on overwintering wetland bird species; and,
- To provide additional mitigation measures, should they be required.

1.3 Statement of Authority

This report was checked by Ms. Amelia Keane, Principal Consultant and lead ornithologist. Amelia is a full member of the Chartered Institute of Ecology and Environmental Management ('CIEEM') with over 6 years' experience working in the ecological consultancy sector, including Appropriate Assessments, winter bird transects, breeding bird transects, habitat classification, and specialist species surveys.

This report was approved by Mr. Dyfrig Hubble, Associate Director - Ecologist. Dyfrig is a full member of CIEEM and has over 18 years' experience working in the ecological consultancy sector, including habitat surveys and appraisals and specialist protected species surveys in support of Ecological Impact Assessments.

2 METHODOLOGY

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

2.1 Desk-based Studies

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

- Review of aerial maps of the Site and surrounding area;
- The National Parks and Wildlife Service ('NPWS') website was consulted to obtain the most up-to-date details on conservation objectives for the Natura 2000 sites relevant to this assessment [1];
- Bird Watch Ireland – The Irish Wetland Bird Survey ('I-WeBS') data was reviewed with regard to wintering waterbird population within the vicinity of the Site [2]; and,
- The National Biodiversity Data Centre ('NBDC') website was consulted with regard to species distributions within 2km of the Site [3].

2.2 Field-based Studies

2.2.1 Habitat Assessment

The Site was assessed for its potential to support assemblages of birds of rare or notable species, as well as designated bird species.

As part of this assessment, a habitat survey was undertaken at the Site on 14th November 2024 by two MOR Environmental Ecologists. The survey utilised Fossitt's Guide to Habitats for Ireland [4] and was conducted in line with the Heritage Council's '*Best Practice Guidance for Habitat Survey and Mapping'* [5]. The survey aimed to identify the extent and quality of habitats present on the Site.

Following the initial Site assessment, it was deemed necessary to undertake specialist wintering and breeding bird surveys on-site.

2.2.2 Bird Surveys

2.2.2.1 Wintering Bird Surveys

Wintering bird surveys were undertaken at the Site to determine whether or not the Site is utilised by wintering bird species. Vantage Point ('VP') and transect bird surveys were undertaken by a suitably qualified and experienced MOR Environmental Ecologist on the 2nd January 2025, 21st January 2025 and 7th February 2025 at the Site.

The surveys utilised methods adapted from the Scottish Natural Heritage ('SNH') bird survey methods [6] and Bird Monitoring Methods [7]. One pre-determined VP was selected that had sufficient views of the Site (see Figure 2-1). All species observed utilising the Site were recorded, and their locations were marked on the maps. VP surveys were undertaken for a period of 3 hours.

Following the completion of the survey at the VP, a transect survey was undertaken to flush out any birds that may not have been visible during the vantage point survey (see Figure 2-1). During the transect survey, the surveyor walked a set route encompassing the Site, and all of the open areas were observed for the presence of birds. Where a large number of birds feeding were encountered, long stops were taken in order to ensure accurate species recording and counting.

During the surveys, all birds were recorded using a standard BTO code through sight and sound and optical equipment, such as telescopes and binoculars. The behaviours and activities of the birds were recorded to identify whether the birds were roosting or feeding within the Site. Any roosts identified within the Site were recorded. The locations of all birds were recorded on an overview map of the Site.

Metadata recorded during the surveys is presented in Table 2-1.

Table 2-1: Meta Data for Wintering Bird Surveys

Visit No.	Date	Time	Weather Conditions
Visit 1	02/01/2025	09:00 – 11:45	Temperature 0ºC - 3ºC, no rain, no wind, 0-33% cloud cover and 100% visibility.
Visit 2	21/01/2025	08:15 – 11:45	Temperature 5ºC - 6ºC, light rain, no wind, 66-100% cloud cover and 66-100% visibility.
Visit 3	07/02/2025	08:00 – 11:30	Temperature 1ºC – 3ºC, no rain, moderate wind, 33-66% cloud cover and 100% visibility.

Figure 2-1: Wintering Bird VP and Transect Locations

2.2.2.2 Breeding Bird Surveys

Three breeding bird surveys were undertaken on 11th April, 2nd May and 11th June 2025 by a suitably qualified MOR Environmental Ecologist. The breeding bird surveys were conducted in line with the methodology adapted from:

- British Trust of Ornithology ('BTO') - *A Field Guide to Monitoring Nests* [8]; and,
- Common Bird Census in *Bird Monitoring Methods* [9].

In order to establish whether any breeding bird species were utilising the Site, particularly the hedgerow / treelines delineating the Site, a transect was walked throughout the Site. A point count method was employed, with equally spaced points along the transect; see Figure 2-3. The surveyor stood at each point for two minutes and recorded all birds through sight and sound.

Optical equipment was used, including binoculars, in order to minimise disturbance to potentially breeding birds. The hedgerows and hedgerow / treeline onsite were examined for the presence of nests. During the survey, the behavioural activity of the recorded birds was noted using the BTO breeding status codes [2]. Birds that displayed non-territorial behaviours were recorded as well (i.e., designated birds that were flying over the Site, birds that were foraging and not calling, birds that were loafing).

Therefore, birds were classified as non-breeding, possibly breeding and confirmed breeding based on the behaviours exhibited. The criterion for each classification is described below:

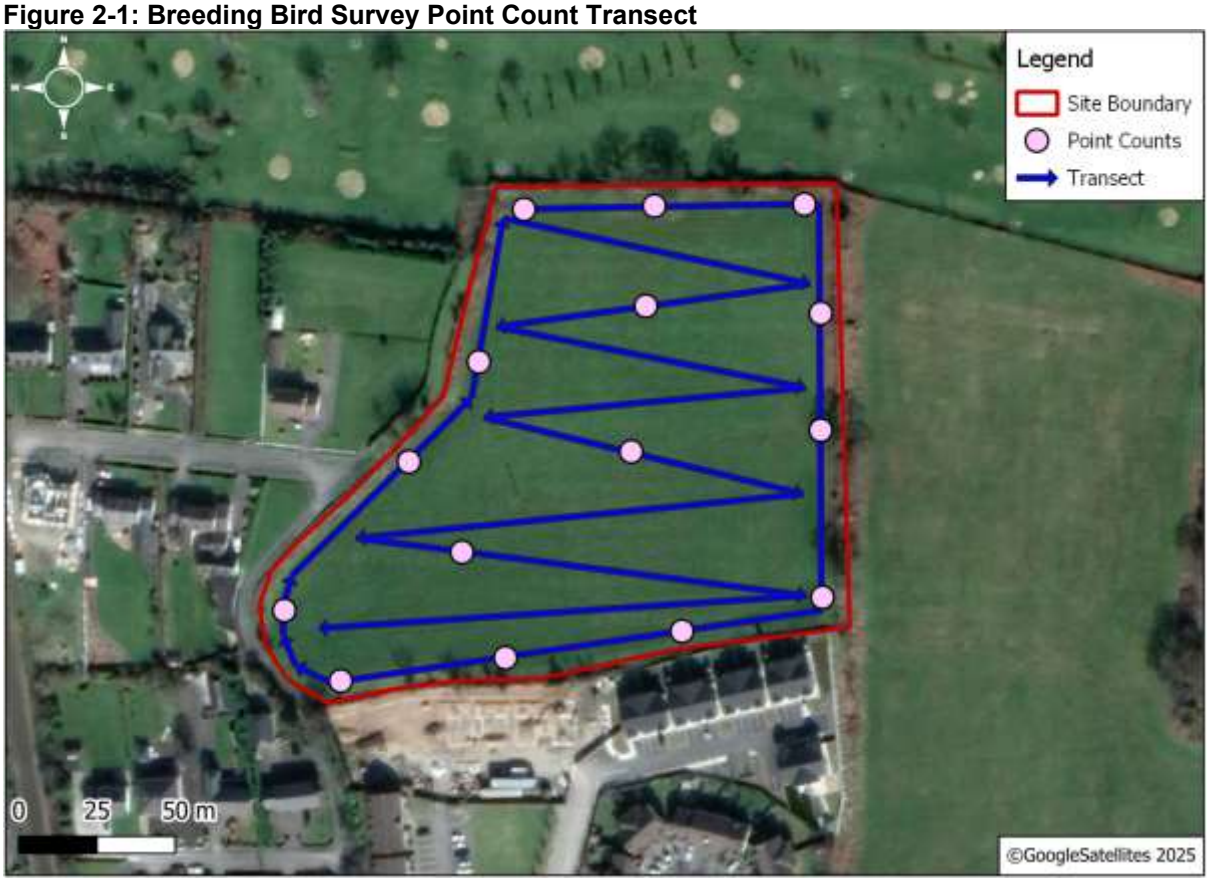
- Non-breeding – Birds that were flying over the Site, birds that were foraging and not calling, birds that were loafing;
- Possible Breeding – Birds observed in suitable nesting habitat and displaying either territorial and / or courtship behaviours, nest building behaviours or observed visiting a possible nest; and,
- Confirmed Breeding – Birds observed either on nest or carrying faecal sac or food, sighting of a nest with eggs / chicks, used nests, eggshells or recently fledged young.

The survey dates, times and weather conditions for both dates are described in Table 2-2.

Table 2-2: Breeding Bird Survey Dates, Times and Weather Conditions

Visit No.	Date	Time	Weather Conditions
Visit 1	11/04/2025	07:20 – 09:00	Temperature 6 – 9ºC, no rain, no wind, no cloud cover and 100% visibility.
Visit 2	02/05/2025	08:15 – 11:45	Temperature 8 – 9ºC, no rain, gentle breeze, 100% cloud cover, 100% visibility
Visit 3	11/06/2025	08:00 – 11:30	Temperature 13 – 14ºC, no rain, light breeze, 100% cloud cover, 100% visibility

Figure 2-1: Breeding Bird Survey Point Count Transect



2.2.2.3 Survey Limitations

During both the wintering and breeding bird surveys, it was noted that the golf course to the north of the Site had large kites flying. These kites are designed like large birds of prey and are used to deter birds from landing on the golf green. It is unlikely that these kites significantly affected the birds recorded within the Site, and it is not considered that this limitation affected the outcome of this report or assessment.

No other survey limitations were encountered during the wintering bird surveys.

No other limitations were encountered during the breeding bird surveys.

3 RESULTS

3.1 Desk-Based Results

3.1.1 NBDC Data

The NBDC was consulted for records of protected species within 2km of the Site. The NBDC records were checked on 18th December 2025. The following NBDC 2km grids have been checked: V98U, V99K, V99Q, V99R, V99V and V99W [3].These records are collated in Table 3-1.

The parameter of 10 years was chosen to allow for habitat adaption and modification. It is considered that any records over 10 years old are not representative of the current distribution of species populations. CIEEM's guidelines recommend that consideration be given to the biodiversity conservation value of the species that occur within this zone of influence (as appropriate) [10].

Table 3-1: Protected Bird Species within 2km of Site (Grid: V98U, V99K, V99Q, V99R, V99V and V99W)

Species	Scientific Name	Date of Last Record	Protected Status / BoCCI Status [11]
Barn Owl	*Tyto alba*	10/08/2021	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Red List
Barn Swallow	*Hirundo rustica*	08/08/2022	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Black-headed Gull	*Larus ridibundus*	17/06/2020	Wildlife Acts 1976 / 2000
Black-legged Kittiwake	*Rissa tridactyla*	30/12/2022	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Common Grasshopper Warbler	*Locustella naevia*	27/04/2023	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Common Kestrel	*Falco tinnunculus*	13/03/2020	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Common Linnet	*Carduelis cannabina*	18/07/2020	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Common Pheasant	*Phasianus colchicus*	05/10/2025	Wildlife Acts 1976 / 2000 EU Birds Directive Annex II, Section I & Annex III, Section I Bird Species
Common Snipe	*Gallinago gallinago*	21/10/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List EU Birds Directive Annex II, Section I & Annex III, Section III Bird Species
Common Starling	*Sturnus vulgaris*	22/05/2018	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List

Species	**Scientific Name**	**Date of Last Record**	**Protected Status / BoCCI Status** [11]
Common Swift	*Apus apus*	04/05/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Common Wood Pigeon	*Columba palumbus*	12/05/2021	Wildlife Acts 1976 / 2000 EU Birds Directive Annex II, Section I & Annex III, Section I Bird Species
Goldcrest	*Regulus regulus*	05/10/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Goldeneye	*Bucephala clangula*	12/01/2025	Wildlife Acts 1976 / 2000 EU Birds Directive Annex II, Section II Bird Species Birds of Conservation Concern – Red List
Greenfinch	*Chloris chloris*	04/05/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Grey Wagtail	*Motilla cinerea*	05/10/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Red List
Herring Gull	*Larus argentatus*	05/10/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
House Martin	*Delichon urbicum*	12/08/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
House Sparrow	*Passer domesticus*	04/05/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Jack Snipe	*Lymnocryptes minimus*	13/03/2020	Wildlife Acts 1976 / 2000 EU Birds Directive Annex II, Section I & Annex III, Section III Bird Species
Little Egret	*Egretta garzetta*	16/10/2016	Wildlife Acts 1976 / 2000 EU Birds Directive Annex I Bird Species
Mallard	*Anas platyrhynchos*	12/05/2021	Wildlife Acts 1976 / 2000 EU Birds Directive Annex II, Section I & Annex III, Section I Bird Species
Mediterranean Gull	*Larus melanocephalus*	03/09/2022	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List EU Birds Directive Annex I Bird Species
Northern Shoveler	*Anas clypeata*	03/02/2023	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Red List

Species	Scientific Name	Date of Last Record	Protected Status / BoCCI Status [11]
			EU Birds Directive Annex II, Section I & Annex III, Section III Bird Species
Redwing	*Turdus iliacus*	05/10/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Red List
Rock Pigeon	*Columba livia*	09/09/2016	Wildlife Acts 1976 / 2000 EU Birds Directive Annex II, Section I Bird Species
Sand Martin	*Riparia riparia*	06/05/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Sandwich Tern	*Sterna sandvicensis*	03/09/2022	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List EU Birds Directive Annex I Bird Species
Sparrowhawk	*Accipiter nisus*	05/10/2025	Wildlife Acts 1976 / 2000
Spotted Flycatcher	*Musciapa striata*	13/07/2022	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Starling	*Sturnus vulgaris*	12/05/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List
Tufted Duck	*Aythya fuligula*	04/03/2022	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List EU Birds Directive Annex II, Section I & Annex III, Section II Bird Species
Whooper Swan	*Cygnus cygnus*	19/05/2025	Wildlife Acts 1976 / 2000 Birds of Conservation Concern – Amber List EU Birds Directive Annex I Bird Species

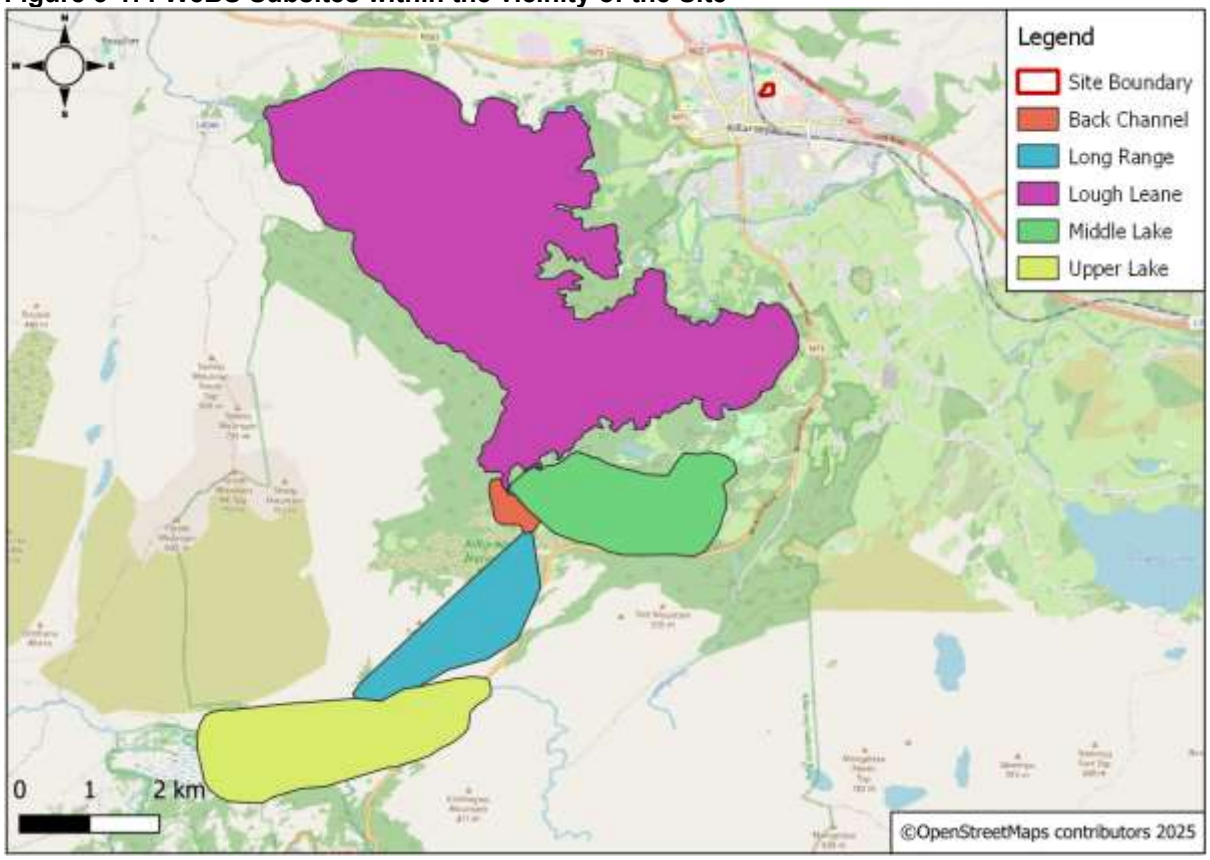
3.1.2 Irish Wetland Bird Survey

A data request was submitted on 14th February 2025 to the Irish Wetland Bird Survey ('I-WeBS'), which is coordinated by BirdWatch Ireland and under contract to the National Parks and Wildlife Service ('NPWS') [2]. The data request was for all available data from the I-WeBS sites within close proximity to the Proposed Development. This included five subsites within Lough Leane & Killarney Valley, see Figure 3-1:

- Lough Leane subsite (subsite code: 0K011) – located ca. 2.5km southwest of the Site;
- Middle Lake subsite (subsite code: 0K500) – located ca. 5.1km southwest of the Site;
- Back Channel subsite (subsite code: 0K303) – located ca. 6.7km southwest of the Site;
- Long Range subsite (subsite code: 0K302) – located ca. 7km southwest of the Site; and,

- Upper Lake subsite (subsite code: 0KS99) – located ca. 9.2km southwest of the Site.

Figure 3-1: I-WeBS Subsites within the vicinity of the Site



The records were reviewed in order to gain an understanding of the potential assemblage of bird populations that may utilise the areas within Lough Leane & Killarney Valley, which are within the vicinity of the Site.

The data received from BirdWatch Ireland covers a period from the 2013/2014 winter season to the 2023/2024 winter season. A total of 46 species have been recorded during the 10-year period.

During the 2023/2024 winter season, a total of 25 species were recorded, which included black-headed gull, common sandpiper, cormorant, dipper, gadwall, goldeneye, great northern diver, green sandpiper, greenshank, grey heron, kingfisher, lesser black-backed gull, little egret, little grebe, mallard, moorhen, mute swan, red-breasted merganser, redshank, snipe, teal, tufted duck and wigeon. Unidentified duck and gull species were also recorded.

None of the species recorded in the last 10 years were recorded in numbers that would be considered of international importance. However, several species were recorded in numbers that would be considered to be of national importance, including:

- Gadwall were recorded at numbers of national importance during the 2016/2017, 2017/2018, 2018/2019 and 2019/2020 seasons in the Lough Leane subsite;
- Greenshank were recorded at numbers of national importance during the 2016/2017 and 2023/2024 season in the Lough Leane subsite;
- Little Grebe were recorded at numbers of national importance during the 2014/2015 season in the Lough Leane subsite; and,

- Mallard were recorded at numbers of national importance during the 2014/2015, 2018/2019, 2021/2022 and 2022/2023 seasons in the Lough Leane subsite.

However, it should be noted that none of these species identified are considered to exclusively occur within this area.

3.2 Field-Based Results

3.2.1 Habitat Survey

The habitat assessment identified five habitats within the Site. These habitats were described as follows:

- Improved Agricultural Grassland (GA1);
- Dense Bracken (HD1);
- Scrub (WS1);
- Hedgerow / Treeline (WL1/WL2); and,
- Hedgerow (WL1).

The distribution of habitats is illustrated below in Figure 3-2.

Figure 3-2: Habitat Map

3.2.2 Wintering Bird Survey

Three wintering bird surveys were undertaken at the Site. During the surveys, 28 bird species were recorded:

- 19 green-listed species – blackbird, blue tit, bullfinch, chaffinch, coal tit, dunnock, great tit, goldfinch, hooded crow, jackdaw, magpie, mistle thrush, pied wagtail, robin, rook, song thrush, stonechat, wren and woodpigeon;
- Five amber-listed species – goldcrest, greenfinch, herring gull, house sparrow and starling; and,
- Four red-listed species – kestrel, meadow pipit, redwing and snipe.

Of the species recorded, none were Annex I species and none were designated species under the Killarney National Park SPA.

The wintering bird surveys did not identify any roosting sites or potential roosting sites on the Site.

Table 3-3 provides a record of the bird species identified during the wintering bird surveys, the number of individuals recorded during the surveys and the species' designation under the Birds of Conservation Concern in Ireland 2020-2026 [11].

Table 3-2: Birds Recorded during the Wintering Bird Surveys

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes
Green-listed	Blackbird	*Turdus merula*	8	0	2	Visits 1 and 3: Blackbirds were observed flying across the Site and perching in trees bounding the Site. Individuals were also heard calling from trees outside the Site boundary. Visit 2: No individuals were recorded during the survey.
	Blue Tit	*Cyanistes caeruleus*	3	3	8	Visits 1, 2 and 3: Individuals were observed perching within and calling from the hedgerow / treelines within the Site.
	Bullfinch	*Pyrrhula pyrrhula*	2	0	1	Visits 1 and 3: Individuals observed perched within hedgerow / treeline on the Site. Visit 2: No individuals were recorded during the survey.
	Chaffinch	*Fringilla coelebs*	0	5	4	Visit 1: No individuals were recorded during the survey. Visits 2 and 3: Individuals heard calling from trees within the Site boundary.
	Coal Tit	*Periparus ater*	0	2	3	Visit 1: No individuals were recorded during the survey. Visits 2 and 3: Individuals observed perching in scrub and heard calling from hedgerow / treelines within the Site.

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes
	Dunnock	*Prunella modularis*	0	1	2	Visit 1: No individuals were recorded during the survey. Visits 2 and 3: Individuals observed perching on trees within the Site boundary.
	Great Tit	*Parus major*	2	0	0	Visit 1: Individuals observed perched on and calling from trees within the Site. Visits 2 and 3: No individuals were recorded during the surveys.
	Goldfinch	*Carduelis carduelis*	1	0	0	Visit 1: Individual observed perched in and calling from a tree within the Site. Visits 2 and 3: No individuals were recorded during the surveys.
	Hooded Crow	*Corvus cornix*	3	1	1	Visits 1, 2 and 3: Individuals observed calling while flying over the Site and while perched on telephone poles bounding the Site.
	Jackdaw	*Coloeus monedula*	0	0	1	Visits 1 and 2: No individuals were recorded during the surveys. Visit 3: One individual heard calling within the Site.
	Magpie	*Pica pica*	3	2	1	Visits 1, 2 and 3: Individuals observed perching on treelines within the Site.

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes
	Mistle Thrush	*Turdus viscivorus*	0	1	0	Visit 1: No individuals were recorded during the survey. Visit 2 One individual observed flying to, perching in, and calling from a tree within the Site. Visit 3: No individuals were recorded during the survey.
	Pied Wagtail	*Motacilla alba yarrellii*	0	1	0	Visit 1: No individuals were recorded during the survey. Visit 2: One individual observed flying along hedgerow and perching in a tree. Visit 3: No individuals were recorded during the survey.
	Robin	*Erithacus rubecula*	3	2	5	Visits 1, 2 and 3: Individuals observed perching within and calling from hedgerow / treelines in the Site.
	Rook	*Corvus frugilegus*	24	24	12	Visits 1, 2 and 3: Individuals observed flying over the Site. No individuals were observed interacting with the Site during the surveys.
	Song Thrush	*Turdus philomelos*	4	5	2	Visits 1, 2 and 3: Individuals observed perching in and calling from trees within the Site.
	Stonechat	*Saxicola rubicola*	0	1	0	Visit 1:

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes
						No individuals were recorded during the survey. Visit 2: One individual observed perching in scrub on the Site. Visit 3: No individuals were recorded during the survey.
	Wren	*Troglodytes troglodytes*	3	5	9	Visits 1, 2 and 3: Individuals observed perching in and calling from trees within the Site.
	Woodpigeon	*Columba palumbus*	0	10	2	Visit 1: No individuals were recorded during the survey. Visits 2 and 3: Individuals observed flying over the Site and flushed from trees within the Site.
Amber-listed	Goldcrest	*Regulus regulus*	2	1	0	Visits 1 and 2: Individuals observed perched in and calling from hedgerow / treelines within the Site. Visit 3: No individuals were recorded during the survey.
	Greenfinch	*Chloris chloris*	0	0	1	Visits 1 and 2: No individuals were recorded during the surveys. Visit 3: One individual observed calling and flying over the Site.
	Herring Gull	*Larus argentatus*	0	1	0	Visit 1: No individuals were recorded during the survey.

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes
						Visit 2: One individual observed flying east over the Site, not interacting with the Site. Visit 3: No individuals were recorded during the survey.
	House Sparrow	*Passer domesticus*	0	1	0	Visit 1: No individuals were recorded during the survey. Visit 2: One individual heard calling from hedgerow / treeline in the Site. Visit 3: No individuals were recorded during the survey.
	Starling	*Sturnus vulgaris*	0	1	3	Visit 1: No individuals were recorded during the survey. Visits 2 and 3: Individuals observed flying along hedgerows within the Site.
Red-listed	Kestrel	*Falco tinnunculus*	0	0	1	Visits 1 and 2: No individuals were recorded during the surveys. Visit 3: One individual observed flying over the Site.
	Meadow Pipit	*Anthus pratensis*	0	2	1	Visit 1: No individuals were recorded during the survey. Visits 2 and 3:

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes
						Individuals observed flying into the Site and perching within the hedgerow / treelines in the Site.
	Redwing	*Turdus iliacus*	0	4	7	Visit 1: No individuals were recorded during the survey. Visits 2 and 3: Individuals heard calling from and perched within hedgerow / treelines on the Site.
	Snipe	*Gallinago gallinago*	1	5	3	Visits 1, 2 and 3: Individuals observed foraging within the Site during VP survey and flushed by surveyor during transect survey.

3.2.3 Breeding Bird Survey

Table 3-4 contains a summary of the birds recorded in the Site during the breeding bird surveys, the behaviours exhibited during the surveys, their status according to BoCCI and the breeding status of all birds noted.

A total of 24 species were recorded either within the Site or flying over the Site during the surveys.

Of the 24 species recorded:

- 17 Green-listed BoCCI, non-Annex I species were recorded – blackbird, blue tit, bullfinch, chaffinch, chiffchaff, dunnock, goldfinch, great tit, hooded crow, jackdaw, magpie, robin, rook, song thrush, stonechat, wren, woodpigeon;
- Six Amber-listed BoCCI, non-Annex I species were recorded – black-headed gull, goldcrest, greenfinch, house sparrow, linnet and willow warbler; and,
- One Red-listed BoCCI, non-Annex I species was recorded – meadow pipit.

During the surveys, one species was observed exhibiting behaviours that would be classified as '*Confirmed Breeding*' – stonechat, which was observed holding food whilst perched in a hedgerow / treeline. However, no active nests or signs of nest building were recorded within the Site boundary.

In addition, 18 species were observed displaying territorial behaviours and were classified as '*Possible Breeding*' – blackbird, blue tit, chaffinch, chiffchaff, dunnock, goldcrest, goldfinch, greenfinch, great tit, hooded crow, house sparrow, linnet, robin, rook, song thrush, willow warbler, woodpigeon and wren.

Five species were classified as non-breeding – black-headed gull, bullfinch, jackdaw, magpie and meadow pipit.

No Annex I bird species were recorded during the breeding bird surveys. Furthermore, no species designated under the Killarney National Park SPA were recorded on-site or flying over the Site.

Table 3-3: Breeding Bird Survey Results

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes	Breeding Status
Green-listed	Blackbird	*Turdus merula*	7	3	2	Visits 1, 2 and 3: Blackbirds were observed perching in trees bounding the Site. Individuals were also heard calling and singing from the hedgerow / treeline and calling from the scrub onsite.	Possible Breeding
	Blue Tit	*Cyanistes caeruleus*	0	3	0	Visit 1: No individuals were recorded during the survey. Visit 2: Individuals were observed perching within and calling from the hedgerow / treelines within the Site. One individual was flushed from the improved agricultural grassland during the survey. Visit 3: No individuals were recorded during the survey.	Possible Breeding
	Bullfinch	*Pyrrhula pyrrhula*	0	0	1	Visits 1 and 2: No individuals were recorded during the surveys. Visit 3: One individual observed perched within the defunct hedgerow on the Site.	Non-breeding
	Chaffinch	*Fringilla coelebs*	3	2	0	Visits 1 and 2: Individuals heard calling from hedgerow / treelines within the Site boundary. Visit 3: No individuals were recorded during the survey.	Possible Breeding

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes	Breeding Status
	Chiffchaff	*Phylloscopus collybita*	1	1	0	Visits 1 and 2: Individuals heard calling and singing from hedgerow / treelines and scrub within the Site boundary. Visit 3: No individuals were recorded during the survey.	Possible Breeding
	Dunnock	*Prunella modularis*	1	2	1	Visits 1, 2 and 3: Individuals observed perched within and calling from hedgerow / treelines within the Site boundary.	Possible Breeding
	Great Tit	*Parus major*	1	2	0	Visits 1 and 2: Individuals observed calling from hedgerow / treelines within the Site. Visit 3: No individuals were recorded during the survey.	Possible Breeding
	Goldfinch	*Carduelis carduelis*	1	1	48	Visits 1, 2 and 3: Individual observed calling from hedgerow / treelines within the Site. A large flock of goldfinch were observed perched on a power line within the Site boundary during Visit 3.	Possible Breeding
	Hooded Crow	*Corvus cornix*	2	1	0	Visits 1 and 2: Individuals observed calling while flying over the Site. Visit 3: No individuals were recorded during the survey.	Possible Breeding
	Jackdaw	*Coloeus monedula*	2	0	0	Visit 1:	Non-breeding

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes	Breeding Status
						One individual observed perched on hedgerow / treeline within the Site. One individual observed flying over the Site. Visits 2 and 3: No individuals were recorded during the surveys.	
	Magpie	*Pica pica*	0	0	1	Visits 1 and 2: No individuals were recorded during the surveys. Visit 3: One individual observed flying over the Site.	Non-breeding
	Robin	*Erithacus rubecula*	1	2	0	Visits 1 and 2: Individuals observed perching within and calling from hedgerow / treelines in the Site. Visit 3: No individuals were recorded during the survey.	Possible Breeding
	Rook	*Corvus frugilegus*	14	5	9	Visits 1, 2 and 3: Individuals observed calling while flying over the Site and perched within hedgerow / treelines onsite. During Visit 3, the surveyor noted that two rooks were acting very territorial and mobbing each other whilst in flight.	Possible Breeding

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes	Breeding Status
	Song Thrush	*Turdus philomelos*	0	1	0	Visit 1: No individuals were recorded during the survey. Visit 2: One individual observed singing within hedgerow / treeline onsite. Visit 3: No individuals were recorded during the survey.	Possible Breeding
	Stonechat	*Saxicola rubicola*	0	2	2	Visit 1: No individuals were recorded during the survey. Visits 2 and 3: Three individuals observed calling from hedgerow / treelines onsite. One individual was observed holding food whilst perched in a hedgerow / treeline onsite.	Confirmed Breeding
	Wren	*Troglodytes troglodytes*	6	6	1	Visits 1, 2 and 3: Individuals observed perching in and calling from trees within the Site.	Possible Breeding
	Woodpigeon	*Columba palumbus*	4	2	2	Visits 1, 2 and 3: Individuals observed flying over the Site and perched on and calling from trees and on power lines within the Site. Individuals also observed perching on and calling from rooftops of nearby residential buildings outside the Site boundary.	Possible Breeding
Amber-listed	Black-headed Gull	*Chroicocephalus ridibundus*	0	0	1	Visits 1 and 2: No individuals were recorded during the surveys. Visit 3: One individual observed flying over the Site.	Non-breeding

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes	Breeding Status
	Goldcrest	*Regulus regulus*	1	0	0	Visit 1: One individual was observed perched within and calling from a hedgerow / treeline onsite. Visits 2 and 3: No individuals were recorded during the surveys.	Possible Breeding
	Greenfinch	*Chloris chloris*	1	0	0	Visit 1: One individual was observed singing from a hedgerow / treeline onsite. Visits 2 and 3: No individuals were recorded during the surveys.	Possible Breeding
	House Sparrow	*Passer domesticus*	0	1	0	Visit 1: No individuals were recorded during the survey. Visit 2: One individual was heard calling but not observed. Visit 3: No individuals were recorded during the survey.	Possible Breeding
	Linnet	*Linaria cannabina*	0	3	1	Visit 1: No individuals were recorded during the survey. Visits 2 and 3: Individuals were observed flying around the Site and singing from hedgerow / treelines onsite.	Possible Breeding
	Willow Warbler	*Phylloscopus trochilus*	1	3	1	Visits 1, 2 and 3:	Possible Breeding

BoCCI Conservation Status	Species	Scientific Name	Visit 1	Visit 2	Visit 3	Notes	Breeding Status
						Individuals were observed perching within and singing from hedgerow / treelines onsite.	
Red-listed	Meadow Pipit	*Anthus pratensis*	1	0	0	Visit 1: One individual was observed flying around the Site. Visits 2 and 3: No individuals were recorded during the surveys	Non-breeding

4 SITE ASSESSMENT

During the wintering and breeding bird surveys undertaken at the Site, a total of 32 bird species were identified utilising the Site and the surrounding area.

4.1 Wintering Bird Site Assessment

The majority of the Site is comprised of agricultural grassland fields. The Site is also bordered by hedgerow, hedgerow / treelines, sparce scrub and dense bracken.

While the agricultural grassland within the Site has the potential to provide suitable foraging habitat to wintering bird species, livestock were noted within this area, and, as such, this has the potential to reduce the suitability of this habitat for wintering bird species.

The only wetland / waterbirds recorded on the Site during the wintering bird surveys were herring gull and snipe. A single herring gull was recorded flying over the Site, but did not interact with the Site in any capacity. Snipe were recorded foraging within the Site and were subsequently flushed from the Site during the transect survey. Snipe were recorded in low numbers during each survey.

The Site does provide suitable foraging habitat for countryside / farmland bird species; however, the Site is not considered to be a site of importance for any overwintering bird species. This conclusion is based on the fact that only low numbers of birds were recorded onsite and based on a review of aerial imagery, which shows that there are suitable foraging habitats present in the surrounding area. Additionally, the proximity of the Site to an active golf course, with kites used to prevent birds from landing on the greens, and surrounding housing developments would further reduce the foraging suitability of the surrounding area.

Overall, during the winter bird surveys undertaken at the Site, a total of 28 bird species were recorded. The majority of these species were considered to be common species typically found in agricultural landscapes. Four BoCCI red-listed species, kestrel, meadow pipit, redwing and snipe, were recorded within the Site; however, kestrel and meadow pipit were only noted flying over the Site, while the redwing and snipe were recorded in low abundances. Furthermore, during the surveys, there were no significant numbers of bird species utilising the Site, likely due to the proximity of the Site to multiple housing developments and Killarney Town.

Based on both the desk-based and field-based data collected on wintering birds on the Site and within the vicinity of the Site, it can be concluded that the loss of the habitats onsite as part of the Proposed Development will not be significant to wintering birds.

4.2 Breeding Bird Site Assessment

As previously mentioned, the Site was comprised primarily of agricultural grassland. There were no areas of tall grassland that would be considered suitable for ground-nesting bird species due to grass management. Additionally, the scrub within the Site was sparse with low coverage of shrub species, further reducing its suitability to support ground-nesting birds.

Furthermore, the proximity of the Site to an active golf course, with kites used to prevent birds from landing on the greens, and surrounding housing developments would further reduce the suitability of the habitat for ground-nesting bird species. However, the agricultural fields were considered to be suitable for foraging breeding bird species.

It was noted that the hedgerows / treelines along the boundaries of the Site were intensively managed. The nature of these hedgerow / treelines would reduce the suitability of these habitats to support breeding bird species./

Of the 24 species recorded during the breeding bird surveys. One species was confirmed to be breeding within the Site – stonechat, and 18 species – blackbird, blue tit, chaffinch, chiffchaff, dunnock, goldcrest, goldfinch, greenfinch, great tit, hooded crow, house sparrow, linnet, robin, rook, song thrush, willow warbler, wood pigeon and wren – displayed territorial behaviours that could be classified as possibly breeding within the area and the remaining five were categorised as non-breeding.

It should be noted that no active nests were observed on-site, nor were any nest-building behaviours exhibited by birds on-site.

The majority of birds identified within the Site were limited to the Site boundaries, particularly the eastern hedgerow / treeline. It should be noted that the northern and western hedgerow / treelines of the Site will be retained as part of the Proposed Development where possible. Although territorial behaviour of birds was noted on-site, the birds exhibiting this behaviour were noted flying overhead and landing on trees located outside the Site boundary, which will be retained.

The Site is considered to provide suitable habitats for breeding birds; however, as stated above, the optimal areas for breeding birds are considered to be the hedgerows / treelines located along the Site boundaries – most of which will be retained. The scrub habitat onsite has the potential to provide suitable habitat for breeding birds; however, this habitat was sparse and considered to be of poor quality.

It should be noted, however, that breeding birds within the Site are considered likely to currently experience impacts related to anthropogenic activities, given the context of the surrounding areas. Therefore, it is concluded that local bird species would be habituated to levels of anthropogenic disturbances from the wider area.

In addition, as part of the Landscape Plan that has been prepared in support of the Proposed Development, the boundary features of the Site will be retained where possible, and an ecological corridor will be established running through the Site.

5 ASSESSMENT OF POTENTIAL IMPACTS

5.1 Potential Impacts

5.1.1 Wintering Bird Species

It is not anticipated that the Proposed Development will have any significant impact on wintering birds in the vicinity of the Site, given the absence of any significant numbers of bird species recorded on-site.

Given the high levels of anthropogenic disturbance within the vicinity of the Site, it is considered that the Site is not a site of importance for any wintering or breeding bird species. It is anticipated that bird species would prefer areas with lower levels of disturbance away from the Site.

Whilst the Site is currently utilised by common countryside bird species and occasional water / wetland bird species (snipe), the numbers of these species recorded were low. Similarly, these species were noted moving into nearby fields to forage.

As birds are highly mobile species, it can be concluded that any species utilising the Site during the wintering season will move away to similar habitats to the east.

Therefore, no mitigation is considered necessary for wintering birds as part of the Proposed Development.

5.1.2 Breeding Bird Species

As previously mentioned, the Site is considered to provide suitable nesting habitats for breeding birds through the hedgerow / treelines. In addition, the Site provides suitable foraging habitat through agricultural grassland, scrub and hedgerow / treelines. Given the number of species recorded utilising the Site, the Site is considered to be of local importance for breeding birds.

It is considered that a bird utilising the Site would be habituated to high levels of anthropogenic noise, given the close proximity to residential and commercial areas. However, it is still considered that birds within the Site and immediate locality may be subject to temporary disturbance during the Construction Phase of the Proposed Development. However, this is not considered likely to be significant, given that birds are highly mobile and therefore will move away from disturbances. It can be concluded that, should any birds be disrupted during any of the works, they will move to a suitable area elsewhere.

However, as part of the Proposed Development, the following clearance / removal works will be required:

- Removal of one ash tree;
- Removal of dense bracken; and,
- Removal of scrub vegetation.

For full details, please refer to the Landscape Plan prepared by Gannon & Associates Landscape Architecture, submitted as part of this planning application.

However, in order to ensure no impacts occur to breeding birds during the removal works, mitigation measures will be required.

6 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

Comprehensive mitigation measures will be implemented to reduce the potential effect of the Proposed Development on local bird populations as outlined in Section 5.3.1.2 of the EcIA.

In addition, ecological clerk of works ('ECoW') monitoring will be undertaken as required, as outlined in the EcIA.

Furthermore, as outlined in Section 5.4 of the EcIA, enhancement measures will be implemented within the Site that will provide foraging, commuting and potential roosting opportunities for local birds.

7 CONCLUSIONS

Overall, during the surveys, a total of 32 unique bird species were identified on-site.

Of the 28 bird species recorded during the wintering bird surveys:

- 19 green-listed species – blackbird, blue tit, bullfinch, chaffinch, coal tit, dunnock, great tit, goldfinch, hooded crow, jackdaw, magpie, mistle thrush, pied wagtail, robin, rook, song thrush, stonechat, wren and woodpigeon;
- Five amber-listed species – goldcrest, greenfinch, herring gull, house sparrow and starling; and,
- Four red-listed species – kestrel, meadow pipit, redwing and snipe.

No Annex I species were recorded on-site, and no species designated under the Killarney National Park SPA were recorded during the winter bird surveys.

The wintering bird surveys did not identify any roosting sites or potential roosting sites on the Site. It is considered that the Proposed Development will not have a negative impact on wintering birds, given that snipe were the only wetland bird species to utilise the Site during wintering bird surveys. In addition, there are many more suitable habitats elsewhere in the vicinity of the Site.

Of the 24 species recorded during the breeding bird surveys:

- 17 Green-listed BoCCI, non-Annex I species were recorded – blackbird, blue tit, bullfinch, chaffinch, chiffchaff, dunnock, goldfinch, great tit, hooded crow, jackdaw, magpie, robin, rook, song thrush, stonechat, wren, woodpigeon;
- Six Amber-listed BoCCI, non-Annex I species were recorded – black-headed gull, goldcrest, greenfinch, house sparrow, linnet and willow warbler; and,
- One Red-listed BoCCI, Annex or non-Annex I species was recorded – meadow pipit.

No Annex I bird species and no bird species associated with the Killarney National Park SPA were recorded during the breeding bird surveys.

During the surveys, one species was observed exhibiting behaviours that would be classified as '*Confirmed Breeding*' – stonechat. However, no active nests or signs of nest building were recorded within the Site boundary.

Based on the breeding bird surveys, it was concluded that the hedgerow / treelines bordering the Site are suitable for a range of common nesting bird species, and the agricultural grassland is suitable for foraging. The Proposed Development will require the removal of small sections of scrub and hedgerow / treeline and will be constructed on the agricultural grassland. However, appropriate mitigation measures will be implemented to ensure no impacts occur to breeding birds utilising the Site, and it is considered that the removal of this habitat will result in a temporary loss of nesting and foraging habitat. However, the landscape planning will provide additional foraging habitats once established, and the hedgerow / treelines can be utilised following completion of the works.

Overall, it is concluded that the Site is not a site of importance for any breeding or wintering bird species, and following the implementation of appropriate mitigation measures, the Proposed Development will not result in any impacts to any breeding or wintering bird species

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