6.0 Biodiversity

6.1 Introduction

The Aim of the Report

This biodiversity chapter is an Ecological Impact Assessment (EcoIA) which addresses the potential ecological impacts that may occur in the future on the terrestrial and aquatic ecology of a site at Woodtown, Ballycullen, Co. Dublin and its surrounding environs should this proposed development be allowed to proceed.

This EcIA was prepared in accordance with the CIEEM 2018 guidance on EcIA (CIEEM, V. 1.2, updated April 2022), whilst also having regards to the CIEEM EcIA Checklist (2019).

It follows a standard approach based upon the description of the existing baseline conditions within the application site. An evaluation of the likely habitats and species currently present within the application site is also given, along with the identification of the potential ecological impacts arising from the construction and operation of the proposed development. An assessment of the likely significance of the identified impacts on valued ecological receptors (VERs), both within and close to the application site is also made. Where a significant negative impact has been identified, then suitable remedial mitigation measures are provided in order to prevent, reduce or offset the impact.

Legislative and Policy Context

Legislative Context

The Irish Wildlife Act 1976 (and its amendment of 2000) provides protection to most wild birds and animals. Interference with such species can only occur under licence. Under the act it is an offence to "wilfully interfere with or destroy the breeding place or resting place of any protected wild animal". The basic designation for wildlife is the Natural Heritage Area (NHA). This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. Under the Wildlife Amendment Act (2000) NHAs are legally protected from damage. NHAs are not part of the Natura 2000 network and so the Appropriate Assessment process does not apply to them.

The Flora Protection Order 1999 provides statutory protection in Ireland to a number of rare plant species from being wilfully cut, picked, uprooted or damaged. It is also illegal under this order to alter, damage or interfere with their habitats.

The Birds Directive (Council Directive2009/147/EC) recognises that certain species of birds should be subject to special conservation measures concerning their habitats. The Directive requires that Member States take measures to classify the most suitable areas as Special Protection Areas (SPAs) for the conversation of bird species listed in Annex 1 of the Directive. SPAs are selected for bird species (listed in Annex I of the Birds Directive), that are regularly occurring populations of migratory bird species and the SPA areas are of international importance for these migratory birds.

The EU Habitats Directive (92/43/EEC) requires that Member States designate and ensure that particular protection is given to sites (Special Areas of Conservation) which are made up of or support particular habitats and species listed in annexes to this Directive.

The Water Framework Directive (WFD) (2000/60/EC), which came into force in December 2000, establishes a framework for community action in the field of water policy. The overall sim of the WFD is the eventual achievement of good status in all waterbodies. The WFD was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003). The WFD rationalises and updates existing legislation and provides for water management on the basis of River Basin Districts (RBDs). RBDs are essentially administrative areas for coordinated water management and are comprised of multiple river basins (or catchments), with cross-border basins (i.e. those covering the territory of more than one Member State) assigned to an international RBD. The aim of the WFD is to ensure that waters achieve at least good status by 2027 and that status doesn't deteriorate in any waters.

Planning Policies

National

Nationally, the Government's commitment to sustainable development is set out in a number of documents including the National Planning Framework and the National Development Plan 2018 – 2027.

Regional

Planning at the regional level is now guided by the Regional Spatial and Economic Strategy (RSES). The RSES is a strategic plan which identifies regional assets, opportunities and pressures and provides appropriate policy responses in the form of Regional Policy Objectives.

Local

Planning policy at the local level is provided by the South Dublin County Council Development Plan 2022 –2028. This plan contains a number of objectives and policies relevant to ecology, biodiversity, green infrastructure and nature conservation. Some of these relevant measures are outlined in Table 6.1.

Reference	Objective / Policy
NCBH2 - Policy	Protect, conserve, and enhance the County's biodiversity and ecological connectivity having regard to national and EU legislation and Strategies.
NCBH2 Objective 1:	To support the implementation of the National Biodiversity Action Plan (2017- 2021) and the All-Ireland Pollinator Plan (2021-2025) and to support the adoption and implementation of the South Dublin County Biodiversity Action Plan (2020-2026) and Pollinator Action Plan (2021-2025) and any superseding plans.
NCBH2 Objective 2	To ensure the protection of designated sites in compliance with relevant EU Directives and applicable national legislation.
NCBH2 Objective 3	To protect and conserve the natural heritage of the County, and to conserve and manage EU and nationally designated sites and non-designated locally important areas which act as 'stepping stones' for the purposes of green infrastructure and Article 10 of the Habitats Directive
NCBH2 Objective 4:	To protect our rivers and in particular to avoid overdevelopment which could have an adverse effect on the biodiversity and ecosystems of the river.
Policy NCBH3	Conserve and protect Natura 2000 sites and achieve and maintain favourable conservation status for habitats and species that are considered to be at risk through the protection of the Natura 2000 network from any plans or projects that are likely to have a significant effect on their coherence or integrity.
Policy NCBH4	Protect the ecological, visual, recreational, environmental and amenity value of the County's proposed Natural Heritage Areas and associated habitats and species.
Policy NCBH5	Protect and promote the conservation of biodiversity outside of designated areas and ensure that species and habitats that are protected under the Wildlife Acts 1976 to 2018, the Birds Directive 1979 and the Habitats Directive 1992, the Flora (Protection) Order 2015, and wildlife corridors are adequately protected.
Policy GI1	Protect, enhance and further develop a multifunctional GI network, using an ecosystem services approach, protecting, enhancing and further developing the identified interconnected network of parks, open spaces, natural features, protected areas, and rivers and streams

	that provide a shared space for amenity and recreation, biodiversity protection, water quality, flood management and adaptation to climate change.
Policy GI2	Strengthen the existing Green Infrastructure (GI) network and ensure all new developments contribute towards GI, in order to protect and enhance biodiversity across the County as part of South Dublin County Council's commitment to the National Biodiversity Action Plan 2021-2025 and the South Dublin County Council Biodiversity Action Plan, 2020-2026, the National Planning Framework (NPF) and the Eastern and Midlands Region Spatial and Economic Strategy (RSES).
Policy GI3	Protect and enhance the natural, historical, amenity and biodiversity value of the County's watercourses. Require the long-term management and protection of these watercourses as significant elements of the County's and Region's Green Infrastructure Network and liaise with relevant Prescribed Bodies where appropriate. Accommodate flood waters as far as possible during extreme flooding events and enhance biodiversity and amenity through the designation of riparian corridors and the application of appropriate restrictions to development within these corridors.
Policy GI4	Require the provision of Sustainable Drainage Systems (SuDS) in the County and maximise the amenity and biodiversity value of these systems.
Policy GI7	Protect, conserve and enhance landscape, natural, cultural and built heritage features, and support the objectives and actions of the County Heritage Plan.

TABLE 6.1 – LOCAL POLICIES RELEVANT TO ECOLOGY AND NATURE CONSERVATION

Heritage and Biodiversity Plans

Ireland's National Biodiversity Plan identifies actions that need to be taken in order to understand and protect biodiversity in Ireland. It states that biodiversity and ecosystems in Ireland should be conserved and restored, to deliver benefits that are essential to all sectors of society and that Ireland should contribute to the efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally.

The South Dublin County Council Heritage Plan 2010-2015 and the Biodiversity Plan for South County Dublin (draft) 2022-2026 also identify a number of objectives and policies in order to protect the natural heritage and biodiversity of the South County Dublin area.

6.2 Methodology

Statement of Competency

The site survey and report was carried out by Noreen McLoughlin. Noreen is the owner and main ecologist at Whitehill Environmental. Noreen holds a BA (Hons) in Natural Science (Mod) Zoology and an MSc in freshwater ecology (TCD, Dublin). She has been a full member of the CIEEM (Chartered Institute of Ecology and Environmental Management) for over 19 years. Noreen has over 21 years' experience as a professional ecologist in Ireland. Noreen has recently completed an Advanced Diploma in Environmental and Planning Law from the King's Inns, Dublin (2024).

Study Area

The study area encompasses all the land within the area defined in the plan submitted for planning consent, i.e., the proposed application site. In addition, important ecological habitats and receptors within the zone of influence of the proposed development were also studied.

Desk Based Studies

The desk study involved the examination of aerial photographs, current and historical maps and plans and drawings of the site. In addition, information was collated on designated nature sites within a 10-15 km radius of the proposed site and on protected and rare species within the 1km square of the site.

The following websites were used to access information and data:

- National Parks and Wildlife Service – www.npws.ie
- National Biodiversity Data Centre – www.biodiversitycentre.ie
- Ordinance Survey Ireland – www.osi.ie
- Google Maps & Street View – maps.google.ie
- Bing Maps – www.bingmaps.com
- My Plan – www.myplan.ie
- Environmental Protection Ireland – www.epa.ie
- South Dublin County Council – www.sdcc.ie

Field Based Studies

Habitats

The application site at Ballycullen has been visited by Whitehill Environmental on three occasions as part of three separate planning application processes.

An initial visit to the site of the proposed application at Ballycullen was undertaken on October 26th 2017 when field notes, species lists and photographs were taken. Subsequent visits to the site were undertaken in May 2021 and October 2024 to update this work and to ascertain if any changes in the habitats on the site had arisen in the intervening time. The site was surveyed in accordance with the Heritage Council's *Habitat Survey Guidelines* (Smith et al., 2010) and the Institute of Environmental Assessment's *Guidelines for Baselines Ecological Assessment* (IEA, 1995). Habitats within the application site were classified in accordance with Level 3 of *A Guide to Habitats in Ireland* (Fossit, 2000). These habitats are denoted in the text along with their habitat code, e.g., the habitat code for improved agricultural grassland is GA1. A species list was compiled and target notes were made. Mammal and bird activity was also noted. The species nomenclature for vascular plants conforms with *The New Flora of the British Isles'* (Stace, 2010).

Bats

An initial bat survey of the site was also carried out by Brian Keely of Wildlife Surveys Ireland in October 2017. Updated surveys were carried out in September 2020 and October 2024. The methodology described here pertains to the survey undertaken in October 2024, as that is the most recent and up to date survey.

Trees were examined for evidence of bat usage and for their potential as bat roosts in August (26th and 27th) and in November (12th) 2024. The trees were considered in terms of the following categories:

Description 1 Trees - With multiple, highly suitable features (Potential Roosting Features = PRFs) capable of supporting larger roosts;

Description 2 Trees - With definite bat potential but supporting features (PRFs) suitable for use by individual bats;

Description 3 Trees - Have no obvious potential although the tree is of a size and age that elevated surveys may result in cracks or crevices being found or the tree supports some features (PRFs) which may have limited potential to support bats.

Bat Activity Survey - Equipment

- Exide Lamps, Head torch
- Two Song Meter Mini Bat remote detectors with Kaleidoscope Pro sound analysis
- One thermal imager
- Two handheld Echometer Touch 2 Pro bat detectors

In 2024, the survey was undertaken by 2 surveyors on 26th August 2024 up to sunrise of 27th August 2024. Each surveyor monitored trees to each side of the woodland band both prior to and after sunset for over 1.5 hours and prior to sunrise for 1.5 hours. The bat activity survey results were combined with visual observations of the trees and the desktop survey that included data from surveys in 2017 and 2020 on the same site.

Badgers

The survey for the presence of badgers and other ground mammals within the site was undertaken on November 12th 2024. The area in question was checked for the presence of badgers within the site and the entire area of scrub and tree cover and the open field were checked for any fresh signs of badgers. Each tree base, area of scrub and the field area were examined in sequence working in an approximately counter-clockwise direction from the entrance. Typical signs sought in this assessment were badger setts, badger paw prints and tracks, scratch marks on walls or concrete, badger latrines and dung pits, badger snuffle holes and digging and badger hairs.

Field Work Constraints

There were no survey constraints associated with the assessment of vegetation or habitats within the application site. All surveys were carried out at an optimal time.

For bats, the ongoing storm for the dawn survey likely reduced the number of bats feeding and commuting around this site.

6.3 Assessment Methodology

Evaluation of Ecological Features

The methodologies used to determine the value of ecological resources, to characterise the impacts of the proposed scheme, and to assess the significance of impacts and any residual effects are described below. This approach is in accordance with the following guidelines and methodologies:

- *Guidelines for Ecological Impact Assessment in the UK and Ireland* by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018, updated 2022)
- *Guidelines on The Information To Be Contained In Environmental Impact* (EPA, 2002)
- *Draft Guidelines on Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA 2017)
- *Guidelines for Assessment of Ecological Impacts of National Road Schemes.* (NRA, 2009).

CIEEM suggest that to ensure a consistency of approach, ecological features are valued in accordance with their geographical frame of reference, as defined below:

- International
- National (Ireland)
- Regional (East)
- County (South Dublin)
- District (Ballycullen)
- Local/Townland (Woodtown)

The above categories are then applied to the ecological features identified. Ecological features can be defined as:

- Designated sites (i.e., SACs, SPAs, NHAs, pNHAs, National Nature Reserves) or non-statutory locally designated sites and features.
- Non-designated sites and habitats and features of recognised biodiversity value, such as rivers and streams. The features being evaluated can be considered in the context of the site and locality and thus a more accurate assessment of the impacts in the locality can be made.

Assessment of Impacts

The assessment of potential ecological impacts has been carried out using guidelines published by the EPA and the CIEEM. They can be summarised as:

- The identification of the range of potential impacts which can reasonably be expected to occur should the proposed developments receive planning consent;

- The consideration of the systems and processes in place to avoid, reduce and mitigate the possible effects of these impacts;

- The identification of opportunities for ecological enhancement within the site.

Impacts are defined as being positive, negative or neutral. A significant impact is defined as an impact upon the integrity of a defined ecosystem and/or the conservation status of a habitat or species within a given area. Where a potential negative impact has been identified, mitigation measures have been formulated using best practices techniques and guidance to prevent, reduce or offset the impact.

6.4 Receiving Environment

This section provides an overview of the existing ecological conditions within the site and the surrounding environment.

Site Location & General Description

The site in question is approximately 10.35 hectares acres in area. It is located in Ballycullen, approximately 1.2km south of Knocklyon and 1.6km south-east of Firhouse. Access to the site will be via Stocking Avenue and Abbott Grove to the north of the site. Site location maps can be seen in Figures 6.1 and 6.2. The site is zoned as a residential area by South Dublin County Council (Zoning: Res-N), i.e., to provide for new residential communities in accordance with approved area plans.

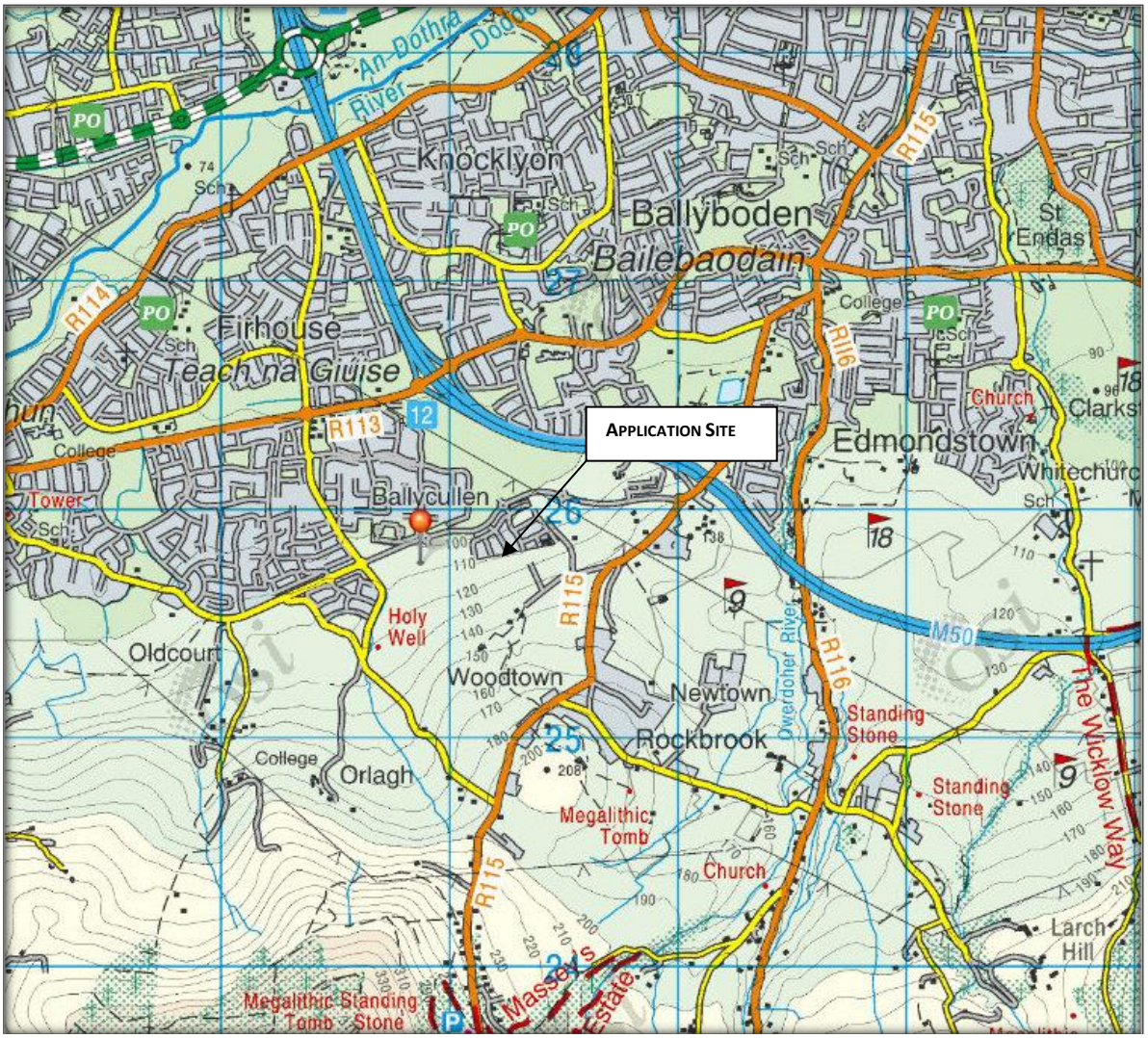

FIGURE 6.1 – SITE LOCATION MAP

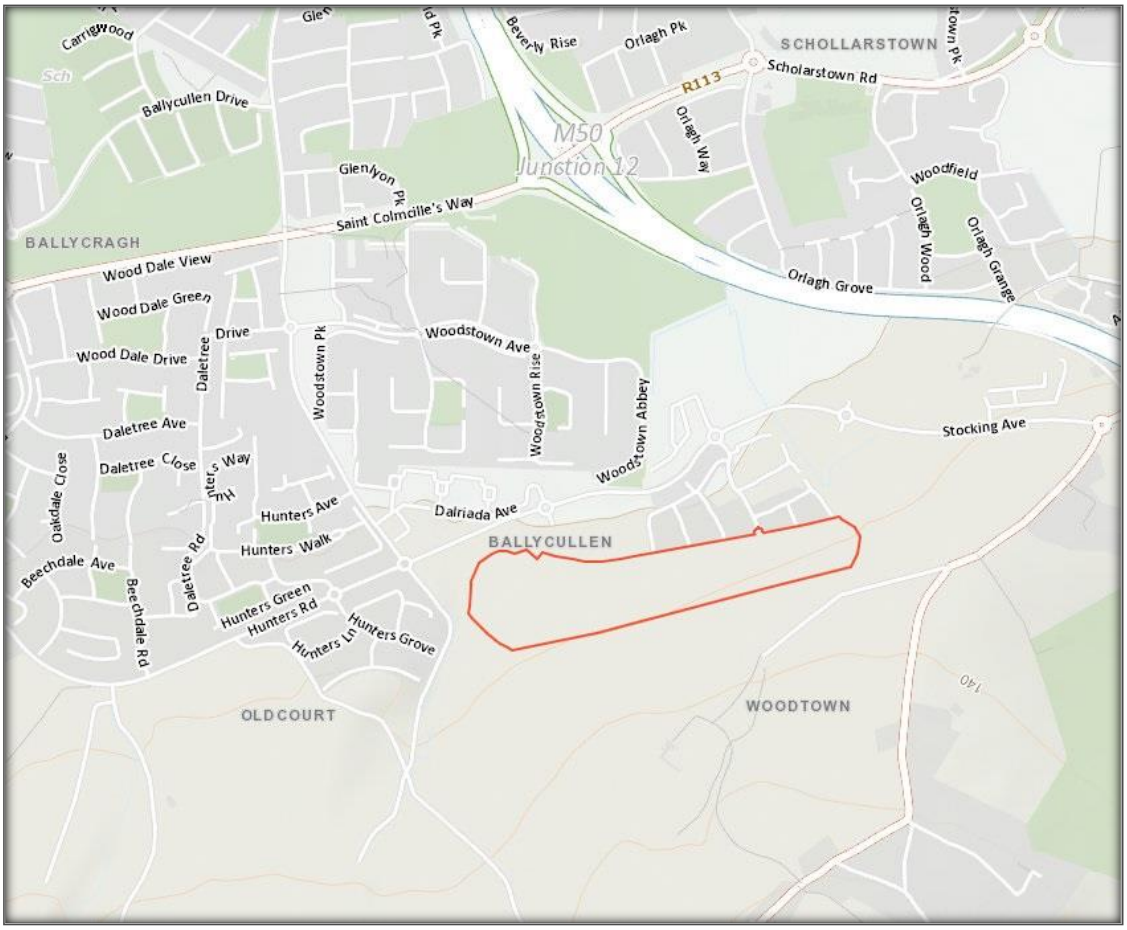

FIGURE 6.2 – SITE LOCATION MAP. APPLICATION SITE IS OUTLINED IN RED

Habitats and Land-Use Surrounding the Site

The main land uses surrounding the site include the residential and amenity areas to the north, west and east of the site, whilst agriculture is the main land use to the south of the site. The habitats associated with these areas include buildings and artificial surfaces, amenity grasslands and gardens and improved agricultural grasslands. An overview of the local habitats surrounding the application site can be seen in the aerial photograph in Figure 6.3.

FIGURE 6.3 – AERIAL PHOTOGRAPH SHOWING HABITATS SURROUNDING THE APPLICATION SITE © GOOGLE

Designated Sites

Natura 2000 Sites

The proposed application site is not within or immediately adjacent to any site that has been designated as a Special Area of Conservation (SAC) or a Special Protection Area (SPA) under the EU Habitats or EU Birds Directive.

There are thirteen Natura 2000 sites within 15km of this proposed development. These sites are summarised in Table 5.2. The location of the application site in relation to these designated areas is shown in Figure 6.4 and a full synopsis of these sites can be read online on the website of the National Parks and Wildlife Service (www.npws.ie).

Site Name/Code	Distance	Qualifying Interests	Connectivity
Glenasmole Valley SAC 001209	3km south-west	• Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) • Petrifying springs with tufa formation (Cratoneurion)	*This SAC is in the upper reaches of the Dodder sub-catchment. It is not hydrologically connected to the application site, therefore significant effects upon this site can be ruled out.*
Wicklow Mountains SAC 002122	3.9km south-east	• Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) • Natural dystrophic lakes and ponds • Northern Atlantic wet heaths with *Erica tetralix* • European dry heaths • Alpine and Boreal heaths • Calaminarian grasslands of the Violetalia calaminariae • Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) • Blanket bogs (* if active bog) • Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani	*There is no hydrological connectivity between the application site and this SAC, therefore significant effects upon this site can be ruled out.*

		• Calcareous rocky slopes with chasmophytic vegetation • Siliceous rocky slopes with chasmophytic vegetation • Old sessile oak woods with Ilex and Blechnum in the British Isles • *Lutra lutra* (Otter)	
Wicklow Mountains SPA 004040	4.1km south	• Merlin (*Falco columbarius*) • Peregrine (*Falco peregrinus*)	*There is no hydrological connectivity between the application site and this SPA, therefore significant effects upon this site can be ruled out.*
South Dublin Bay SAC 000210	8.9km north-east Circa 16km downstream	• Mudflats and sandflats not covered by seawater at low tide • Annual vegetation of drift lines • Salicornia and other annuals colonising mud and sand • Embryonic shifting dunes	*The application site is adjacent to a stream which is a tributary of the River Dodder, which eventually flows into Dublin Bay. This SAC is approximately 16km downstream of the of the application site. Significant effects arising from run-off into this stream during construction and operation are uncertain and will be considered further*
Knocksink Wood SAC 000725	9.3km south-east	• Petrifying springs with tufa formation (Cratoneurion) • Old sessile oak woods with Ilex and Blechnum in the British Isles • Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	*There is no hydrological connectivity between the application site and this SAC, therefore significant effects upon this site can be ruled out.*

South Dublin Bay and River Tolka Estuary SPA 004024	10km north-east Circa 16km downstream	• Light-bellied Brent Goose (*Branta bernicla hrota)* • Oystercatcher (*Haematopus ostralegus*) • Ringed Plover (*Charadrius hiaticula*) • Grey Plover (*Pluvialis squatarola)* • Knot *(Calidris canutus)* • Sanderling *(Calidris alba)* • Dunlin *(Calidris alpina)* • Bar-tailed Godwit *(Limosa lapponica)* • Redshank *(Tringa totanus)* • Black-headed Gull *(Chroicocephalus ridibundus)* • Roseate Tern *(Sterna dougallii)* • Common Tern *(Sterna hirundo)* • Arctic Tern *(Sterna paradisaea)* • Wetland and Waterbirds	*The application site is adjacent to a stream which is a tributary of the River Dodder, which eventually flows into Dublin Bay. This SPA is approximately 16km downstream of the of the application site. Significant effects arising from run-off into this stream during construction and operation are uncertain and will be considered further*
Ballyman Glen SAC 000713	12.3km south	• Petrifying springs with tufa formation • Alkaline fens	*There is no hydrological connectivity between the application site and this SAC, therefore significant effects upon this site can be ruled out.*
North Dublin Bay SAC 000206	13.6km north-east Circa 16km downstream	• Mudflats and sandflats not covered by seawater at low tide	*The application site is adjacent to a stream which is a tributary of the River Dodder, which eventually flows*

		• Annual vegetation of drift lines • Salicornia and other annuals colonising mud and sand • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Mediterranean salt meadows (*Juncetalia maritimi*) • Embryonic shifting dunes • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) • Fixed coastal dunes with herbaceous vegetation (grey dunes) • Humid dune slacks • *Petalophyllum ralfsii* (Petalwort)	*into Dublin Bay. This SAC is approximately 16km downstream of the of the application site. Significant effects arising from run-off into this stream during construction and operation are uncertain and will be considered further*
North Bull Island SPA 004006	13.6km north-east Circa 16km downstream	• Light-bellied Brent Goose (*Branta bernicla hrota)* • Shelduck (*Tadorna tadorna*) • Teal (*Anas crecca*) • Pintail (*Anas acuta*) • Shoveler (*Anas clypeata*) • Oystercatcher (*Haematopus ostralegus)* • Golden Plover (*Pluvialis apricaria*) • Grey Plover (*Pluvialis squatarola*) • Knot (*Calidris canutus*)	*The application site is adjacent to a stream which is a tributary of the River Dodder, which eventually flows into Dublin Bay. This SPA is approximately 16km downstream of the of the application site. Significant effects arising from run-off into this stream during construction and operation are uncertain and will be considered further*

		• Sanderling (*Calidris alba*) • Dunlin (*Calidris alpina*) • Black-tailed Godwit (*Limosa limosa)* • Bar-tailed Godwit (*Limosa lapponica)* • Curlew (*Numenius arquata*) • Redshank (*Tringa totanus*) • Turnstone (*Arenaria interpres*) • Black-headed Gull (*Chroicocephalus ridibundus*) • Wetland and Waterbirds	
North-West Irish Sea SPA 004236	13.8km north-east Circa 16km downstream	• Common Scoter (Melanitta nigra) • Red-throated Diver (*Gavia stellata)* • Great Northern Diver (*Gavia immer)* • Fulmar (*Fulmarus glacialis*) • Manx Shearwater (*Puffinus puffinus)* • Shag (*Phalacrocorax aristotelis*) • Cormorant (*Phalacrocorax carbo*) • Little Gull (*Larus minutus*) • Kittiwake (*Rissa tridactyla*) • Black-headed Gull (*Chroicocephalus ridibundus*) • Common Gull (*Larus canus*) • Lesser Black-backed Gull (*Larus fuscus*)	*The application site is adjacent to a stream which is a tributary of the River Dodder, which eventually flows into Dublin Bay. This SPA is approximately 16km downstream of the of the application site. Significant effects arising from run-off into this stream during construction and operation are uncertain and will be considered further*

		• Herring Gull (*Larus argentatus*) • Great Black-backed Gull (*Larus marinus)* • Little Tern (*Sterna albifrons*) • Roseate Tern (*Sterna dougallii*) • Common Tern (*Sterna hirundo*) • Arctic Tern (*Sterna paradisaea*) • Puffin (*Fratercula arctica*) • Razorbill (*Alca torda*) • Guillemot (*Uria aalge*)	
Poulaphouca Reservoir SPA 004063	14.7km south-west	• Greylag goose *Anser anser* • Lesser black-backed gull *Larus fuscus*	*There is no hydrological connectivity between the application site and this SPA, therefore significant effects upon this site can be ruled out.*
Dalkey Island SPA 004172	14.6km east	• Roseate Tern (*Sterna dougallii)* • Common Tern *(Sterna hirundo)* • Arctic Tern *(Sterna paradisaea)*	*No direct hydrological connectivity, therefore potential significant effects can be ruled out.*
Rockabill to Dalkey Island * SAC 003000	14.9km east	• Reefs • Phocoena phocoena *(Harbour Porpoise)*	*No direct hydrological connectivity, therefore potential significant effects can be ruled out.*

TABLE 6.2 – NATURA 2000 WITHIN 15KM OF THE APPLICATION SITE

The generic conservation objectives of the SACs are:

To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.

The generic conservation objectives of the SPAs are:

To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

The favourable conservation status of a habitat is achieved when:

- Its natural range and area it covers within that range is stable or increasing and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future;
- The conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- The population dynamics data on the species concerned indicate that it is maintaining itself on a long -term basis as a viable component of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future;
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

An Appropriate Assessment as required under Article 6(3) of the EU Habitats Directive has been prepared in relation to this proposed application in Ballycullen. It was determined that due to hydrological connectivity, that potential impacts upon European sites could not be ruled out with certainty. Therefore, a Stage 2 Appropriate Assessment (Natura Impact Statement) for this proposed development site has been carried out.

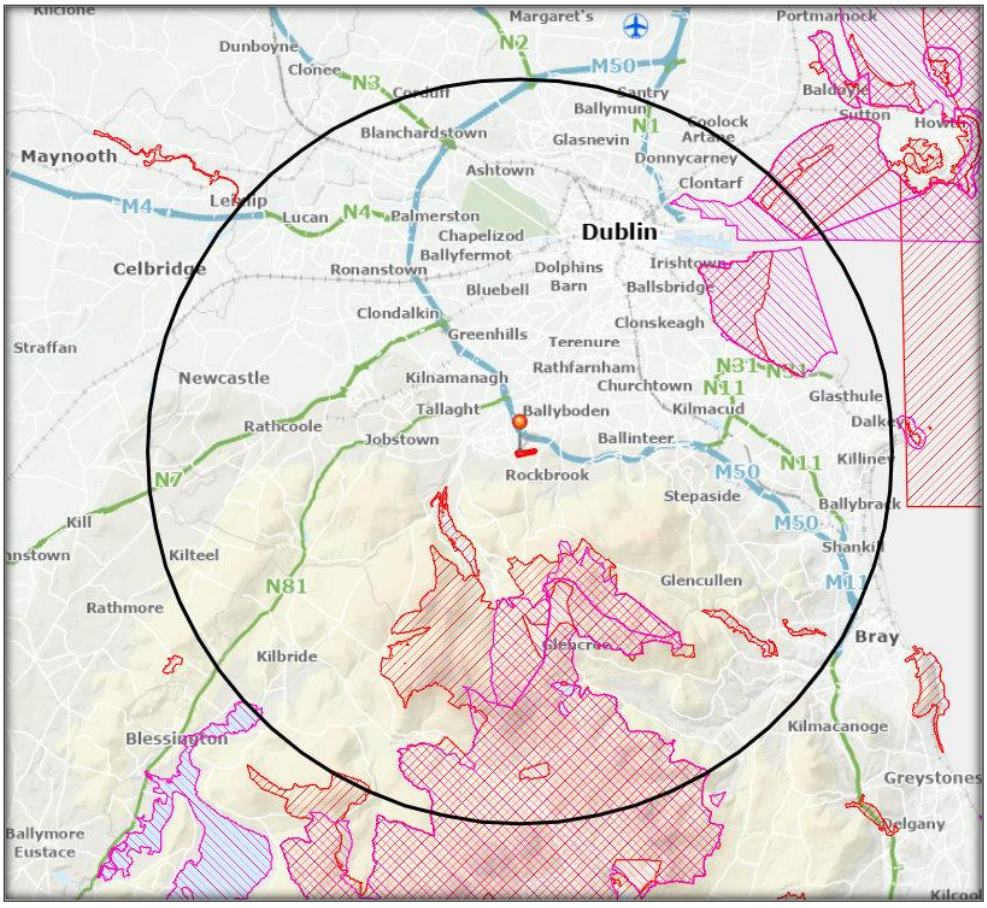

FIGURE 6.4 – DESIGNATED SITES WITHIN 15KM OF THE APPLICATION SITE (PINNED). SACS – RED HATCHING, SPAS – PINK HATCHING.

Nationally Important Sites

The application site is not within or immediately adjacent to any nationally designated site, such as a Natural Heritage Area or a proposed Natural Heritage Area. It is within 10km of twelve sites that have been designated as proposed Natural Heritage Areas. These are summarised in Table 6.3 and a map showing their location relative to the application site is shown in Figure 6.5.

Site Name	**Distance from Proposed Development**
Dodder Valley pNHA 000991	1.8km north-west
Glenasmole Valley pNHA 001209	3km south-west
Lugmore Glen pNHA 001212	5.2km east
Fitzsimons Woods 001753	5.2km east
Grand Canal pNHA 002104	7.1km north

Slade of Saggart and Crooksling Glen pNHA 000211	7.9km east
Ballybetagh Bog pNHA 001202	8.8km south-east
South Dublin Bay pNHA 000210	8.9km north-east
Liffey Valley pNHA 000128	9.4km north
Dingle Glen pNHA 001207	9.4km south-east
Knocksink Woods pNHA 000725	9.5km south-east
Glencree Valley pNHA 001755	9.7km south

TABLE 5.3 – NATIONALLY IMPORTANT SITES WITHIN 10KM OF THE PROPOSED DEVELOPMENT

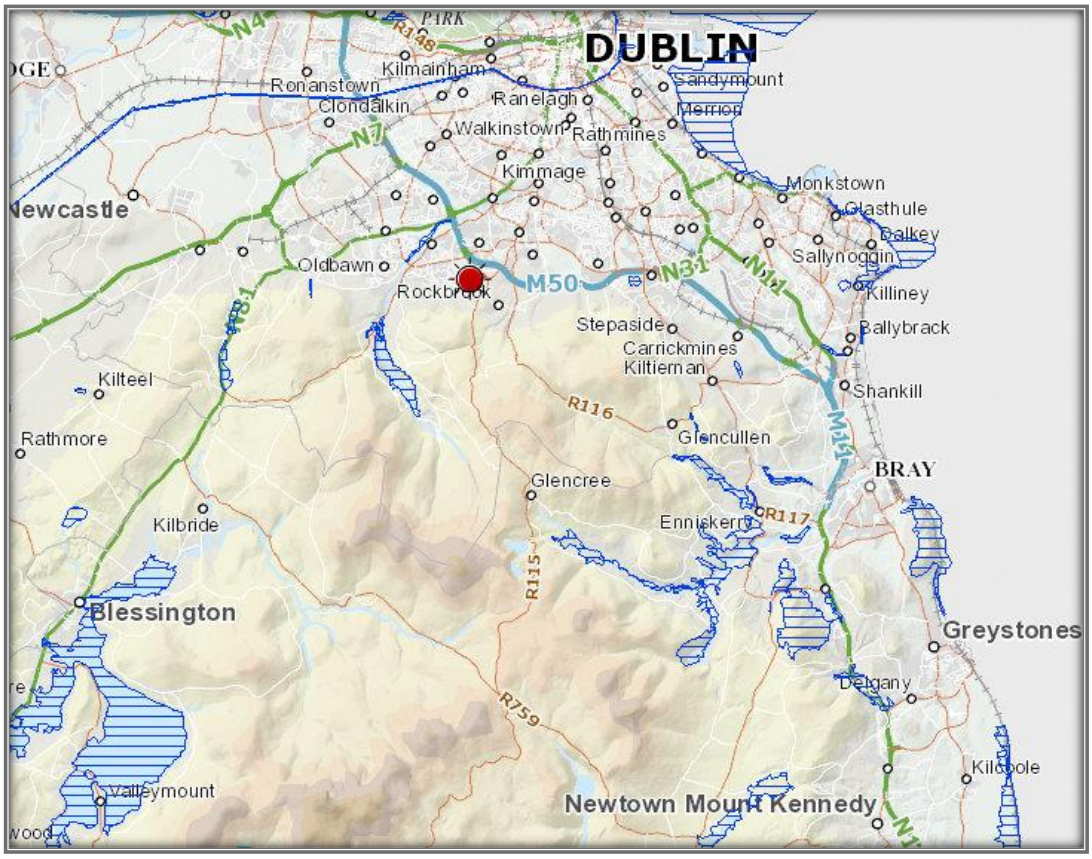

FIGURE 6.5 – THE PROPOSED APPLICATION SITE AT BALLYCULLEN IN RELATION TO PROPOSED NATURAL HERITAGE AREAS WITHIN 10KM (BLUE CROSS HATCHING)

Geology

An examination of the information relating to the geology of the site on the Geological Survey of Ireland Spatial Resources application revealed that the bedrock of the site consists of Ordovician Metasediments. The soils on site are deep well drained mineral soils and they have been categorised as acid brown earths and brown podzolics, derived from mainly acidic parent materials. The sub-soil has been described as granite till. The nature of the geology of the site has determined the habitats within the site, particular any semi-natural grassland habitats that are present.

Flora

Habitats within the Study Area

No part of the site lies within any area that is designated for nature conservation purposes. All proposed development works within the application site will take place on areas of low - high biodiversity value on a local level. The natural habitats within the study area are limited and mainly consist of improved agricultural grassland habitats (GA1), hedgerows (WL1), treelines (WL2) and woodland. These habitats are described in greater detail below whilst a habitat map is illustrated in Figure 6.9. A full list of the plant species recorded from the study area is shown in Appendix I and photos of the site can be seen in Appendix II.

From 2017 until 2024, it was concluded that there was no significant or notable change in the habitats within the application site.

Improved Agricultural Grassland (GA1)

This is the dominant habitat within the application site and it is currently used for grass production and grazing. There are two distinct areas of this habitat on the site. In the west of the site (west of the woodland dissecting the site) this habitat is quite improved, with very low biodiversity. It is dominated by rye grass (*Lolium* sp). On the eastern site of the woodland dissecting the site, the habitat here is more variable. This field is being grazed by horses. Whilst it can still be described in the improved agricultural grassland category it is less intensively managed and biodiversity is slightly higher. Species recorded are typical of this habitat and included Cock's foot grass *Dactylorisa* as well as creeping buttercup *Ranunculus repens*, meadow buttercup *Ranunculus acris*, clovers *Trifolium* sp., common chickweed *Stellaria media* and ragwort *Senecio jacobaea*.

Along the un-mown and under-grazed verges of this habitat that are adjacent to the hedgerows and treelines, species such as nettles *Urtica diocia*, germander speedwell *Veronica chamaedrys*, cleavers *Galium aparine* and brambles *Rubus fructicosus* are all common.

Evaluation: This improved agricultural grassland habitat is of low biodiversity value overall and is of no ecological value.

Treelines (WL2) and Hedgerows (WL1)

Fossit defines the treeline (WL2) as a narrow row or single line of trees that is greater that 5m in height that typically occurs along field or property boundaries. A hedgerow is generally considered to be less than 5m in height and 4m wide. Prior to the development of the lands adjacent to the application site, treelines and hedgerows would have formed an important natural feature of the site. However, many have been removed to facilitate developments adjacent to the applicant site since the capturing of the most recent aerial images available. The hedgerow / treeline forming the western and northern boundaries of the site were removed during the development of the residential estate and replaced by a wooden fence. The hedgerows and treelines previously removed are shown in Figure 6.6.

FIGURE 6.6 – AERIAL PHOTOGRAPH SHOWING AREAS WHERE TREELINES / HEDGEROWS HAVE BEEN REMOVED (DASHED YELLOW LINE)

The only remaining treeline habitat currently within the application site is a small section occurring along the eastern site boundary. The dominant species within this treeline is sessile oak *Quercus petraea*, whilst beech *Fagus sylvatica* and sycamore *Acer pseudoplantatus* are also common.

Evaluation: The majority of the original treeline and hedgerow habitats within the site have been lost to facilitate developments adjacent to the site. The remaining treeline along the eastern perimeter is dominated by native oaks and this could be considered of high local importance.

Scrub (WS1)

Fossit describes scrub as an area that is dominated by at least 50% cover of shrubs, stunted trees or brambles, with a canopy height of less than 5m. There is a small area of scrub within the application site along the western boundary of the site. It has colonised an area of previous hedgerow growth. The dominant species in the habitat is bramble, with the occasional hawthorn *Crataegus monogyna* and ash *Fraxinus excelsior*. Along the northern site boundaries where the back gardens of the residential dwellings on Stocking Wood back on to the site, there are some small pockets of scrub, containing willow, bramble and buddlia.

Evaluation: Biodiversity within the scrub habitat is low, although it does provide some suitable nesting sites and foraging opportunities for small birds and mammals.

Oak-Birch-Holly Woodland WN1

This is the most notable ecological feature within the application site and it bisects the site from north to south. Fossit describes this habitat as "native, semi-natural broadleaved woodland that occurs on acid or base-poor soils that may be either dry or humid but not waterlogged". Sessile oak *Quercus petraea* is the dominant tree in this habitat. Non-native beech *Fagus sylvatica* and sycamore *Acer pseudoplantatus* are also common, but they are not the dominant feature. The understory of this habitat is dominated by holly *Ilex aquifolium*. Hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* are occasional. Honeysuckle *Lonicera periclymenum* was frequently observed growing around the tree trunks and in the shrubby species of the understory. Other tree / shrub species recorded included downy birch *Betula pubescens*, dog rose *Rosa canina* and gorse *Ulex europaeus*.

The herbaceous ground flora of this habitat was limited, possibly due to trampling and grazing by cattle and sheep. Species recorded include wood avens *Geum urbanum*, vetches *Vicia sp*, germander speedwell *Veronica chamaedrys* and self heal *Prunella vulgaris*.

Evaluation: Although this habitat has a limited ground flora and non-native tree species are common (beech), this habitat is a valuable ecological feature in the site and it is considered to be of medium/high biodiversity value on a local level, both in its own right and as it provides an important ecological corridor for birds, bats and other mammals. There is a small, woodland south of the farm (Woodtown House) that is south of the site and so the woodland within the

application site would provide an important corridor to this other woodland habitat. The feature is also historical and it is evident on historical OSI maps, which can be seen in Figures 6.7 and 6.8.

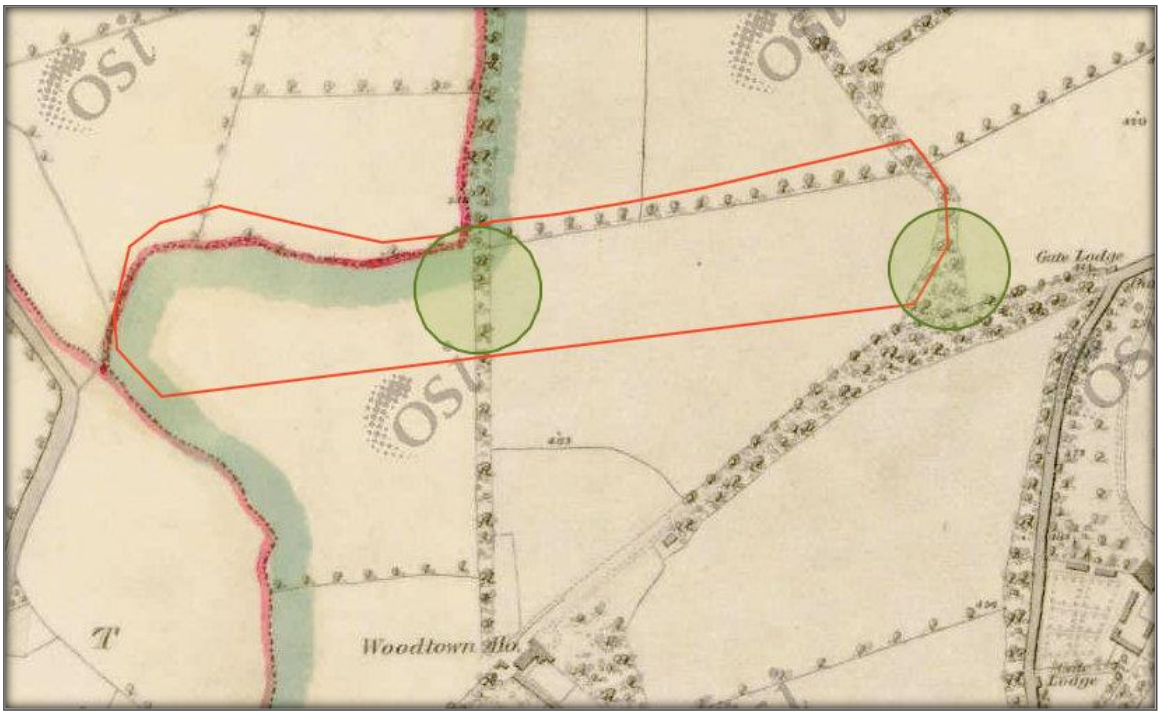

FIGURE 6.7 – OSI CASSINI 6INCH MAP (1829-1841). WN1 HABITATS HIGHLIGHTED

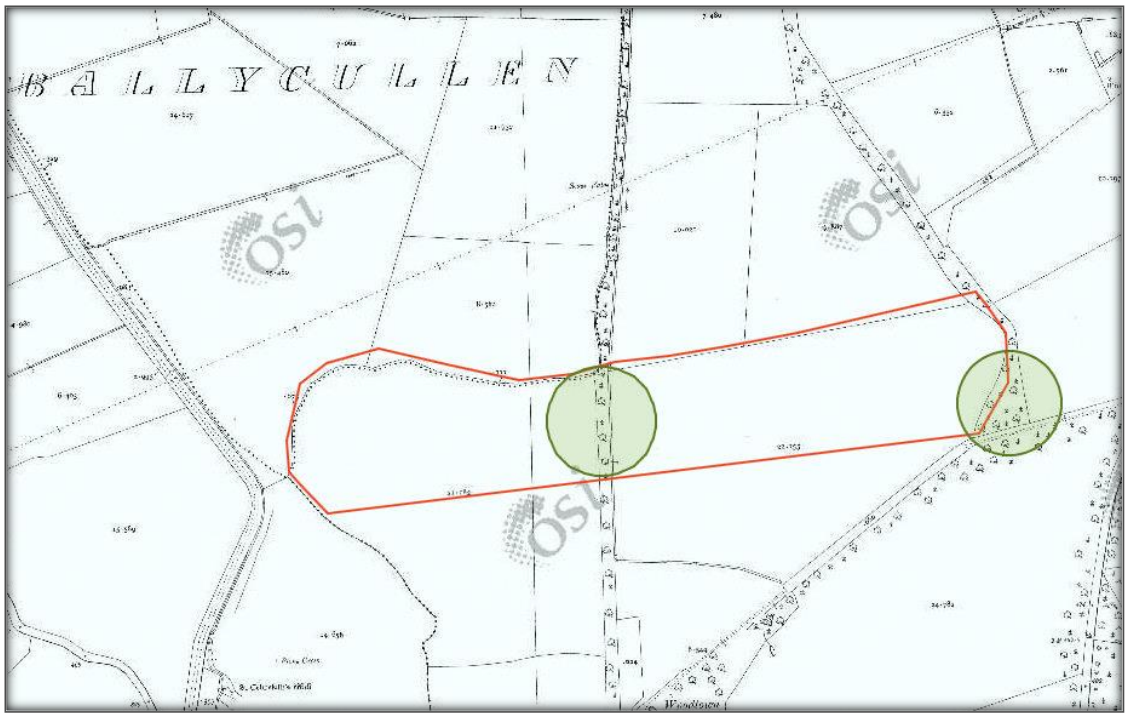

FIGURE 6.8 – OSI 12INCH MAP (1897-1913). WN1 HABITATS HIGHLIGHTED

Depositing/Lowland Rivers FW2

This habitat category refers to watercourses where fine sediments are deposited on the river bed. There are two small streams within the application site – one on the eastern side of the woodland within the site and there is also one on the eastern site boundary. These streams are both narrow and shallow and both have an accumulation of sediment and leaf detritus. A discussion on the water quality in these streams is presented in the Water Quality section.

Evaluation: All watercourses can be considered to be of high ecological value and locally / regionally important.

Rare and Protected Plant Species

An examination of the website of the National Parks and Wildlife, the National Biodiversity Data Centre and the Online Atlas of Vascular Plants for Ireland revealed that there are no modern records for any plant species protected under the Flora Protection Order from within the 10km square (O1125 and O1225) of the proposed application sites.

Invasive Species

No non-native invasive species that are listed in Schedule Three of the Birds and Habitats Regulations (2011) were recorded from within the study area. Particular attention was paid to the potential presence of Japanese knotweed *Fallopia japonica*, which is very common throughout the Greater Dublin Area.

Arboricultural Assessment

A Tree Survey report has been prepared to accompany this application (Arbor-Care Ltd, 2024). Within the site area, the individual trees were assessed, described and plotted. This report classified these trees into four different tree condition categories. These categories and the numbers of trees within the application site falling into these categories are listed below.

- Category A: Trees of high value and quality
- Category B: Trees of moderate value and quality
- Category C: Trees of low quality and value
- Category U: Trees of very low value which should be removed

A total of 134 trees on the site were assessed as part of this survey. A summary of the tree condition categories of these trees is presented below.

- Category A: ~1 tree

- Category B: ~69 trees
- Category C: ~50 trees
- Category U: ~12 trees

It should be understood that whilst a tree may be of low value arboriculturally, its value in an ecological and biodiversity context can by high, as trees of poor condition can provide high value to nesting birds, roosting bats as well as a wide range of invertebrates. They also form important ecological networks and ecological commuting corridors between areas of high biodiversity value.

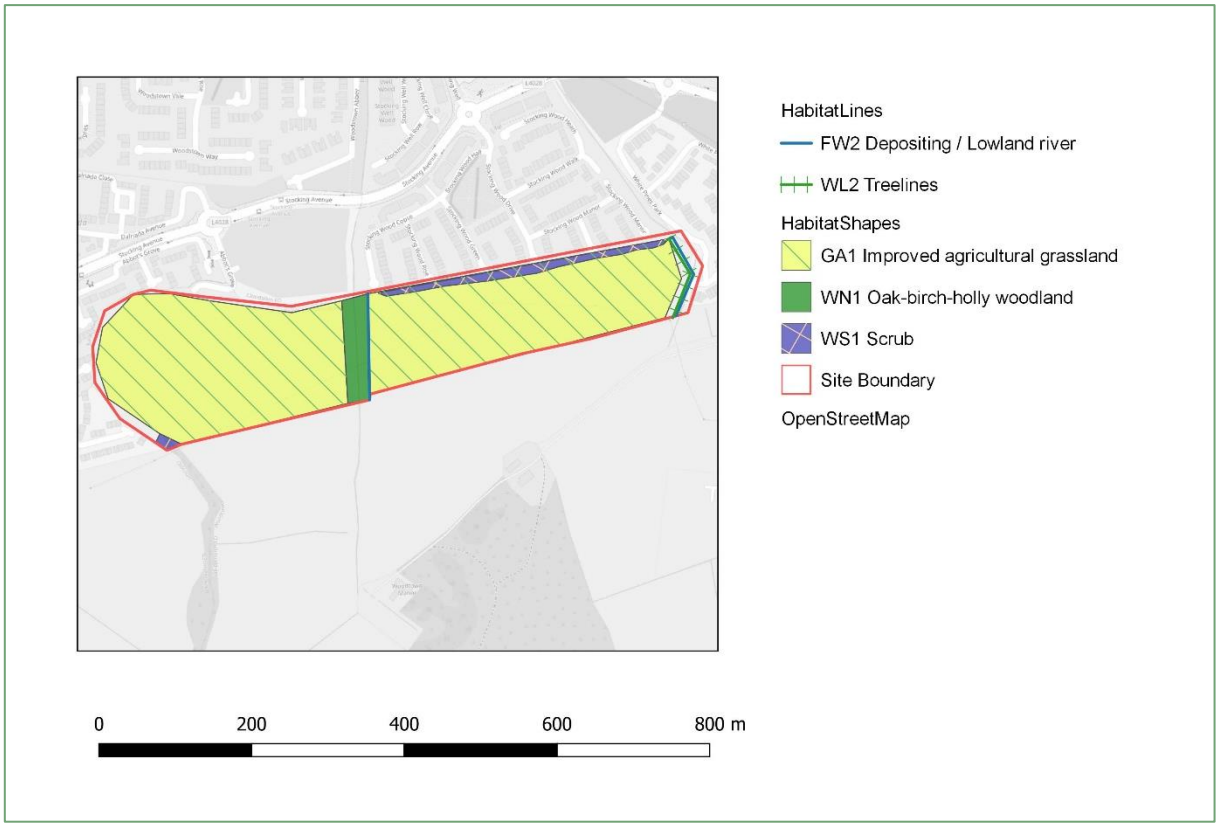

FIGURE 6.9 – MAP SHOWING THE MAIN HABITATS WITHIN THE SITE

Fauna

Protected Mammals

Records from the National Biodiversity Data Centre reveal the presence of the following protected mammals from within the 10km square (O22) of this proposed application site:

- Badger *Meles meles*
- European Hedgehog *Erinaceus europaeus*
- Otter *Lutra lutra*

- Red deer *Cervus elaphus*
- Irish Hare *Lepus timidus subsp. Hibernicus*
- Irish stoat *Mustela 28rmine subsp. hibernica*
- Red squirrel *Sciurus vulgaris*
- Daubenton's bat *Myotis daubentonii*
- Natterer's bat *Myotis nattereri*
- Whiskered bat *Myotis mystacinus*
- Nathusius's Pipistrelle *Pipistrellus nathusii*
- Pygmy shrew *Sorex minutes*
- Pipistrelle *Pipistrellus pipistrellus sensu lato*
- Lesser Noctule *Nyctalus leisleri*
- Soprano *Pipistrelle Pipistrellus pygmaeus*
- Brown long-eared bat *Plecotus auritus*

All these species are protected under the Irish Wildlife Acts. In addition, the otter *Lutra lutra* is protected under Annex II of the European Habitats Directive.

During the site walkover, all possible mammal evidence was recorded. There were many tracks crossing the grass and over the streams and it was possible that these were caused by foxes or dogs. Grey squirrels were very active in the woodlands within and around the site. The woodlands were walked and searched for the presence of badger setts but none were observed.

The 2024 badger survey also noted no badger signs within the site. There were no paw prints, tracks, digging, dung pits or latrines, badger setts or any clear evidence of badger activity. There were certainly no badger setts within the site and there was no evidence of badgers or badger setts within the immediate adjoining hedgerows. There were no clear signs of badger foraging within the site. It is possible that some signs were obscured by the level of deer activity within the site. There were several tracks leading from the site to the south but only deer signs were confirmed for these tracks. Other tracks were attributable to fox activity and rabbits. There is suitable badger habitat to the south of the site. The main mammal evidence was sika deer, and deer were seen during the bat and badger surveys. Rabbit burrows were noted within the site and in neighbouring lands. There are also rodent signs within the site including grey squirrel and brown rat. There is also a small herd of horses within the eastern field. These would also destroy

badger paw prints or other foraging signs. It is certain that badgers are not breeding within the site and that there are no setts in evidence. There is the possibility that badgers enter the site to feed and that the activity of deer and horses have covered these signs.

Bats – 2024 Survey

Despite moderate bat activity in the dusk survey of 2024, no roosting behaviour was observed throughout the night. The strong winds and rain of the storm during the morning survey may have deterred bat activity although more than one bat was still observed commuting across the site indicating not all bats had been deterred by the unfavourable weather conditions at dawn.

Activity was seen to increase by 70.3% in the 2024 survey compared to the 2020 survey, however less bat species diversity was recorded with only 3 species recorded in 2024 and 2017 as opposed to 4 in 2020. No bat species were found roosting in the site.

Bat species found feeding and commuting:

- Common pipistrelle – *Pipistrellus pipistrellus*
- Soprano pipistrelle – *Pipistrellus pygmaeus*
- Leisler's bat – *Nyctalus leisleri*
- Natterer's bat - *Myotis nattereri* (2020 only)

The survey of trees for Bat Roost Potential noted that the trees with the highest potential were in the tree line in the centre of the site along the river. A number of trees in this woodland showed suitability for bat roosting, particularly the trees most central to the site. The trees above all qualify for Description 1. Other trees within this wooded area have no roost potential while some are Description 2 or 3.

The bat activity survey determined that bat activity was consistent particularly along either side of the woodland. Common pipistrelle activity began at 20:55 hours, followed by soprano pipistrelle activity across on the other side of the trees. On the eastern side of the treeline, both soprano and common pipistrelle activity continued feeding along the treeline. Leisler's activity commenced a few minutes later on the same side and continued until 21:41.

Activity was quieter in the western field although consistent feeding was recorded throughout the night. Predominantly common and soprano pipistrelle activity was recorded (intermittently) throughout the night in the western field, with one pass of a Leisler's bat which was social calling

across the site continuing to the west. Soprano pipistrelle and Leisler's bat activity continued until 21:41.

In the morning only one Leisler's bat pass was recorded by surveyors although the Song Meter Mini recorded four passes by a common pipistrelle over this period. No evidence of bat roosting was found onsite despite low-moderate foraging and commuting activity throughout the night. Bat activity was recorded for three bat species throughout the night across the span of this site.

This shows a decrease in bat diversity onsite since the 2020 survey which found an additional bat species, Natterer's bat feeding on the site. This may be temporal in nature and longer-term evaluations may increase the species list.

The full results from the bat survey are presented in the accompanying bat report.

FIGURE 6.10 – BAT ACTIVITY ON THE SITE 2020 (FROM BAT ASSESSMENT, BRIAN KEELY)

Birds

A range of common passerine birds were seen / heard within proposed development site between 2017 - 2024, these species included:

- Great tit *Parus major*
- Robin *Erithacus rubecula*
- Chaffinch *Fringilla coelebs*
- Blue tit Cyanistes caeruleus
- Magpie *Pica pica*
- Jackdaw *Corvus monedula*
- Starling *Sturnus vulgaris*
- Blackbird *Turdus merula*
- Goldfinch
- Sparrow

Amphibians, Reptiles and Insects

Although no amphibians or reptiles were observed on the day of the survey, it is possible that the common frog occurs within the site. Few aerial invertebrates were observed on the day of the surveys as temperatures were cool. In suitable seasonal and climatic conditions, it is likely that a range of the most common invertebrates would occur.

Aquatic Environment

Water Features and Quality

The application site lies within the Eastern River Basin District, the Liffey and Dublin Bay Hydrometric Area/Catchment, the Dodder Sub-Catchment and Sub-Basin. There is a small stream flowing along the eastern perimeter of the woodland that bisects the site. There is also a stream flowing along the eastern perimeter. Both these flow in a northerly direction. These streams are not mapped by the EPA but it is likely that they are tributaries of the Orlagh Stream, which is a tributary of the Dodder. The confluence of the Orlagh Stream and the River Dodder is 2km north of the application site.

The EPA have classified the ecological status of the Orlagh Stream and its tributaries as moderate. The River Dodder has also been classed as moderate for its entire length. As part of the field work for this application site, an examination of the invertebrates of the stream in the middle of the

site was undertaken using a hand held sweep net and a two minute kick sample. The stream bed was dominated by silt. The dominant taxon observed in the sample was the amphipod *Gammarus*, which is relatively tolerant of organic pollution. As this species was dominant, an EPA Q rating of 3 was applied, indicating that this stream is also of moderate ecological status. Under the requirements of the Water Framework Directive, this is unsatisfactory and all water bodies are obliged to achieve good status under this Directive.

Ecological Evaluation

Summary of the Value of the Application Site

The application site is not within nor is it adjacent to any site that has been designated for nature conservation purposes. The site at Ballycullen is within 15km of thirteen sites designated under the Natura 2000 network. The closest of these is Glenasmole Valley SAC and this is 3km south-west of the application site. The site is also approximately 16km upstream of the European sites associated with Dublin Bay. The site is also within 10km of twelve sites designated as Natural Heritage Areas (NHAs and pNHAs). It is hydrologically connected to the pNHAs associated with Dublin Bay.

Within the application site itself, the dominant habitat is improved agricultural grassland, which is of little biodiversity value. The woodland habitats within and adjacent to the eastern site perimeter are the most important ecological features within the site and these could be considered to be of medium - high local importance. They are also historical landscape features. The native species within the habitat add to its importance, as does its value to wildlife such as birds, bats and mammals.

The watercourses within the site are also important features as they are tributaries of the River Dodder. The ecological water quality in these streams and the surrounding areas is moderate and this is unsatisfactory. An overview of water quality in the entire catchment revels this problem to be large scale and the highest reaches of these streams are also unsatisfactory. Upland forestry is the likely cause for this unsatisfactory status.

6.5 Characteristics of the Proposed Development

Lagan Homes Ballycullen Limited intend to make a planning application for planning permission for a Large Scale Residential Development (LRD) in the townland of Woodtown, Ballycullen, Dublin 16. The lands are located to the east of Abbots Grove Park, south-east of Abbots Grove Avenue, south of Stocking Avenue and Stocking Wood estate, and west of White Pines Park.

The proposed development will consist of 502 no. residential units (108no. 1-bed, 170no. 2-bed, 162 no. 3-bed; 62 no. 4-bed) comprising 197no. 2 storey houses (terraced/semi-detached/detached) (19no. 2-bed, 116no. 3-bed; 62no. 4-bed) and 28no. 3 and 4 storey simplex/duplex apartment blocks providing 305no. apartments (108no. 1-bed apartments, 151no. 2-bed apartments, 46no. 3-bed apartments). The proposed development also includes a crèche (c.475sq.m), public open space, car parking (surface/undercroft), bicycle parking, bicycle storage structures and lockers, bin stores, and 8no. ESB substations. Vehicular access to be provided from the existing spur road connection to Stocking Avenue to the west of the site, and via Stocking Wood Drive to the east of the site (with relocation of existing ESB substation and associated works to the existing hammerhead). Additional pedestrian only routes will be provided into Abbot's Grove Park and Stocking Wood Copse with future connections provided for into Stocking Wood Manor, White Pines Park and the future school site to the north of the application site. The proposed development includes all associated site development works (including site reprofiling, retaining structures and downing of ESB overhead lines), landscaping, boundary treatments and services provision.

An extract from the planning drawings can be seen in Figure 6.11.

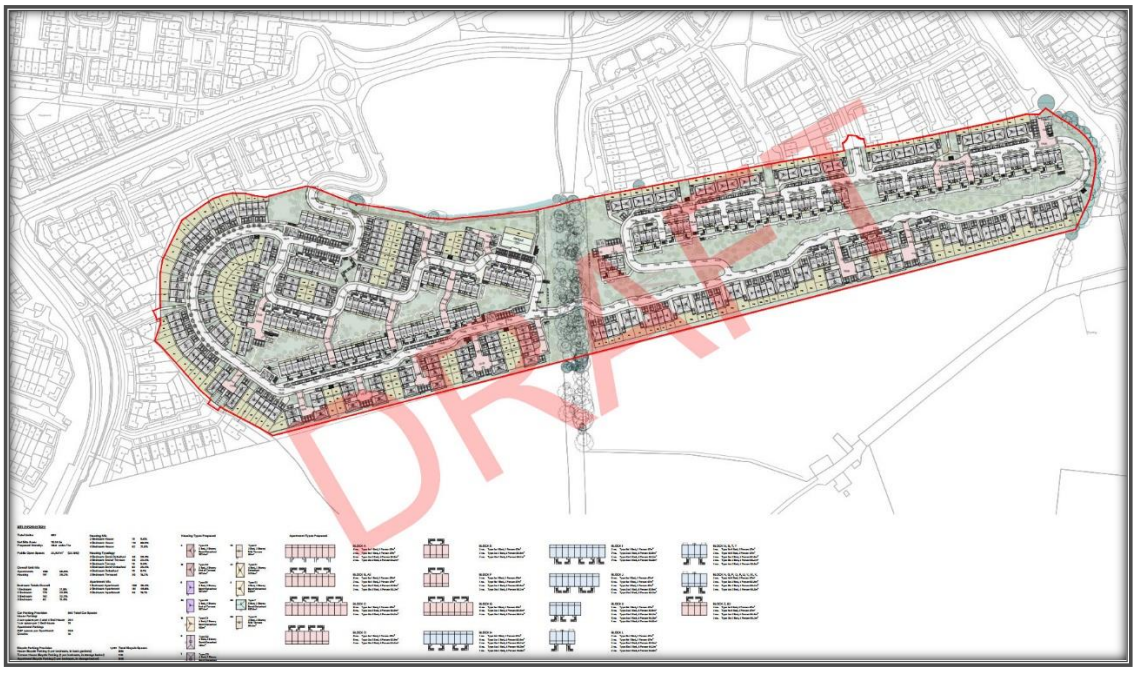

FIGURE 6.11 – EXTRACT FROM PLANNING DRAWING (AS PREPARED BY JFOC ARCHITECTS)

Foul Water

An engineering report for the proposed development has been prepared by Waterman Moylan Consulting Engineers Ltd. This outlines the proposed foul water drainage situation. There is an existing 225mm diameter foul sewer constructed in the spur road adjacent to Abbot Grove development on the west side of the site. This 225mm sewer connects to an existing 450mm diameter sewer north of Stocking Avenue.

It is proposed to provide a gravity system which will discharge to the existing foul water infrastructure north of the subject site at 3 No. locations. A Pre-Connection Enquiry form was submitted to Uisce Éireann for 400 units which outlined the proposals for the drainage of wastewater from the development. Uisce Éireann responded with the Confirmation of Feasibility (COF) on 12/ 2/ 2024.

Proposed Surface Water Drainage

Details on the proposed surface water drainage have also been presented in the report prepared by Waterman Moylan Consulting Engineers Ltd. The proposed surface water drainage network will comply with the GDSDS Regional Drainage Policies Volume 2, for New Developments. The following documents have also been considered in preparing the surface water drainage strategy for the development:

- South Dublin County Council 2022-2028 Development Plan
- Sustainable Drainage Explanatory Design and Evaluation Guide 2022
- CIRIA SuDS Manual (C753)

The applicant has considered the used of all appropriate SUDS measures as part of the site SUDS strategy, including those outlined in Table 6.4 below:

SUDS Stage	SUDS Measure	Measures Outline	Use on-site
Source Control	Green Roofs	Green Roofs are roofs with a vegetated surface that can provide attenuation and treatment of rainwater. They also provide evapotranspiration from the roof's plants and substrate, reducing run-off volumes and the burden on the drainage network	Green roofs will be used on the flat duplex units on site to provide treatment of rainwater
	Permeable Pavements	Permeable pavements are alternative paving surfaces to standard finishes that allow stormwater run-off to filter through voids in the pavement surface into an underlying stone reservoir, where it is temporarily stored and/or infiltrated.	Permeable Pavements will be utilised for all on curtilage parking areas on site
	Filter Drain	Filter drains are shallow trenches filled with gravel and wrapped in a geotextile membrane to treat and temporarily store surface water runoff. the centre of the site.	Filter drains have been provided along the southern boundary of the site to convey any surface water runoff from the upstream site to the watercourse at the centre of the site.
	Tree Pits	Tree pits are considered "living SUDS" and as such will be wrapped in a geotextile and root barrier so that the surrounding plant, grass and tree roots can use the water and hence reduce the volume of run-off from the site.	Tree Pits will be used for roads, houses and duplex car parking areas surface water treatment, where possible, to treat water at source before conveying it to the site-wide surface water drainage network.

	Bio-Retention Areas / Swales		Swales will be used at the edge roads as a first form of treatment to road run-off
Site Control	Detention Basin and Hydrobrake	A detention basin is a landscaped depression that is normally dry, except during and following rainfall events. They are designed to provide storage and treat run-off. Hydrobrakes are used to restrict the outfall from the detention basin to the equivalent of the existing agricultural run-off. This ensures the development will not give rise to any impact downstream of the site.	Detention basin and hydrobreaks will be use around the development to store surface water prior to discharge to the surface water network
	Tree Pit Tanks	Tree pit tanks are subsurface structures designed to support tree growth while managing stormwater.	Attenuation will be provided by modular storage tanks, which will sit under tree pit located in the landscaped areas where required. The cellular storage tanks will be placed deep enough so that the Tree Root Structural Cell Systems will have enough viable capacity for the tree on top of the cellular tank.
	Petrol Interceptor	A petrol interceptor is a trap used to filter out hydrocarbon pollutants from rainwater run-off. It is typically used in road construction to prevent fuel contamination of watercourses carrying away the run-off. Petrol interceptors work on the premise that	A Petrol Interceptor will be installed, upstream of the proposed detention basins for any areas that could not benefit from source control treatment.

		some hydrocarbons such as petroleum and diesel float on top of the water. The contaminated water enters the interceptor typically after flowing off roads and entering a drain before being deposited into the first tank inside the interceptor. The first tank builds up a layer of the hydrocarbon as well as other scum preventing it from entering the watercourse.	

TABLE 6.4 – NATIONALLY IMPORTANT SITES WITHIN 10KM OF THE PROPOSED DEVELOPMENT (FROM WATERMAN MOYLAN ENGINEERING REPORT)

Potential Impacts

Introduction

The information gathered as part of the desk and field studies for this proposed application has been used to complete the biodiversity chapter of this EIA.

The identification of potential impacts and the assessment of their significance typically requires the identification of the type and magnitude of the impacts. For example, will the impacts be short term or long term, direct, indirect or cumulative and will they occur during construction or operation. This section will establish whether ecological impacts of the proposed development in Ballycullen are likely to occur and whether or not they are significant. These potential impacts will be examined with respect to the ecological receptors identified in the previous section.

The emphasis in EcIA is on "significant" effects, rather than all ecological effects (CIEEM, 2018). For the purpose of EcIA, a "significant effect" is an effect that either supports or undermines biodiversity conservation objectives for important ecological features for biodiversity in general. Conservation objectives may be specific (e.g., for a designated site) or broad (e.g., national / local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local.

A significant effect is an effect that if sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting the project. In broad terms, significant effects encompass impacts on structures and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution). (CIEEM, 2018).

Impacts upon Designated Sites

Natura 2000 Sites

The NIS that has been completed for this proposed development identified five Natura 2000 sites that lie within the Zone of Influence of the application site, i.e., South Dublin Bay / River Tolka Estuary SPA, the South Dublin Bay SAC, the North-West Irish Sea SPA, North Bull Island SPA and North Dublin Bay SAC. These sites are approximately 16km downstream of the application site. Given this hydrological separation distance, significant effects upon these sites are unlikely but cannot be ruled out with certainty.

In accordance with the tenets of the precautionary principle and in the absence of mitigation, an accidental pollution event which might occur during the construction or operation or the proposed development, either alone or in-combination with other developments, could

potentially affect the water quality in the watercourses within the site. These streams lead to the River Dodder, which eventually flows into Dublin Bay. Therefore, in light of this uncertainty, coupled with the fact that mitigation measures are required to protect the water quality of the watercourses in the site, a Natura Impact Statement was prepared for the development.

It was concluded in the Natura Impact Statement that following an analysis and evaluation of the predicted impacts from the proposed development and with the implementation of the mitigation measures proposed in the NIS and this biodiversity chapter, that the proposed development will not have any negative effect on the integrity of the South Dublin Bay / River Tolka Estuary SPA, the South Dublin Bay SAC, the North-West Irish Sea SPA, North Bull Island SPA and North Dublin Bay SAC, either alone or in combination with other plans or projects.

Natural Heritage Areas

The application site is not within or adjacent to any site designated as a Natural Heritage Area. The closest pNHA to the site is the Dodder Valley and this is 1.8km north-west of the site. There is no upstream – downstream hydrological connectivity between the application site and this pNHA and impacts upon this pNHA are not likely to occur. The only pNHAs with direct source – pathway – receptor linkages to the application site are the pNHAs of Dublin Bay, i.e., South/North Dublin Bay pNHA. These sites are over 16km downstream of the application site and the boundary of these pNHAs are largely similar to the boundaries of the European sites of Dublin Bay. Impacts upon these pNHAs arising from run-off during the construction and operation of the site are unlikely given the downstream distance, however mitigation will be included to ensure that run-off from the site during construction and operation does not impact upon any downstream designated receptors.

Impacts within the Application Site

Development Phase

Should the developments at Ballycullen be allowed to proceed then the following impacts will / may occur during the site preparation and construction of the proposed development.

- Habitat loss and fragmentation – In identifying these impacts, the arborist's report accompanying this application was referred to (The Tree File, Consulting Arborists).

  The majority of the site will be cleared to facilitate the development, resulting in the permanent loss of the grassland habitats. These habitats are of no ecological value; therefore, their loss will be neutral. This will however reduce the open space of the

landscape, reducing the areas that currently allow for the free and unimpeded movement of mammals.

The Arboricultural Impact Assessment (2024) has stated that 10 trees will be removed to facilitate the proposed development, including two ash trees, one elm and seven oaks. These trees consist of 0 no. category A trees, 7 no. category B, 1 no. category C trees and 2 no. category U trees

This fragmentation will have a permanent slight negative impact upon the biodiversity of the local area. Local populations of birds will also be affected as the availability of local nesting and feeding sites will be slightly reduced, and if these trees are removed during bird nesting season then loss of eggs and injury or death of fledglings could arise. In addition, small terrestrial mammals might be affected as they would use the woodland to commute and feed in safety. Bats that use the trees as roosting or hibernating sites would also be affected and the safe commuting corridor within the site would be fragmented.

- Disturbance to local wildlife – During the development phase, there will be an increase in human activity and noise on the site. This will be disruptive to local populations of birds and mammals. Bats will also be impacted upon due to:

  - Roost loss - Tree felling and tree surgery may lead to roost loss albeit that no roosts were evident in the bat assessment. If bats are present at the time of felling, this could lead to injury or death to a species protected under the Wildlife Act and Habitats Directive and would therefore constitute a breach of the Irish and EU legislation;

  - Disturbance from Lighting – The lighting scheme associated with the proposed development may affect light-intolerant bat species during foraging and if directed at emergence points would affect all bat species, even those that will feed in illuminated areas. Species such as Leisler's bat and common pipistrelle are less affected than almost all other Irish bat species and this would not be a significant impact while Natterer's bat, whiskered bats and brown long-eared bats would be more affected. At worst, it would be a permanent moderately negative impact.

  - Reduced feeding - Reduced vegetation including the removal of grazing stock and of any of the trees within the site will lead to reduced insect abundance. This will be a permanent slight negative impact.

- Decrease in Water Quality – The preparation and development of the site will will involve the excavation of soil and the pouring of concrete for foundations and other hard surfaces. A

bridge (Open bed box culvert type) will also need to be constructed over the stream that is mid-site. These works have the potential to generate run-off into this stream. If appropriate mitigation measures are not taken during the construction of the proposed development, then there is the possibility that water quality in this stream may be negatively impacted upon. Possible direct impacts include the pollution of the waters during construction with silt, oil, cement, hydraulic fluid etc. This would directly affect the habitat of species by reducing water quality. These substances would also have a toxic effect on the ecology of the water in general, directly affecting certain species and their food supplies. In addition, an increase in the siltation levels of the watercourses in the site could result in the smothering of fish eggs, an increase in the mortality rate in fishes of all ages, a reduction in the amount of food available for fish and the creation of impediments to the movement of fish. Pollution of the water with hydrocarbons, cement and concrete during the construction phase of this proposed development could also have a significant negative effect on the fish and aquatic invertebrate populations. The potential for pollution run-off, in the absence of mitigation measures, will constitute a short-term negative effect.

Operational Phase

The majority of impacts will occur during the development phase of this development. However, certain impacts on local habitats / wildlife may occur during the operation of the development.

- Disturbance to local wildlife – Once operational, the development at Ballycullen will facilitate many new buildings, all of which are associated with human activity. This will deter wildlife from the site, particularly mammals. There will also be a number of ongoing impacts upon the bats occurring within the site. These include:
  - The interruption of commuting routes
  - The loss of foraging areas within or adjacent to lighting
  - Reduced competitiveness
- Landscaping – Inappropriate landscaping of the application site may inadvertently result in the introduction of non-native and invasive plant species. However, appropriate landscaping could also provide new beneficial habitats for wildlife if it is done with suitable trees and shrubs that provide nesting and foraging opportunities for birds. The management of the verges for wildlife would also be beneficial for local pollinators. A comprehensive landscaping plan has been prepared for the site, and this considers the green infrastructure that exists on the site. Supplemental planting and the creation of additional habitats on the

site have been included, such as a new woodland area along the southern site boundary that will be planted with trees that are native.

- Decrease in Water Quality – During the operation of the site, pollution to the stream on site may occur due to run-off of silt and oil from hard surfaces.

Potential Cumulative Impacts

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first; through persistent additions or losses of the same materials or resource, and second,-through the compounding effects as a result of the coming together of two or more effects (Bowers-Marriott, 1997).

In the larger context of the Dublin City area, there are a number of other proposed developments, some of which are proposed for previously undeveloped, green field sites. These developments combined will reduce the open spaces and habitat availability of the Dublin City area as a whole, thereby cumulatively impacting on local bird and mammal populations. However, the creation of new areas of biodiversity within the application site and the retention and protection of treelines, will provide local ecological corridors and networks that will reduce the overall cumulative impact of this development in the Dublin City area.

6 Mitigation Measures

The primary method of mitigation for any development should be avoidance of that impact. Consideration was therefore given to avoiding any direct or indirect impacts on the sensitive ecological receptors within the site.

In order to avoid protect the existing ecological features on site and surrounding area, the following mitigation measures are recommended:

Construction Phase

Protection of Habitats

- Site preparation and construction must be confined to the development site only and it must adhere to all the mitigation measures contained in this chapter. Work areas should be kept to the minimum area required to carry out the proposed works and the area should be clearly marked out in advance of the proposed works. On foot of this ecological study and the iterative process involved in the preparation of this report, the applicant is aware of the ecological sensitivity of the location. Upon appointment of the construction contractor, this

team will also be made aware of the valued ecological receptors within the site. All measures will be undertaken from initial site works until the completion of all construction works on site.

- It is recommended that the measures outlined in this Biodiversity Chapter of the EIAR and the NIS along with any other reports containing environmental mitigation measures, are incorporated into a Construction and Environmental Management Plan.
- In accordance with the policies and objectives of the South County Dublin Development Plan, the existing green infrastructure of the site, i.e., the woodlands and hedgerows, should be incorporated into the development in so far as possible. The proposed development has been designed to retain the central portion of woodland in the site, with the exception of the removal of a portion of this habitat to facilitate the road and a pathway (10 trees will be removed). The woodland to the east of the site will also be retained. A detailed landscape plan has been prepared for the proposed development site. The successful implementation of this landscape plan will mitigate somewhat against the loss of any other woodland habitats in the site.
- In order to prevent damage to treelines / woodlands in the site that are to be retained, then protective barrier fencing should be erected prior to the commencement of site clearance works. This fencing should be erected 10m out from the feature that needs protecting and this most include the Root Protection Zone. Any natural verges or hedgerows within the site that are to be retained should also be fenced off prior to the commencement of works. There must be no dumping or storage of construction waste or machinery in these areas during construction. The understorey and ground flora of the woodland should also be protected during all stages of site works.
- Tree removal should only be done outside of the bird nesting season. It is recommended that prior to the felling of any tree, that it is examined by a bat ecologist in the 48 hours prior to felling to make sure no bat roosts are present. Soft felling of the trees is recommended.
- Any additional measures contained in the arborists report for the protection of trees must also be followed.
- Any natural verges along woodland features or hedgerows should be retained and managed appropriately or enhanced with additional suitable planting for the benefit of wildlife. They should not be sprayed with herbicide and a low intensity mowing or strimming regime should be incorporated. This will benefit local pollinators.
- Any drainage system under the road shall provide a diameter of 30 cm to allow badgers to pass under the road to avoid traffic

Mitigation for Bats

- The bat survey prepared for this proposed development contains a number of recommendations to minimise potential construction impacts upon the bat species recorded from the site. These mitigation measures include:
  - All trees within the site should be examined for the presence of bats prior to felling by a bat specialist.
  - Should bats be noted in any tree that is earmarked for removal, a derogation license from NPWS must be sought. This can be done with the assistance of a bat ecologist.

Protection of Water Quality

- Efficient construction practices and sequences should be employed on site, and this will minimise soil erosion and potential pollution of local watercourses with soil and sediment. Unnecessary clearance of vegetation should be avoided and only areas necessary for building works should be cleared. Existing grassed verges and vegetated areas around the perimeters of the site and along the watercourses should be retained where possible. Supplemental planting and careful management of these areas will increase the biodiversity value of the site in the future. The retention of these areas will also help retain storm water run-off from the site during construction and operation. Works within the site should be avoided during periods of heavy rainfall.

- It is vital that there is no deterioration in water quality in the streams that occur within the application site. This will protect both habitats and species that are sensitive to pollution. Therefore, strict controls of erosion, sediment generation and other pollutants associated with the construction process should be implemented, including the provision of attenuation measures, silt traps or geotextile curtains to reduce and intercept sediment release into any local watercourses. Guidelines in the following best practice documents should be adhered to:
  - Construction Industry Research and Information Association (CIRIA) (2005) *Environmental Good Practice on Site (C692)*
  - Construction Industry Research and Information Association (2001) *Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532)*
  - Construction Industry Research and Information Association (2000) *Environmental Handbook for Building and Civil Engineering Projects (C512)*
  - Environmental Protection Agency (2015) *List of Waste and Determining if Waste is Hazardous or Non-Hazardous*

- Environment Agency *et al*. (2015) Guidance on the Classification and Assessment of Waste, Technical Guidance WM3
- Environmental Protection Agency (2013) *Guidance (and Templates) on the Management of Contaminated Land and Groundwater at EPA Licensed Site*
- Environment Agency (2004) *Model Procedures for the Management of Land Contamination (CLR11).*

- All relevant guidelines within the document *Inland Fisheries Ireland Requirements for the Protection of Fisheries Habitats during Construction and Development Works and River Sites* (www.fisheriesireland.ie) and the updated guidelines *entitled Guidelines on Protection of Fisheries During Construction Works in And Adjacent to Waters (2016)* should also be adhered to and they include.
- The construction team must implement the following specific mitigation measures and these measures should be incorporated into a Construction and Environment Management Plan. This CEMP must include measures to prevent the release of hydrocarbons, aggregates, polluting chemicals, sediment and silt and contaminated waters into water course on site.
  - Surface waters from the construction site should be managed using a system of temporary on-site attenuation features, and these should be fitted with silt barrier devices such as silt fences or silt busters.
  - Silt fences and berms should be installed prior to the commencement of construction on site. These should be set back at a minimum of 10m from the streams on site. As the streams within the application site are associated with existing treelines and woodland habitats, the silt fences could be incorporated into the protective fencing that is required for the woodland habitats. The silt fences should be sturdy and constructed of a suitable geotextile membrane to ensure that water can pass through, but that silt will be retained. An interceptor trench will be required in front of this interceptor fence. The silt fence must be capable of preventing particles of 425μm from passing though.
  - The silt fences should be monitored daily to ensure that they remain functional throughout the construction of the proposed development. Maintenance of the fences should be carried out regularly. Fences should be inspected thoroughly after periods of heavy rainfall.
  - Discharge water generated during laying of concrete should be removed off site for treatment and disposal.

- The following pollution control measures must also be employed on site:

- A dedicated re-fuelling location must be established on site, and this must be situated away from any watercourse on site.
- Spill kits stations must be provided at the fuelling location for the duration of the works.
- Staff must be provided with training on spill control and the use of spill kits.
- All fuel storage containers must be appropriately bunded, roofed and protected from vehicle movements. These bunds will provide added protection in the event of a flood event on site.
- All chemicals must be stored as per manufacturer's instructions. A dedicated chemical bund will be provided on site.
- Storage of fuel, and servicing and refuelling of equipment or machinery must be at least 20m from ground clearance or rock-breaking activities.
- The dedicated refuelling area must be underlain by concrete hard standing. All fuel and oil tank should be inspected on a regular basis for signs of spillages, leaks and damage during use. A record of these inspections must be kept, and any improvements needed be carried out immediately.
- The risk of fuel spillages on a construction site is at its greatest when refuelling plant. Therefore, only designated trained and competent operatives should be authorised to refuel plant on site. Plant and equipment should be brought to a designated refuelling area rather than refuelling at numerous locations about the site.
- Chemicals used on site must be returned to the site compound and secured in a lockable and sealed container overnight in proximity to the fuel storage area.
- Drip trays must be utilised on site for all pumps situated within 20m away from ground clearance areas.
- Procedures and contingency plans must be established on site to address cleaning up small spillages as well as dealing with an emergency incident. A stock of absorbent materials such as sand, spill granules, absorbent pads and booms must be kept on site, on plant working near the river and at the refuelling area.
- Daily plant inspections must be completed by all plant operators on site to ensure that all plant is maintained in good working order. Where leaks are noted on these inspection sheets, the plant must be removed from operations for repairs.
- All personnel should observe standard precautions for handling of materials as outlined in the Safety Data Sheets (SDS) for each material, including the use of PPE. Where conditions warrant, emergency spill containment supplies should be available for immediate use.

- Best practice concrete / aggregate management measures must be employed on site. These will include:

- A designated concrete wash out area should be set up on site; typically, this will involve washing the chutes, pumps into a designated IBC before removing the waste water off site for disposal. These procedures should be covered during a Site Safety & Environmental Induction session.
- Best practice in bulk-liquid concrete management should be employed on site addressing pouring and handling, secure shuttering, adequate curing times etc.
- Stockpile areas for sands and gravel must be kept to a minimum size, well away from the drains and watercourses (minimum 50m).
- Where concrete shuttering is used, measures must be put in place to prevent against shutter failure and control storage, handling and disposal of shutter oils.
- Activities which result in the creation of cement dust must be controlled by dampening down the areas.
- Raw and uncured waste concrete must be disposed of by removal from the site;
- Stockpile areas for sands and gravel will be kept to a minimum size, well away from the watercourse on site.

- There should be no disturbances of the habitats along the watercourses within the application site. All vegetation within the 10m buffer zone of the stream must be protected, outside of the point where the box culvert bridge is to be installed. Vegetation within these buffer zone should be retained and enhanced using suitable species and in accordance with any landscaping plan that has been produced for the site.

- A separate surface water pipe will cross the central woodland area. This will be situated in a tunnel that is bored under the stream.

Operational Phase

Mitigation for Bats

- Six 2F or 2FN Schwegler bat boxes have been proposed for the site as well as a Schwegler 1WI into the wall of one of the new buildings. The box will be built into the wall and will be almost invisible from ground level once painted in the same style as the building. This must be unlit and should be at least 2.5 metres above ground height and preferably 3 metres or higher. The remaining bat boxes shall be installed on trees with easy access. An ideal substrate for the attachment of bat boxes has a clear bark, straight bough, and overall ease of access for bats exiting and returning to boxes. Three boxes shall be attached to each of two trees unless there

are better opportunities created by modifying this arrangement according to the bat specialist. These bat boxes should be erected under the supervision of a bat ecologist.

- Lighting must be controlled to avoid light pollution of green areas and should be targeted to areas of human activity and for priority security areas. The following measures are proposed to reduce the impacts of lighting:
  - Motion-activated sensor lighting is preferable to reduce light pollution.
  - None of the remaining mature trees or trees proposed for planting shall be illuminated.
  - Dark corridors for movement of bats along the grounds of the site.
  - Lighting should be directed downwards away from the treetops.
  - All luminaires shall lack UV elements when manufactured and shall be LED.
  - A warm white spectrum (ideally <2700 Kelvin) shall be adopted to reduce blue light component.
  - Luminaires shall feature peak wavelengths higher than 550 nm.
  - Tree crowns shall remain unilluminated.
  - Planting shall provide areas of darkness suitable for bats to feed and commute through the site.
  - Lighting shall be kept to a minimum around the trees (see below). No light shall fall directly on the trees from street lighting or private houses.
  - Additional Guidelines from Bat Conservation Ireland and Bat Conservation Trust have been provided above for considering how to avoid light pollution of the hedgerow to allow for feeding, commuting, and roosting.

Protection of Water Quality

- The SUDS proposals outlined for this site must be adhered to in full. Silt and oil interceptors must be incorporated to ensure clean discharge and these must be serviced regularly.

Biodiversity Enhancement

- The landscaping of the site offers the potential for biodiversity enhancements within the site. Future landscaping of the site should adhere to the following recommendations:
  - The proposed green roof system provides an opportunity for the creation of suitable habitats for pollinators. Therefore, the species mix should focus on a nectar rich plants that bloom between spring and late summer.
  - The natural verges along the treelines and hedgerows that are to be retained should be retained and managed appropriately for the benefit of wildlife. They should not be

sprayed with herbicide and a low intensity mowing or strimming regime should be incorporated. This will benefit local pollinators.

- Native trees and shrubs should preferably be used in the landscaping, followed by ornamental species that are of benefit to pollinators.
- A proportion of the grassland / parkland habitats within the site should be managed through methods that mimic traditional grassland management (low level mowing regimes). This will benefit local pollinators. Locally sourced wildflower seed would also be beneficial;
- Where possible the importation of topsoil from outside the area should be avoided;
- Allow some areas to go 'wild' where bramble and scrub, etc. can develop;
- Garden plants that have the potential to become invasive must be avoided;
- Water features, e.g., attenuation ponds, could be incorporated into the development as additional wildlife features.

Do Nothing Scenario

If the lands at Ballycullen were not developed, there would be no change to the natural landscape and ecology other than that caused by natural variation and trends or other anthropogenic impacts.

Worst Case Scenario

The worst-case scenario would see the development of the site without any mitigation to reduce and lessen ecological impacts. The worst-case scenario for the construction and operation of the residential development at Ballycullen could include loss of all treelines or woodland habitats within the application site, the mortality of birds and bats due to tree removal and habitat loss, a large-scale failure of hydrological mitigation measures and the chronic release of hydrocarbon into the surrounding surface waters. There are mitigation measures incorporated into the design and operation of the project to address this.

Monitoring and ReInstatement

Monitoring is generally required where there may be significant residual impacts despite the implementation of the mitigation measures. The following monitoring measures are recommended:

- Any trees and bat boxes should be monitored once the development is operational.

Difficulties in Compiling Information

All surveys were carried out at an appropriate time of the year and there were no difficulties present in the compiling of information for this report.

Residual Impacts and Conclusions

Residual impacts are impacts that remain once mitigation has been implemented or impacts that cannot be mitigated for. The mitigation measures proposed for the proposed development include specific avoidance and construction control measures to ensure that the proposed development in Ballycullen does not impact upon any species or habitats of conservation importance or designated sites. It is essential that these measures are complied with, in order to ensure that the proposed development complies with National conservation legislation. Provided all such measures are implemented in full and remain effective throughout the life-time of the proposed development, no significant negative residual impacts on the local ecology or on any designated nature conservation sites, are expected from the proposed works.

The creation of new habitats on the site where possible will be a positive benefit to local ecology and with proper management of the site and its green areas, then local areas of biodiversity will be allowed to develop.

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Appendix I: Species List

Common Name	Scientific Name
Ash	*Fraxinus excelsior*
Autumn hawkbit	*Scorzoneroides autumnalis*
Beech	*Fagus sylvatica*
Blackthorn	*Prunus spinosa*
Bramble	*Rubus fruticosus agg.*
Broadleaved Dock	*Rumex obtusifolius*
Butterfly bush	*Buddleia davidii*
Cat's ear	*Hypochaeris radicata*
Cleavers	*Galium aparine*
Cock's-foot	*Dactylis glomerata*
Common chickweed	*Stellaria media*
Common field speedwell	*Veronica persica*
Common ragwort	*Senecio jacobaea*
Creeping buttercup	*Ranunculus repens*
Creeping thistle	*Cirsium arvense*
Dandelion	*Taraxacum officinale*
Dog rose	*Rosa canina*
Dog violet	*Viola riviniana*
Foxglove	*Digitalis purpurea*
Germander speedwell	*Veronica chamaedrys*
Gorse	*Ulex europaeus*
Greater stitchwort	*Rabelera holostea*
Hairy bittercress	*Cardamine hirsuta*
Hawthorn	*Crategus monogyna*
Herb Robert	Geranium robertianum

Holly	*Ilex aquifolium*
Honeysuckle	*Lonicera periclymenum*
Ivy	*Hedera helix*
Leyland's Cypress	*Cupressus × leylandii*
Lesser celandine	*Ficaria vern*
Male fern	*Dryopteris filix-mas*
Meadow foxtail	*Alopecurus pratensis*
Meadow grasses	*Poa* sp.
Mouse ear	*Cerastium fontanum*
Nettle	*Urtica dioica*
Nipplewort	*Lapsana communis*
Primrose	*Primula vulgaris*
Red clover	*Trifolium pratense*
Ribwort plantain	*Pantago lanceolate*
Self-heal	*Prunella vulgaris*
Sessile oak	*Quercus petraea*
Silverweed	*Potentilla anserina*
Spear thistle	*Cirsium vulgare*
Spurge	*Euphorbia*
Sycamore	*Acer pseudoplatanus*
Tufted vetch	*Vicia cracca*
White clover	*Trifolium repens*
Willow	*Salix sp.*
Willowherb	*Ebilobium sp*
Wood avens	*Geum urbanum*
Wood sedge	*Carex sylvatica*
Yorkshire fog	*Holcus lanatus*

APPENDIX II – Photographs

GRASSLAND HABITATS WITHIN THE SITE. HOUSING DEVELOPMENTS ADJACENT TO THE SITE (NORTH) CAN BE SEEN IN THE BACKGROUND

A VIEW OF THE WOODLAND AT THE EASTERN PERIMETER OF THE SITE

THE WOODLAND IN THE CENTRE OF THE SITE

VIEW OF THE WOODLAND IN THE CENTRE OF THE SITE