SDCC Rathcoole Housing Development

Environmental Impact Assessment Report (EIAR)
Chapter 06: Biodiversity

South Dublin County Council (SDCC)

October 2026

Quality Information

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6 Biodiversity

6.1 Introduction

6.1.1 Background

This Chapter of the Environmental Impact Assessment Report (EIAR) identifies, describes and assesses the potential impacts and likelihood of significant effects of the Proposed Development on biodiversity.

A description of the Proposed Development is provided in Chapter 02 Description of Development (EIAR Volume 01). For ease and clarity of reference, all land within the proposed application boundary is referred to as the Site. 1-1

This Chapter is supported by the following Appendices (EIAR Volume 02):

- Appendix A6-1 Relevant Supporting Information
- Appendix A6-2 Annex I Habitat Plot Results
- Appendix A6-3 Bat Report
- Appendix A6-4 Badger Report **(Confidential)**
- Appendix A6-5 Bird Report
- Appendix A6-6 Woodland Management Plan

This Chapter is supported by the following Figures (EIAR Volume 03):

- Figure A6-1 European and National Sites
- Figure A6-2 Habitats and Invasive Species
- Figure A6-3 Bat Activity
- Figure A6-4 Badgers **(Confidential)**
- Figure A6-5 Breeding Birds
- Figure A6-6 Wintering Birds

Where relevant in this Chapter, reference is made to the standalone *Appropriate Assessment Screening Report* (AECOM, 2026). The Appropriate Assessment (AA) Screening Report provides information to assist the Competent Authority, South Dublin County Council (SDCC), in determining whether the Proposed Development, either alone or in-combination with other plans or projects, is likely to have a significant effect on any European site. The AA Screening Report considers potential effects arising during the construction and operational phases of the Proposed Development. A decommissioning phase has not been considered, consistent with Chapter 02 Description of Development, as the Proposed Development comprises permanent residential development and no decommissioning phase is proposed. European sites comprise Special Areas of Conservation (SAC) and Special Protection Areas (SPA). Where appropriate, this Chapter refers to the analysis presented in the AA Screening Report; however, the assessment of effects on European sites presented in this Chapter has been undertaken as part of the EIA process and does not rely solely on the conclusions of the AA Screening Report.

Throughout this Chapter, the term ecological feature is used to refer to sites designated for nature conservation, habitats, and floral and faunal species. Terrestrial and freshwater habitats and species are considered. Species are generally given their common and scientific names when first referred to and their common names only thereafter. Vascular plant scientific names follow Stace (2019). Common names of bryophytes are generally not well known therefore only scientific names are used, following revisions by the British Bryological Society set out in Blockeel *et al.* (2021). All distances are cited as the shortest distance as the crow flies, unless otherwise specified.

6.1.2 Statement of Authority

This Chapter was prepared by Jenny Hunter, reviewed by Seánin Munglani, and verified by Paul Lynas. Relevant experience for all AECOM ecologists involved in preparation of this Chapter, including all field survey, is presented in Appendix A6-1 Relevant Supporting Information.

6.2 Legislation, Policy and Guidance

This Section sets out the legislation, policy, and guidance sources which are potentially relevant and have informed the scope and method for assessment of effects on ecological features.

6.2.1 Legislation

The following nature conservation legislation is potentially relevant to the Proposed Development and has been considered during the preparation of this Chapter:

- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 2014/52/EU (the EIA Directive).
- Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive).
- Directive 2009/147/EC on the conservation of wild birds (the Birds Directive).
- Directive 2000/60/EC establishing a framework for Community action in the field of water policy (the Water Framework Directive (WFD)).
- Regulation 1143/2014 on the prevention and management of the introduction and spread of invasive alien species (the EU Invasive Alien Species Regulation).
- Convention on Wetlands of International Importance (the Ramsar Convention).
- The European Communities (Birds and Natural Habitats) Regulations 2011, 2015, 2021, and 2026 (the Habitats Regulations).
- The Wildlife Acts 1976 to 2023 (the Wildlife Acts).
- The Flora (Protection) Order 2022 (the Flora Protection Order (FPO)).
- The European Communities Environmental Objectives (Surface Waters) Regulations 2009-2023.
- European Union (Invasive Alien Species) Regulations 2024 SI 374/2024 (the Irish Invasive Alien Species Regulations).
- The Fisheries (Consolidation) Act 1959-2024.

Further information on potentially relevant wildlife legislation is provided in Appendix A6-1 Relevant Supporting Information.

6.2.2 Policy

The following planning policy is potentially relevant to the Proposed Development and has been considered during the preparation of this Chapter:

- *Project Ireland 2040: National Planning Framework* (NPF) (Department of Housing, Planning and Local Government, 2018).
- *Ireland's 4th National Biodiversity Action* Plan 2023-2030 (NPWS, 2023).
- *South Dublin County Council Development Plan 2022-2028* (South Dublin County Council, 2022).
- *Draft Biodiversity Action Plan for South Dublin County 2020-2026* (South Dublin County Council, 2020).

More information on national and local planning policy is provided in Appendix A6-1 Relevant Supporting Information.

6.2.3 Guidance

This Chapter follows relevant guidance for Ecological Impact Assessment (EcIA), including for planning of field survey, and design, method, and scope of the impact assessment. The primary guidance document for EcIA is the Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018[1]).

In addition, the Environmental Protection Agency (EPA) guidance document *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022) was also referred to during the preparation of this Chapter. Further guidance, e.g. habitat and species-specific guidance, is referenced and described later in the Chapter where relevant.

6.3 Methodology

6.3.1 Assessment Approach and Scope

Ecological features comprise sites designated for nature conservation, habitats, species, and ecosystems (including ecosystem function and processes). Guidelines for EcIA recommend that only those features that are important and that could be significantly affected by the Proposed Development require detailed assessment, stating that "*it is not necessary to carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and would remain viable and sustainable*" (CIEEM, 2018).

Consequently, for the desk study, field survey, and the assessment described in this Chapter, important ecological features are:

- Sites designated for nature conservation, including those designated at international (i.e. European), national, and local levels.
- The qualifying features of European sites (i.e. SAC, SPA), and Wetlands of International Importance (Ramsar sites), and the notified features of national sites i.e. National Heritage Areas (NHA), proposed NHA (pNHA), where there is connectivity with the Site.
- Ancient and Long-established Woodland listed on the Ancient Woodland Inventory (AWI) in Ireland.
- Habitats listed on Annex I of the Habitats Directive (particularly priority Annex I habitats).
- Species listed on Annex II and IV of the Habitats Directive.
- Bird species listed on Annex I of the Birds Directive.
- Protected fauna species scheduled under the Habitats Regulations and the Wildlife Acts.
- Protected plant species scheduled under the Habitats Regulations and the FPO.
- Invasive non-native plant species, which comprise:
  - Species listed on the Third Schedule of the Habitats Regulations (i.e. Scheduled invasive species).
  - Species considered to be of EU concern under the Invasive Alien Species Regulation.
  - Species commonly considered to be invasive as listed by the National Biodiversity Data Centre (O'Flynn *et al.*, 2013) as invasive in Ireland (Medium- and High-impact only).
- Bird species listed as Red or Amber as per the Birds of Conservation Concern in Ireland (BoCCI) (Gilbert *et al.,* 2021).

This list is not exhaustive, and additional ecological features may be considered important based on professional judgment, for example due to their inclusion in local development or biodiversity action plans or in species red data books.

[1] N.B. this guidance was initially published in 2018 and updated in 2024; the most recent guidance was followed.

6.3.2 Zone of Influence and Study Areas

The study areas of ecological features have been determined in relation to their relevant zones of influence (ZoI). The ZoI of a development is "*the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities*" (CIEEM, 2018). The ZoI includes the Site and may also extend beyond the boundary of the Site, for example where there are ecological or hydrological links extending beyond the Site boundary. The ZoI will vary for different ecological features depending on their sensitivity to an environmental change or impact. It is therefore appropriate to identify different ZoI for different important ecological features and also for impacts and effects.

As recommended by CIEEM (2018), professionally accredited or published studies and guidance, where available, and professional judgement were used to help determine the potential ZoI. However, CIEEM also highlight that establishing the ZoI should be an iterative process informed by both desk study and field survey. Where limited information was available, the Precautionary Principle was adopted and a ZoI estimated on that basis.

Having considered the Proposed Development, potential ZoI have been estimated for important ecological features, and these are presented in Appendix A6-1 Relevant Supporting Information. In the context of determining the ZoI for potential pollution effects from the Proposed Development, a conservative approach has been adopted, assuming that the ZoI includes all areas downstream of the Proposed Development within the same catchment (which in this case is Liffey and Dublin Bay).

The desk study and field survey areas were designed to allow sufficient data to be collected to establish the baseline condition of ecological features and determine the impacts of the Proposed Development. The potential ZoI may extend beyond the Site and survey areas. The field survey areas adopted for this assessment were sufficiently precautionary to allow assessment of potentially significant effects from the Proposed Development on ecological features, including within the wider ZoI beyond the field survey areas.

6.3.3 Desk Study

A desk study was carried out to identify sites with designations for nature conservation and records of important habitats and species (as defined in Section 6.3.1) potentially relevant to the Proposed Development. A stratified approach was taken when defining the desk study area, based on the potential ZoI of the Proposed Development for different ecological features. Accordingly, the desk study sought to identify:

- Internationally designated sites for nature conservation i.e. SPA, SAC, and Ramsar sites within at least 10km of the Site, but also further than this where connectivity may exist (e.g. hydrologically). This also extended to 20km for SPA for which geese are a qualifying interest feature[2].
- Nationally designated for nature conservation i.e. NHA and pNHA within at least 2km of the Site or otherwise connected to the Site (e.g. hydrologically).
- Locally (non-statutory) designated for nature conservation within at least 1km of the Site or otherwise connected to the Site (e.g. hydrologically).
- Ancient or Long-established Woodland parcels within 0.5km of the Site or otherwise connected to the Site (e.g. hydrologically).
- Records of important habitats (e.g. Annex I) within at least 0.5km of the Site or otherwise connected to the Site.
- Records of important species within 2km of the Site.

A range of data sources was used for the desk study, as set out in Table 6-1. In addition, several previous ecological reports relevant to the Site were consulted, where available.

[2] 20km is the largest foraging range for any species (i.e. non-breeding geese species) in NatureScot guidance (SNH, 2016).

Table 6-1: Desk Study Data Sources

Data Source(s)	Data Obtained	Date of Last Access
Google Maps (https://www.google.com/maps/) Tailte Éireann 1:25,000 maps and aerial photography (https://www.arcgis.com/apps/webappviewer/index.html?id=3ae19cc156bf4706a929304bf8fcc4f6)	• Habitats and habitat connectivity relevant to aid in the interpretation suitability for important species. • Current and historical imagery.	18/02/2026
EPA maps website (https://gis.epa.ie/EPAMaps/) National Parks and Wildlife Service (NPWS) Designations Viewer (https://experience.arcgis.com/experience/edf34d92e28040fd87d3d14f55d8d95f)	• Extents of and information on designated sites, including SPA, SAC, NHA, and pNHA. • Status of watercourses and standing waters.	19/02/2026
NPWS Protected Sites in Ireland (https://www.npws.ie/protected-sites) and Ramsar sites in Ireland (https://www.irishwetlands.ie/irish-sites/)	• Extents of and information on designated sites, including SPA, SAC, Ramsar sites, NHA, and pNHA.	19/02/2026
Ancient and Long-established Woodland Map viewer, Ireland (https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=e6da11a2a9804664a428315bcd105260)	• Ancient Woodland Inventory.	19/02/2026
NPWS EU Habitats Directive Annex Habitats Article 17 Report 2019 – Terrestrial Habitats (https://storymaps.arcgis.com/collections/1a721520030d404f899d658d5b6e159a?item=1l Article 17 Data 2019 (https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17/2019)	• Records of Annex I habitats.	19/02/2026
NBDC Biodiversity maps (https://maps.biodiversityireland.ie/)	• Commercially available records of important species.	24/02/2026
Irish Red Lists (https://www.npws.ie/publications/red-lists)	• Conservation status of plants, amphibians, reptiles, freshwater fish, invertebrates, birds, and terrestrial mammals (including bats) in Ireland.	19/02/2026
Inland Fisheries Ireland (IFI) publications (https://www.fisheriesireland.ie/publications)	• Fish records and publications throughout Ireland.	12/06/2026

6.3.4 Field Surveys

Ecological surveys were carried out within the Site and additional relevant surrounding areas, collectively referred to as the Survey Area. The Survey Area extends beyond the Site and therefore provides robust coverage of the Site and relevant surrounding habitats.

Habitats and Flora

A habitat survey was carried within the Survey Area in accordance with *A Guide to Habitats in Ireland* (Fossitt, 2000) and *Best Practice Guidance for Habitat Survey and Mapping* (Smith *et al*., 2011), during which standard habitat types and ecological notes were recorded. Photographs were taken of representative habitats.

Habitats were mapped, and typical and notable plant species present within habitats were recorded for each habitat type encountered. The recorded species reflect habitat compositions and conditions at the time of survey. Survey timings were considered appropriate to identify important plants within suitable habitat in the site, should they be present.

In addition, further detailed survey was carried out within areas known as or considered to have affinity with Annex I habitats within the Survey Area. For these habitats, a more detailed survey was carried out, during which an Irish Vegetation Community (IVC) type was assigned to homogenous stands of vegetation, following Perrin (2024). IVC aids in identification of Annex I habitat types. Detailed individual plots were taken in Annex I habitats, with notes taken of relevant features (such as numbers of positive indicator

species, habitat structure and form, and presence of negative indicator species). Guidance used to inform the criteria collected during plots comprised:

- *Results of Monitoring Survey of old Sessile Oak Woods and Alluvial Forests* (O'Neill and Barron, 2013) and *The Monitoring and Assessment of Four EU Habitats Directive Annex I Woodland Habitats* (Daly *et al*., 2023) for wet woodland.
- *The Monitoring and Assessment of Three EU Habitats Directive Annex I Grassland Habitats* (Martin *et al*., 2018) for grassland.

It must be noted that these guidance documents are designed for the national monitoring of Annex I habitat condition and extent, and there may be some differences in applying methods between national monitoring surveys and baseline ecological surveys. Further details for methods relating to Annex I habitat condition assessment are presented in Appendix A6-2 Annex I Habitat Plot Results.

Invasive Non-native Plant Species

During the habitat survey, a search was made for Scheduled invasive plant species, and plant species listed as High-impact and Medium-impact in Ireland by the NBDC. Locations of such species were mapped and notes on features of the plants/stands including species, extent, and evidence of treatment were recorded.

Roosting Bats

A survey of trees for bat roost suitability was carried out following guidelines published by the Bat Conservation Trust (BCT) (Collins, 2023). Ground Level Tree Assessments (GLTA) were carried out for trees within the Survey Area. There are no buildings or structures within the Site.

During daylight hours, trees were inspected from ground level to search for potential roost features (PRF) (e.g. cavities, trunk and branch splits, rot holes, and knot holes etc.), and/or evidence of roosting bats. External signs that bats are using a tree as a roost include:

- Bat droppings: black droppings, 5-10mm long that crumble to a fine dust when crushed and may be located on the ground or stuck to trunks.
- Staining: secretions from bat fur, which can cause oily brown stains in the vicinity of roost entrances. Urine stains which may be present below the entrance to the roost.
- Chittering: audible squeaking from within the roost site.
- Odour: smell may be indicative of a large roost.
- Flies around the entrance of a roost, attracted by the smell of bat droppings.

The results of the GLTA were used to categorise trees as NONE (i.e. no PRFs or highly unlikely to be any), FAR (i.e. further assessment required to determine if PRFs are present), or PRF (i.e. a tree with at least one PRF). Further details for methods relating to bat roost assessments are presented in Appendix A6-3 Bat Report.

Bat Activity

Bat activity surveys were carried out using the transect method, based on BCT guidance (Collins, 2023). As per recent BCT guidance, transect surveys have been renamed Night-time Bat Walkovers (NBW). The NBW was carried out on three occasions spaced across the spring/summer survey period, in June, August, and September 2025.

Following standard method, NBW commenced at sunset, with the first 30 minutes spent at one location onsite. This location was chosen based on the surrounding habitats and the likelihood of identifying potentially important flight lines. The NBW continued for at least two hours, and the route was looped at least once. Spot counts (i.e. listening points) were determined along the transect route, at which surveyors listened at a stationary position for five minutes. Surveyors listened for bats using detectors with headphones and on hearing a bat, attempted to identify flight direction, height, and bat behaviour. Further details for methods relating to bat activity surveys are presented in Appendix A6-3 Bat Report.

Badger

A badger *Meles meles* survey was conducted within the Survey Area and was extended to 50m beyond where access was possible. The surveys followed National Roads Authority (NRA)[3] guidance *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA, 2008a) and NRA specific guidance for badger (NRA, 2005), with cognisance of Harris *et al.* (1989) and Smal (1995).

All potential badger habitat, such as woodland, hedgerows and dense vegetation, was systematically searched for signs of badger activity or habitation. Badger signs searched for included setts, foraging evidence (e.g. snuffle holes), latrines, access runs and trails, hairs caught on wires and bushes, and tracks and prints.

Where present, setts were assessed for level of use and the number of entrance holes, and thus classified, where possible, into four types: main, annex, subsidiary, and outlier. For each sett identified, information was gathered about each entrance, including the dimension of the entrance, tunnel direction, tunnel description (as far as visible), and any evidence of badger around the entrance. This information was used to provide an indication of the level of use of the sett. Further details for methods relating to badger survey are presented in Appendix A6-4 Badger Report.

Otter

An otter *Lutra lutra* survey was conducted along the watercourses within the Survey Area, and was extended to 30m up and downstream, where accessible. The surveys followed NRA (2008) and NRA specific guidance for otter (NRA, 2006a).

The banks of the watercourse were searched, along with any emergent rocks and substrate, for signs of otter. Terrestrial habitats in proximity to watercourses with potential to support otter were also searched for evidence; refuge sites, including holts and layups, spraints, slides and footprints.

Other Important Mammals

No targeted field surveys were carried out for hedgehog *Erinaceus europaeus*, Irish hare *Lepus timidus hibernicus*, Irish stoat *Mustela erminea hibernica*, pine marten *Martes martes*, pygmy shrew *Sorex minutus*, and red squirrel *Sciurus vulgaris*.

Direct sightings and indirect signs of these mammals were recorded if present during the other ecological surveys. The suitability of habitats for these species was also assessed during surveys.

Breeding Birds

Two breeding bird surveys were conducted within the Survey Area. A pre-determined transect route was walked within the Site, and binoculars were used to scan all parts of the Survey Area and adjacent areas where visible. Surveyors included regular stops to listen for singing or calling birds.

All surveys were carried out during favourable weather conditions of light winds, with no heavy precipitation and good visibility. Surveys were carried out where possible in the early morning, avoiding the time period immediately after sunrise. All the birds observed, either by sight or sound, their locations and activity/behaviour were recorded on field maps and/or mobile mapping software using standard British Trust for Ornithology (BTO) species codes and behaviour notation, as described in Gilbert *et al*. (1998). Further details for methods relating to breeding bird surveys are presented in Appendix A6-5 Bird Report.

Wintering Birds

Four wintering bird surveys were caried out within the Survey Area. A pre-determined transect route was walked within the Site, and binoculars were used to scan all parts of the Site and adjacent areas where visible. Surveyors included regular stops to look for birds and listen for singing or calling birds.

All the birds observed, either by sight or sound, their locations and activity/behaviour were recorded on field maps and/or mobile mapping software using standard British Trust for Ornithology (BTO) species codes and behaviour notation, as described in Gilbert *et al*. (1998). Further details for methods relating to wintering bird surveys are presented in Appendix A6-5 Bird Report.

[3] N.B. the NRA was subsumed by Transport Infrastructure Ireland (TII), though guidelines were published by the NRA and remain valid as a source of guidance. TII has since rebranded NRA documents and hosts them on their website.

Other Important Species

No targeted field surveys were carried out for amphibians, invertebrates, or viviparous lizard *Zootoca vivipara*, either because these species are common and widespread across Ireland and/or because the habitat surveys suggest likely absence of protected species, as there is no suitable habitat (including breeding habitat) for them. However, incidental observation of evidence for such species was noted where identified.

Data Collection

All spatial survey data were recorded onto specific habitat and species maps using Esri Field Maps on hand-held mobile mapping devices (Samsung Galaxy Tab tablets) in the field. By using the inbuilt device GPS and in context with recognisable features on the ground visible from downloaded orthophotography, generally accurate locational data of evidence was recorded.

6.3.5 Ecological Impact Assessment

The assessment of impacts and effects on terrestrial ecological features described in this Chapter was conducted in accordance with CIEEM guidelines (CIEEM, 2018). The principal steps involved in the CIEEM approach can be summarised as:

- Determine baseline conditions through targeted desk study and field survey, to identify important ecological features that are present and that might be affected.
- Evaluate the importance of identified ecological features on a geographic scale, determining which features will be subject to detailed impact assessment.
- Describe potential impacts on relevant ecological features, considering best practice, legislation, and embedded design measures.
- Assess and quantify (as far as possible) likely effects (adverse or beneficial) on relevant ecological features and determine if effects are likely to be significant.
- Develop measures to avoid or reduce predicted significant effects, in conjunction with other elements of the design (including mitigation for other environmental disciplines).
- Report residual effects, considering developed mitigation and/or compensation.
- Assess the potential for cumulative effects.
- Identify opportunities for biodiversity enhancement.

When baseline conditions have been determined, it can become apparent that there is no possibility of effect on certain ecological features, and thus such features are scoped out of further assessment.

The importance of an ecological feature should be considered within a defined geographical extent, which are summarised as:

- International (e.g. European sites).
- National (e.g. nationally designated sites, irreplaceable habitats).
- County (e.g. non-statutory designated sites, habitats/species within Biodiversity Action Plans).
- Local (e.g. small/sustainable populations of species, common habitats).

Impacts are assessed in view of the conservation status of the species under consideration. Conservation status is defined as follows:

- Habitat: the sum of influences acting on it that may affect its extent, structure/functions, distribution and typical species within a given geographical area.
- Species: the sum of influences acting on it that may affect long-term distribution and abundance within a given geographical area. Conservation objectives for European sites indicate that to contribute to favourable conservation status, the following must be maintained: the population as a viable component of its habitats, distribution, sufficiency of supporting habitats, and processes and prey.

Impacts are characterised by using certain parameters, such as direction (i.e. adverse or beneficial), magnitude (e.g. size, intensity), frequency (e.g. daily, monthly), timing (e.g. relative to a species' lifecycle), and reversibility (e.g. temporary or permanent).

For the purposes of this Chapter, ecological effects assessed as significant at the County level or above are considered Significant in the context of the EIA. Effects significant at the Local level, or assessed as Negligible, are considered Not Significant in EIA terms. The latter does not mean that mitigation is not required, or that other legal requirements do not apply.

A detailed description of the method employed for impact assessment in this Chapter is provided in Appendix A6-1 Relevant Supporting Information.

6.3.6 Limitations and Caveats

The aim of the desk study was to help characterise the baseline context of the Proposed Development and provide valuable background information that may not be captured by survey alone. Information obtained during the desk study is dependent on records for the area of interest having been submitted. As such, a lack of records for particular species does not necessarily mean that they do not occur in the study area. Likewise, the presence of records for particular species does not automatically mean that these still occur within the area of interest or are relevant to the Proposed Development. Biological records can be received from a wide variety of sources and may or may not be comprehensive and accurate. However, if assessed in conjunction with habitat and species surveys, they can contribute to a robust ecological assessment of a site.

Where habitat edges are sharp and coincide with features on base mapping or aerial photography that are considered correct, their placement is based on the accuracy of that data in GIS. Otherwise, habitat edges are best estimates as judged in the field. Note also that habitat transitions can be gradual without sharp boundaries. Consequently, habitat mapping and any stated habitat areas are approximate and should be verified by measurement on site if required.

No access was granted for the lands belonging to the Department of Education. This area was viewed through the perimeter fence, allowing the habitat to be determined. This poses a minor constraint to the survey, though does not constrain the assessment in this Chapter.

BCT guidance recommends static detector deployment as part of survey effort for bat activity. However, based on the open and publicly accessible nature of the Site, and the potential for anti-social behaviour or theft, static detectors were not deployed. This does not pose a significant limitation to the surveys, as a full suite of NBW was carried out which were not inherently constrained.

No specific field surveys were carried out for invertebrates, viviparous lizard, hedgehog, Irish hare, Irish stoat, pine marten, pygmy shrew, and red squirrel. It can also reliably be assumed that these species (including common/widespread invertebrate species) are present within the potential ZoI of the Proposed Development, and the potential for impacts on these species, which are all relatively widespread, can be adequately assessed without requiring detailed field survey data. No aquatic survey work was carried out to inform this Chapter.

Further details of specific limitations associated with the surveys for habitats, bats, badgers, and birds are presented in Appendices A6-2 to A6-5. All identified limitations were considered minor and do not affect the robustness of the baseline data collected, nor the assessment of ecological impacts and effects presented in this Chapter.

No other limitations to constrain the results of this Chapter were identified. All identified limitations were minor and do not affect the robustness of the baseline data or the assessment of ecological impacts and effects presented in this Chapter.

6.4 Baseline Environment

6.4.1 Desk Study

International and National Nature Conservation Designations

There are three SACs within 10km of the Site: Glenasmole Valley SAC, Wicklow Mountains SAC, and Rye Water Valley/Carton SAC. These are all designated for Annex I habitats, with Wicklow Mountains SAC also being designated for otter, and Rye Water Valley/Carton SAC also designated for two species of whorl snail. These European sites are within different sub-catchments to the Site, and there are no hydrological or other ecological connections between these SACs and the Site.

There is a tenuous hydrological connection from the Site to Dublin Bay; the Camac, which flows along the edge of the Site, continues into the River Liffey approximately 15km downstream of the Site, and subsequently into Dublin Bay at a hydrological distance of c. 22.3km from the Site. Dublin Bay hosts South Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Dublin Bay SAC, North Bull Island SPA and Ramsar, and Sandymount Strand/Tolka Estuary Ramsar. There are no other SPAs with geese species (the largest known home range of regularly occurring bird species) as an SCI within 20km of the Site.

There is one nationally designated site within 2km of the Site: Slade of Saggart and Crooksling Glen pNHA. This pNHA is located c 1.7km south of the site and is also hydrologically linked to the site by the Camac, albeit upstream.

Statutory designated sites are summarised in Table 6-2, and locations are shown in Figure A6-1.

Table 6-2: International and National Nature Conservation Sites

Site Name(s) [Site Code]	Reason(s) for Designation / Site Summary	Distance from and Potential Link to Site
International Sites		
Glenasmole Valley SAC [001209]	• Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites) [6210] • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] • Petrifying springs with tufa formation (Cratoneurion) [7220]	5.9km south of the Site. No hydrological connection to the Site.
Wicklow Mountains SAC [002122]	• Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] • Natural dystrophic lakes and ponds [3160] • Northern Atlantic wet heaths with *Erica tetralix* [4010] • European dry heaths [4030] • Alpine and boreal heaths [4060] • Calaminarian grasslands of the Violetalia calaminariae [6130] • Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230] • Blanket bogs (*if active bog) [7130] • Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110] • Calcareous rocky slopes with chasmophytic vegetation [8210] • Siliceous rocky slopes with chasmophytic vegetation [8220] • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] • Otter *Lutra lutra* [1355]	6.9km south of the Site. No hydrological connection to the Site.
Rye Water Valley/Carton SAC [001398]	• Petrifying springs with tufa formation (Cratoneurion) [7220] • Narrow-mouthed whorl snail *Vertigo angustior* [1014] • Desmoulin's whorl snail *Vertigo moulinsiana* [1016]	9.3km north of the Site. No hydrological connection to the Site.
South Dublin Bay SAC [000210]	• Mudflats and sandflats not covered by seawater at low tide [1140] • Annual vegetation of drift lines [1210] • Salicornia and other annuals colonising mud and sand [1310] • Embryonic shifting dunes [2110]	17.1km east of the Site. Hydrologically connected downstream of the Site over a distance of c 22.3km via the Camac and River Liffey which flows into Dublin Bay.
South Dublin Bay and River Tolka	Sandymount Strand/Tolka Estuary Ramsar site is coincidental with South Dublin Bay and River Tolka	17.1km east of the Site. Hydrologically connected

Site Name(s) [Site Code]	Reason(s) for Designation / Site Summary	Distance from and Potential Link to Site
Estuary SPA [004024] and Sandymount Strand/Tolka Estuary Ramsar site [832]	Estuary SPA, however the SPA covers a larger extent. The site is designated for the following: • Light-bellied brent goose *Branta bernicla hrota* [A046] • Oystercatcher *Haematopus ostralegus* [A130] • Grey plover *Pluvialis squatarola* [A141] • Knot *Calidris canutus* [A143] • Sanderling *Calidris alba* [A144] • Dunlin *Calidris alpina* [A149] • Bar-tailed godwit *Limosa lapponica* [A157] • Redshank *Tringa totanus* [A162] • Black-headed gull *Chroicocephalus ridibundus* [A179] • Roseate tern *Sterna dougallii* [A192] • Common tern *Sterna hirundo* [A193] • Arctic tern *Sterna paradisaea* [A194] • Wetland and waterbirds [A999]	downstream of the Site over a distance of c 22.3km via the Camac and River Liffey which flows into Dublin Bay.
North Dublin Bay SAC [000206]	• Mudflats and sandflats not covered by seawater at low tide [1140] • Annual vegetation of drift lines [1210] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • Humid dune slacks [2190] • Petalwort *Petalophyllum ralfsii* [1395]	21.4km east of the Site. Hydrologically connected downstream of the Site over a distance of c 25.9km via the Camac and River Liffey which flows into Dublin Bay.
North Bull Island SPA [004006] and North Bull Island Ramsar site [406]	North Bull Island Ramsar site is coincidental with the SPA, however, the SPA covers a larger extent. The site is designated for the following: • Light-bellied brent goose *Branta bernicla hrota* [A046] • Shelduck *Tadorna tadorna* [A048] • Teal *Anas crecca* [A052] • Pintail *Anas acuta* [A054] • Shoveler *Anas clypeata* [A056] • Oystercatcher *Haematopus ostralegus* [A130] • Golden plover *Pluvialis apricaria* [A140] • Grey plover *Pluvialis squatarola* [A141] • Knot *Calidris canutus* [A143] • Sanderling *Calidris alba* [A144] • Dunlin *Calidris alpina* [A149] • Black-tailed godwit *Limosa limosa* [A156] • Bar-tailed godwit *Limosa lapponica* [A157] • Curlew *Numenius arquata* [A160] • Redshank *Tringa tota*nus [A162] • Turnstone *Arenaria interpres* [A169] • Black-headed gull *Chroicocephalus ridibundus* [A179] • Wetland and waterbirds [A999]	21.4km east of the Site. Hydrologically connected downstream of the Site over a distance of c 25.9km via the Camac and River Liffey which flows into Dublin Bay.

Site Name(s) [Site Code]	Reason(s) for Designation / Site Summary	Distance from and Potential Link to Site
National Sites		
Slade of Saggart and Crooksling Glen pNHA [000211]	The northern half of the site comprises a river valley with steep tree-covered sides, while the southern side is flatter and contains two small lakes, the Brittas Ponds. The site includes a good example of a wooded river valley and a small wetland system. The presence of a rare plant (yellow archangel *Lamiastrum galeobdolon*), a rare invertebrate (chalcid *Halticoptera patellana*), and a variety of wildfowl species adds to the interest of the site.	1.7km south of the Site. Hydrologically connected upstream of the Site over a distance of c 2.2km.

Sources (in order of mention): NPWS (2021a), NPWS (2017), NPWS (2021b), NPWS (2026c), NPWS (2015a), NPWS (2013), NPWS (2015b), and NPWS (2009)

Local Nature Conservation Designations

There are no locally designated sites within 1km of the Site or otherwise connected to the Site (e.g. hydrologically).

Ancient and Long-established Woodland

There are no parcels of Ancient or Long-established Woodland within 0.5km of the Site or otherwise connected to the Site (e.g. hydrologically). The closest parcel of woodland is located >1.8km from the Site.

Watercourses

The Site lies within the Liffey sub-catchment (Liffey_SC_090) of the Liffey River and Dublin Bay catchment. There are three watercourses in proximity to the Site: the Camac and two tributaries of the Camac. The Camac flows south-north adjacent to the Site's eastern boundary. One tributary, known locally as Crockshane Stream, flows west-east adjacent to the southern boundary. The second tributary is present close to the Site's northern boundary and appears to flow along a hedgerow corridor from the adjacent Rathcoole Woodland, where it diverges with one section flowing into the adjacent Rathcoole Park, and the other continuing west-east along the hedgerow corridor. It is worth noting that during previous surveys, the section of the Coolmine Stream along the northern Site boundary was not identified as a watercourse due to a persistent lack of running water during surveys and generally only small amounts of standing water and instead was categorised as a dry ditch (Wilson and Denyer, 2021; Envirologic, 2022; Mayfly Ecology, 2024). According to EPA maps, the Camac and its tributaries within the Site (CAMAC_020) have a WFD status of Good. The locations of these watercourses are shown in Figure A6-1.

Other Important Habitats

No records of important habitats (e.g. Annex I) were identified within 0.5km of the Site, though two Annex I habitats have been identified onsite during previous surveys (see Section 0 for further information).

Species Records

The NBDC species search of commercially available records within 2km of the Site resulted in 88 records of 29 species, details of which are presented in Table 6-3. This included 42 records of 14 species of bird, some of which may be present within the Site. Other records included badger, hedgehog, and Irish stoat, and also smooth newt *Lissotriton vulgaris*, and common frog *Rana temporaria*. Several records of invasive species were also returned. Specific locations of records were not supplied in the dataset.

Table 6-3: Species Records Within 2km of the Site

Common Name	Scientific Name	No. Records	Date of Last Record	Designation(s)
Mammals				
Badger	*Meles meles*	2	14/05/2018	Wildlife Acts
Hedgehog	*Erinaceus europaeus*	11	03/12/2022	Wildlife Acts
Irish stoat	*Mustela erminea* subsp. *hibernica*	2	23/12/2023	Wildlife Acts
Birds				
Little egret	*Egretta garzetta*	4	19/01/2025	Birds Directive (Annex I)

Common Name	Scientific Name	No. Records	Date of Last Record	Designation(s)
Kingfisher	*Alcedo atthis*	3	10/01/2025	Birds Directive (Annex I), Wildlife Acts, BoCCI Amber-listed
Ruff	*Calidris pugnax*	1	16/08/2022	Birds Directive (Annex I), Wildlife Acts, BoCCI Amber-listed
Lapwing	*Vanellus vanellus*	4	21/05/2019	Wildlife Acts, BoCCI Red-listed
Barn owl	*Tyto alba*	1	19/04/2023	Wildlife Acts, BoCCI Red-listed
Kestrel	*Falco tinnunculus*	2	17/03/2024	Wildlife Acts, BoCCI Red-listed
Stock dove	*Columba oenas*	1	08/05/2019	Wildlife Acts, BoCCI Red-listed
Tufted duck	*Aythya fuligula*	13	28/12/2024	Wildlife Acts, BoCCI Amber-listed
Goldcrest	*Regulus regulus*	4	28/12/2024	Wildlife Acts, BoCCI Amber-listed
Ringed plover	*Charadrius hiaticula*	1	04/06/2019	Wildlife Acts, BoCCI Amber-listed
Swallow	*Hirundo rustica*	4	08/05/2021	Wildlife Acts, BoCCI Amber-listed
Wheatear	*Oenanthe oenanthe*	1	22/03/2019	Wildlife Acts, BoCCI Amber-listed
Great spotted woodpecker	*Dendrocopos major*	1	19/02/2021	Wildlife Acts
Little grebe	*Tachybaptus ruficollis*	2	20/09/2016	Wildlife Acts
Amphibians				
Common frog	*Rana temporaria*	10	12/03/2023	Wildlife Acts
Smooth newt	*Lissotriton vulgaris*	1	31/05/1972	Wildlife Acts
Invertebrates				
White-clawed crayfish	*Austropotamobius pallipes*	3	18/08/2013	Habitats Directive (Annex II), Wildlife Acts
Red-tailed bumblebee	*Bombus lapidarius*	3	22/05/2021	Near Threatened (Irish Red List)
Invasive Species				
Giant hogweed	*Heracleum mantegazzianum*	1	22/06/2021	Habitats Regulations (Third Schedule), High Impact
Japanese knotweed	*Reynoutria japonica*	3	13/07/2024	Habitats Regulations (Third Schedule), High Impact
Fringed water-lily	*Nymphoides peltata*	2	15/06/2016	Habitats Regulations (Third Schedule), High Impact
Harlequin ladybird	*Harmonia axyridis*	1	21/07/2025	Habitats Regulations (Third Schedule), High Impact
Three-cornered garlic	*Allium triquetrum*	2	04/05/2024	Habitats Regulations (Third Schedule), Medium Impact
Cherry laurel	*Prunus laurocerasus*	1	04/05/2024	High Impact
Jenkins' spire snail	*Potamopyrgus antipodarum*	4	22/06/2016	Medium Impact

Previous Surveys

A significant amount of baseline and subsequent updated terrestrial survey work has carried out at the Site (and also in the Survey Area) to date; this includes habitat surveys, bat surveys, mammal surveys, and bird surveys, carried out by AECOM and other Ecologists (Brady Shipman Martin, 2020; Wilson and Denyer, 2021; AECOM, 2021, 2023). This is summarised in the following paragraphs.

Two Annex I habitats have previously been identified, comprising 91E0 priority Annex I Alluvial Forests with *Alnus glutinosa* and *Fraxinus excelsior* to the west of the Site (and contiguous with further alluvial woodland beyond the Site) and 6510 Annex I Lowland Hay Meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) (located within open grassland in the park area of the Site). Other habitats previously recorded include well-

maintained amenity grassland, used as sports pitches, wet and dry grassland parcels (of varying species richness), immature woodland and scrub, scattered trees, and boundary hedgerows and watercourses. A spring was also identified to the south of the Site, with further springs identified within the adjacent Rathcoole Woods, approximately 260-300m from the Site boundary. Japanese knotweed *Reynoutria japonica*, a Scheduled invasive species, was previously recorded to the south of the Site.

The Site was assessed as providing potential habitat for a range of terrestrial species. During bat activity transects, four bat species were recorded within the Site, comprising common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Leisler's bat *Nyctalus leisleri*, brown long-eared bat *Plecotus auritis*. In addition, an unidentified *Myotis* species, and an unidentified pipistrelle species were also recorded. No bat roosts were confirmed onsite. Evidence of badger, including several badger setts, were identified within the Survey Area (in proximity to the Site). The watercourses provide suitable habitat for otter, though no evidence was recorded during previous field surveys.

The Site was also assessed as providing potential habitat for a variety of terrestrial birds. A number of bird species were identified as breeding or potentially within the Site, including Amber-listed bird species greenfinch *Chloris chloris*, linnet *Carduelis cannabina*, and kestrel *Accipiter nisus*. Wintering bird surveys generally identified relatively common species; however, six species of conservation concern were identified, including the BoCCI Red-listed redwing *Turdus iliacus* and snipe *Gallinago gallinago*.

In addition to previous terrestrial survey, an aquatic ecology survey was carried out on the Camac, Crockshane Stream, and Coolmine Stream (Mayfly Ecology, 2024), and included survey locations within the Survey Area and in proximity to the Site. The following summarises the results:

- The Camac was sampled at three locations, with one location adjacent to the Site. At this location, 21 taxa were identified in a kick-sample, which included two pollution sensitive taxa, but in very low numbers, with the rest comprising less sensitive and pollution-tolerant taxa. A value of Q3-4 was assigned indicating moderate macroinvertebrate quality. No white-clawed crayfish *Austropotamobius pallipes* was identified, though habitat was assessed as suitable. It was determined that crayfish are either absent from the section of the Camac surveyed or occur in such low numbers that the survey method did not detect them. It was noted in the report that crayfish had previously been recorded upstream of the Site in 2013 by the EPA.
- A kick-sample in Crockshane Stream showed low macroinvertebrate diversity and density. Ten taxa were present in the sample Most of these were pollution-tolerant taxa; low numbers of less sensitive taxa and no sensitive taxa were recorded. A value of Q3 was assigned, which indicates poor macroinvertebrate quality. No white-clawed crayfish were identified, and the habitat conditions observed indicate that this stream is not suitable to sustain a population.
- Three-spined stickleback *Gasterosteus aculeatus* was present within the sample at Coolmine Stream. This species occupies a range of freshwater habitats and is quite tolerant of polluted conditions and low oxygen levels. Two kick-samples at two locations in Coolmine Stream showed low macroinvertebrate diversity and density. Fourteen and 16 taxa were recorded, and most of these were made up of pollution tolerant taxa. No sensitive taxa were recorded, and three less sensitive taxa were recorded in low numbers. A value of Q3 was assigned, which indicates poor macroinvertebrate quality. No white-clawed crayfish were identified, and the habitat conditions observed indicate that this stream is not suitable to sustain a population.

6.4.2 Field Surveys

Survey Effort and Conditions

The habitat and species surveys were carried out within the specific survey areas within the Site and Survey Area, and are summarised in Table 6-4; the results are discussed in the following sections

Table 6-4: Ecological Surveys Carried Out

Survey(s)	Date(s)	Surveyor(s)
Habitats	17/06/2025, 05/08/2025, 06/08/2025	J. Hunter, R. Kelly
Invasive species	17/06/2025, 05/08/2025, 06/08/2025	J. Hunter, R. Kelly
Bat GLTA	17/06/2025	J. Hunter

Survey(s)	Date(s)	Surveyor(s)
Bat NBW	18/06/2025, 05/08/2025, 24/09/2025	J. Hunter, P. Lynas, S. Munglani, R. Kelly, F. Mosley
Badger and otter	22/01/2026	L. Cappelli, F. Mosley
Breeding birds	29/05/2025, 17/06/2025	A. Donnelly
Wintering birds	07/11/2025, 16/12/2025, 08/01/2026, 04/02/2026	A. Donnelly

Habitats

This Section summarises the findings of the habitat surveys carried out within the Site and wider Survey Area. The habitats comprise a mosaic of grassland, woodland, and scrub, boundary hedgerows and scattered trees, and watercourses. A summary of habitat coverage within the Site is presented in Table 6-5, with linear habitats presented in Table 6-6; Fossitt habitats are shown in Figure A6-2a and Annex I habitats are shown in Figure 6-2b. Descriptions of habitats identified (including their Fossitt habitat alphanumeric code) are presented in the following paragraphs, along with indicative photographs.

Table 6-5: Habitat Areas Within the Site

Habitat	Area (ha)	% Cover
BL3 Buildings and artificial surfaces	0.30	3
FS2 Tall-herb swamps	0.03	<1
GA2 Amenity grassland	1.37	12
GS2 Dry meadows and grass verges (Annex I Lowland Meadow)	1.49	13
GS2 Dry meadows and grass verges (non-Annex I)	2.44	21
GS2 Dry meadows and grass verges/WS1 Scrub mosaic (non-Annex I)	5.08	45
GS4 Wet grassland	0.28	2
WN6 Wet willow-alder-ash woodland (Annex I Alluvial Woodland)	0.35	3
WS1 Scrub	0.01	<1
WS2 Immature woodland	<0.01	<1

Table 6-6: Habitat Lengths Within the Site

Habitat	Length (km)
FP1 Calcareous springs*	0.04
FW2 Depositing/lowland rivers	0.09
WL1 Hedgerows	0.50

**Springs are likely to vary seasonally, increasing in extent in winter*

Grasslands

Grassland is the dominant habitat type within the Site and is present as amenity grassland (GA2), dry meadows (GS2), and wet grassland (GS4). Dry meadows are the dominant grassland type, this includes managed grassland in the park and a large extent of rough, seemingly unmanaged grassland, much of which is in mosaic with scrub (WS2).

Approximately 1.49ha of species-rich dry grassland within the Site has been identified as corresponding with the Annex I habitat 6510 Lowland Hay Meadows. These form part of wider parcels within the Survey Area, comprising an area of 2.73ha. Within the Survey Area, the Annex I grassland is present in three relatively discrete parcels (labelled as G1, G2, and G3 in Figure A6-2b). These grassland parcels best fit the IVC category GL3E Red Fescue – Yellow-rattle grassland. These grasslands appear to be managed

for biodiversity (though the existing regime is unclear) and had evidence of some trampling from park users. Generally, the grasslands were slightly coarser at the margins, though had good sward height variation throughout. The grassland parcels are species-rich with both high-quality and positive indicator species recorded, with no species overly dominant. Common spotted-orchid *Dactylorhiza fuchsii* and yellow-rattle *Rhinanthus minor* were abundant, with other species such as ox-eye daisy *Leucanthemum vulgare*, rough hawkbit *Leontodon hispidus*, red clover *Trifolium pratense*, meadow buttercup *Ranunculus acris*, common hogweed *Heracleum sphondylium*, crested dog's-tail *Cynosurus cristatus*, eyebright *Euphrasia officinalis* agg., meadow foxtail *Alopecurus pratensis*, sweet vernal-grass *Anthoxanthum odoratum*, false oat-grass *Arrhenatherum elatius*, cowslip *Primula veris*, and tufted vetch *Vicia cracca* recorded. Bee orchid *Ophrys apifera*, pyramidal orchid *Anacamptis pyramidali*, and marsh orchid *Dactylorhiza* sp. (probably northern marsh orchid *Dactylorhiza purpurella*) were also recorded, however were only observed in parcel G3. Nine plots were carried out within the three grassland parcels, with the following results recorded:

- G1 is approximately 0.67ha. Of the two plots within G1, only Plot 1 passed all criteria, with Plot 2 only failing on total number of positive indicators, for which the plot was one species short. However, the plot did contain two high-quality indicators, so this fail is considered marginal. G1 is considered to be in Good (or Favourable) habitat condition. G1 is located entirely within the Site.
- G2 is approximately 0.98ha. At G2, Plot 3 failed two criteria; only four positive indicators were recorded, and the plot had a poor forb to grass ratio. In addition, Plots 4 and 5 also both failed for total number of positive indicators, for which both plots were two species short (it is worth noting that Plot 3 is adjacent to a strip of grassland that was previously disturbed as part of a wayleave for a pipeline). Despite this former disturbance, parcel G2 is showing apparent increasing diversity, though overall the parcel is currently considered to be in Unfavourable condition. However, it is worth noting that with time and continuation of existing management, this parcel is likely to continue to develop into a species-rich sward. Approximately 0.59ha of G2 is located within the Site.
- G3 is approximately 1.08ha. G3 passed all criteria across all four plots and had a greater diversity of positive indicator species compared with the other two grasslands, with 3-4 high-quality indicators and 7-8 positive indicators in three of the plots. This included three different orchid species, though it is worth noting that, whilst high-quality indicator species, pyramidal orchid is generally a coastal species, whilst bee orchid generally favours disturbed areas, though can be found in mesotrophic grasslands. G3 is considered to be in Good (or Favourable) habitat condition. The Site only partially encroaches G3, with approximately 0.24ha falling within the Site.

Full details of the plots taken for the Lowland Meadow are presented in Appendix A6-2 Annex I Habitat Plot Results.

Other dry meadows comprise a large area within the Department of Education lands (which was not accessible for survey) at the north of the Site, and a large swathe of grassland and scrub mosaic in the centre of the Site. The grassland within the Department of Education lands (approximately 0.43ha in the Site and 1.83ha in the Survey Area) is enclosed with fencing and was only visible through the fence. The grassland had an overgrown sward and appeared unmanaged (or little managed at best), with the edges appearing more ruderal in vegetation. False oat-grass was the dominant grass, with abundant cock's-foot *Dactylis glomerata*, and forbs including meadowsweet *Filipendula ulmaria*, hemp-agrimony *Eupatorium cannabinum*, rosebay willowherb *Chamaenerion angustifolium*, common nettle *Urtica dioica*, and common hogweed.

The grassland/scrub mosaic partially encloses a further area of dry meadow, and these grasslands are similar in vegetation structure composition and cover an area of approximately 6.98ha (out of 7.98ha within the Survey Area). Coarse grasses, such as false oat-grass and cock's-foot are abundant within the sward, which was relatively long at the time of survey and is indicative of little to no management. Other grass species include perennial ryegrass *Lolium perenne*, common bent *Agrostis capillaris*, sweet vernal-grass, reed canary-grass *Phalaris arundinacea*, common couch *Elymus repens*, Timothy *Phleum pratense*, and Yorkshire-fog *Holcus lanatus*. A relatively diverse mix of forbs were recorded, including creeping thistle *Cirsium arvense*, broadleaved dock *Rumex obtusifolius*, ribwort plantain *Plantago lanceolata*, creeping cinquefoil *Potentilla reptans*, marsh woundwort *Stachys palustris,* meadowsweet, red clover, red bartsia *Odontites vernus*, autumn hawkbit *Scorzoneroides autumnalis*, and meadow vetchling *Lathyrus pratensis*. These grasslands have a ruderal element, with many tall forbs recorded such as common hogweed, great willowherb *Epilobium hirsutum*, rosebay willowherb, angelica *Angelica sylvestris*, and may become somewhat impenetrable during the summer. Though largely dry, the occasional presence of species such as angelica, marsh woundwort, meadowsweet, and reed canary-grass, may be indicative of some localised

damp/wet conditions throughout. The scrub element includes scattered bushes and small trees with varying density; species recorded include gorse *Ulex europaeus*, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, willow *Salix* spp., and self-seeded ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus.* If subject to management, these dry grasslands have potential to have higher species-richness.

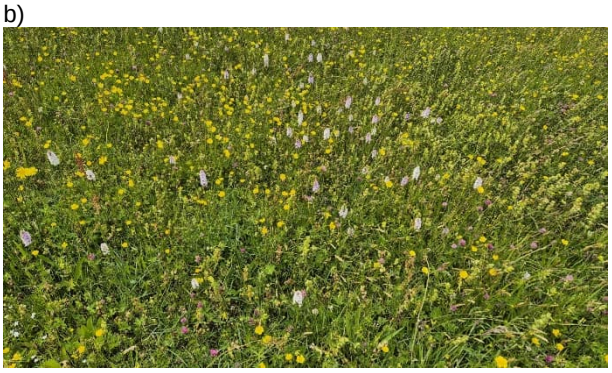
A linear strip of wet grassland is present along the Site's southern boundary and is relatively narrow in parts though opens up in some areas. The area is well used recreationally though unmanaged, with a well-worn trail in the centre, which leads into an adjacent parcel of woodland. The grassland is notably drier and more encroached by scrub than has been identified during previous AECOM surveys (AECOM, 2021). The sward is relatively species-rich and quite forb-rich with no species overly dominant. Forb species recorded included frequent marsh thistle *Cirsium palustre*, silverweed *Potentilla anserina*, meadow vetchling, meadowsweet, angelica, occasional common spotted-orchid and marsh valerian *Valeriana dioica*, and rare marsh ragwort *Jacobaea aquatica*, hemp-agrimony, and square-stalked St John's-wort *Hypericum tetrapterum*. Grasses noted included reed canary-grass, crested dog's-tail, rough meadow-grass *Poa trivialis*, Yorkshire-fog, Timothy, common sedge *Carex nigra*, and pendulous sedge *Carex pendula*.

Amenity grassland comprises a large area which is maintained as a playing field, along with mown path edges in the east of the Site and a small area with scattered trees adjacent to the Annex I Lowland Meadow parcels G2 and G3. The playing field is species-poor, dominated by perennial ryegrass with forbs occasional, including ribwort plantain, dandelion *Taraxacum officinale* agg., white clover *Trifolium repens*, and red clover. The sward appears to be maintained to a short height for much of the summer (as observed during the habitat survey and other ecological surveys). The lush green appearance of the playing field may suggest additional seeding with amenity grass species and/or addition of nutrients. The amenity grassland along the path edge and under the trees was relatively more diverse and akin to the wider grasslands present, likely managed by regular mowing. Species identified included Yorkshire-fog, false oat-grass, perennial ryegrass, yarrow *Achillea millefolium*, ribwort plantain, red clover, herb-Robert *Geranium robertianum*, daisy *Bellis perennis*, common sorrel *Rumex acetosa*, and germander speedwell *Veronica chamaedrys*.

a)



b)



c)



d)



e)



f)



Plate 6-1 a) Annex I Lowland Meadow with Mown Path; b) Species-Rich Lowland Meadow; c) Wet Grassland in Linear Corridor Along Southern Boundary; d) Rough Grassland In Centre; e) Rough Grassland in Centre; f) Amenity Grassland Pitch

Woodland and Scrub

There are parcels of wet willow-alder-ash woodland (WN6), immature woodland (WS2), and scrub (WS1) across the Site; as previously mentioned, most of the scrub is in mosaic with dry meadows, and this is discussed under the Grassland subheading.

There are two parcels of wet willow-alder-ash woodland covering approximately 0.35ha within the Site, both of which are part of the same wider area of woodland that extends beyond the Site to the south and west, all of which has been identified as corresponding with the Annex I priority habitat 91E0 Annex I Alluvial Woodland. Although both parcels are part of a larger extent of woodland, these parcels have been surveyed and assessed separately and are labelled as W1 (N.B. a linear strip of woodland close to Mullally's Lane) and W2 in Figure A6-2b. W1 is nearly entirely within the Site (approximately 0.34ha), whilst only a small portion of W2 (c. 0.04ha) is within the Site. The woodland parcels best fit the IVC category WL3D Grey Willow – Common Nettle woodland. Although classified as wet woodland, both of these parcels appeared relatively dry, with no obvious waterlogging during the spring and summer months, however the vegetation community identified suggests it is likely that the groundwater table remains high all year and/or winter flooding potentially occurs. This woodland is of relatively recent origin (as indicated by historic aerial imagery of the Site), however Alluvial Woodland can rapidly develop and need not be old woodland to qualify as Annex I habitat. Although part of the same woodland, W1 and W2 were subtly different in some attributes, and are described separately as follows.

The canopy height within W1 ranged from c. 5-8m and primarily comprises willow and downy birch *Betula pubescens* (both of which are target species). Other target species observed included ash and hawthorn in the canopy, and remote sedge *Carex remota*, reed canary-grass, creeping buttercup *Ranunculus repens*, common nettle, and yellow iris *Iris pseudacorus* in the ground flora. The target bryophyte *Thamnobryum alopecurum* was also recorded. Other species such as rowan *Sorbus aucuparia*, bramble *Rubus fruticosus* agg., herb-Robert, ivy *Hedera hibernica*, creeping bent, and silverweed were observed within the parcel, in addition to several negative indicator species, comprising sycamore, cotoneaster *Cotoneaster* sp. (though not *Cotoneaster horizontalis*), and cherry laurel. The woodland structure was relatively dense, though a well-walked path is present throughout.

The canopy height within W2 was c. 8m and similarly largely comprises willow and downy birch (both of which are target species). Other target species observed included ash and hawthorn in the canopy, and remote sedge, reed canary-grass, creeping buttercup, common nettle, and yellow iris in the ground flora. The target bryophyte *Thamnobryum alopecurum* was also recorded. Other species such as rowan, bramble, herb-Robert, ivy, creeping bent, and silverweed were observed within the parcel, in addition to several negative indicator species, comprising sycamore, cotoneaster, and cherry laurel. The woodland in this area was relatively open in structure, with large areas of limited understorey.

Two plots for condition assessment were carried out within parcel W1; Plot 1 failed one criterion in relation to canopy height and Plot 2 failed one criterion in relation to bryophyte cover, however, both plots passed all other criteria. In W2, Plot 3 passed all eleven criteria. Both parcels are therefore considered to be in Good (or Favourable) habitat condition. Full details of the plots taken for the Alluvial Woodland are presented in Appendix A6-2 Annex I Habitat Plot Results.

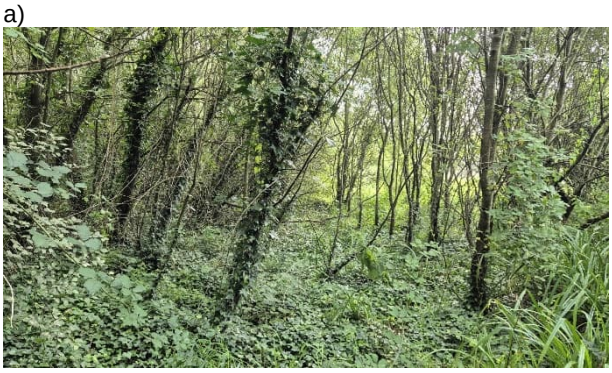
Alluvial Woodlands are potential groundwater dependent terrestrial ecosystems (GWDTE) and are further discussed in this respect in Section 0.

There are several parcels of immature woodland within the Survey Area, adjacent to and within c. 20m of the Site. One of these is a dense area of approximately 0.96ha which is c. 20m from the Site's western boundary, and is largely composed of blackthorn and hazel *Corylus avellana*, with bramble and occasional willow toward the north of the parcel. Due to the density, there is limited light with no understorey and very limited ground flora, including ivy and common hogweed. There is a well-used path which links to the adjacent Alluvial Woodland.

Two linear parcels of immature woodland are also present within the Survey Area, adjacent to the southern and eastern Site boundaries (though very small areas just encroach into the Site). The woodland along the southern boundary has grown up from a former hedgerow, delimiting the Site from adjacent agricultural fields, however, is now very overgrown (probably due to a lack of management) and more akin to woodland in character. The Crockshane Stream is associated with this woodland (see the Freshwater subsection for further information). The woodland is now encroaching the adjacent strip of damp grassland and well-worn track, though the woodland edge is grassy and ruderal. Species recorded include willow, sycamore, elder *Sambuccus nigra*, ash, bramble, and gorse.

Further linear immature woodland present adjacent to the eastern Site boundary is similarly linear and merges with the adjacent amenity grassland. The canopy is relatively gappy and gives way to scrub in the centre for a short section. The canopy and understorey are not well defined, with species including sycamore, willow, elder, and hawthorn recorded. Ground flora species are generally restricted to the edges, and include ivy, cleavers *Galium aparine*, primrose *Primula vulgaris*, hart's-tongue *Asplenium scolopendrium*, and butterbur *Petasites hybridus*. The scrub portion is a generally low scrub/ruderal vegetation mix, and comprises similar species, with willow, hawthorn, blackthorn, bramble, and elder, and forbs including hemp-agrimony, lady's bedstraw *Galium verum*, common vetch *Vicia sativa*, meadowsweet, field bindweed *Convolvulus arvensis*, and cleavers. This woodland and scrub habitat is associated with the Camac, which flows along this boundary (see the Freshwater subsection for further information).

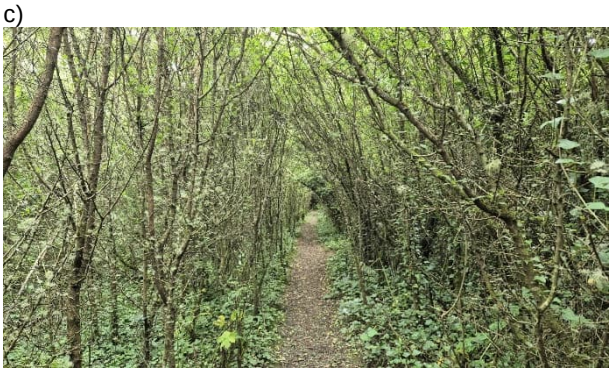
a)



b)



c)



d)



Plate 6-2 a) Alluvial Woodland Near Mullally's Lane; b) Alluvial Woodland at the Western Boundary; c) Well-used Path Through Immature Hazel Woodland; d) Immature Woodland Along Southern Boundary

Freshwater

There is one watercourse (FW2 Depositing/lowland rivers) within the Site and two watercourses within the Survey Area. This comprises the Camac (within the Survey Area) and two tributaries of the Camac, known as the Coolmine Stream (within the Site) and the Crockshane Stream (within the Survey Area). Indicative photographs are presented in Plate 6-3a-c.

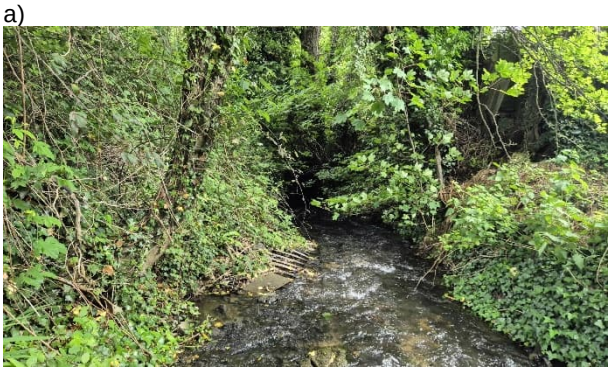
The Coolmine Stream is present within the Site and the Survey Area. It flows into the Site from the adjacent Rathcoole Woodland and diverges within the Survey Area (beyond the Site) with part of the watercourse present within a ditch between a double hedgerow (which was noted to be largely dry during the habitat survey, and also incidentally during other surveys), and the other flowing into the adjacent section of Rathcoole Park. Within the woodland, the banks were relatively shallow, and the stream had a good flow rate. Where the stream is present within the Site, it exits the woodland into a grassland/scrub mosaic before flowing out of the Site. The Coolmine Stream is bisected by a dry ditch (FW4) within the Survey Area to the west of the Site.

The Camac flows south-north adjacent to the Site's eastern boundary in the Survey Area. A good flow rate was noted, with a substrate of small pebbles and boulders. The channel is frequently obscured by surrounding scrub and trees, with overhanging vegetation shading some areas completely, with other areas more open within the park. The Crockshane Stream flows west-east adjacent to the Site's southern boundary in the Survey Area, joining the Camac at one of the park entrances at the southeast. This watercourse is associated with dense scrub/immature woodland habitat (which appears to have succeeded from hedgerows) and was not accessible along its length. Where visible, the water levels varied (with some dry sections noted). In addition, water discolouration may indicate pollution, potentially from runoff from the adjacent agricultural fields, which were noted to be grazed by cattle.

An area at the southern Site boundary has been tentatively classified as a calcareous spring (FP1). A vague linear feature comprising soft-rush *Juncus effusus*, angelica, and silverweed, with occasional bryophytes was noted within the surrounding grassland, however, was generally similar to the surrounding vegetation, and no obvious water upwelling was noted. An indicative photograph is presented in Plate 6-3d. However, spring habitats can vary seasonally and may only be obvious in winter (N.B. the survey was carried out in summer). However, as a spring was identified in this area previously by recognised bryophyte experts (Wilson and Denyer, 2021), it has been assumed that this spring is still present. Notably, the spring was not previously identified to have any tufa formation or indicator species for the Annex I priority habitat H7220 Petrifying springs with tufa formation. Calcareous springs are a potential GWDTE and are further discussed in this respect in Section 0.

A small area of tall-herb swamp (FS2) is present in an open area surrounded by the adjacent Alluvial Woodland at the west of the Site, close to Mullally's Lane. An indicative photograph is presented in Plate 6-3e. The ground conditions were largely dry, with no standing water noted either during the habitat survey, or incidentally during other surveys (including in January 2026), and no features (such as ditches) that would convey water are present. Species such as reed canary-grass, meadowsweet, yellow iris, common nettle, and great willowherb, with false oat-grass, creeping buttercup, and cleavers frequent. The parcel best fits the IVC category FW3F Meadowsweet – Valerian tall-herb swamp. Such vegetation communities can have affinity to the Annex I Habitat 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels. The *Interpretation Manual of European Union Habitats* (European Commission, 2013) states that "*Nitrophilous edge communities comprising only basal, common species in the region have no conservation priority*", and that similar communities "*with a weak development, occur at lower altitude along rivers and forest borders*". In addition, the Article 17 report *The Status of EU Protected Habitats and Species in Ireland* (NPWS, 2025a) states that in the lowlands, the Annex I habitat typically occurs as "*stands dominated by tall herbs, with a diversity of species present, fringing rivers, lakes and other wetlands, usually as a narrow strip and often seasonally inundated*". Based on these descriptions, the location of the swamp, and the composition of common and weedy species, it is therefore considered that this habitat is not an example of the Annex I habitat. Tall-herb swamps are potential GWDTE and are further discussed in this respect in Section 0.

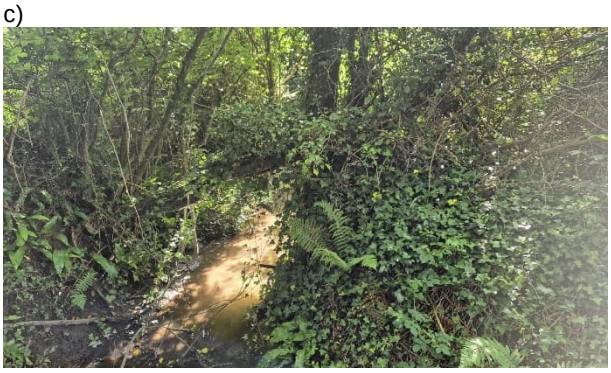
a)



b)



c)



d)



e)



Plate 6-3: a) Camac Along Eastern Site Boundary; b) Coolmine Stream in Woodland to West of Site; c) Crockshane Stream Along Southern Site Boundary; d) Area of Spring (Indicated With Arrow); e) Tall-herb Swamp

Hedgerows and Trees

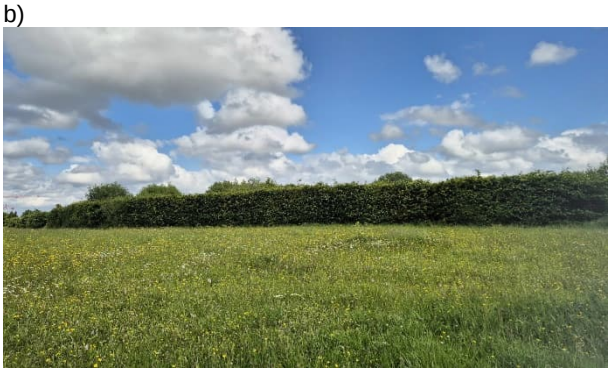
Hedgerows (WL1) are present as part of the Site's boundaries and internally within the Site, delimiting parts of the park. Along the northern boundary, there is a mature double hedgerow, which was approximately 4-5m in height, overgrown and occasionally scrubby in places. The hedgerow appeared to be subject to limited (or no) management at the time of survey. The hedgerow has an associated ditch, which conveys the Coolmine Stream (see the Freshwater subheading for further information), although this was noted to be largely dry during the habitat survey (and also incidentally during other surveys). There is one large gap which comprises the open channel of the ditch (which contains dominant and willowherb) and was likely created to facilitate a pipeline wayleave. This hedgerow was noted to be relatively species-rich and included a number of mature trees, with a canopy including ash, lime *Tilea* x *europaea*, and sycamore, and a shrub layer including blackthorn, hawthorn, rose *Rosa* sp., willow, and elder. Ground flora species noted include meadowsweet, reed canary-grass, bramble, hart's-tongue, cleavers, common hogweed, meadow foxtail, and false oat-grass. A short section of cherry laurel was also noted at a gap at the existing park entrance.

Another hedgerow extends north to south, south of Coolamber Drive at the northern Site boundary. It is possibly a recently planted hedgerow with an associated paladin fence; at its northern extent, it is 3-4m high and scrubbier in character. Further south, it degrades into small, individual trees with no distinct basal structure. Species comprise elder, beech *Fagus sylvatica*, bramble, rosebay willowherb, and common nettle.

A beech hedgerow forms the northern boundary of the dry meadows/scrub mosaic internally within the Site. This hedgerow appears to be well-maintained to a height of 3-4m and is associated with a wooden fence.

There are numerous scattered trees across the Site, largely associated with the grassland and path edges within the park area, and occasionally within parcels of scrub and boundary hedgerows. Most are well-maintained for their amenity value. Species include ash, willow, oak *Quercus* spp., sycamore, beech, and hornbeam *Carpinus betulus*. One treeline (WL2) is present associated with scrub vegetation close to the Site's eastern boundary and comprises sycamore and ash.

a)

b)

c)

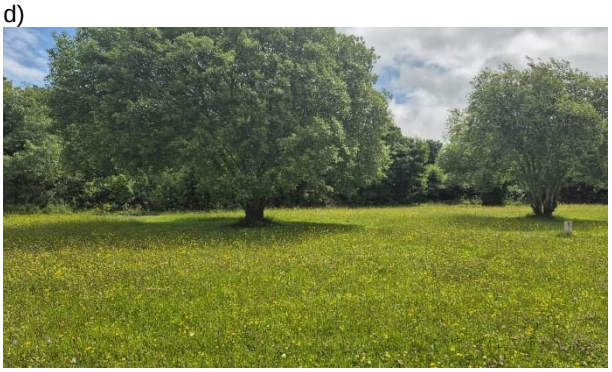
d)


Plate 6-4 a) Mature Hedgerow Along Northern Boundary; b) Managed Beech Hedgerow Adjacent to Lowland Meadow; c); Treeline Close to the Eastern Boundary; d) Scattered Trees in Park Grassland

Artificial Surfaces

Buildings and artificial surfaces (BL3) within the Site comprise the concrete hardstanding paths that are present within Rathcoole Park. There are no buildings within the Site. Hardstanding has negligible ecological value.

Groundwater Dependent Terrestrial Ecosystems

The potential for habitats identified to be potential GWDTE is assessed as follows, with reference to EPA guidance *A Framework for the Assessment of Groundwater Dependent Terrestrial Ecosystems under the Water Framework Directive* (Kilroy *et al*., 2008) and Scottish Environment Protection Agency's (SEPA) *Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems* (SEPA, 2024).

Springs are usually very small local features that are maintained by a more or less continual supply of water from upwelling groundwater sources. Springs therefore are likely to have a high dependency on groundwater to maintain condition, although can be replenished by rainfall, which can explain why springs are less obvious or visible in the summer/drier months. The small area of calcareous spring within the Site is likely to have a moderate to high dependency on groundwater to maintain its condition.

Alluvial Woodlands are generally groundwater dependent, though also receive significant inputs from surface water. In Kilroy *et al*. (2008), Alluvial Woodland is discussed as three types. Alluvial Woodland within the Site best aligns with Type 2 (which is typically dry in summer) and can therefore be considered likely to have a low to moderate dependency on groundwater.

Tall herb swamps can be maintained by ground or surface water, or a combination of both, depending on the context. The tall herb swamp within the Site is located among Alluvial Woodland and close to the boundary with residential houses. The influence of groundwater is likely similar to the Alluvial Woodland and is therefore considered likely to have a low to moderate dependency on groundwater.

Details on the hydrogeological context of the Site are given in Chapter 08 Water and Hydrology.

Invasive Non-native Plant Species

Two stands of Japanese knotweed, a Scheduled invasive species, were identified within the Site, both along the linear corridor along the Site's southern boundary. One is a large stand of approximately 25m² and was mature with younger spreading growth. The second stand is located c. 10m away, and comprises a smaller area of mature growth, covering an area of c. 2m². No evidence of management was noted at

either stand. Indicative photographs are shown in Plate 6-5, with locations shown in Figure A6-2. No other Scheduled invasive species were identified onsite.

The following non-Scheduled non-native plant species with invasive habits were also observed:

- Cherry laurel was identified in three locations, one within the Site and two within the Survey Area. Scattered young plants were identified within the wet woodland at the west of the Site, mature growth was present within a hedgerow along the hedgerow boundary in the wider Rathcoole Park (c. 55m north of the Site), and on the far streambank adjacent to the eastern Site boundary. Cherry laurel has been categorised by the NBDC as an invasive species of High Impact.
- Butterfly-bush *Buddleja davidii* was identified in two locations within hedgerows close to the Site's northern and eastern boundaries. Butterfly-bush has been categorised by the NBDC as an invasive species of Medium Impact
- A small stand of Pampas grass *Cortaderia selloana* was recorded within the grassland-scrub mosaic in the centre of the Site. Pampas grass has been categorised by the NBDC as an invasive species of Medium Impact.

a) b)

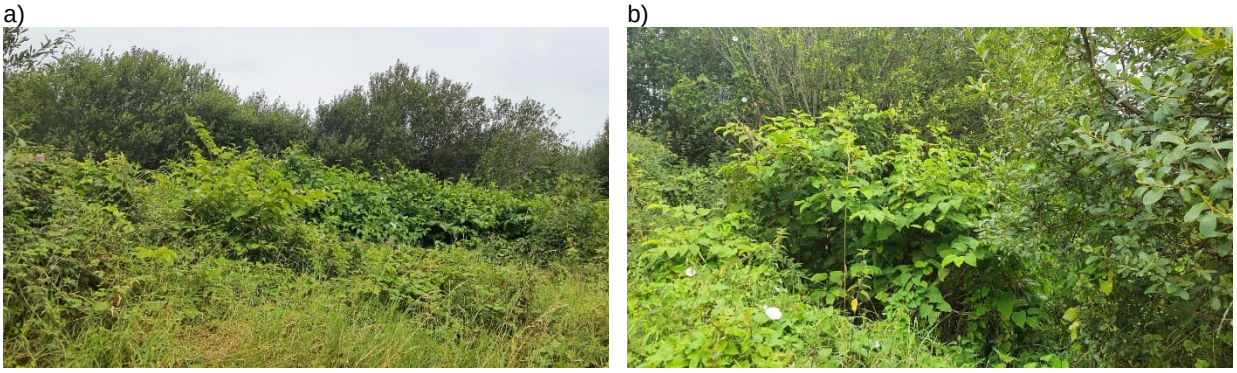


Plate 6-5 a) Large Stand of Japanese Knotweed; b) Smaller Adjacent Stand of Japanese Knotweed

Roosting Bats

No trees with bat roost suitability were identified within the Site or Survey Area, and all have been assessed as NONE. There are several semi-mature and mature trees within Rathcoole Park, including in hedgerows and individually within grassland. Many of the individual trees appear to be well-managed for amenity value. No features suitable for bats, or signs of poor health that could indicate potential for obscured PRFs, were identified.

Full details of the bat surveys are presented in Appendix A6-3 Bat Report.

Bat Activity

The habitats within the Site and Survey Area provide a mosaic of grassland, woodland and scrub, with hedgerows and woodland/scrub edge providing strong linear features, which are suitable commuting and foraging habitat for a range of bat species. Furthermore, the dark nature of the habitats (with no artificial lighting present) and connectivity to further suitable habitats beyond the Site further elevates the suitability for bats.

Three NBW were carried out, one in June, one in August, and one in September, all under suitable weather conditions for survey. The transect route walked, starting location, and spot count locations for each survey are presented in Figure A6-3. Bat activity across the three NBWs was moderate to high, with five species recorded: common pipistrelle, soprano pipistrelle, Leisler's bat, whiskered bat *Myotis mystacinus*, and Nathusius' pipistrelle *Pipistrellus nathusii*. Common and soprano pipistrelle were most dominant (comprising 43% and 29% respectively) across all surveys, followed by Leisler's bat (17%), and whiskered bat (9%). Nathusius' pipistrelle occurred only in June (comprising two brief passes).

In June, activity included consistent foraging by pipistrelles along boundary hedgerows, especially the northern boundary and at the south-east corner, with Leisler's bat both foraging within the park and commuting at height. In addition to the two Nathusius' pipistrelle, one whiskered bat was noted. In August, pipistrelle bats dominated, with activity especially along the northern hedgerow and south-eastern corner of the Site, with several whiskered bats also recorded. In September, more whiskered bats and fewer Leisler's bats were recorded, with common and soprano pipistrelles commuting/foraging mainly along the

southern boundary corridor, with whiskered bats also recorded foraging here and within western woodland contiguous with Rathcoole Woods. Whilst the hedgerows and southern linear corridor provide foraging potential, no particular commuting routes or regularly used flight lines were identified during the NBW surveys. Locations of bat activity recorded monthly are presented in Figure A6-3.

Leisler's bats tended to be the first bats recorded during surveys, though relatively early pipistrelles were also heard. These were often before their median emergence times (Andrews and Pearson, 2022) and therefore may be roosting in proximity to the Site (though it is worth noting that no roosts were confirmed onsite).

The Site provides a good resource for local bats, with a good diversity of species recorded. The numbers of bats recorded remained relatively consistent across the season, with proportions of species changing only slightly between surveys. Whilst similar numbers of bats were recorded across all surveys, many of the bats recorded in September comprised brief passes, with fewer bouts of foraging overall.

Full details of the bat surveys are presented in Appendix A6-3 Bat Report.

Badger

The habitats within the Site and Survey Area provide a mosaic of grassland, woodland and scrub, with hedgerows and woodland/scrub edge providing potential habitat for badger foraging, commuting, and sett creation. The Site also provides connectivity to further suitable habitats in the wider area, particularly the woodland to the west of the Site and the surrounding pastoral and agricultural landscape to the south.

No evidence of badger was identified within the Site. Five badger setts were identified during the survey, all of which are located outside of the Site but in the Survey Area; a summary is given in Table 6-7. In the absence of additional information about badger setts within the wider territory, B01 (the largest sett) has been tentatively categorised as subsidiary. B01 was identified during a previous badger survey (AECOM, 2023), therefore whilst only three entrances were identified in 2026, the other five entrances may have been inaccessible due to scrub are assumed still present on a precautionary basis.

The other setts are categorised as outlier setts, due to a lack of specific badger evidence associated with the sett entrances and immediate vicinity. B02 was classified as disused, and setts B01 and B03-05 appeared to be recently and/or partially used based on the presence of spoil, though no further specific evidence of badger (for example guard hairs, footprints) were noted during the survey.

It is worth noting that evidence of badger, comprising guard hair, a latrine, and bedding were identified at three entrances of B01 in 2023 (AECOM, 2023), indicating occupation of badger at that time.

Badger evidence outside the Site but within the Survey Area was limited to four trails bisecting the watercourses within the Site. These trails may be attributable to badger, however foxes, rabbits, and many dogs also make use of the Site.

Locations of badger evidence identified are shown in confidential Figure A6-4. Full details of the badger surveys are presented in confidential Appendix A6-4 Badger Report.

Table 6-7: Summary of Badger Setts

Sett Reference	Sett Type	Sett Description
B01	Possible subsidiary	Eight entrances noted along c. 20m section of hedgerow north of the Site boundary. Only entrances a-c were accessible. All entrances suitable dimensions for badger. Tunnel directions are all north. Some debris, including leaves and twigs clutter the entrance to these holes. No evidence of badger. Considered partially used. Closest sett entrance is c. 13m from the Site boundary.
B02	Outlier	Single entrance outlier within hedgerow. Obscured by ivy with no clear path and no evidence of badger. Tunnel direction is north. Considered inactive. Sett is c. 15m from the Site boundary.
B03	Outlier	Two entrances within hedgerow/scrub on stream bank. One entrance obscured by vegetation, mainly bramble and ivy. Second entrance is visible, with a mound of bare spoil observed. No clear paths leading away, however, presence of bare spoil indicates use. Tunnel directions are both northeast. No evidence of badger. Considered partially used. Closest sett entrance is c. 43m from the Site boundary.

Sett Reference	Sett Type	Sett Description
B04	Outlier	Two entrances within hedgerow/scrub on a dry ditch bank just outside the Site boundary. Both entrances tunnelling northeast. One entrance is obscured by some leaves; second entrance is clear of debris. Tunnel directions are south and southwest No specific evidence of use by badger, but entrances of suitable dimensions, with clear paths away. Considered partially used. Closest sett entrance is c. 72m from the Site boundary.
B05	Outlier	Single entrance outlier on a stream bank. Entrance is clearly visible, with a mound of recent excavated spoil observed. Tunnel direction is north. Clear path away and no evidence of badger. Considered active. Sett is c. 9m from the Site boundary.

Otter

As described in Section 0, there are three main watercourses within the Survey Area. Due to the presence of very dense vegetation at some sections of the watercourses, there were some areas which were not fully accessible for otter survey. No evidence of otter was identified during the survey.

The watercourses are generally suitable for commuting otter, and possibly to some extent for foraging. However, the watercourses are considered suboptimal for breeding and resting sites (for example, holts). In many places, the banks are too shallow or are not suitable for resting places, whilst there is a high likelihood of disturbance from park users, including dogs which may be off lead. Several trails into vegetation were observed, and dogs were occasionally observed in these areas, though trails may also be used by otter, and possibly other mammals such as badger. Otter is presumed to occur on a precautionary basis, but breeding/resting sites are assumed likely absent due to a lack of suitable habitat.

Other Mammals

No evidence of Irish hare, hedgehog, Irish stoat, or pygmy shrew was identified during the field survey, however, field signs are less frequently observed than for other mammals, and a lack of evidence does not necessarily indicate absence. Therefore, based on suitable habitat for these mammal species, they are presumed to be present within suitable habitat within and in proximity to the Site.

Red squirrel and pine marten are both woodland specialist species with similar habitat preferences. Whilst there is some woodland present within the Site (and further within the adjacent Rathcoole Woods), there is relatively little suitable habitat beyond for both species. No sightings of either red squirrel or pine marten, or other evidence (such as feeding remains, scats) were recorded by during field surveys. However, as there is some potential habitat for the species to occur within the Site, both are assumed present on a precautionary basis.

Breeding Birds

The Site and Survey Area contain potential habitats for a variety of breeding bird species, particularly woodland and scrub habitats which provide ample cover and foraging opportunities. Open grassland also provides an additional foraging opportunity, especially to flocking birds. The Site is also well connected to further suitable habitats for birds in the wider area, with further woodland to the west, agricultural/pastoral lands to the south, and the wider Rathcoole park to the north.

Two breeding bird surveys were carried out in the Survey Area, one in May and one in June 2025. During the breeding bird surveys, a total of 20 bird species were recorded with similar numbers of species and individuals recorded across both surveys (18 species and 98 individual birds recorded in May and 16 species and 83 individual birds recorded in June). Birds were recorded across most of the Site, and were observed using the mosaic of woodland, scrub, and open grassland habitats, which provide suitable habitat for nesting and foraging. Four Amber-listed species for breeding (goldcrest, starling *Sternus vulgaris*, swallow and willow warbler *Phylloscopus trochilus*) were recorded during the surveys. Other species recorded, such as corvids (for example jackdaw *Coloeus monedula*, magpie *Pica pica*), tits (for example long-tailed tit *Aegithalos caudatus*, blue tit *Cyanistes caeruleus*), finches (for example bullfinch *Pyrrhula pyrrhula*, chaffinch *Fringilla coelebs*) are not particularly notable and are generally widespread species that are common of these habitat types.

Birds were generally observed individually, or as groups of relatively low numbers, with behaviours observed including feeding, calling, and song, with occasional flights noted. No bird nests or confirmed evidence of breeding was observed during the breeding bird surveys, however several species, such as willow warbler, goldcrest, and starling, displayed behaviours that may indicate breeding within or close to

the Site. Woodland, scrub, and hedgerow habitats onsite provide good cover and foraging opportunities for the species. These species are generally common and widespread across Ireland.

The location of the transect and birds recorded across the breeding bird surveys are presented in Figure A6-5. Full details of the breeding bird surveys are presented in Appendix A6-5 Bird Report.

Non-breeding Wintering Birds

Four wintering bird surveys were carried out monthly between November 2025 and February 2026 within the Survey Area. During the wintering bird surveys, a total of 12 bird species were recorded. November saw the highest number of species (11 species and 39 individual birds), however numbers of species were much reduced across December (one species (black-headed gull), 43 individual birds), January (three species, 17 individual birds), and February (two species, 37 individual birds).

One Red-listed species for wintering (snipe) and two Amber-listed species for wintering (and also breeding; black-headed gull and mallard *Anas platyrhynchos*) were recorded. In addition, kestrel, a Red-listed species for breeding was also observed. Other species recorded, such as corvids, blackbird *Turdus merula*, and robin *Erithacus rubecula*, are not particularly notable and are generally common of these habitat types.

With the exception of black-headed gulls, the majority of birds were recorded as individuals, or otherwise in small groups of relatively low numbers. Birds were observed within woodland and grassland, where loafing and feeding behaviours were largely recorded, along with several flights over the Site by black-headed gull and kestrel.

In terms of important species noted, snipe, a Red-listed species, was only recorded on two occasions, both individual sightings within the alluvial woodland >140m west of the Site. There is potential for snipe to occur in larger numbers within the further area of alluvial woodland adjacent to the west of the Site. Mallard, an Amber-listed species, was only recorded in the wider Rathcoole Park adjacent to the Site. The habitats within the Site are generally suboptimal for mallard. Black-headed gull was recorded in relatively large groups primarily in the wider Rathcoole Park outside the Site, though were occasionally recorded loafing within grassland within the Site. Kestrel was only recorded once in November, flying over the centre of the Site. Whilst only Red-listed for breeding, nonetheless the habitats onsite provide suitable hunting opportunities for kestrel.

The location of the transect and birds recorded across the wintering bird surveys are presented in Figure A6-6. Full details of the wintering bird surveys are presented in Appendix A6-5 Bird Report.

Amphibians and Reptiles

No specific amphibian surveys were carried out, and the Site contains no features suitable for breeding amphibians. Ditches in the Survey Area were noted to be largely dry during spring/summer. No specific reptile surveys were carried out. Viviparous lizard was not incidentally recorded during field surveys. However, this species is fairly widespread, therefore, given the habitats present it is presumed that small numbers of viviparous lizard could be in this area.

Invertebrates

No specific invertebrate surveys were carried out. Based on the mosaic of habitats present, such as grassland (particularly species-rich grassland), woodland, and hedgerows, there is suitability for a range of common invertebrates such as various butterflies, bees, beetles, and snails. Therefore, common terrestrial invertebrates are presumed to be present within the Site, however there is no suitability for protected invertebrate species.

6.5 Development Design and Embedded Mitigation

6.5.1 Design Measures and Embedded Mitigation

Embedded mitigation measures are measures incorporated into the design of a development that can either deliberately (or inadvertently) avoid or reduce adverse effects, including those on ecological features; this can include inherent design features of the Proposed Development. Embedded mitigation can be considered at the impact assessment stage, whereas specific mitigation measures which are not part of the design and are developed after the initial impact assessment, are assessed at a later stage when considering the residual effects.

The Proposed Development has sought to avoid impacts on ecological features as far as possible by several changes made during design and layout, which include avoiding Annex I habitats Alluvial Woodland and Lowland Meadow as far as possible, and reductions in Site boundary extent to avoid impacts to other habitats. As a result, encroachment on and the small amounts of loss of these habitats have been minimised and are significantly less than they initially would have been after redesign as a result of ecological survey.

Other embedded design measures, which include landscaping, lighting design, drainage design, and protective measures during construction, are described in the following Sections.

Landscape Strategy

The proposed Landscape Strategy for the Proposed Development is centred on protected landscapes and retention of natural habitat as far as possible, including Annex I habitats and other habitats of ecological importance, such as non-Annex I woodland and boundary vegetation. The Landscape Strategy includes the following aims:

- Preservation and enhancement of the riparian corridors through the Site, i.e. the Coolmine Stream and the Camac adjacent to the eastern boundary. The riparian zones will be delimited with high post and rail fencing to ensure protection.
- Protection and management of the Alluvial Woodland. A Woodland Management Plan has been prepared by Ecoplan Forestry on behalf of SDCC (see Section 0 for more details). In addition, retained immature woodland at the Site's western boundary will be delimited with high post and rail fencing to ensure protection.
- Provision of landscaped green spaces which are integrated with residential dwellings. This includes the integration of green corridors and parks associated with residential areas.
- Incorporation of Sustainable Urban Drainage systems (SUDS). The SUDS are designed to manage surface water through a combination of collection, conveyance, attenuation, and treatment features. This system will integrate with the existing SUDS infrastructure and contribute to a resilient and sustainable drainage strategy. The proposed SUDS components include:
  - Green roofs on duplexes and villa buildings to reduce runoff and enhance biodiversity.
  - Permeable paving in car parking areas to allow for onsite infiltration and surface water control.
  - Rain gardens and bioretention areas integrated into street verges and street tree pits, providing localised water treatment and amenity value.
  - Swales located within open space areas to convey and temporarily store surface water.
  - Rainwater harvesting within semi-private and private green spaces, supporting water reuse and reducing demand on potable supplies.
- Tree planting. This will comprise a range of avenue planting along pedestrian connections and in parks, feature trees in residential areas, and trees associated with SUDS. Native (or naturalised) species are proposed.
- New boundaries. As much of the existing boundaries will be retained where possible, with new boundary features proposed including fencing (to prevent access and protected sensitive habitats) and native hedgerows.

The Landscape Strategy is presented in this Planning Application

Woodland Management Plan

A Woodland Management Plan has been prepared for the Rathcoole Woodland, which includes the areas within the Site. The Plan proposes minimal intervention, instead recommends a management approach that allows the woodland's existing ecological processes and natural succession to continue operating with minimal interference, which it terms "*conservation through restraint*". The proposed actions are to:

- Monitor woodland development over time.
- Monitor and control sycamore regeneration where necessary.
- Retaining deadwood wherever safe to do so.
- Protecting the woodland from dumping, disturbance and inappropriate development.

- Maintaining a predominantly non-intervention approach.

The Woodland Management Plan is presented in Appendix A6-6 Woodand Management Plan.

Lighting Plan

A Public Lighting Assessment has been prepared for the Proposed Development, which provides an overview of the external lighting proposals and how they address planning requirements, and provides technical and environmental performance, specifically managing obtrusive light and light pollution. The report identifies the location of proposed luminaires and the required lux levels for external spaces, and outlines hours of operation and control methods. The report is accompanied by a lighting plan, which shows the locations of luminaires and the modelled horizontal illuminance (i.e. light spill).

Lighting is proposed in the built-up areas of the Site, i.e. along roads, residential, and public areas. Two luminaire types are proposed, 6m and 8m columns, all of which will be LED, with a warm light at 3000K. The arrangement of this lighting is such that lighting is concentrated on built-up areas, and light spill to the wider area, particularly the surrounding semi-natural habitat, will be avoided.

The Lighting Assessment, and figures showing horizontal illuminance, is presented in the Planning Application

Drainage Design

The proposed surface water drainage strategy is to retain the existing surface water flow paths, where possible, inclusive of open ditches and land drains within the Site boundary. A new gravity surface water network will be provided to convey surface water flows. Two separate surface water drainage networks are proposed with two separate outfalls, each catering for the runoff generated from the two main development areas. One of these is for the proposed houses off the Site entrance and the proposed surface water drainage network is proposed to discharge to an existing 450mm concrete surface water network at Mulally's Lane. For the main residential development area, the proposed surface water network is proposed to outfall to the existing Coolmine Stream. These are in addition to the proposed SUDS described in Section 0.

The proposed foul drainage network for the proposed houses off the Site entrance is to connect the existing foul sewer at Mulally's lane, located immediately outside the western boundary of the Site. It is proposed to provide foul water drainage network for the main residential development area by connecting to the existing foul sewer at Beechwood Lawns, located immediately outside the northern boundary of the Site.

Full details of the drainage design are presented in the Planning Application.

Construction Environmental Management Plan

An outline Construction Environmental Management Plan (oCEMP) has been prepared to set out the standard measures to govern the activities of the construction phase and management of environmental impacts. This will be finalised into a CEMP by the appointed contractor. These measures will benefit ecological features. Items within the oCEMP that will benefit biodiversity include the following:

- Controls and contingency measures will be provided to manage run-off from construction areas and to manage sediment.
- All oils, lubricants or other chemicals will be stored in an appropriate secure container in a suitable storage area, with spill kits provided at the storage location and at places across the Site.
- An Emergency Response Plan will be prepared by the appointed contractor and included in the CEMP and construction workers trained to respond to spillages.
- To avoid pollution impacts to soils, vegetation and watercourses/waterbodies during construction, all refuelling and servicing of vehicles and plant will be carried out in a designated area which is bunded and has an impermeable base. This will be situated at least 50m from the Camac and its tributaries.
- Pollution prevention will be achieved with both physical and procedural measures such as temporary sediment forebays within a designated attenuation basin during construction, suitable interceptors within the permanent and temporary surface water drainage networks and suitable storage of construction materials.
- No discharge to existing infrastructure, watercourses, or ground shall be permitted to take place without the appropriate consents or approvals.

- As part of the drainage design, appropriate pollution measures will be implemented and in place within the drainage network in the form of full retention fuel interceptors, shut-off valves and fire suppression/contaminated water tanks.
- Construction of infrastructure will be phased such that there is no reduction in the total available storage volume of existing systems for either clean or polluted surface water runoff at any point
- The appointed contractor shall provide suitable pumps, settlement tanks and filters to filter all water being pumped/discharged from excavations into existing drains. The appointed contractor shall also take measures to ensure that runoff from open excavations does not enter the surrounding drainage system without being treated.
- All discharged water (rainwater and groundwater) from pumping will be treated and tested before re-infiltration. Such water will be disposed of as construction site run-off having first passed through a settlement tank or filtration system where appropriate.
- All plant and equipment brought to the Site shall be in good working order with no leaks and maintained as such during the construction of the Proposed Development.
- Measures to minimise dust will be implemented during construction.
- Solid screens or barriers around dusty activities or work areas will be erected that are at least as high as any stockpiles on site.
- Any earthworks and exposed areas/soil stockpiles will be revegetated as quickly as practicable to stabilise surfaces.
- Any plant producing high noise levels will be located as far from receptors as practically possibly and screened using temporary barriers.
- Noisy works and deliveries will be avoided in the evening and night-time wherever practicable.
- Clear signage will be installed to ensure that construction vehicles use only designated routes.

6.5.2 Standard Good Practice

In addition, a range of measures that are standard good practice for development of this type, and which are required to comply with environmental protection legislation, will also be implemented. These are well-developed and have been successfully implemented on infrastructure projects across the country and there is a high degree of confidence in their success. They can therefore be treated as embedded mitigation and considered as part of the assessment of impacts and effects. These will include the following.

- An Ecological Clerk of Works (ECoW) and/or Environmental Clerk of Works (EnCoW) will be employed for the duration of construction, whose remit would include, but may not be limited to:
  - Conducting preconstruction surveys (as described in Section 6.7).
  - Ensuring all personnel involved in construction are made aware of the relevant ecological features within the Site and potential ZoI of the Proposed Development and the mitigation measures and working procedures that must be adopted, achieved as part of the induction process or through Toolbox Talks where required.
  - Monitoring of protected species, and liaising appropriately to resolve any issues that arise, if necessary, including obtaining further derogation licence(s) and developing associated proportionate mitigation.
  - Monitoring and advising on any additional wildlife protection measures including all standard good practice measures to protect wildlife.
  - Advising on habitat protection and, where relevant, reinstatement.
  - Monitoring of pollution control measures and advising on placement of ditches, settlement ponds, etc. to minimise habitat damage.
- Works near or at any retained trees and woodland will follow the NRA guidance in *Guidelines for the Protection and Preservation of Trees, Hedgerows, and Scrub Prior to, During and Post Construction* (NRA, 2006b).

- Sightings of important species within the Site during construction will be recorded and the ECoW/EnCoW notified. if any evidence or sightings of protected species are recorded in works areas, then works would stop immediately and the ECoW contacted for advice.
- As reasonably practicable, works that will directly impact vegetation that could be used by nesting birds will be undertaken outside of the breeding season, this generally being taken to be between March and August, inclusive (though noting that birds may breed beyond these times). Should vegetation clearance works be required during the breeding season, a search for active nests will be carried out by the ECoW or other suitably experienced ornithologist. Such checks will be completed no more than 72 hours in advance of clearance works taking place as nests can be quickly established. Where any active nests are identified, suitable species-specific exclusion zones will be implemented and maintained until the breeding attempt has concluded.
- The following measures to prevent the injury or mortality of faunal species will be adopted where necessary:
  - Excavations will be provided with a means of escape for animals that may fall in overnight, such as a ramp or battered slope.
  - Except where required to remain open for passage of water, pipes that animals could enter will be capped overnight.
  - Plant and machinery will be inspected before use each day to check for the presence of animals which may have taken shelter within or beneath.
  - Where possible, prestressing, whereby wildlife is encouraged to leave the area prior to works commencing (e.g. by having people walk over the area making noise) will be implemented.
  - If and where necessary, phased vegetation clearance following a pattern to encourage wildlife to move out of the working area to alternative undisturbed habitats.

6.6 Potential Impacts

6.6.1 Potential Impact Sources

The following broad categories of impact (regardless of embedded and standard mitigation measures, as detailed in Section 6.5) could arise during the construction and/or operation of the Proposed Development and are considered, where potentially relevant, in relation to each of the ecological features scoped into detailed assessment:

- Temporary and permanent habitat loss and damage during construction and operation (including as a result of spread of invasive species).
- Temporary or permanent changes to hydrological conditions which may affect vegetation and habitats (including GWDTE) during construction and operation.
- Air quality impacts (e.g. dust deposition during construction, vehicle movements, etc.) that may affect and damage vegetation and habitats during construction and operation.
- Pollution or sedimentation of surface water, groundwater, soils, and/or vegetation during construction.
- Temporary or permanent loss of habitat which supports protected and/or important species during construction.
- Creation of barriers to animal movements during construction and operation.
- Temporary and/or permanent disturbance and/or displacement of species during construction and operation.
- Potential for direct injury/mortality of species during construction.

There will be negligible likelihood for pollution of surface water, groundwater, soils or vegetation, given that industry-standard good practice mitigation measures will be implemented at all stages of the Proposed Development to meet legal and regulatory requirements, as described in Section 6.5. These measures are considered as embedded, and consequently, it is concluded that there will not be significant waterborne pollution effects, and this is not considered further for any ecological feature.

6.6.2 Important Ecological Features

Ecological Features Scoped Out of Further Assessment

As stated in Section 6.3.1, and as per CIEEM (2018) guidance, relevant ecological features are those that are important and have the potential to be significantly affected by the Proposed Development. In view of the baseline data obtained through desk study and field survey, the ecological features presented in Table 6-8 have been excluded from further assessment because of one or more of the following reasons (rationale is provided for exclusion in the table):

- They are not considered an important ecological feature, as defined in Section 6.3.1.
- Available data indicate that they are likely to be absent from the potential ZoI of the Proposed Development.
- It is clear that there will neither be no or negligible impact from the Proposed Development during both construction and operational phases (including when considering embedded mitigation and standard good practice measures, as described in Section 6.5).

Table 6-8: Ecological Features Scoped Out of Further Assessment

Ecological Feature(s)	Rationale for Exclusion from Further Assessment
Glenasmole Valley SAC, Wicklow Mountains SAC, Rye Water Valley/Carton SAC	There are no pathways between the Site and these SACs, and therefore no potential for effects. Furthermore, likely significant effects from the Proposed Development on SAC and SPA (and by proxy, Ramsar sites) have been excluded within the AA Screening (AECOM, 2026). These SACs are therefore scoped out from further assessment for both construction and operational phase effects.
South Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Dublin Bay SAC, North Bull Island SPA and Ramsar, Sandymount Strand/Tolka Estuary Ramsar	Whilst the Camac connects the Site to Dublin Bay (and subsequently these SAC, SPA and Ramsar sites), this hydrological link is not considered a viable pathway for effects due to the vast hydrological distance (>22km) which is assessed as significantly remote, in addition to the dilution effect that would occur over this distance and at the mouth of the bay. One of the qualifying features of both SPA is light-bellied brent goose. Geese have not been recorded at the Site as part of the wintering bird assemblage. Furthermore, the Site has limited suitability for this species to forage. The SPA/Ramsar sites are considered too remote for other qualifying species to occur onsite. In any case, most of the qualifying species are coastal/waterbirds, for which the Site has no suitable habitat. Therefore, it is unlikely that effects to ex-situ species will occur during either the construction or operation phases of the Proposed Development. Furthermore, likely significant effects from the Proposed Development on SAC, SPA, and Ramsar sites have been excluded within the AA Screening (AECOM, 2026). These SAC, SPA and Ramsar sites are scoped out from further assessment for both construction and operational phase effects.
Slade of Saggart and Crooksling Glen pNHA	No impacts or effects to Slade of Saggart and Crooksling Glen pNHA are considered possible as a result of the Proposed Development. At a distance of c. 1.7 km from the Site, and no viable ecological connections between the two (an upstream connection is not considered a viable pathway for impacts to the habitats/species associated with the pNHA), there are no pathways for impacts to the pNHA nor its designation features. Slade of Saggart and Crooksling Glen pNHA is scoped out from further assessment for both construction and operational phase effects.
Local nature conservation sites	There are no locally designated sites within the potential ZoI of the Proposed Development, therefore, no impacts are predicted. Locally designated sites are scoped out from further assessment for both construction and operational effects.
Ancient and Long-established Woodland	There are no parcels of Ancient or Long-established Woodland within the potential ZoI of the Proposed Development, therefore no impacts are predicted. Ancient and Long-established Woodland are scoped out from further assessment for both construction and operational effects.
Watercourses (Camac, Coolmine Stream, Crockshane Stream, dry ditches)	The Camac and Crockshane stream and dry ditches are all located beyond the Site. Whilst the Coolmine briefly bisects the Site, there will be no instream works therefore, maintenance of flow and the channel bed will be maintained. In addition, there is negligible likelihood of significant pollution effects to any watercourses owing to adherence to and implementation of the standard controls set out in the embedded mitigation and standard good practice measures. Therefore, these habitats are scoped out from further assessment for both construction and operational phase effects

Ecological Feature(s)	Rationale for Exclusion from Further Assessment
Habitats: amenity grassland, hardstanding	Some existing hardstanding path and amenity grass pitch within the Site will be lost. Hardstanding is of no biodiversity value, whilst the species-poor grass pitch is of negligible botanical value, and very low ecological value. Amenity grassland and hardstanding are not considered as important ecological features and have been scoped out from further assessment for both construction and operational effects.
Roosting bats	There are no buildings within the Site, and no trees suitable for roosting bats within the Site or Survey Area were identified. Therefore, no impacts to roosting bats are predicted, and they are scoped out from further assessment for both construction and operational phase effects.
Otter	No otter evidence was identified along the watercourses, and the habitats within the Site and Survey Area are suboptimal for otter breeding/resting places. Whilst otter may occur opportunistically, impacts on otter are considered unlikely to occur and will be minimised through the embedded and standard good practice waterbody and faunal protection measures. Therefore, otter is scoped out from further assessment for both construction and operational phase effects.
Red squirrel	The woodlands onsite provide some suitable habitat for red squirrel, with the adjacent woodland providing further habitat. However, the Site is relatively poorly connected to other woodlands, and furthermore, no records of red squirrel were returned, and no incidental sightings were noted. Red squirrel is considered likely to be absent from the ZoI of the Proposed Development, though even if opportunistically present, standard good practice faunal protection measures would benefit the species. Red squirrel and is scoped out from further assessment for both construction and operational phase effects.
Pine marten	The woodlands onsite provide some suitable habitat for pine marten, with the adjacent woodland providing further habitat. However, the Site is relatively poorly connected to other woodlands, and furthermore, no incidental sightings were noted. Pine marten is considered likely to be absent from the ZoI of the Proposed Development, though even if opportunistically present, standard good practice faunal protection measures would benefit the species. Pine marten is scoped out from further assessment for both construction and operational phase effects
Amphibians	No suitable breeding habitat for amphibians was identified within the Site. The ditches present in the wider Survey Area were noted as dry, whilst the watercourses are not suitable habitat (due to flowing water). There are standing water habitats within the adjacent Rathcoole Park, therefore common frog, which is ubiquitous, could occur within habitats such as grassland onsite. Ten records of frog were returned, though no frogs were incidentally observed during surveys. Although one record of smooth newt was returned (notably dated from 1972), this species is considered less likely to be present onsite. Potential impacts on amphibians will be minimised through the embedded waterbody and faunal protection measures. Therefore, amphibians are scoped out from further assessment for both construction and operational phase effects.
Viviparous lizard	Viviparous lizard has not been identified during any surveys, and no records for the species were returned. There is some, albeit limited, suitable habitat within the Site, however, it is considered unlikely that there are significant populations of viviparous lizard and would be more likely to be opportunistic individuals. Impacts on viviparous lizard will be minimised through the embedded faunal protection measures. Therefore, viviparous lizard is scoped out from further assessment for both construction and operational phase effects.
Fish and aquatic invertebrates	Previous aquatic surveys (Mayfly Ecology, 2024) carried out on watercourses within the Site and Survey Area identified poor macroinvertebrate quality and no suitable crayfish habitat at Crockshane and Coolmine Streams, whilst the Camac had suitable crayfish habitat (though the species was absent) and moderate macroinvertebrate quality. In addition, three-spined stickleback were recorded in the Coolmine Stream, with no other fish observed during the surveys. As described for Watercourses, there will be no works within the water column and there is no likelihood of significant pollution effects owing to adherence to standard controls set out in the embedded mitigation. Therefore, fish and aquatic invertebrates are scoped out from further assessment for both construction and operational phase effects.

Important Ecological Features Scoped In for Further Assessment

The ecological features identified in the baseline field surveys which have been identified as important and scoped in for further assessment are presented in Table 6-9, along with the importance valuation of each feature and rationale for their importance valuation. Importance has been assessed considering geographic scale, in accordance with CIEEM guidelines (CIEEM, 2018), with further details provided in Appendix A6-1

Relevant Supporting Information. Note that invasive plant species are not considered specifically in Table 6-9 as they are more of an impact source related to habitats, than an ecological feature to be assessed. Impacts and effects of invasive plant species are considered in the following Sections.

Table 6-9: Ecological Features Scoped In for Further Assessment

Ecological Feature	Importance	Rationale
Annex I Alluvial Woodland (also a GWDTE)	County	The Alluvial Woodland within the Site constitutes the Habitats Directive Annex I Priority habitat 91E0 Annex I Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae). The Alluvial Woodland within the Site (c. 0.35ha) forms part of a larger woodland block in the adjacent Rathcoole Woodland (c. 11ha beyond the Site). Based on NPWS Article 17 reporting (NPWS, 2025b), there is approximately a minimum of 2,029ha of 91E0 Annex I Alluvial Woodland mapped across Ireland, with a number of sites known to occur in Co. Dublin. The Alluvial Woodland within the Site comprises c. 0.02% of the country's known resource. Therefore, the Alluvial Woodland has been considered of County importance.
Annex I Lowland Meadow	County	The species-rich grasslands within the Site constitute the Habitats Directive Annex I habitat 6510 Lowland Hay Meadow (*Alopecurus pratensis, Sanguisorba officinalis*), covering an area of approximately 1.49ha within the Site (though is part of wider parcels of 2.73ha). Based on NPWS Article 17 reporting (NPWS, 2025b), there is approximately 324.9ha of Annex I habitat 6510 Lowland Meadow mapped across Ireland, though there are no records of this habitat type in Co. Dublin. The Lowland Meadow within the Site comprises c. 0.45% of the country's existing mapped resource. N.B. Lowland Meadow within the Survey Area comprises c. 0.84% of the country's existing mapped resource. Therefore, the Lowland Hay Meadow has been considered of County importance.
Dry meadows, wet grassland, hedgerows, immature woodland, scrub, trees, springs, tall-herb swamp (including GWDTE)	Local	These comprise a mosaic of habitats, contributing to a relatively high diversity of habitats and floral species, with some providing a degree of stepping stone habitat (green infrastructure). They provide habitat (including for shelter and foraging resources) and linear corridors for a range of faunal species and enrich the ecological value of the Site, though do not qualify as Annex I habitats. These habitat types are generally common and are valued at Local importance.
Commuting and foraging bats	Local	Bats are European protected species and are protected under national legislation. Five species of bat were recorded during NWBs, the majority (89%) of which comprised common and soprano pipistrelle and Leisler's bat, which are the most common and widespread species. Whiskered bat, a woodland specialist, was also identified. Based on this assemblage, and with reference to guidance in Reason and Wray (2025), the importance of the Site to commuting and foraging bats is valued at Local importance.
Badger	Local	Badger is protected under national legislation. Some evidence of badger, including setts, was identified in the Survey Area, and the habitats are suitable for commuting and foraging. Badger is common and widespread in Ireland and is valued at Local importance.
Irish hare, hedgehog, pygmy shrew, and Irish stoat	Local	All these species are protected under national legislation. Whilst these species could occur within the Site, no evidence of any was identified during any surveys, though it is worth noting that eleven records of hedgehog and two records of Irish stoat were returned as part of the desk study. All of these species are widespread and are valued at Local importance.
Breeding and non-breeding birds	Local	A number of bird species were recorded during breeding bird surveys, including four BoCCI Amber-listed species, however, not all species were considered likely to be breeding within the Site. A small number of birds were recorded during non-breeding surveys, which included one BoCCI Amber-listed species recorded within the Site and one Red-listed species recorded beyond the Site but within the Survey Area.

Ecological Feature	Importance	Rationale
		However, generally, these are common and widespread bird species and are therefore valued at Local importance.
Terrestrial invertebrates	Local	No evidence of, or habitat suitable, for protected terrestrial invertebrates are present onsite, however, the habitats present comprise a mosaic of habitats suitable for a range of invertebrates, such as butterflies, moths, bees, and other pollinators. These are generally considered likely to be common and widespread species and are therefore valued at Local importance.

6.6.3 Construction

Habitats

Habitat Loss

Habitat and vegetation removal is required to facilitate the Proposed Development, resulting in permanent habitat loss. Although habitat loss to buildings/infrastructure is required to allow the operation of the Proposed Development, the loss of habitat is considered a construction phase impact, as it will be lost during the construction works.

Table 6-10 provides the geographic valuation of importance and estimated areas of habitats lost to facilitate the Proposed Development. However, it must be noted that an area of Lowland Meadow (most of G1; 0.67ha) and an area of Alluvial Woodland (W2; 0.04ha) that extends into the Site will be retained. The Alluvial Woodland was all assessed to be in Good (or Favourable) habitat condition. Two of the three Lowland Meadow parcels were assessed to be in Good (or Favourable) habitat condition, whilst one (G2), was assessed to be in Unfavourable condition.

In addition to loss of these area-based habitats, approximately 290m of beech hedgerow and 70m of mature native hedgerow will be removed, as will several individual trees within the Site. The loss of c. 40m of calcareous spring will also likely occur to facilitate construction works. The remaining habitats within the Site and Survey Area will be retained.

Habitat loss will be greatest (in terms of geographic scale) in the case of the Annex I habitats Alluvial Woodland and Lowland Meadow, which are valued at County importance, therefore the loss of Annex I Alluvial Woodland and Lowland Meadow could be a **Permanent Adverse effect** of County significance, which is a **Significant effect** in the context of the EIA. Loss of the other area-based habitats, hedgerows, and individual trees within the Site (as presented in Table 6-10) could be a **Permanent Adverse effect** of Local significance.

Table 6-10: Approximate Habitat Loss Areas Within the Site

Habitat	Importance	Area Loss (ha)
FS2 Tall-herb swamps	Local	0.03
GS2 Dry meadows and grass verges (Annex I Lowland Meadow)	County	1.13
GS2 Dry meadows and grass verges (non-Annex I)	Local	2.44
GS2 Dry meadows and grass verges/WS1 Scrub mosaic (non-Annex I)	Local	5.08
GS4 Wet grassland	Local	0.28
WN6 Wet willow-alder-ash woodland (Annex I Alluvial Woodland)	County	0.35
Total		**8.99**

Habitat Damage

In addition to habitat loss, there is potential for damage to occur to all retained habitats as a result of construction activities. This includes potential air quality impacts (e.g. dust deposition), root compaction, pollution/sedimentation effects, and spread of invasive species.

Construction activities can result in damage to retained habitats, with impacts and effects such as deposition of dust on foliage from construction works and damage to root systems (for woodland, trees, and hedgerows) from compaction by moving plant. According to the Institute of Air Quality Management (IAQM) (IAQM, 2024) guidance, dust generated by plant and machinery on construction sites can have a 'medium' impact on habitats located at distances 20-50m from works areas, and that this impact lessens with increasing distance. However, as the embedded mitigation in Section 6.5 includes dust suppression (where relevant), dust deposition is likely only to comprise a **Temporary Negligible effect**.

Chapter 09 Air Quality has categorised the potential dust emission magnitude for the trackout phase (e.g. vehicle movement) as small. However, since dust would also not be a significant issue with standard dust suppression measures, it is likely that impacts on habitats as a result of airborne pollution generated by or from construction traffic would comprise only a **Temporary Negligible effect**.

As per the standard good practice measures in relation to trees, no significant effects to retained woodland, hedgerows, or trees are likely to occur (for example due to dust suppression and tree root protection zones), and such potential damage is assessed as a **Temporary Negligible effect**.

Two stands of Japanese knotweed, and several non-Scheduled species of High and Medium Impact are present within the Site. There is potential that these could be spread into adjacent habitats as a result of construction works (including during movement of plant and machinery across construction areas) and negatively affect habitat quality and condition, particularly should they become established in Annex I habitats. For Alluvial Woodland and Lowland Meadow, this could result in be a **Permanent Adverse effect** of County significance, which is a **Significant effect** in the context of the EIA. Damage to other habitats due to invasive species could be a **Permanent Adverse effect** of Local significance.

There is additional risk of habitat damage to Alluvial Woodland in relation to GWDTE, which is discussed in the following Section.

Groundwater Dependent Terrestrial Ecosystems

Three habitat types with groundwater dependence were identified within the Site. Guidance for GWDTE in Scotland (SEPA, 2024) advise that for excavations of 1m or less, the potential ZoI could be up to 100m from the GWDTE, extending to 250m for excavations greater than 1m.

The Alluvial Woodland is considered to have a low to moderate dependency on groundwater (based on descriptions in Kilroy *et al.* (2008)), however is also likely to receive significant inputs from surface water, with likelihood of winter flooding within the woodland during winter (especially given the lack of waterlogging identified during any survey visits in the woodland). Many excavations are likely to be largely up to 1m (as is generally required for housing developments), however there will be areas that will require excavation up to 6m. Therefore, there is potential for the construction works to impact Alluvial Woodland up to 250m away from the source of deep excavation. However, based on the hydrogeological context across the potential GWDTE identified (details of hydrogeology are presented in Chapter 08 Water and Hydrology), it is considered likely that surface water flow is the primary mechanism by which the Alluvial Woodland is maintained, with minor potential for groundwater influence associated with the poor aquifer (bedrock which is generally unproductive) that underlies the Alluvial Woodland. Impacts to the Alluvial Woodland GWDTE is therefore considered only likely to cause a **Negligible effect**.

The other two habitats, tall-herb swamps and calcareous springs, will be lost to development, therefore no effects related to groundwater impacts to these habitat types will arise.

Commuting and Foraging Bats

All bats are European protected species and protected under national legislation in Ireland. Common pipistrelle, soprano pipistrelle, and Leisler's bat comprised 89% of bat activity, with 9% comprising whiskered bat, and only two passes of Nathusius' pipistrelle. Common pipistrelle, soprano pipistrelle, and Leisler's bat are the three most common species in Ireland and are widespread across the country. Whiskered bat is somewhat more restricted, as they are woodland specialist and depend on the presence of suitable habitat, and are also not very tolerant of lighting.

Potential impacts and effects to bats as a result of the construction phase of the Proposed Development include loss of commuting and foraging habitat and potential severance of habitat connectivity as habitats and vegetation are removed to facilitate development, and disruption and disturbance to bat activity by artificial lighting, which could also result in potential severance of habitat connectivity. Bats are active largely

between April/May and September/October, hence potential disturbance effects to commuting and foraging bats may occur during these times, however habitat loss is a permanent impact.

The construction phase of the Proposed Development will result in permanent loss of some of the habitats used by bats for foraging, and to a lesser extent, commuting, including grassland/scrub, trees, and a small portion of woodland. However, the majority of the bats were observed and recorded using the boundary vegetation beyond the Site, particularly the hedgerows to the north and east, and the linear corridor (i.e. the lane and woodland vegetation) along the southern boundary. Edge habitats in these areas will not be lost during construction, and furthermore it is worth noting that abundant habitat in the surrounding area will remain, including habitats acting as green corridors, allowing for opportunities for continued habitat connectivity. Loss of habitat used by commuting and foraging bats is a **Permanent Adverse effect** of Local significance.

Notwithstanding the potential effects of lighting (which is discussed in the following paragraph), green corridors will be retained, for example the hedgerows beyond the Site boundary to the north, Camac corridor along the eastern boundary, and the lane and linear woodland vegetation to the south; these habitats connect to Rathcoole Woodland, Rathcoole Park, and the rural and agricultural habitats beyond the Site, which will facilitate movement of bats within the Site and through the landscape. As connectivity will be retained for the duration of construction, habitat fragmentation and barriers to species movement will cause a **Negligible effect**.

Bats are known to rely on visual clues in addition to using echolocation for both commuting and foraging, and various studies have revealed that bat vision functions better in low light. Luminance can disrupt bat activity by interrupting vision, disrupting flightlines, and potentially severing connectivity within and offsite. There is no lighting currently onsite, however construction may result in new, temporary lighting to enable construction works. Based on the proposed hours working hours of 07:00-19:00, any artificial lighting that may be used is generally unlikely to impact bats, however if lighting is used in spring or autumn when sunset is earlier, there could be some overlap with bat activity periods which could disturb, displace, or disrupt bats, particularly if bright (e.g. halogen or floodlighting) is used. Disturbance and/or displacement of bats due to construction lighting is a **Temporary Adverse effect** of Local significance.

No other impacts or effects to bats during construction are predicted.

Badger

Badger is a nationally protected species and is widespread across Ireland. No evidence of badger was identified within Site, however five badger setts were identified in the wider Survey Area, including three setts within 15m. In addition, there is suitable habitat throughout the Site for commuting and foraging. Therefore, there is potential for impacts and to both badgers and their setts during construction, including loss of, damage to and/or disturbance of setts (which could result in injury/mortality to badgers within setts), loss and severance of foraging and commuting habitat, and disturbance/displacement by increased human presence, artificial lighting, and noise and visual disturbance. Badger is active year-round, hence impacts to badger may occur at any time during construction. Impacts to breeding badger would occur between December to June (inclusive).

The badger setts are generally located away from the construction areas and permanent footprint of the Proposed Development, however, should works occur in proximity (i.e. 25 m, extending to 100 m for piling) of badger setts, there is a risk of physical damage and disturbance. Damage or disturbance to badger setts may also result in injury or mortality to badgers within setts and/or local displacement of badgers from setts. Such damage to badger setts can constitute a permanent effect if a sett is inadvertently destroyed as a result. This would cause the most impact in the case of B01, which is a possible subsidiary sett, but B02 and B05 are also close to the Site boundary. Loss of or damage to badger setts (including effects to badgers within setts) could comprise a **Permanent Adverse effect** of Local significance.

The construction phase of the Proposed Development will result in permanent loss of some of the habitats that may be used by badger for foraging and commuting, including grassland/scrub, trees, and a small portion of woodland; though, it is worth noting that abundant habitat in the surrounding area will remain, including habitats acting as green corridors, allowing for opportunities for continued habitat connectivity. The loss of habitat used by badger is likely to be a **Permanent Adverse effect** of Local significance.

Notwithstanding the potential effects of noise, visual and lighting disturbance (which is discussed in the following paragraph), green corridors will be retained, including the hedgerows to the north, Camac corridor along the eastern boundary, and the lane and linear woodland vegetation to the south; these habitats

connect to Rathcoole Woodland, Rathcoole Park, and the rural and agricultural habitats beyond the Site, which will facilitate movement of badger within the Site and through the landscape. As connectivity will be retained for the duration of construction, habitat fragmentation and barriers to badger movement will cause a **Negligible effect**.

Construction works within the Site will include noise, visual disturbance, and potential for temporary fencing associated with site compounds or working areas. Badger is a primarily nocturnal species, therefore based on the proposed working hours of 07:00-19:00, such impacts are generally unlikely to affect badger. The exception to this is when daylight hours are shorter, and if works are in proximity to badger setts. Therefore, disturbance-related effects to badger are likely to be a **Temporary Negligible effect**.

As discussed in respect of bats in Section 0, though construction works are scheduled to occur during daylight, there may be necessity for construction phase lighting, for example, when daylight hours are shorter. The extent of this is unknown, although there is potential for excessive lighting to cause effects to badger and their setts, for example disturbance, sett abandonment, and causing barriers to movement within and/or beyond the Site, particularly if bright (e.g. halogen) lighting is used. Potential effects to badger as a result of construction phase lighting could have a **Temporary Adverse effect** of Local significance.

Whilst there is potential for injury/mortality to badger (for example, entrapment due to any unsecured open trenching/excavation pits, and exposure to oils and other toxic material), the embedded and standard good practice mitigation in Section 6.5 in relation to potential injury or mortality to faunal species will ensure badger is safeguarded during construction, which is assessed a **Temporary Negligible effect**. N.B. mortality is a permanent impact, however the potential for injury or mortality to occur will be temporary, for the duration of the construction.

No other impacts or effects to badger during construction are predicted.

Irish Hare, Hedgehog, Pygmy Shrew, and Irish Stoat

Irish hare, hedgehog, pygmy shrew, and Irish stoat are all nationally protected species and are widespread across Ireland. Although their presence was not confirmed within the Site, there is habitat suitable for hedgehog, pygmy shrew, and Irish stoat, and to a lesser extent, Irish hare. Woodland, scrub, hedgerows and grasslands are suitable habitats for these species, which may provide cover and foraging opportunities.

As discussed in Section 0, habitat loss is required to facilitate the Proposed Development, much of which could be used by hedgehog, pygmy shrew, Irish stoat, and Irish hare. However, given the large areas of retained and surrounding habitat, and that no evidence of presence of these species was identified, the loss of habitat that may be used by these species is considered a **Permanent Negligible effect**. Furthermore, as previously discussed, green corridors will be retained, particularly the hedgerows to the north, Camac corridor, and the lane and linear woodland vegetation to the south, which connects to Rathcoole Woodland, Rathcoole Park, and the rural and agricultural habitats beyond the Site, which will facilitate movement within the Site and through the landscape. As connectivity will be retained for the duration of construction (i.e. green infrastructure), habitat fragmentation and barriers to species movement will cause a **Temporary Negligible effect**.

Furthermore, the embedded and standard good practice mitigation in Section 6.5 in relation to potential injury or mortality to faunal species, will ensure Irish hare, hedgehog, pygmy shrew, and Irish stoat are safeguarded during construction, which is assessed a **Temporary Negligible effect**.

Although construction works are scheduled to occur during daylight, there may be necessity for construction phase lighting, for example, when daylight hours are shorter. The extent of this is unknown, although there is potential for excessive lighting to cause effects to species, for example disturbance and causing barriers to movement within and/or beyond the Site, particularly if bright (e.g. halogen) lighting is used. In addition, and as discussed in respect of badger in Section 0, general construction activities could cause disturbance or displacement of these mammal species, however, given their generally nocturnal natures, and construction proposed hours, such impacts are generally unlikely to affect these species (with the exception of when daylight hours are shorter). Potential effects to hedgehog, pygmy shrew, Irish stoat, and Irish hare as a result of construction phase lighting and other disturbance sources could have a **Temporary Adverse effect** of **Local** significance.

No other impacts or effects on Irish hare, hedgehog, pygmy shrew, and Irish stoat during construction are predicted.

Birds

No bird nests or confirmed evidence of breeding was observed, although several species displayed breeding behaviours, including BoCCI Amber-listed species willow warbler, starling, and goldcrest. There is a reasonable likelihood that other species recorded use the habitats within the Site and Survey Area for breeding. A small number of birds were recorded during non-breeding surveys, which included BoCCI Amber-listed black-headed gull recorded within the Site, and Red-listed species snipe recorded beyond the Site within Rathcoole Woodland. However, the species recorded are not particularly uncommon and are widespread across Ireland.

Vegetation within the Site, such as trees, woodland, and grassland/scrub are suitable for foraging and nesting birds. Loss of habitats within the Site will impact both breeding and non-breeding birds, by causing reduction in available habitat. This is a **Permanent Adverse effect** of Local significance.

There is potential for bird mortality as vegetation is cleared. However, as per the embedded and standard good practice mitigation in Section 6.5 in relation to timing of vegetation clearance, the potential for injury or mortality to birds and their eggs and/or young will be unlikely to occur, therefore this is assessed as a **Temporary Negligible effect**.

Although construction works are scheduled to occur during daylight, there may be necessity for construction phase lighting, for example, when daylight hours are shorter. The extent of this is unknown, although there is potential for excessive lighting to cause effects to bird species, for example disturbance and causing barriers to movement within and/or beyond the Site, and disruption to breeding patterns, particularly if bright (e.g. halogen) lighting is used. In addition, and as discussed in respect of badger in Section 0, general construction activities could cause disturbance or displacement of birds, however, given the proposed construction hours, such impacts are generally unlikely to affect these species (with the exception of when daylight hours are shorter). Potential effects to birds as a result of construction phase lighting and other disturbance sources could have a **Temporary Adverse effect** of Local significance

No other impacts or effects to important breeding and non-breeding birds during construction are predicted.

Terrestrial Invertebrates

Construction may result in direct injury or mortality to invertebrates, in addition to local displacement, for example as vegetation is cleared. Mortality is permanent, however the potential for mortality is temporary, occurring only for the duration of the construction phase. Impacts to invertebrates, such as mortality and habitat loss is assessed as a **Temporary** (mortality) and **Permanent** (habitat loss) **Adverse effect** of Local significance.

6.6.4 Operation

Habitats

The operation of the Proposed Development will result in new impact sources and may also result in increased pressure of existing impact sources, such as recreational pressure.

The operation of the Proposed Development, whilst resulting in more traffic movement, was assessed as having a neutral effect on air quality (see Chapter 09 Air Quality). Consequently, it is concluded that there will not be significant airborne pollution effects to habitats, and a **Permanent Negligible effect** is predicted.

Due to the presence of Japanese knotweed, a Scheduled invasive species, and several non-Scheduled High and Medium Impact species within the Site, there is potential for spread (including through inaction), causing damage to other habitats (particularly if it is not sufficiently dealt with during construction). This would have the greatest impact if spread to Annex I Lowland Meadow and Alluvial Woodland, which are valued at County importance, however the Annex I habitats are spatially separated from the Japanese knotweed, reducing the likelihood of spread into these habitats during operation. Therefore, effects of spread of invasive species would be a **Permanent Adverse effect** of Local significance.

Additional or increased recreational pressures could potentially occur, such as trampling, littering, and dog fouling within sensitive habitats (particularly Annex I Lowland Meadow and Alluvial Woodland). Such impacts are difficult to quantify, however, as the Site and surrounding area are already used recreationally, and new fencing is proposed as part of the landscape design, a **Permanent Negligible effect** is predicted.

No other operational impacts or effects to habitats are predicted.

Important Fauna Species

The operation of the Proposed Development will result in new impact sources, such as lighting, and may also result in increased pressure of existing impact sources, such as recreational pressure, that could affect faunal species such as bats, mammals, and birds.

The presence of new, operational lighting is a potential impact source to bats, badger and other mammals, and breeding birds. Artificial lighting can cause disturbance or displacement of species from a habitat and can cause habitat fragmentation for species. As described in the embedded mitigation in Section 0, operational lighting will be focused on roads, residential, and public areas and will not be installed in and around semi-natural and other retained habitats, including green corridors; therefore light spill to habitat used by faunal species will be minimised and connectivity is not likely to be severed for faunal species (including their prey, for example, invertebrates) likely to be displaced or otherwise significantly disturbed due to operational lighting. Therefore, a **Permanent Negligible effect** on bats, other mammals, birds, and other faunal species is predicted due to operational phase lighting.

Housing developments can pose pressures on species, including new sources of mortality such as increases in cars and traffic and potential for predation of birds and small mammals by cats. Cars and traffic will be restricted to roads and residential areas and will be subject to residential speed limits, therefore mortality effects to species are likely to be relatively minor, and at most a **Permanent Negligible effect** is likely. Predation by cats is difficult to quantify, as it is unknown how many cats would be present, how frequently or during which times of day that they would be let out, or if they would be measures to help reduce predation (for example, if they could be wearing collars with bells). In any case, effects of mortality or injury to birds and small mammals due to cat predation is likely to be a **Permanent Negligible effect**.

Whilst the Site is currently used for recreation, the increase of local residents that may use the surrounding habitats could result in increased recreational pressure, for example noise and visual disturbance from walkers and presence of dogs (which could include dogs let off lead). Again, effects related to these impact sources are difficult to quantify, however, as the Site and surrounding area are already used recreationally, and new fencing is proposed as part of the landscape design, a **Permanent Negligible effect** is predicted.

As previously mentioned, abundant habitat in the surrounding area will remain, including habitats acting as green corridors, allowing for opportunities for continued habitat connectivity for faunal species.

No other impacts or effects to bats, mammals, birds or any other important species during operation are predicted.

6.7 Mitigation and Enhancement Measures

6.7.1 Habitats

Habitat Compensation

The Proposed Development includes approximately 1.47ha of new planting, in addition to retention of existing vegetation including some of the Lowland Meadow, hedgerows, and vegetation along the Camac corridor. The approximate proposed landscape areas are detailed in Table 6-11.

The proposed landscape areas comprise a range of types of that could provide ecological value including meadow planting, SUDS, shrubs, hedgerows, and trees. It is proposed that all species used are of local provenance, i.e. sourced from the island of Ireland. It is recommended that in general, cultivars and ornamental species are avoided in semi-natural planting, and reputable supplies should be used.

Where areas of Annex I Lowland Meadow are lost, it is proposed that grassland is saved as sods/turves that can be translocated to new meadow areas, however it is acknowledged that this may not be appropriate depending on the timescales between grassland removal and new meadow planting. However, this will be done for the construction of the pipeline required through the existing meadow north of the Site. The existing Lowland Meadow has a species-rich seedbank, notably containing several species of orchids which require specific soil conditions (e.g. mycorrhizal fungi in the soil). Sod translocation is an effective method for establishing species-rich grassland, whereby the uppermost soil layer (which contains vascular plants, ground mosses and lichens, microorganisms, and soil biota) is transferred to new receptor sites (Magnes and Sendl, 2016). Alternatively, dependent on time of year, it may also be possible to harvest seeds from existing areas before they are lost, to also be reused in the new areas.

During excavation of the trench for the pipeline, works will be carried out in such a way to ensure maximum habitat retention. This will comprise excavation of sods/turfs, which shall be cut, set aside, and reinstated. Trenching will be carried out in small sections, therefore, reinstatement of sods/turfs will take place on the same or next day. Appropriate implementation of cutting sods/turfs will ensure that habitat damage related to the pipeline construction is minimised, however, it is anticipated that habitat damage during these works will be minimal and that habitat will not suffer permanent damage.

For translocation of sods into the new meadows, sods will be stored in an appropriate area of the Site until they are ready to be reinstated. Appropriate management will be required, for example, keeping unrolled and watered. Following translocation, provided an appropriate management regime is followed, it is anticipated that transplanted vegetation would begin to spread to the surrounding grassland.

It is recommended that meadow/grassland habitats within the Site are managed in an ecologically sensitive way, ideally in a similar way to existing Lowland Meadow. Inclusion of yellow-rattle can reduce the dominance of grass species and increase the abundance of wildflowers. Again, if needed, seeds of perennial species that are locally sourced should be used, and annual seed mixes should be avoided. However, where soils are reused from the Site, seeding may not be needed as part of long-term management.

Table 6-11: Approximate Proposed Landscape Areas

Landscape Area	Details
Amenity lawn	5.01 ha
Meadow	0.63 ha
Mown grass strip	0.21 ha
Rain garden (SUDS)	0.20 ha
Attenuation pond (SUDS)	0.02 ha
Swales (SUDS)	0.42 ha
Green roofs (SUDS)	0.13 ha
Privacy planting	0.06 ha
Open space planting (shrubs and groundcover)	0.13 ha
Raised planters to communal gardens	<0.01 ha
Native hedgerow to house boundary	0.37 km
Native hedge with post and panel fence	0.49 km
Proposed parkland trees	171 no.
Proposed street trees	71 no.
Proposed feature trees	90 no.

Habitat Protection

During construction, the ECoW will ensure that all site personnel are made aware of the various habitats present onsite and how construction can be adapted to reduce impacts. This may be included as part of toolbox talks during site inductions. In addition, the ECoW will ensure site personnel are aware of any relevant mitigation and ensure that mitigation is carried out appropriately.

Whilst there is a range of measures within the embedded mitigation for protection of habitats, it is prudent to ensure that the retained Annex I Alluvial Woodland and Lowland Meadow habitats are appropriately protected during construction works. Although the removal of small areas of Annex I habitats Alluvial Woodland and Lowland Meadow are required to facilitate the Proposed Development, clearance of sensitive habitats will be kept to a minimum within the Site as far as possible, to ensure the minimum required area is lost. Otherwise, construction works (including movement of plant, storage of plant and materials, and haulage) will not take place within any parcel of Annex I habitat. For the avoidance of doubt, the boundaries of these habitats will be delimited (fenced off and signposted) prior to the commencement

of construction, and the presence of the Annex I habitats, along with proactive avoidance, will be incorporated into construction toolbox talks.

Potential impacts related to spread of invasive species to and within the Site during construction will be mitigated by the implementation of an ISMP (see Section 6.7.2 for further details). In addition, a programme of long-term management of invasive species will be implemented, to ensure no spread into habitats (and particularly sensitive habitats) in the future.

To encourage protection during operation of the Proposed Development, and to foster positive neighbourhood feeling, it is proposed that signage (e.g. interpretation boards) is installed in key locations (e.g. along walking routes). These boards will provide information such as the importance of the Annex I Lowland Meadow and Alluvial Woodlands, management methods carried out to support biodiversity, species diversity, and faunal species that such habitats support, along with encouragement to avoid excessive recreation within these habitats. Further operational mitigation to protect habitats will include ensuring there is appropriate provision of dog waste bins in recreational areas/along walking routes and signs for keeping dogs on leads in sensitive habitats.

6.7.2 Invasive Species

Due to the presence of Japanese knotweed, a Scheduled invasive species, and presence of several other non-Scheduled invasive species, such as cherry laurel, a non-Scheduled invasive species of High risk of impact within the Site, an Invasive Species Management Plan (ISMP) will be produced by the ECoW/EnCoW to mitigate risks and prevent spread of invasive species. The appointed ECoW will oversee implementation of appropriate mitigation which is likely to include exclusion zones. Reference to the ISMP, including associated roles and responsibilities, will be clearly detailed in the final CEMP prepared by the appointed contractor.

There are no major construction works required in proximity to Japanese knotweed. The Japanese knotweed is adjacent to the well-worn trail along the southern Site boundary, which is proposed to be formalised by installing a resin bound path. As this may include small amounts of excavation to prepare the path, it is considered the most likely actions for Japanese knotweed will be prevention of spread, i.e. the implementation of biosecurity measures, and detailed method statements for works within 4m of both stands. N.B. 4 m is a precautionary buffer to account for Japanese knotweed rhizome in the soils, though less 2.5 m is more a more usual extent (Fennell *et al*. 2018).

Full details of management actions for Japanese knotweed will be determined as part of this ISMP, once all the specific details of construction are known. The following measures will be included in the ISMP as a minimum:

- All Contractors on Site will receive training in Japanese knotweed identification and appropriate Site practices for biosecurity. This will include their legal obligations, including in relation to prevention of spread. Training will be given on Day 1 and will be included in the Site induction. This will be repeated as necessary during the construction phase, e.g. for new personnel. Posters highlighting the key features of the plants should be displayed in all communal areas, if appropriate.
- Exclusion zones around both stands of Japanese knotweed will be set up. These may require to be retained during the construction phase:
  - Isolate both stands and delimit an exclusion zone with secure fencing and warning signs. The exclusion zones should comprise at least 4 m from each stand.
  - The condition and upkeep of exclusion areas, including fencing, will be checked and repaired, if necessary, during the construction phase and fencing will be removed upon completion of construction. N.B. Appropriate signage should be retained post-construction to warn recreational site users and (if relevant) maintenance staff of the presence of Japanese knotweed.
- All new topsoil and materials brought onto Site will be checked prior to accepting. There will be no stockpiling or storage of equipment, plant, or materials within 10 m of any stand of Japanese knotweed.
- If relevant, and unless otherwise agreed, no soil contaminated with invasive plant material will be removed from Site. Contaminated soil will not be used for any construction activities.

In addition to biosecurity, a programme of herbicide treatment should be implemented, both during construction and operation. Application of a glyphosate-based herbicide is recommended for the construction phase treatment of Japanese knotweed. Foliar application (spot spray) is recommended as it has a targeted effect. Spot spraying, given the size of the infestations, rather than a more generalised spraying technique, has been proposed to reduce the effects of application on the surrounding environment. Glyphosate-based herbicides are non-selective and therefore generalised spraying will compromise other vegetation in the locality, negatively impacting other grasses and forbs of benefit to wildlife and reducing biodiversity.

The most effective time to apply glyphosate is from August/September (but can be applied earlier and later). Both stands should be treated in August/September annually for the duration of construction, and under suitable weather conditions. Treatment of Japanese knotweed must be carried out by a suitably experienced Contractor who holds the appropriate qualifications. In addition, treatment should be supervised by the appointed ECoW or other suitably experienced ecologist, who can advise on reducing damage to non-target species, and advise target species for treatment actions.

6.7.3 Construction Phase Lighting

All faunal species, particularly nocturnal mammals such as bats and badgers, can be negatively affected by artificial lighting. The extent or requirement for artificial lighting during construction is currently unknown. Whilst there may be limited or no requirement for lighting based on the proposed working hours of 07:00-19:00, the following mitigation will be implemented on a precautionary basis, and for the avoidance of doubt, to safeguard faunal species from the negative effects of lighting during the construction phase of the Proposed Development. These measures have been determined with reference to Guidance Note GN08/23 Bats and Artificial Lighting at Night (ILP and BCT, 2023).

- Any artificial lighting that may be required for construction works will be directional to avoid or minimise light spill beyond immediate works areas.
- Light spill must be minimised on linear or habitat features (e.g. woodland, hedgerows, trees, boundary vegetation and watercourses) and should not be subject to light spill greater than one lux on such habitat features.
- Lighting must be minimised wherever possible in terms of number of lights and the power of the lights (lux level).
- All luminaires should lack UV elements when manufactured. Metal halide compact fluorescent sources should not be used.
- LED luminaires will be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability. LED lighting should comprise a warm white light source (2700K or lower), to reduce blue light component.
- Any bat roost boxes that may be erected as enhancement (see Section 6.7.4) will not be placed where they would be illuminated by new lighting.
- Directional lighting, facing away from surrounding vegetation should be used. Accessories such as baffles, hoods, or louvres can be used to further reduce light spill and direct light only where it is required. However, it must be noted that due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.
- Lighting will be turned off when not in use except to meet the minimum requirements for Health and Safety.

6.7.4 Bat Roost Boxes

To enhance the Site for roosting bats, artificial refugia are proposed. It is proposed that six bat roost boxes are mounted on mature trees (or incorporated into suitable buildings), within dark areas of that Site that will not be subject to light spill, for example, along the east or southern boundaries. Bat boxes should be positioned to face south, southeast, or southwest and at heights no less than 4m above ground level. Erection should be supervised by the ECoW or other appropriately experienced bat ecologist. Models suitable for pipistrelle species are recommended; specific models should be determined based on availability at the time of purchase.

6.7.5 Badger Setts

NRA (2005) guidance for badger setts advise that badger tunnels can extend over 20m from a sett entrance, and as such the following distances are relevant:

- No heavy machinery should be used within 30m of badger setts (unless carried out under licence).
- Lighter machinery (generally wheeled vehicles) should not be used within 20m of a sett entrance.
- Light work, such as digging by hand or scrub clearance should not take place within 10m of sett entrances.
- During the breeding season (December to June inclusive), none of the above works should be undertaken within 50m of active setts.

Setts B01, B02, and B05 are all within 15m of the Site boundary and could therefore be impacted during the works required to construct the GAA and soccer pitches and the new path along the Site boundary. Therefore, it is likely that there could be impacts to these three setts.

None of these setts had any specific evidence of badger use. It is considered likely that these setts will require closure (very likely to be temporary) whilst construction works are ongoing within 30m of the entrances. The requirements for how the setts are closed (including the requirements for derogation licensing) will depend on the results of preconstruction surveys (see Section 6.7.6), which will advise if recent occupation by badger is evident. All sett closure works will be carried out by the ECoW (or suitably experienced ecologist), which will include (where necessary) licence applications, and will follow NRA (2005) guidance.

6.7.6 Mammal Preconstruction Surveys

Even where the effects on protected species are predicted to be Not Significant, the refuges of protected species (including those which have potential to become present in the interim), and the animals themselves, are nevertheless subject to legal protection regardless of the importance of individual refuges or populations. Additionally, protected species may well have established new refuges and/or the distribution of the species within the Site and likely ZoI of the Proposed Development may have changed in the interim between the baseline surveys and construction commencing.

To comply with protected species legislation, policy and best practice, preconstruction protected species surveys will be carried out no more than three months before construction works (including vegetation clearance or creation of compounds) commence (or if relevant, within the appropriate preceding season), to avoid project delays in the event that derogation licensing and additional associated mitigation is required (should protected species refuges be found that would be subject to damage, disturbance or obstruction by the works).

The surveys would cover protected species known to occur in the vicinity of the Site, or for which there is a reasonable possibility of such species moving into this vicinity. This would comprise surveys for badger and checks for Irish hare, Irish stoat, pygmy shrew, and hedgehog. These surveys would follow standard guidance and would take place within the survey buffers as described in Appendix A6-1 Relevant Supporting Information. Survey results will be reported and submitted to SDCC, the appointed contractor, and any other relevant stakeholders.

All surveys will be carried out by a suitably experienced ecologist. This may be the appointed ECoW for the construction phase, if appropriate.

6.8 Monitoring

Several of the mitigation measures prescribed in Section 6.7 require monitoring post-development. Monitoring requirements are set out in the following Sections.

6.8.1 Alluvial Woodland and Lowland Meadow

To monitor the condition of retained and translocated Annex I habitats Alluvial Woodland and Lowland Meadow, and identify any requirement for remedial management, a programme of habitat monitoring will be implemented. It is recommended that habitat condition assessments, using detailed relevé (or plot)

surveys are carried out (as was carried out to inform the ecological baseline, see Section 0 and Appendix A6-2 Annex I Habitat Plot Results). Monitoring surveys should be carried out by an appropriately experienced ecologist, and should be carried out in Years 1, 3, 5, 10, and 20 post-development.

Although several of the plot locations surveyed for this Chapter would no longer be present during the monitoring phase (as they fall within the construction footprint), this survey method would allow a relatively direct comparison of condition against the baseline. The results of monitoring will be used to inform the ongoing management practices within the habitats.

In addition, monitoring for Alluvial Woodland is set out in the Woodland Management Plan.

6.8.2 Invasive Species Management

An ISMP (see also Section 6.7.2) for the Proposed Development will be prepared and implemented. The ISMP will include measures for ongoing management and monitoring of the Site and known stands of invasive species, particularly Japanese knotweed, to ensure appropriate management and that there are no legal contraventions for the duration of construction. During operation, the ISMP will include a monitoring and management regime which will be implemented to curtail the spread of, and possibly eradicate, invasive species within the Site.

6.8.3 Bat Roost Boxes

A programme of bat box monitoring, under appropriate licence, will be devised for the operational phase of the Proposed Development This will be carried out annually by a suitably experienced and licensed ecologist. Monitoring would be completed in the early spring, and if required, bat boxes will be cleaned of debris such as old bird nesting material. It will be the responsibility of SDCC to engage an ecologist to carry this out.

6.9 Residual Impacts

The assessment of likely significant effects was carried out with reference to the embedded and good practice mitigation measures. A range of specific mitigation (and enhancement) measures was then developed for habitats, invasive species, bats, and mammals. This included construction phase lighting, erection of bat roost boxes, and protection of badger setts.

For the purposes of this assessment, only effects deemed to be significant at a County level or higher (according to the CIEEM method for EcIA, refer to Section 6.3.5 and Appendix A6-1 Relevant Supporting Information for more detail) are considered Significant in the context of this EIA. The only effects that were assessed as potentially Significant in Section 6.6 were the loss of Annex I Alluvial Woodland and Lowland Meadow.

On this basis, and accounting for the specific mitigation and enhancement measures detailed in Section 6.7, no significant effects (in the context of EIA) were determined. The residual effects where specific mitigation measures are considered comprise the following:

- The loss of 0.31ha of Alluvial Woodland is considered a **Permanent Adverse effect** of **Local** significance. This comprises a very small proportion of the overall Alluvial Woodland resource in the immediate area (c. 12ha) and comprises a narrow strip adjacent to houses. The loss of this strip does not affect the wider woodland area. Whilst the loss of 0.31ha would comprise c. 1.5% of the county's known resource, the known resource does not include the c. 12ha of Alluvial Woodland adjacent to the Site, and therefore the loss of this 0.31ha comprises <1% of the county resource. Based on these reasons, its loss can therefore be considered of Local significance (despite being valued on a precautionary basis in the earlier assessment as County Level importance – its importance remains at County level but the loss is only valued as being locally significant). Whilst not directly compensating like-for-like, numerous trees are proposed for the Site.
- The loss of 0.81ha of Lowland Meadow is considered a **Permanent Adverse effect** of **Local** significance. The specific mitigation includes translocation of sods removed from area for the new pipeline construction will ensure no permanent loss in this area, whilst the potential for further translocation into the new meadow planting, could contribute to reducing the overall loss of this Annex I habitat, in particular, the. In addition, specific mitigation for meadow areas (comprising planting and management to encourage native, species-rich swards) will also help to compensate for the loss of

Lowland Meadow. Finally, the loss of Annex I Lowland Meadow is primarily from parcel G2, which was assessed as in Unfavourable condition (though this assessment was marginal). Therefore, the loss of Lowland Meadow can therefore be considered of Local significance.

- Damage effects to retained Annex I habitats Alluvial Woodland and Lowland Meadow are assessed as a **Temporary Negligible effect**, considering specific mitigation measures to ensure their protection during both construction and operation.
- The loss of other habitats (tall-herb swamp, calcareous springs, hedgerow, wet grassland, dry meadows, and scrub) will be partially compensated by a range of landscape planting. Specific mitigation proposes use of native, locally sourced species in all landscaped areas. The loss of these habitats is considered a **Permanent Adverse effect** of **Local** significance.
- An ISMP will be prepared, and invasive species will be managed appropriately during both construction and operation to ensure prevention of spread, with an aim to eradicate Japanese knotweed. The treatment of invasive species will result in a **Permanent Beneficial effect** of **Local** significance.
- The temporary closure of three badger setts to facilitate construction of the sports pitches and path will be a **Temporary Negligible effect**. No setts showed evidence of recent badger occupation, and other setts are present in the vicinity, therefore ensuring badgers have alternative shelter.
- The landscape planting and areas of meadow may compensate for loss of suitable habitat for bats, mammals, birds, and terrestrial invertebrates to a degree, whilst ample habitat will still be present in the wider area. Furthermore, there are sufficient green corridors within and beyond the Site to facilitate movement of species through the landscape both during construction and operation of the Proposed Development. The loss of suitable habitat for bats, mammals, birds, and terrestrial invertebrates is considered a **Permanent Negligible effect**.
- When specific mitigation in relation to protection of badger setts B01, B02 and B05 is implemented, the potential effects to badger setts will be a **Temporary Negligible effect**.
- Considering the measures for construction phase lighting, the potential for disturbance or displacement of bats, other mammals, birds, and any other species due to construction phase lighting is considered a **Temporary Negligible effect**.

In summary, the residual effects for all important ecological features scoped into the assessment are all either Negligible or significant at Local level only (i.e. not significant in the context of EIA).

6.10 Cumulative Impacts

Cumulative (or in-combination) effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location (CIEEM, 2018). A list of projects for which cumulative assessment may be necessary is identified in Appendix A1-3 Planning Search.

A number of planning applications within the last five years and 2km of the Site were interrogated to identify the potential for cumulative effects, including applications for residential developments, small-scale individual dwelling works, and primary school developments.

The identified developments were reviewed to determine whether they could act cumulatively with the Proposed Development and result in significant effects on ecological features, including through habitat loss, lighting and disturbance to species. Many of the applications are for small-scale works, such as individual dwellings or extension works; such developments are unlikely to act cumulatively with the Proposed Development due to their small size and nature.

Notably, a granted application for a new primary school (SDCC reference SD23A/0336 and ACP reference 321696) is located within the existing Site boundary, due to reasons related to the proposed access road linking the Site to Mullally's Lane. The application was subject to its own ecological assessment (including an AA Screening report), which identified no significant effects to any ecological feature.

It is considered that cumulative effects with other existing and proposed developments in proximity to the Site would be minor adverse or Negligible, and therefore not significant in the context of the EIA. Due to legal implications and planning policy, it is likely that all identified planning applications will be subject to ecological survey, and appropriate mitigation measures are likely to be required prior to approval of planning permission. Therefore, it is considered that the ecological effects that may arise due to cumulative impacts will not cause any changes to the significance values assessed under the assessment of residual effects.

With the exception of habitat loss, the residual effects of the Proposed Development have been assessed as Negligible. Following the consideration of all these projects in the surrounding environment, it has been determined that none will act in-combination with the current project to cause significantly adverse cumulative impacts. The likelihood of significant effects on biodiversity is considered significant at Local geographic scale at worst.

6.11 'Do Nothing' Scenario

Land use is unlikely to change within the Site. There may be minor changes to the existing habitat, for example, changes to the low intensity amenity management. However, these are unlikely to significantly alter to existing baseline identified. With the exception of potential management changes of the Annex I Lowland Meadow (which is considered unlikely to occur), any such changes are likely to be of negligible ecological consequence. Woodland and scrub would continue to mature, and in general, the ecological value of the Site, and its potential to support important and common faunal species would be maintained. There is potential for further spread of invasive species within the Site, particularly Japanese knotweed, which would have a negative effect on habitats.

Current threats to mobile fauna species at the Site would continue, and/or be exacerbated by future developments, including those identified in Section 6.10. Examples of existing and/or future threats to ecological receptors occurring in the absence of the Proposed Development may include mortality of breeding birds from management activities during the bird breeding season or disturbance to species from increases in recreational pressures.

In addition, climate change presents the potential for threats to biodiversity in a do-nothing scenario. In the absence of the Proposed Development, climate change impacts include increased summer temperatures, changes in rainfall generally, but with more extreme heavy downpours of rainfall, warmer, wetter winters, and more extreme weather events such as storms, and an increase in sea levels. Such impacts could lead to disruptions to ecosystems within the Site and wider area, for example, flooding of watercourses which could cause damage to adjacent habitats, loss or damage of trees due to storm events, and impacts to presence of some plant and animal species. Such impacts could result in reductions in species populations, changes in species ranges, or changes in species phenology (such as changes in plant flowering, insect emergence, animal breeding) which could subsequently lead to mortality or diminished populations, and potentially local extinctions. Information pertaining to climate change is presented in Chapter 10 Climate.

6.12 Summary

Desk studies and extensive baseline and update surveys within the Site and Survey Area (including those carried out by third-parties) identified a range of habitats (including two Annex I habitats), Japanese knotweed and several non-Scheduled species of Medium and High Impact, and populations of protected and important species. Annex I habitats Alluvial Woodland and Lowland Meadow were valued at County importance, whilst all other habitats and species were valued at Local importance.

These habitats and species were considered and assessed according to their relative importance. The Proposed Development could have adverse effects on a number of important ecological features. The significance of effects was derived by addressing the ecological valuation of the receiving ecological features and the impact of construction and operation of the Proposed Development within the Site and wider ZoI. This was carried out considering the embedded mitigation and also standard good practice measures.

Loss of several habitat types is required to facilitate the Proposed Development, whilst there is potential for habitat damage and degradation to occur, for example from deposition of dust, root compaction, pollution, and spread of invasive species. Notably, loss of parts of two Annex I habitats is required (91E0 Alluvial Woodland and 6510 Lowland Meadow). Faunal species may suffer a range of impacts, from mortality, loss of or damage to breeding and resting sites, habitat loss, and disturbance from noise, lighting, and visual impacts. Notably, whilst there will be habitat loss within the Site, abundant habitat in the Survey Area and wider area will ensure connectivity is retained for faunal species (i.e. green infrastructure will be present).

Specific mitigation measures were proposed for ecological features to reduce and, in some cases, eliminate the impacts and effects of the Proposed Development on biodiversity. Mitigation measures comprise habitat compensation (including using translocated sods from lost areas of Lowland Meadow, and inclusion of

native, locally sourced species), management of invasive species, careful planning of construction phase lighting (if required), protection of badger setts, and mammal preconstruction surveys.

After the implementation of specific mitigation measures, the assessment of residual effects for all important ecological features scoped into the assessment are all either Negligible or significant at Local level only (i.e. not significant in the context of EIA). Monitoring for the Proposed Development comprises habitat condition assessment of retained Annex I habitats, ongoing monitoring of invasive species, and checking of artificial bat roost boxes.

Based on a number of planning applications, there may be potential for some cumulative effects, however, potential for significant cumulative effects to biodiversity has not been identified in relation to the Proposed Development.

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