TETRA TECH

Ecological Impact Assessment Report

Proposed Large-Scale Residential Development: Naas Racecourse Lands

IE002507
Naas Racecourse
Lands
A01
27 April 2026

REPORT

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
D01	Draft for internal Review	KW	WL	HG	13.04.2026
S0 P01	Draft for client review	KW	WL	HG	21.04.2026
S0 P02	Draft for client review	KW	WL	HG	22.04.2026
A01	Final	KW	WL	HG	27.04.2026

Approval for issue

Helena Gavin 27 April 2026

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1 Introduction

1.1 Scope of Report

Tetra Tech (formerly RPS) were commissioned by Ballymore Development Limited (the Applicant) to prepare this Ecological Impact Assessment Report (hereafter referred to as the Report) to accompany an application to Kildare County Council (KCC) for a large-scale residential development (LRD) at lands to the west of the Naas Racecourse, Co. Kildare.

This report identifies, describes, and presents an ecological impact assessment of the proposed works associated with the proposed development. A summary description of the Proposed Development is provided in **Section 2** of this report. The statutory notices and the suite of drawings and documents prepared by the Applicant and its design team, and submitted with the planning application, provide full details of the Proposed Development.

Following a summary of the relevant legislation, this report provides a description of the methodology used in the assessment, followed by a description of the relevant baseline conditions of the Proposed Development footprint and the surrounding area. This is then used to identify any relevant Important Ecological Features (IEFs).

In addition to this Report, a Report to Inform Screening for Appropriate Assessment (AA) has been prepared by Tetra Tech to assess the potential for likely significant effects on European sites and relevant receptors. This is enclosed with the application materials under separate cover.

1.2 Legislative and Policy Context

The EU 'Habitats Directive' (92/43/EEC) and the 'Birds Directive' (79/409/EEC) require the protection of particular species and habitats within Europe. Annex I and Annex II of the 'Habitats Directive' and Annex I of the 'Birds Directive' identify species and habitats that require protection and for which SACs and SPAs (Natura 2000 sites) should be designated. In addition, Annex IV and Annex II(b) of the Habitats Directive provides legal protection to specified species wherever they occur (both within or outside of a SAC).

The National Biodiversity Action Plan (NBAP) 2023 – 2030 (Department of Housing, Local Government and Heritage (DoHLGH), 2024) is a framework for the conservation and protection of biodiversity in Ireland. The main objective of the plan is to set the national biodiversity agenda and deliver the transformative changes required to the ways in which biodiversity is valued and protected.

The Kildare County Development Plan 2023-2029 is designed to guide sustainable development and land use across County Kildare over this period, aiming to balance growth with environmental protection and community needs. It plans for adequate housing to accommodate population growth, including strategic housing developments and the management of vacant sites. The plan supports local economic development by improving infrastructure, fostering job creation, and encouraging enterprises and innovation. Environmental protection is a key focus, with policies aimed at preserving natural heritage, biodiversity, and managing flood risks sustainably.

The Biodiversity Action Plan for County Kildare 2026 – 2031 is currently at consultation phase. The plan will aim to protect, conserve, and enhance the county's natural habitats and species over this period. It focuses on restoring biodiversity by promoting sustainable land management practices and safeguarding important ecological sites. The plan encourages community engagement and awareness to foster a culture of biodiversity stewardship among residents and stakeholders.

The River Basin Management Plan 2022-2027 sets out a strategic framework for the protection and sustainable management of water resources across river basins. The plan aims to improve and maintain the ecological and chemical status of rivers, lakes, groundwater, and coastal waters by addressing pollution, habitat degradation, and water abstraction pressures. It promotes integrated

catchment management approaches, involving collaboration among government agencies, local communities, and stakeholders to achieve water quality and biodiversity goals.

2 Proposed Development

2.1 Overview of Proposed Development

A summary of the proposed development is presented below, which should be read in conjunction with the information provided in further subsections of **Section 2** of this Report.

The proposed development comprises a Large-scale Residential Development (LRD) on lands extending to c. 8.7 hectares located to the west of Naas Racecourse, Naas, Co. Kildare. The proposal consists of 234 no. residential units, comprising 115 no. houses, 21 no. apartments within a three-storey apartment block, 80 no. own-door apartments within duplex-type buildings and 18 no. own-door apartments within triplex-type buildings together with ancillary public, communal and private open space; landscaping and play areas; internal roads and footpaths; car and bicycle parking; refuse storage; drainage infrastructure; utilities and services (including 2 no. ESB kiosks); and all associated site and ancillary works. The proposed development also includes a childcare facility with associated outdoor play space, set-down area and parking.

Transport and connectivity infrastructure includes the construction of an extension to Gallops Avenue connecting the existing Gallops Avenue to Tipper Road, upgrades to the existing section of Gallops Avenue (including cycle infrastructure and junction improvements), junction and traffic management works at Dublin Road and Tipper Road, provision for future vehicular access connections to adjoining lands, a new pedestrian connection to Kingsfurze Avenue, and provision for a future pedestrian connection along the western boundary to Kingsfurze Avenue.

The development also includes site clearance, demolition of an existing shed, removal of sections of existing boundary treatments, undergrounding of existing overhead lines, public lighting and all associated infrastructural works.

Full details of the proposed development are set out in the statutory notices and the accompanying planning application documentation, including:

- the Architectural Design Statement prepared by Reddy Architecture + Urbanism (RAU);
- the Landscape Design Report prepared by Murphy + Sheanon (M+S);
- the Infrastructure Design Report prepared by Donnachadh O'Brien & Associates (DOBA); and,
- the suite of architectural, landscape, and engineering (e.g., water, drainage, roads, etc) prepared by the project team.

2.2 Site Location

The site comprises a principal area, which will accommodate the residential component of the proposed development, as well as smaller parcels of land intended for supporting infrastructure and ancillary development works, including an extension of Gallops Avenue, works to the existing Gallops Avenue, the provision of a childcare facility, and links to adjoining lands.

The subject site extends to approximately 8.7 hectares. It is primarily located on an undeveloped plot of land between the built-up area of Naas and Naas Racecourse in Naas, County Kildare. It is located c. 700 metres northeast of Naas town centre, less than 1 kilometre southwest of Naas Industrial Estate and approximately 1.5 kilometres northeast of Naas General Hospital (all distances measured as the crow flies).

Regarding the character of the site, it is predominantly a greenfield area, although existing warehouses, associated ancillary external structures, and an internal private path are located within the site.

Established residential estates border the site, including Kings Court, which lies to the north, forming the northern boundary; the residential area within the Kingsfurze Avenue, located to the

west; and Woodlands, which lies to the south. Additionally, a green area is situated to the south-east, providing existing residents access to public open space and amenities.

2.3 Site Layout

The overall site layout plan is presented in Drawing No. NRC-02-SW-XXX-DR-RAU-AR-1006 prepared by RAU.

Given the extent of the site, Drawing Nos. NRC-02-SW-XXX-DR-RAU-AR-1007 to 1009, also prepared by RAU and enclosed with the planning application, provide detailed site layout plans at 1:500 (appropriate scale).

In summary, the layout adopts a considered, site-responsive approach that creates a strong sense of place and a high-quality neighbourhood, integrating urban design principles to maximise connectivity, orientation, and residential amenity.

2.4 Childcare Facility

The proposed development includes a childcare facility sized for 97 children to meet the childcare needs of future residents. The childcare facility will be supported by a dedicated external play area, parking and drop-off area. Full details of the design, layout, height, internal and external areas, and associated parking provision are provided in the Architectural Design Statement and the architectural drawings prepared by RAU, which are enclosed with the planning application materials.

2.5 Landscape, Open Space and Play Areas

The landscape strategy, along with the provision of open space and play areas within the development, is detailed in the accompanying Landscape Design Report and associated landscape drawings prepared by M+S. These documents provide comprehensive information relevant to the landscape and open spaces strategies proposed within the development.

The landscape design for this project builds on the site's existing character, integrating retained hedgerows, generous open spaces, and a multifunctional network of green infrastructure. The proposal creates an attractive, accessible, and sustainable public realm that encourages play, active travel, and community interaction while supporting biodiversity and the site's SuDS strategy.

Play is a central component of the design. Natural play elements are integrated throughout pocket parks and open green areas close to residential clusters, as recommended during pre-planning. These spaces use mounding, logs, boulders, and sensory planting to provide engaging, age-inclusive play opportunities. All play areas are universally accessible, have no moving parts, and comply with EN 1176 and EN 1177 standards. Safe, overlooked pedestrian connections link play areas to homes, the proposed crèche, and surrounding open spaces.

The SuDS strategy is seamlessly integrated into the landscape. Detention basins function as both stormwater management and valuable amenity spaces, while swales along roads enhance biodiversity and link with tree pits to improve infiltration and street character.

Large open lawns and kickabout areas support informal recreation and passive use, designed with gentle slopes for easy maintenance. The site's mature hedgerows will be retained and protected during construction in accordance with BS 5837:2012, providing immediate landscape maturity, wildlife habitat, and natural screening.

Connectivity is a key driver, with clear, overlooked pedestrian links connecting residents to neighbouring open spaces, The Dip, and Kingsfurze Avenue. Routes are accessible, well-lit, and surfaced with durable, permeable materials. Home-zone shared surfaces and raised tables calm traffic and prioritise pedestrians, with planting, seating, and tree pits integrated in line with DMURS principles. Rear access laneways will be lit and overlooked to promote safety and discourage anti-

social behaviour. Boundary treatments avoid unmanaged “no man’s land” areas, using durable, low-maintenance solutions in line with KCC standards.

Hard landscape areas are kept to a minimum to reduce maintenance, though a plaza space is provided at the front of the apartment units as a focal point for informal gatherings, social use, and community events. This space features seating, lighting, tree planting, and high-quality surfacing, with active frontages ensuring natural surveillance.

Tree planting combines native and ornamental species for year-round interest and biodiversity, coordinated to avoid conflicts with services and lighting. Root barriers will be used where required, and prohibited species such as Cherry Laurel, Leyland Cypress, and Ash are excluded in accordance with BS 8545:2014. The result is a cohesive, multifunctional landscape framework that balances the needs of residents, biodiversity, and sustainable water management, delivering a high-quality living environment with a strong sense of place from the outset.

2.6 Links to Adjacent Open Spaces

The proposed development is designed to integrate with existing green infrastructure by providing clear, accessible connections to neighbouring open spaces, including an existing green area known as The Dip and Kingsfurze Avenue. The proposed development also provides for a future connection along the western boundary, where an existing playground is located.

The connections will support ecological networks and enhance recreational opportunities for residents, linking the new development seamlessly to the broader landscape and community amenities.

2.7 Access & Movement

2.7.1 Gallops Avenue Extension

The proposed development includes the construction of an extension to the existing Gallops Avenue, which currently runs from its junction with Dublin Road southwards to the boundary of the subject site. The proposed extension continues this route further south to connect with Tipper Road.

This extension will feature dedicated footpaths, cycle tracks, and tree-lined verges on both sides of the new vehicular road. Approaching the junction with Tipper Road, the cycle tracks will transition to road-level cycle lanes.

Modifications to the existing Gallops Avenue are also proposed to incorporate two-way cycle tracks that connect with those in the new extension and link to Dublin Road. Pedestrian and cyclist crossings will be revised and/or improved at key junctions, including Tipper Road, Dublin Road, and The Gallops, to enhance safety and connectivity.

2.8 Lighting and Safety

Street lighting is provided along all primary and secondary roads, pedestrian routes, and cycle tracks to ensure safe movement at night. The lighting design will provide good visibility while minimising light pollution. Pedestrian and cyclist routes, including homezones and crossings, are designed with passive surveillance to enhance safety and security for all users.

2.9 Wastewater Drainage

Wastewater from the proposed development will be collected via a new wastewater network and discharged into the existing foul sewer network through a new connection. The design complies with relevant Uisce Éireann (UÉ) standards and codes of practice and includes provisions for adequate capacity and maintenance access to support the development’s needs.

2.10 Surface Water Drainage and Piped Network

Surface water runoff will be managed through a comprehensive drainage system designed to attenuate flows, protect against flooding, and promote sustainable water management. The strategy incorporates SuDS measures, including attenuation basins, swales, permeable paving, and other green infrastructure elements to enhance infiltration and biodiversity.

The piped network will efficiently collect and convey surface water to designated discharge points, with careful integration of SuDS features to provide both functional drainage and amenity benefits.

3 Methodology

3.1 Sources of Information to Inform the Assessment

3.1.1 Desktop Study

Information on biodiversity within the ecological study area was collected through a desktop review of existing studies and datasets. These are summarised in **Table 3-1**.

Table 3-1: Summary of key desktop reports

Title	Year	Author/Source
Map of Irish Wetlands	2025	Wetlands of Ireland, Map of Irish Wetlands Accessed October 2025
Surface and ground water quality status, and river catchment boundaries	2025	Environmental Protection Agency (EPA) online interactive mapping tools https://www.catchments.ie/maps/ Geological Survey Ireland (GSI) https://gis.epa.ie/EPAMaps/default Accessed October 2025
NPWS designated areas spatial data	2025	NPWS, https://www.npws.ie/maps-and-data/designated-site-data/download-boundary-data Accessed October 2025
Distribution records for protected species and habitats (including suitability index for bats) held online by the National Biodiversity Data Centre (NBDC), NPWS, BSBI and Heritage Council[1]	2011- 2025	NBDC https://maps.biodiversityireland.ie/Map, Assessed September 2025. Study area: 2km grid squares N92A and N91E that overlap with the Proposed Development. NPWS, https://www.npws.ie/maps-and-data/flora-protection-order-map-viewer-bryophytes. Accessed October 2025. Study area: 2km grid squares N92A and N91E that overlap with the Proposed Development. Botanical Society of Britain and Ireland (BSBI) databases (https://bsbi.org/) Heritage Council, Heritage Maps Viewer, https://www.heritagemaps.ie/ Accessed October 2025 Lundy et al., (2011)

[1] Criteria were applied to data records obtained from the BSBI, NBDC and NPWS, which included:

- Records of protected invertebrate, fish, reptile, amphibian and mammal species greater than 10 years old and protected bird species greater than 15 years old were not included in the assessment.
- Records of botanical species, including mosses, liverworts, and hornworts greater than 25 years old were not included in the assessment.
- Records of species identified as Extinct in the Wild (EW), Regionally Extinct (RE) or Extinct (EX) in national red lists were not included in the assessment.
- Any species listed as Not Evaluated (NE), Data Deficient (DD), Least Concern (LC) or Near Threatened (NT) in national red lists were not included in the assessment.
- Species that were classified as *Waiting List* in national red lists were not included in the assessment.

Title	Year	Author/Source
Checklists of protected and threatened species in Ireland	2019	Nelson et al. (2019)
Red Lists	1998, 2006, 2009, 2010, 2011, 2012, 2016, 2019, 2020, 2021	Curtis and Gough, (1998); Fitzpatrick et al., (2006); Marnell et al., (2009); Regan et al., (2010); King et al. (2011); Clarke et al. (2016); Wyse Jackson et al. (2016); Marnell et al., (2019); Gilbert et al. (2021)
Birds of Conservation Concern	2021	Gilbert et al., (2021)
Status of EU Protected Habitats and Species in Ireland, Volume 1, 2, and 3	2019	National Parks & Wildlife Service (NPWS) (2019a, b & c)
National Biodiversity Action Plan 2023 - 2030	2024	Department of Housing, Local Government and Heritage
Kildare County Development Plan 2023 - 2029	2023	Kildare County Council
Protected Sites in Ireland	2025	NPWS, https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=8f7060450de3485fa1c1085536d477ba Accessed September 2025

3.1.2 Field Study

3.1.2.1 Ecological Walkover

A preliminary ecological walkover survey was completed on the 27th of March 2025, which identified baseline ecological conditions of the site and surrounds, and identified scope for further surveys required. The scope of the field survey area for the walkover included all lands within the footprint of the red line boundary **Figure 3-1.**

The walkover included habitat surveys to classify habitats occurring within the field survey area with reference to the Heritage Council's habitat classification system (Fossitt, 2000). The mapping of habitats had cognisance of the Heritage Council's mapping methodology. A search for notable, rare, or protected flora was also carried out during these surveys.

A search for Invasive Alien Plant Species (IAPS) within the field survey area was also carried out to establish the presence/absence of invasive species listed under the Third Schedule of European Communities (EC) (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011), as amended and under the First Schedule of European Union (EU) (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024). The species listed on both of these schedules are the same and will be referred to as "Scheduled" species throughout this report.

The site walkover also included a search for evidence of mammal activity (badger, otter, etc.), mammal signs (e.g., footprints, dens/setts/holts) and birds.

During the site walkover, a preliminary ground-level assessment of trees and structures for roosting bats within and directly adjacent to the red line boundary was carried out with cognisance of the methodology and best practice in Collins (2023).

All evidence recorded from the site walkover was recorded digitally in the ArcGIS FieldMaps application.

The results of the walkover survey identified further assessment for bat roost assessments and bat activity assessments. The methodology for the additional bat surveys is detailed in the sections below.

3.1.2.2 Preliminary ground-level bat roost assessment – Trees and Structures

A preliminary ground-level roost assessment was carried out during daylight hours, using close-focusing binoculars, to identify features with suitability for roosting bats in trees and structures. This survey was conducted during the walkover survey on the 27th March 2025. As the design and the red line boundary evolved since the walkover survey and initial preliminary ground-level roost assessment, another site visit was carried out on the 4th September 2025 to survey an additional structure. The focus area for the preliminary bat roost assessment surveys were trees, buildings and structures potentially affected by the Proposed Development (i.e., all trees, buildings and structures within the footprint of the Proposed Development or adjacent to the red line boundary).

All trees within the footprint of the Proposed Development were studied and assessed for the presence of features with suitability for roosting bats including cavities, frost cracks, trunk and branch splits, rot holes, and hollow sections of trunk and branches. The results of this assessment were used to grade trees as having None, Further Assessment Required, Potential Roost Feature – Individual (PRF-I), or Potential Roost Feature – Multiple (PRF-M) for roosting bats with cognisance of the BCT Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2023).

Buildings and structures potentially affected Proposed Development were assessed externally for features with suitability for roosting bats including stonework, chimney breasts, roof gaps etc. on the 27th March 2025 using close focusing binoculars. The results of this assessment were used to grade the building as having negligible, low, moderate or high suitability for roosting bats with cognisance of the BCT Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2023). The outcome of this assessment determined if bat emergence surveys were necessary.

3.1.2.3 Bat Emergence Survey

A bat emergence survey for the structure identified for further survey during ground-based bat roost assessment (Building A) (**Appendix B**) was carried out on the 4th September 2025 (one dusk emergence survey), using full spectrum digital-recording bat detectors (Elekon Batlogger M2 detectors and Anabat Scout), and Night Vision Aids (Canon XA60 Camcorder and infrared torches). The aim of the survey was to confirm the presence or absence of roosting bats. Two ecologists carried out the survey using three sets of equipment that were focused on the potential bat roost features and potential entry/exit points identified during the preliminary ground-level roost assessment. The cameras were attended by the surveyors for the duration of the survey and the footage was uploaded to a desktop and reviewed in the office.

The timing and survey effort for the emergence surveys were completed with reference to the recommendations set out in BCT guidance (Collins, 2023) with respect to structures. Emergence (dusk) surveys start 15 minutes before sunset and finish 1.5-2 hours after sunset.

3.1.2.4 Bat Activity Survey - Transects

Bat activity surveys were carried out by Tetra Tech suitably qualified ecologists on the 29th of August and the 22nd of September 2025. Activity surveys were completed with cognisance of BCT Good Practice Guidelines (Collins, 2023). Surveys entailed ecologists walking a planned and pre-determined transect route at a constant speed in order to observe, listen for and record bats in flight using full-spectrum digital-recording bat detectors (elekon Batlogger M2 detectors). Transect routes followed all hedgerows and treelines within the Proposed Development footprint and were reversed between visits. Observations of bats were recorded on field sheets and the data collected from the Batlogger detector was analysed using acoustics analysis software Kleidoscope.



Figure 3-1: Field Survey Area: All lands within the red line boundary

3.2 Ecological Study Area

The ecological study area is determined by the Zone of Influence (ZoI) of the Proposed Development. The ZoI for the Proposed Development is the area over which ecological features may be subject to significant impacts as a result of the Proposed Development and associated activities.

The ZoI is likely to extend beyond the boundary of a development, for example where there are hydrological links extending beyond the site boundaries. Activities associated with the construction, operational and maintenance, and decommissioning (and where applicable, restoration) phases should be separately identified (where relevant) (CIEEM, 2018).

The ZoI will vary for different ecological features depending on their sensitivity to an environmental change. It is therefore appropriate to identify different ZoIs for different features. The features affected could include habitats, species, and the processes on which they depend. ZoIs are specified for different features, and types of potential impact.

It is also important to acknowledge that the absence of a designation or documented feature does not mean that no such feature exists within the site. As such, the ZoI should be identified for all features potentially occurring within the site of the Proposed Development, in addition to any known to occur. As recommended by CIEEM (2018), professionally accredited or published studies were used to determine ZoI for this Proposed Development.

Through the incorporation of relevant ZoIs for the Proposed Development, the ecological study area is determined to extend outside of the footprint of the Proposed Development, to include the following ecological features as set out in **Table 3-2**.

Table 3-2: Study area and ZoI for different ecological features

Ecological Features	Desk Study Area	Zone of Influence
Sites designated for nature conservation (as outlined in Section 4.3)	Catchment Management Unit and professional judgement for sites designated for nature conservation	All sites with connectivity to the Proposed Development
Otter	N92A, N91E	150m
Badger	N92A, N91E	50m
Bats	N92A, N91E	Redline boundary of the Proposed Development and adjoining habitats
Habitats and protected flora (including invasive alien plant species)	N92A, N91E	Redline boundary of the Proposed Development and relevant adjoining habitats
Breeding birds	N92A, N91E	Redline boundary of the Proposed Development and relevant adjoining habitats
Other protected mammals	N92A, N91E	Redline boundary of the Proposed Development and adjoining habitats
Amphibians		Redline boundary of the Proposed Development and adjoining habitats

3.3 Potential Biodiversity Impacts

A description of the Proposed Development is provided in **Section 2**. The activities that have potential to result in likely significant effects on ecological receptors are outlined below:

3.3.1 Construction Phase

The key activities which have potential to result in likely significant impacts on ecological; receptors during construction are:

- **Biodiversity loss, fragmentation, degradation, and alteration:**
    - Site clearance and enabling works including surface stripping and vegetation/tree removal resulting in habitat loss, degradation, alteration, and fragmentation.
    - Earthworks and construction activities including construction of embankments and hardstanding installation.
    - Installation of structures such as post and rail fence and access gates (i.e., barriers to wildlife).
    - Works associated with site compounds and material storage areas.
    - Construction site drainage carrying suspended silt or contaminants into local watercourses and associated habitat degradation effects.
- **Pollution to water, air and/or soil:**
    - Construction site drainage carrying suspended silt or contaminants into local watercourses causing pollution and affecting water quality.
    - Localised air pollution from construction machinery, asphalt pavement installation and dust from excavations.
    - Soil contamination associated with machinery and vehicles (i.e., fuel), material storage and waste, and accidental spillages.
- **Disturbance from noise, vibration, lighting, and human presence:**
    - Excavations, earthworks, machinery, vehicles, and personnel causing high levels of noise and vibration.
    - Disturbance through displacement of local wildlife.
- **Spread of invasive alien species:**
    - Movement of machinery, vehicles, and personnel.
    - Site clearance and enabling works including surface stripping and vegetation/tree removal may interfere with areas identified to have invasive alien species.

3.3.2 Operational and Maintenance Period

The key activities which have potential to result in likely significant impacts on ecological receptors during the operational phase are:

- **Habitat loss, degradation, alteration, and fragmentation:**
    - Fencing and access gates during operation may bring about barriers to wildlife.
    - Operational site drainage carrying suspended silt or contaminants into local watercourses with potential to carry suspended silt or contaminants into local watercourses and associated habitat degradation effects.
- **Pollution to water:**
    - Operational site drainage carrying suspended silt or contaminants into local watercourses causing pollution and affecting water quality.

- **Disturbance from noise, vibration, lighting, and human presence:**
    - Increased activity in the form of vehicles, walkers, joggers and cyclists using the residential estate.
    - Movement of maintenance vehicles and personnel causing noise and vibration.
    - Operational lighting of the residential estate, which was previously an unlit area.
- **Spread of invasive alien species:**
    - Movement of vehicles and people.

3.4 Impact Assessment

The assessment takes cognisance of the following guidance documents:

- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, Version 1.2 - Updated April 2022 (CIEEM, 2018); and
- Guidelines for Assessment of Ecological Impacts of National Roads Schemes, Revision 2 (NRA, 2009).

For the purposes of this impact assessment process on ecology, the CIEEM (2018) guidelines have been used for the basis of the assessment. The process incorporates NRA (2009) guidelines for the ecological valuation and geographic context.

3.4.1 Important Ecological Features (IEF)

Having defined the relevant baseline conditions within the ecological study area of the Proposed Development, ecological features therein are valued, in advance of commencing the assessment of potential impacts.

The methodology used to value ecological features has regard for the geographic frames of reference outlined by the NRA (2009) (**Appendix A**), which are employed in this report.

It is possible that features which are in and of themselves of negligible ecological value (e.g., improved grassland of negligible floristic value) may be of high value in the resource they provide to other features (e.g., a significant resource of invertebrates breeding in the grasslands, which are an important food for local badgers). In some cases, therefore, habitats and species of negligible value may nevertheless be considered of greater importance due to their value to protected species.

IEFs, as termed in CIEEM (2018), are defined here as those ecological features which are valued at Local Importance (Higher Value) or above (NRA, 2009; **Appendix A**). Ecological features below this value have been scoped out of further assessment as any potential impact is deemed to be of Local Importance (Lower Value) or negligible.

3.4.2 Ecological Impact Assessment Process

The assessment process, as described by CIEEM (2018), involved:

- Identifying and characterising impacts and their effects; and
- Incorporating measures to avoid and mitigate negative impacts and effects; and
- Assessing the significance of any residual effects after mitigation; and
- Identifying appropriate compensation measures to offset significant residual effects; and
- Identifying opportunities for ecological enhancement.

The assessment comprises the review of the baseline data gathered and the identification of IEFs with features valued on the basis of available information/guidance and using professional judgement.

3.4.3 Characterising and Determining Significance

Impacts on IEFs are characterised with the following qualitative terms, as relevant (CIEEM, 2018):

- **Positive or Negative.** Positive and negative impacts and effects should be determined according to whether the change is in accordance with nature conservation objectives and policy:
  - Positive: a change that improves the quality of the environment (e.g., by increasing species diversity, extending habitat, or improving water quality). This may also include halting or slowing an existing decline in the quality of the environment.
  - Negative: a change which reduces the quality of the environment (e.g., destruction of habitat, removal of foraging habitat, habitat fragmentation, pollution).
- **Extent.** The extent is the spatial or geographical area over which the impact/effect may occur under a suitably representative range of conditions (e.g., noise transmission under water).
- **Magnitude.** Magnitude refers to size, amount, intensity, and volume. It should be quantified if possible and expressed in absolute or relative terms (e.g., the amount of habitat lost, percentage change to habitat area, percentage decline in a species population).
- **Duration.** Duration should be defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes. For example, five years, which might seem short-term in the human context or that of other long-lived species, would span at least five generations of some invertebrate species.
- **Frequency and Timing.** The number of times an activity occurs will influence the resulting effect. For example, a single person walking a dog will have very limited impact on nearby waders using wetland habitat, but numerous walkers will subject the waders to frequent disturbance and could affect feeding success, leading to displacement of the birds and knock-on effects on their ability to survive. The timing of an activity or change may result in an impact if it coincides with critical life-stages or seasons (e.g., bird nesting season).
- **Reversibility.** An irreversible effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it. A reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation.

There may be any number of possible impacts on IEFs arising from a development. However, it is only necessary to describe in detail the impacts that are likely to be significant. Impacts that are either unlikely to occur, or if they did occur are unlikely to be significant, are scoped out. If in doubt, the precautionary principle is applied, and the potential impact will be assessed.

When assessing the significance of an effect, for the purposes of this assessment, it is simply any effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to consent a project. For the purposes of EcIA, a “significant effect” is defined as an effect that either supports or undermines the biodiversity conservation for the IEF (CIEEM, 2018). These significant effects are qualified with reference to an appropriate geographical scale.

The approach to determining significance does not utilise a matrix of degrees of impact significance (such as EPA (2022)) but instead follows the industry standard for ecological impact significance (CIEEM, 2018) where effects are determined to be ‘significant’ or ‘not significant’.

3.5 Data Limitations and Difficulties Encountered

3.5.1 Desk Study

Sources of desk study information are neither exhaustive nor necessarily easily available, and an extensive effort was made to obtain ecological data in the public domain to inform the description of the baseline environment and its assessment. Additional information, not in the public domain, is likely to exist, but could not be obtained or assessed here. This limitation is acknowledged and incorporated into the assessment through the precautionary principle and is deemed to not affect the certainty or predictability of the assessment.

3.5.2 Field Study

It is acknowledged that the receiving environment (i.e., baseline condition) may naturally vary through seasons and between years (NRA, 2009). All reasonable effort has been made to address this (e.g., combined use of desk and field survey data), and the limitation is acknowledged. Once incorporated into the assessment the limitation is deemed to not affect the certainty or predictability of the assessment.

Bat Emergence of Structure

The recommended survey timing for structures with 'Low' suitability is one survey between May to August (Collins, 2023). Due to resourcing and seasonal constraints, the bat emergence survey was completed just outside this optimal survey period on 04 September 2025. Although there was some light drizzle during the survey, temperature and wind conditions were considered optimal (14 degrees Celsius and light breeze) with respect to emerging bats (Collins, 2023). Bat activity was recorded during the survey period commuting or foraging in close proximity to structure, which shows that emergence was not affected by the conditions. Therefore, it is considered that the survey timings will not affect the certainty or predictability of the assessment.

Bat Activity Survey

It was not possible to deploy static detectors during the activity surveys given the open nature of the Site and the level of public use. The automated detectors would have been vulnerable to tampering and possible removal. Given that two manual transect surveys were undertaken, it was still possible to assess the level of activity within the site and it is considered that the level of use reflected a true estimate of the sites value for bat activity. The recommended survey timings for night-time bat walkover surveys are one visit per season (spring, summer, and autumn). A bat activity survey was completed for the summer season (one visit in August 2025) and the autumn season (one visit in September 2025), however, no survey was completed in spring. Given the scale of the project and the overall low to moderate suitability for bats in the area based off the desk study and field study, it is considered that survey timings will not affect the certainty or predictability of the assessment.

4 Baseline Environment

This section outlines the ecological baseline environment, as informed by the desktop studies and site surveys (see **Section 3.1**).

4.1 Soils and Geology

The GSI online database[2] was consulted for available for geological, and hydrological information of the Proposed Works area and its environs. The bedrock present across the majority of the Proposed works area is comprised of dark muddy limestone, shale (Ballysteen Formation). The south of the Proposed Development intersects the Carrighill Formation which is comprised of calcareous greywacke siltstone and shale.

A search of the GSI soils database was consulted to establish the underlying soils within the Proposed Development area. Teagasc soils mapping characterises the majority of the soils in the Proposed Development, including the following:

- Grey Brwon Podzolics, Brown Earths
- Surface water gleys, groundwater gleys
- Made/ Built Land
- Mineral alluvium

4.2 Hydrology and Hydrogeology

4.2.1 Relevant Surface Water

The Water Framework Directive (WFD) is enforced in Ireland under the European Union Environmental Objectives (Surface Waters) Regulations S.I. No. 272 of 2009, as amended. Q-value status, as reported by the Environmental Protection Agency (EPA), is determined by the biological quality element: macroinvertebrate fauna. A target for Q4 and above is required for rivers sites to comply with good (Q4) or better (i.e., high status - Q4-5, Q5).

The Proposed Development is located within the following catchment:

> **Liffey and Dublin Bay Catchment (ID: 09)** This catchment includes the area drained by the River Liffey and by all streams entering tidal water between Sea Mount and Sorrento Point, Co. Dublin, draining a total area of 1,616km². The largest urban centre in the catchment is Dublin City. The other main urban centres are Dun Laoghaire, Lucan, Clonee, Dunboyne, Leixlip, Maynooth, Kilcock, Celbridge, Newcastle, Rathcoole, Clane, Kill, Sallins, Johnstown, Naas, Newbridge, Athgarvan, Kilcullen and Blessington. The total population of the catchment is approximately 1,255,000. The Liffey catchment contains the largest population of any catchment in Ireland and is characterised by a sparsely populated, upland south eastern area underlain by granites and a densely populated, flat, low lying limestone area over the remainder of the catchment basin.

The Proposed Development is located within the sub catchment Liffey_SC_060 and does not intersect with the river water body. The nearest river waterbody is the Castlesize river located 340 m south of the red line boundary, which is part of the Liffey_120 river system (International Waterbody Code: IE_EA_09L01150). The WFD status of the Liffey_120 for the 2016-2021 period is classified as “Good” as assessed via monitoring and is “not at risk” of not achieving WFD objectives.

The River Morrell (EPA name: Morrell_20, International Waterbody Code IE_EA_09M010100) is located to the east of the red line boundary and is located within the Liffey_SC_070 sub catchment.

[2] Geological Survey Ireland Spatial Resources

The WFD status for the Morell_20 during the 2016-2021 period is classified as “Poor” as assessed via monitoring and is “at risk” of not achieving WFD objectives.

EPA Q-value monitoring stations are located along the Liffey_120 and Morrell_20 waterbodies, however not all of them provide up to date Q-values. **Table 4-1** details the WFD Status and water quality monitoring results for the relevant river waterbodies.

The river waterbodies relevant to the Proposed Development are shown in **Figure 4-1**.

Table 4-1: WFD Status and Q-values of watercourses within the desk study area

Common Name (EPA Name)	Waterbody WFD Status 2016-2021	WFD Risk	Station Name/Monitoring Location	Station Code	Location in relation to Proposed Development	Most Recent Q-value (macro-invertebrate quality)
Castlesize River (Liffey_120)	Good	Not at risk	Millicent Bridge	RS09L011400	7.1 km downstream of Proposed Development	N/A
Morrell (Morrell_20)	Poor	At risk	Morell – Bridge near fishery	RS09M010080	685 m east of the Proposed Development.	N/A
			Bridge In Johnstown	RS09M010100	1.3 km downstream of RS09M010080	Q3 (2022)

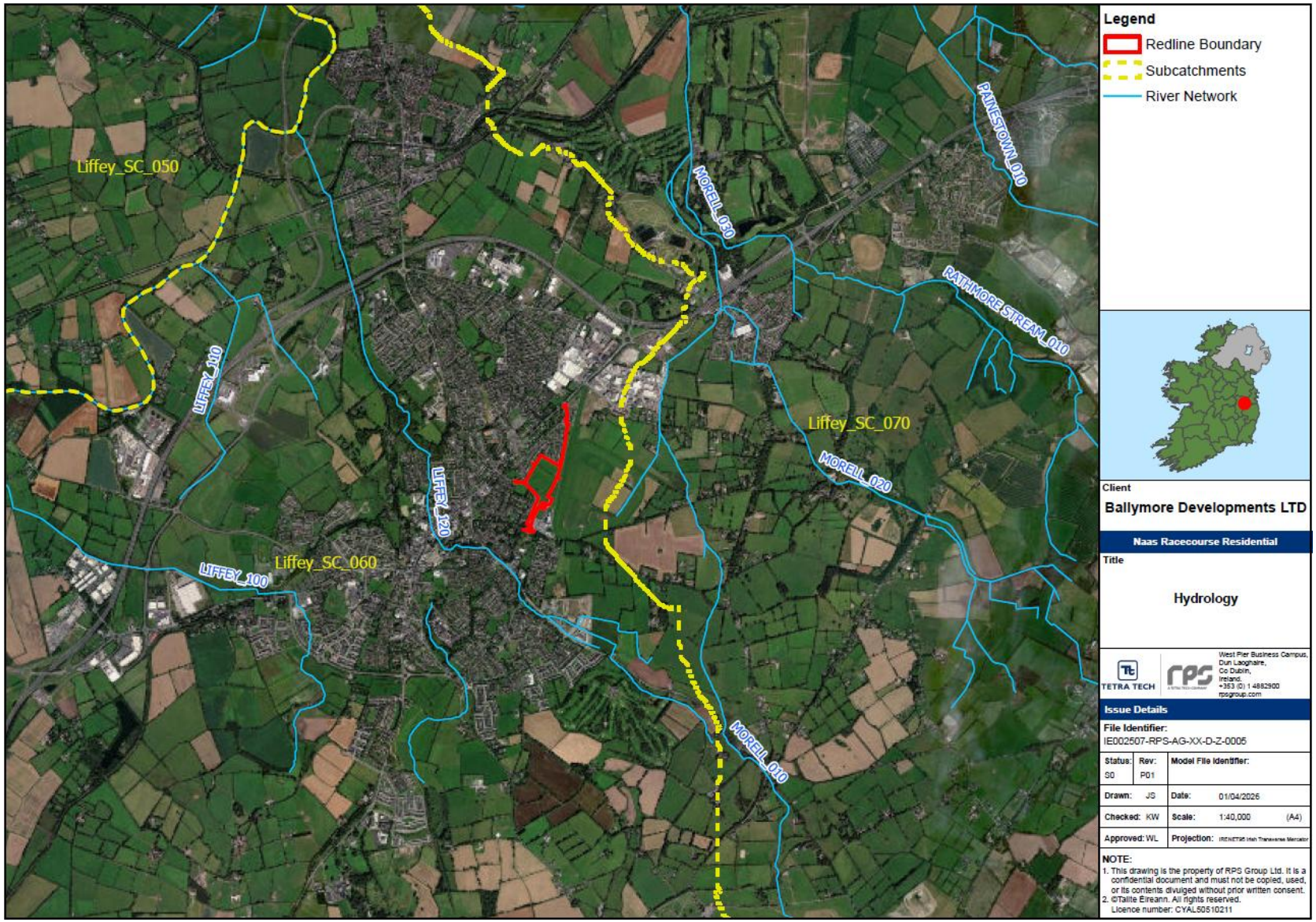


Figure 4-1: Relevant river waterbodies

4.2.2 Relevant groundwater bodies

The Proposed Development lies entirely within the Dublin groundwater body (GWB) (EPA waterbody code: IE_EA_G_008) (**Figure 4-2**). The Dublin GWB was assessed as “Good” during the 2019-2024 assessment period, and the risk of not achieving its WFD objectives is “under review”. The Proposed Development borders the Kilcullen GWB but does not overlap with it and was not considered relevant to the Proposed Development for the purpose of this report.

The groundwater flow paths and groundwater surface water interactions for the Dublin groundwater body are as follows:

> **Dublin GWB**: The general groundwater flow direction in this aquifer is towards the coast and also towards the River Liffey and Dublin City. This aquifer is not expected to maintain regional groundwater flow paths. Groundwater circulation from recharge to discharge points will more commonly take place over a distance of less than a kilometre. The majority of groundwater flow will be a rapid flow in to upper weathered zone but flow in conduits is commonly recorded at depths of 30 to 50 m b.g.l. The aquifer is not considered to have any primary porosity and flow will be through fractures, some of which will have been enlarged by karstification and dolomitisation. The fissured nature and the moderate permeability of the bedrock close to the surface imply that water will move at high velocities.

There will be highly varied groundwater and surface water interaction processes occurring within the large area of this groundwater body. The nature of these interactions will be determined by local factors and it is therefore impossible to generalise over such a large area.

Groundwater vulnerability across the Proposed Development area is ‘High’ due to natural characteristics that make it highly vulnerable to contamination by human activities (**Figure 4-3**).

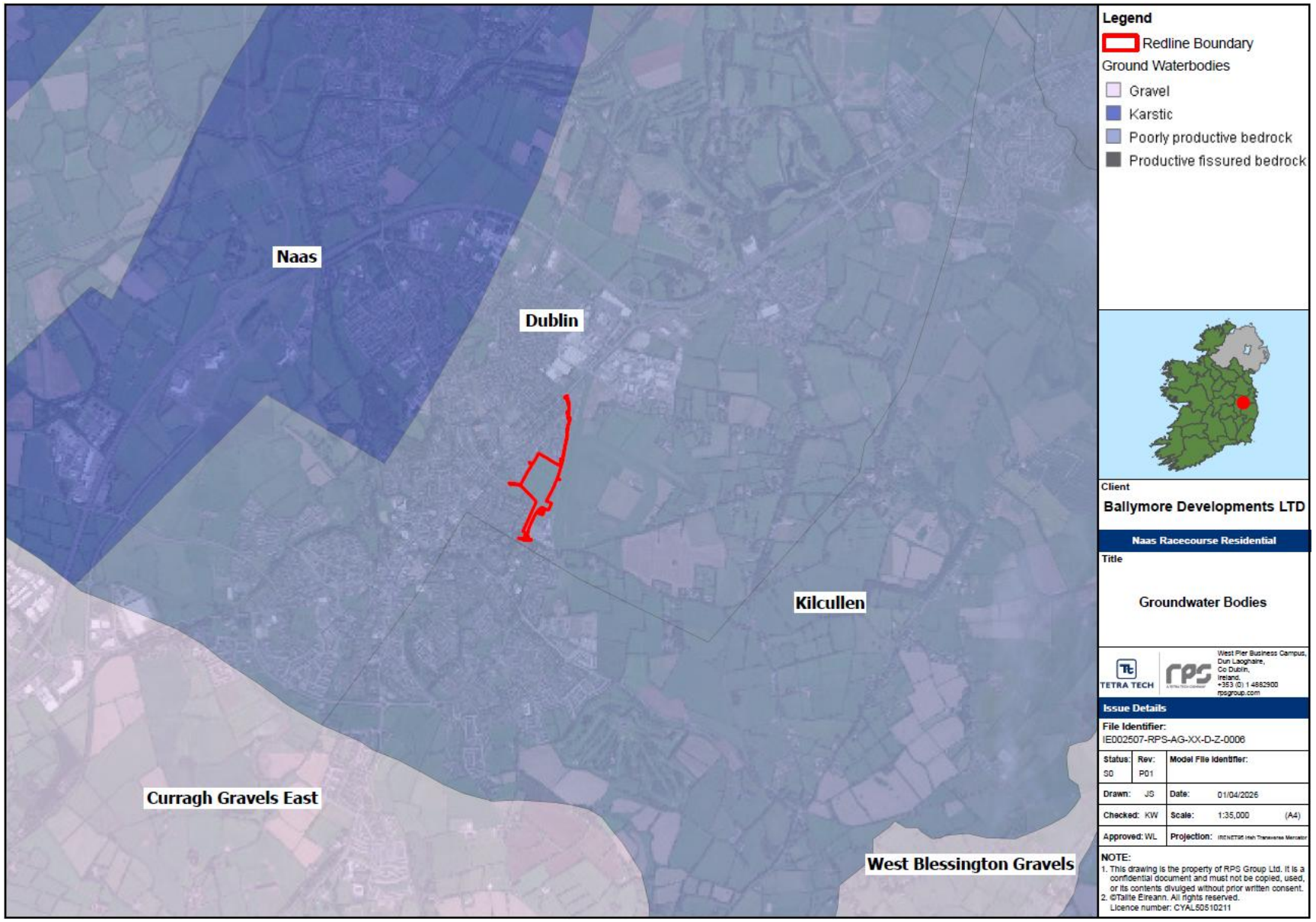


Figure 4-2: Relevant groundwater bodies

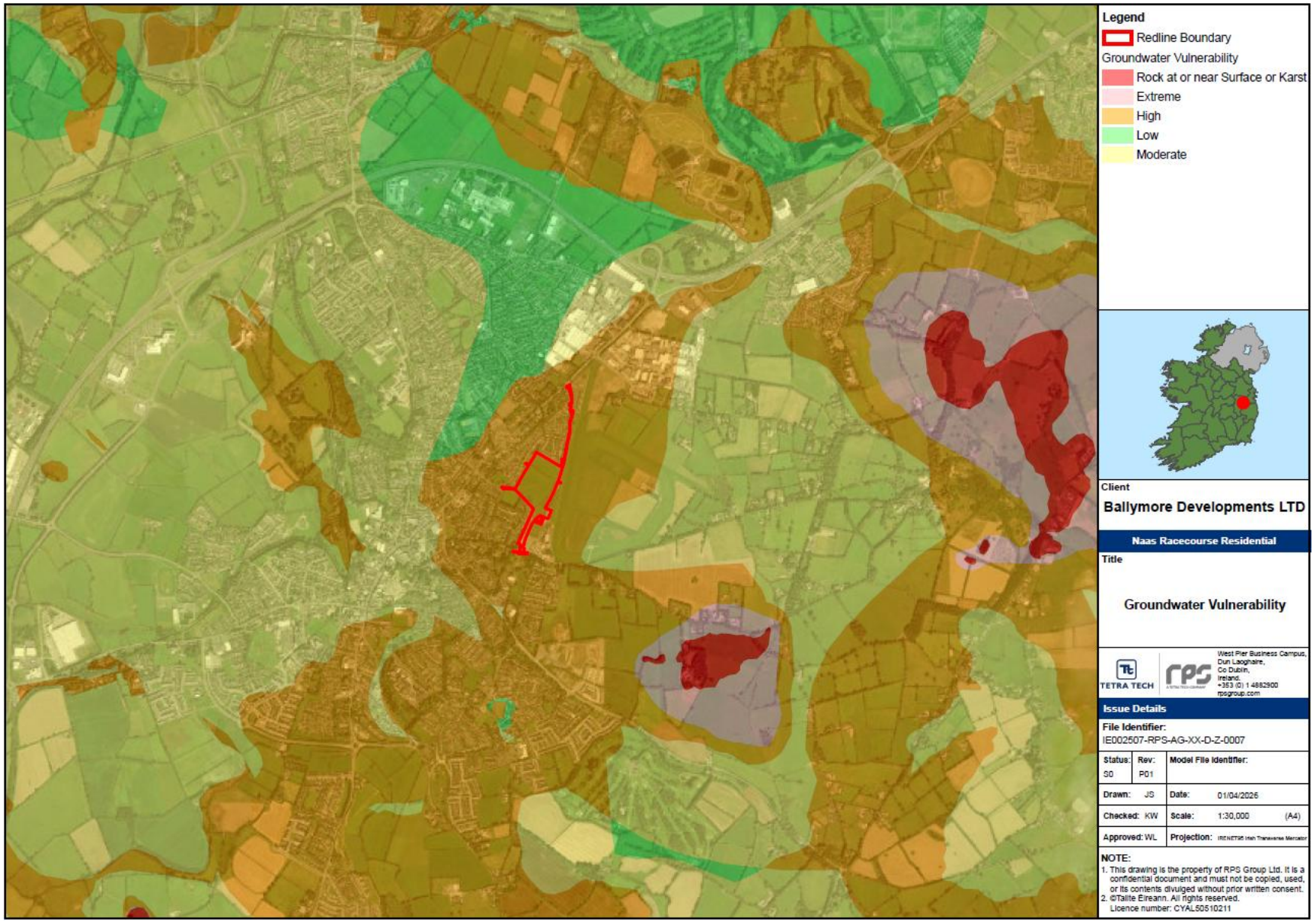


Figure 4-3: Groundwater Vulnerability

4.3 Designated Sites for Nature Conservation

The site of the Proposed Development is not located within any nationally or internationally designated sites for nature conservation. Designated sites for nature conservation within the ecological study area are detailed in **Table 4-2** and are shown in **Figure 4-4** and **Figure 4-5**.

The closest relevant European site (i.e. Special Area of Conservation (SAC), candidate Special Area of Conservation (cSAC), Special Protection Area (SPA), proposed Special Protection Area (pSPA)) to the Proposed Development is Poulaphouca Reservoir SPA (004063), which is approx. 9.5 km to the southeast of the Proposed Development. The closest national site to the Proposed Development is the Grand Canal proposed Natural Heritage Area (pNHA), located 1.3km to the west.

Table 4-2: Relevant designated sites for nature conservation and their interest features.

Designated Site (Code)	Closest Distance (km) to Proposed Development	Relevant Ecological Features
European Sites (SAC, cSAC, SPA, pSPA)		
Poulaphouca Reservoir SPA (004063)	9.5km southeast	• Greylag Goose (*Anser anser*) [A043] • Lesser Black-backed Gull (*Larus fuscus*) [A183]
Wicklow Mountains SPA (004025)	14.1 km southeast	• Merlin (*Falco columbarius*) [A098] • Peregrine (*Falco peregrinus*) [A103]
South Dublin Bay and River Tolka Estuary SPA (004024)	30.8 km northeast	• Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] • Oystercatcher (*Haematopus ostralegus*) [A130] • Ringed Plover (*Charadrius hiaticula*) [A137] • 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]
South Dublin Bay SAC (000210)	30.8 km northeast	• 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]
Dalkey Islands SPA (004172)	37.5 km northeast	• Roseate Tern (*Sterna dougallii*) [A192] • Common Tern (*Sterna hirundo*) [A193]

Designated Site (Code)	Closest Distance (km) to Proposed Development	Relevant Ecological Features
		• Arctic Tern (*Sterna paradisaea*) [A194]
Rockabill to Dalkey Island SAC (003000)	37.5 km northeast	• Reefs [1170] • *Phocoena phocoena* (Harbour Porpoise) [1351]
Rye Water Valley / Carton SAC (001398)	17.9 km north	• Petrifying springs with tufa formation (Cratoneurion)* [7220] • *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014] • *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016]
Mouds Bog SAC (002331)	9.5 km west	• Active raised bogs* [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the *Rhynchosporion* [7150]
North Dublin Bay SAC (000206)	34.2 km northeast	• Mudflats and sandflats not covered by seawater at low tide [1140] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • *Petalophyllum ralfsii* (Petalwort) [1395] • Annual vegetation of drift lines [1210] • Salicornia and other annuals colonising mud and sand [1310] • 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]
North Bull Island SPA (004006)	34.4 km northeast	• 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 totanus*) [A162] • Turnstone (*Arenaria interpres*) [A169] • Black-headed Gull (*Chroicocephalus ridibundus*) [A179] • Wetland and Waterbirds [A999]

Designated Site (Code)	Closest Distance (km) to Proposed Development	Relevant Ecological Features
North-West Irish Sea SPA (004236)	35.8 km northeast	• Red-throated Diver (*Gavia stellata*) [A001] • Great Northern Diver (*Gavia immer*) [A003] • Manx Shearwater (*Puffinus puffinus*) [A013] • Common Scoter (*Melanitta nigra*) [A065] • Little Gull (*Larus minutus*) [A177] • Black-headed Gull (*Chroicocephalus ridibundus*) [A179] • Common Gull (*Larus canus*) [A182] • Lesser Black-backed Gull (*Larus fuscus*) [A183] • Great Black-backed Gull (*Larus marinus*) [A187] • Roseate Tern (*Sterna dougallii*) [A192] • Common Tern (*Sterna hirundo*) [A193] • Arctic Tern (*Sterna paradisaea*) [A194] • Little Tern (*Sterna albifrons*) [A195] • Guillemot (*Uria aalge*) [A199] • Razorbill (*Alca torda*) [A200] • Fulmar (*Fulmarus glaciali*) [A009] • Cormorant (*Phalacrocorax carbo*) [A017] • Shag (*Phalacrocorax aristotelis*) [A018] • Herring Gull (*Larus argentatus*) [A184] • Kittiwake (*Rissa tridactyl*) [A188] • Puffin (*Fratercula arctica*) [A204]
Baldoyle Bay SAC (000199)	39.3 km northeast	• Mudflats and sandflats not covered by seawater at low tide [1140] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
Baldoyle Bay SPA (004016)	39.3 km northeast	• Light-bellied Brent Goose (*Branta bernicla hrota*) [A046], • Shelduck (*Tadorna tadorna*) [A048] • Ringed Plover (*Charadrius hiaticula*) [A137], • Golden plover (*Pluvialis apricaria*) [A140], • Grey Plover (*Pluvialis squatarola*) [A141], • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Wetland and Waterbirds [A999]
Malahide Estuary SAC (000205)	40.0 km northeast	• Light-bellied Brent Goose (*Branta bernicla hrota*) [A046], • Shelduck (*Tadorna tadorna*) [A048] • Ringed Plover (*Charadrius hiaticula*) [A137], • Golden plover (*Pluvialis apricaria*) [A140], • Grey Plover (*Pluvialis squatarola*) [A141], • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Wetland and Waterbirds [A999]

Designated Site (Code)	Closest Distance (km) to Proposed Development	Relevant Ecological Features
Malahide Estuary SPA (004025)	40.0 km northeast	• Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] • Shelduck (*Tadorna tadorna*) [A048] • Pintail (*Anas acuta*) [A054] • Goldeneye (*Bucephala clangula*) [A067], • Red-breasted Merganser (*Mergus serrator*) [A069] • Great Crested Grebe (*Podiceps cristatus*) [A005] • Oystercatcher (*Haematopus ostralegus*) [A130] • Golden Plover (*Pluvialis apricaria*) [A140] • Grey Plover (*Pluvialis squatarola*) [A141] • Knot (*Calidris canutus*) [A143] • Dunlin (*Calidris alpina*) [A149] • Black-tailed Godwit (*Limosa limosa*) [A156] • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Redshank (*Tringa totanus*) [A162] • Wetland and Waterbirds [A999]
Howth Head SAC (000202)	39.8 km northeast	• Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] • European dry heaths [4030]
Howth Head Coast SPA (004113)	43.1 km northeast	• Kittiwake (*Rissa tridactyla*) [A188]
National Sites (NHA, pNHA, National Park, Nature Reserves, Wildfowl Sanctuaries)		
Grand Canal pNHA (002104)	1.3 km west	• A number of different habitats are found within the canal boundaries - hedgerow, tallherbs, calcareous grassland, reed fringe, open water, scrub and woodland.
Dodder Valley pNHA (000991)	4.9 km northeast	• The vegetation consists of woodland scrub mainly of willows (*Salix* spp.), but up to thirteen species of tree have been recorded. Forty-eight bird species have been recorded in the area, including LittleGrebe, Kingfisher, Dipper and Grey Wagtail
Donadea Wood pNHA (001391)	14.1 km northwest	• The entire site has been planted with a mix of deciduous and coniferous trees. The site is notable for the presence of two rare species of Myxomycete fungus,namely *Diderma chondrioderma* and *Licea testudinacea*, the latter in one of only twoknown Irish sites
Liffey Valley pNHA (000128)	4.5 km northeast	• The main terrestrial habitat included within the site is mixed deciduous woodland onfertile, limey alluvium and boulder clay, in which Beech (*Fagus sylvatica*) is dominant in some areas. A wet marsh occurs on the strip of land between the Mill Race and the river east of he metal bridge and west of the paint factory.There are a number of protected flora species associated with this site including Green Figwort (*Scrophularia umbrosa*), hairy St. John's wort (*Hypericum hirsutum)* and Yellow Archangel (*Lamiastrum galeobdolon)*
Royal Canal pNHA (002103)	16.5 km north	• A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland. The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species.
Dolphins, Dublin Docks pNHA (000201)	32.2 km northeast	• This site is a subsite of the South Dublin Bay and River Tolka Estuary SPA.

Designated Site (Code)	Closest Distance (km) to Proposed Development	Relevant Ecological Features
Booterstown Marsh pNHA (001205)	30.8 km northeast	• This site is the only salt marsh in south Dublin and is of local/regional ornithological importance. Of particular interest are the high concentrations of Snipe which occur in winter. The marsh is also used as a high-tide roost by a variety of waders and gulls. Other species which frequent the marsh include Kingfisher an Annex I species under the E.U. Birds Directive, and Grey Heron Rarer birds of coastal marshes have been recorded, notably Little Egret and Yellow Wagtail.
Sluice River Marsh pNHA (001763)	39.1 km northeast	• This site is of importance as a relatively intact freshwater marsh. Mallard, Snipe, Grey Heron, Moorhen and Reed Bunting have been recorded from themarsh. The herons nest nearby. Some waterfowl from Baldoyle Estuary may use the marsh on occasions.
Santry Demense pNHA (000178)	32.9 km northeast	• The site comprises the remnants of a former demesne woodland. The primary importance of this site is that it contains a legally protected plant species, hairy St. Johns wort (*Hypericum hirsutism*). The woodland, however, is of general ecological interest as it occurs in an area where little has survived of the original vegetation.
Feltrim Hill pNHA (001208)	37.6 km northeast	• This site is a knoll-reef dating from the Carboniferous period. The site was previously known to contain two rare plant species, namely Spring Squill (*Scilla verna*) and Long-stalked Crane's-bill (*Geranium columbinum*).
Liffey Valley Meander Belt pNHA (000393)	8.5km	• The most up to date site synopsis of this designated site is based on surveys conducted in 1972. The site is designated for woodland and marshes, with the wetlands and surrounding vegetation play a crucial role in flood regulation and maintaining water quality.
Poulaphouca Reservoir pNHA (000731)	8.6km	• This site is spatially identical to the Poulaphouca Reservoir SPA, meaning all ecological features outlined for the SPA are relevant to this site. Also inclusive within the pNHA designation is the mosaic of wetland, woodland and scrub habitat surrounding the reservoir.
Newtown Marshes pNHA (001759)	12.8km	• The site consists of a series of marshes and ponds within an area of calcareous eskers. The area is of interest ornithologically as it holds a breeding colony of Black-headed Gulls.
Slade of Saggart and Crooksling Glen pNHA (000211)	13.1km	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. South of Crooksling Glen are Brittas Ponds, a Wildfowl Sanctuary, that supports a variety of wildfowl, including Teal, Mallard, Pochard and Tufted Duck. The ponds themselves are of interest for the aquatic plants they support.
Brittas Ponds Wildfowl Sanctuary (WFS-18)	12.7km	The ponds and surrounding vegetation provide crucial breeding, feeding, and resting areas for both resident and migratory birds including mallards, teal, and tufted ducks. This sanctuary plays an important role in conserving aquatic biodiversity and maintaining habitat diversity within the local landscape.
Dunlavin Marshes pNHA (001772)	15.9km	The site consists of two disjointed strips of fen, which lie within an area of alkaline moraines. Bird species recorded from the site include Snipe, Meadow Pipit and Sedge Warbler. Black-headed Gulls have been seen during the breeding season in recent years and may have attempted to breed.

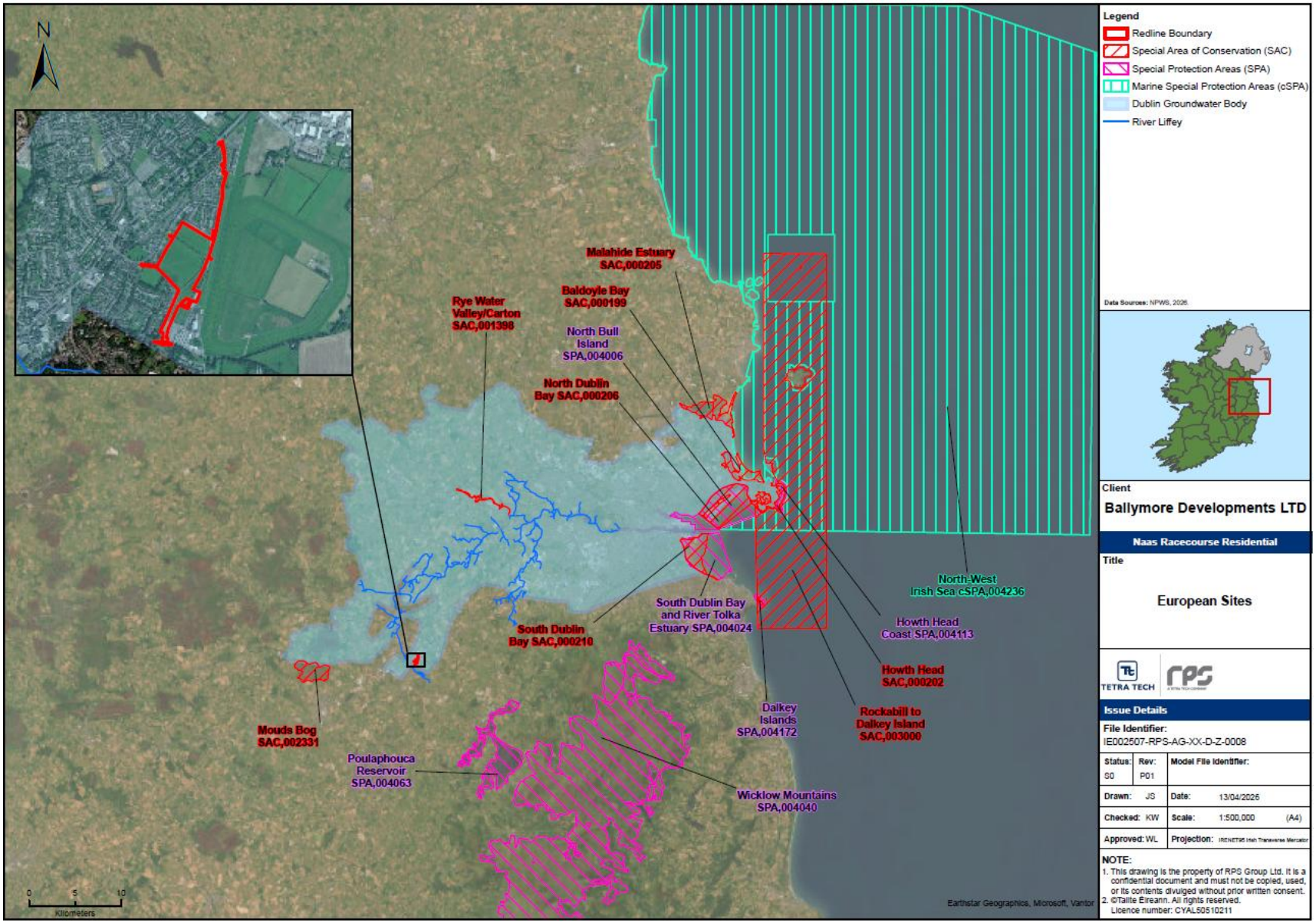


Figure 4-4: European Sites within the ZoI

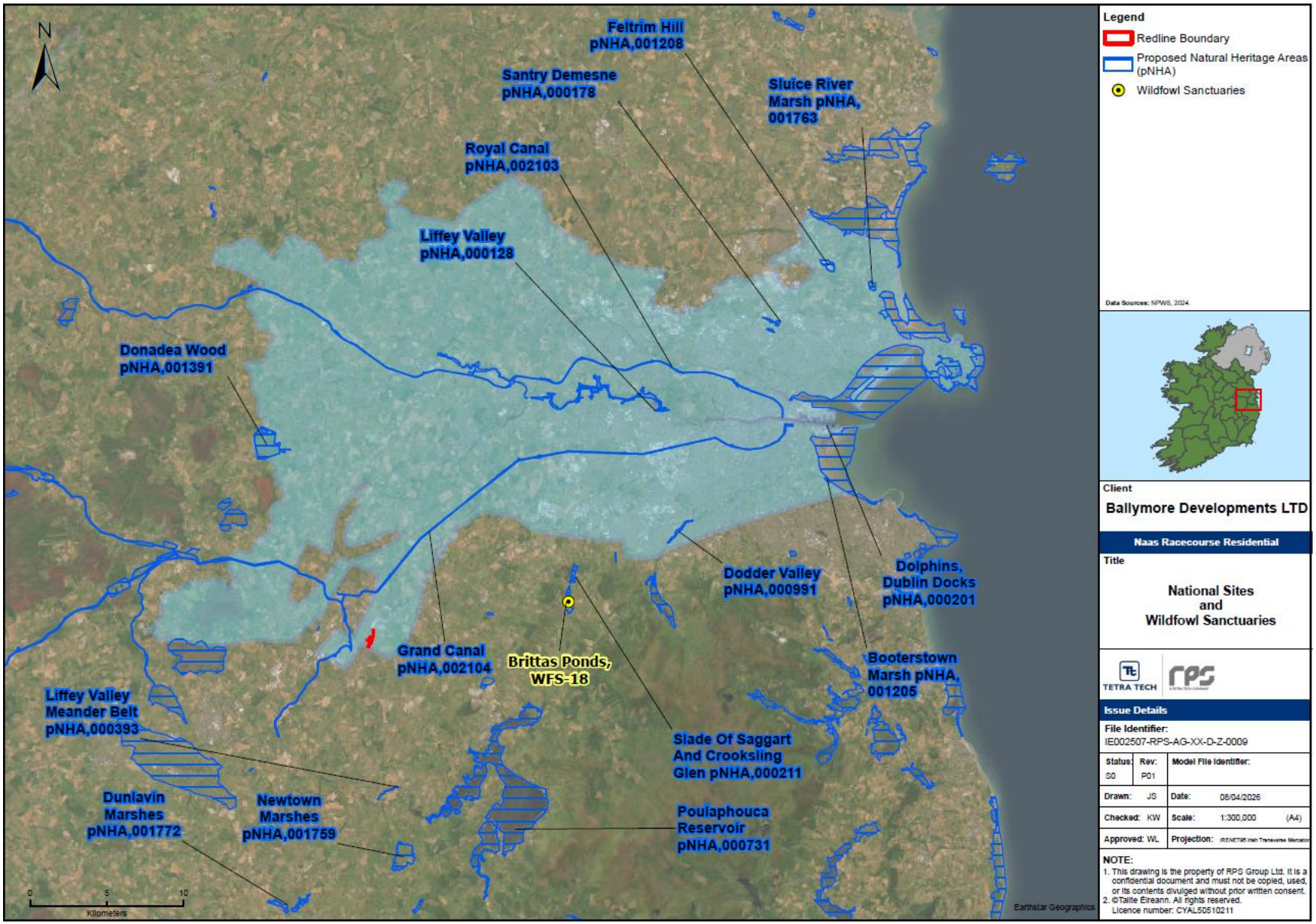


Figure 4-5: National Sites within the ZoI

4.4 Habitats and Flora

4.4.1 Hedgerow Assessment

The individual hedgerows have been assessed for their structural diversity and the ecological function that they provide. The individual hedgerows have been numbered as they are shown on the Tree Survey and Constraints Plans at **Appendix C**, to avoid confusion.

Hedgerow H1 is a short section of hedgerow less than 30m in length and approximately 2.5m in height and regularly managed. It contains hawthorn and bramble and is species poor. It is thought that this hedgerow has been planted within the last 30 years.

Hedgerow H2 is a continuation of H1 and is of similar structure and composition. It contains hawthorn, elder, bramble and dog rose (*Rosa canina*) with a few planted trees including Norway maple (*Acer platanoides*) and birch which as yet do not form standards within the hedgerow. It contains an average of 2.5 woody species per 30m section.

Hedgerow H3 is a mature hedgerow that has been left unmanaged for a number of years and is now very gappy, neglected and overgrown. It is mainly 3-4 m in height with a few standard trees reaching approximately 7m. There is evidence of fly tipping within the hedgerow. It contains hawthorn, elder, dog rose, ash, holly, yew and bramble, but has an average of 4 native woody species per 30m section.

Hedgerow H11 is another mature hedgerow that is unmanaged and has been neglected. Gaps form at least 30% of its length. It borders residential properties to the west and there is significant evidence of fly-tipping, garden waste and introduction of non-native species. It contains hawthorn, blackthorn, elder, dog rose, *Cotoneaster*, garden privet, ornamental birch, bramble, snowberry, and ash. It contains an average of 3 native woody species per 30m section.

Hedgerow H17 is another continuation of H11 along the western boundary with residential properties to its west. It is approximately 4-5m in height, but contains some standard trees to approximately 8m. It again has been left unmanaged and there are significant gaps forming at least 30% of its length. There is significant evidence of fly tipping and garden waste. It contains hawthorn, hazel, wild privet (*Ligustrum vulgare*), ash, blackthorn, crab apple (*Malus sylvestris*), bramble, dog rose and non-natives such as Wilson's honeysuckle and Russian vine (*Fallopia baldschuanica*), but has an average of 4 native woody species per 30m section.

Hedgerow H25 is another mature section of hedgerow that has left unmanaged with a few gaps totalling approximately 15% of its length. It is approximately 4-5m in height. It has an area of public open space to its south and there is significant evidence of fly tipping within it. It contains hazel, hawthorn, elder, blackthorn, birch, bramble and holly, and has an average of 4.5 native woody species per 30m section.

Hedgerow H35 and H36 are short sections of hedgerow that formed the boundary of a residential cottage and border the Tipper Road situated to their south. They have been partially managed. They are mainly non-native consisting of Wilson's honeysuckle and are not regarded further in the assessment.

Hedgerow H60 is a mature boundary hedgerow with residential properties to its west. It is approximately 4-5 m in height with a number of standard trees through it's length. To the southern end it is relatively sparse in nature. There are a number of gaps but would not exceed 10% of its length. It contains ash, hawthorn, elder, sycamore, blackthorn and bramble. It contains an average of 3 woody species per 30m section.

Hedgerow H61 is a former mature boundary hedgerow that has been severely altered over time with only remanent sections of the former hedgerow still present. It is bordered by residential properties to the west. There are gaps within the hedgerow that form approximately 10% of its length. Sections of the hedgerow are now planted as single species Leyland cypress and laurel, but

the remanent sections contain ash, hazel, elder and hawthorn with some non-native Wilson's honeysuckle and garden privet. It contains an average of 2.5 native woody species per 30m section.

Hedgerow H72 and H73 had been removed at the time of the hedgerow survey, but appear to look as if they had been more collections of scrub from the remaining evidence consisting mainly of bramble and elder.

On the whole, the majority of the hedgerows were in poor condition, having been neglected or severely altered. They were mainly species poor when considered using the average number of native woody species per 30m section. The hedgerows have already been significantly degraded through fly tipping and the introduction of non-native species. Given the lack of recent management the hedgerows are sparse in nature and offer limited value as ecological corridors. However, given that the hedgerows have some historic value and will offer some commuting and foraging potential for bats and birds they are regarded as having local higher value.

4.4.2 Protected Flora

A full desktop review was conducted of rare and protected plant species recorded within the 2km Squares within which the Study Area N92A and N91E. A search for protected flora was carried out alongside walkover habitat surveys.

No rare of protected plant species were identified within the desk study area or the field study area.

4.4.3 Invasive Alien Plant Species

Records of the Scheduled species Japanese knotweed (*Reynoutria japonica*) were returned for the 2km grid square N92A. However, no records of Japanese knotweed within the Proposed Development boundary were found during the site walkover.

Five records of Spanish bluebell (*Hyacinthoides hispanica*) or hybrid bluebell (*Hyacinthoides* × *massartiana*) were recorded along hedgerows within the field survey area and are shown in **Figure 4-7**



Figure 4-6: Habitat Mapping of Site



Figure 4-7: Invasive Alien Plant Species recorded within the site boundary

4.5 Fauna

4.5.1 Habitats

The NRA guidelines on the Assessment of Ecological Impacts on National Road schemes (NRA, 2009) provides a rationale for the evaluation of ecological receptors within a site. There were no habitats present within the site boundary that have any links with Annex I Habitats.

The habitats identified during the walkover are mapped in **Figure 4-6** and include the following:

- BL3 Buildings and artificial surfaces
- ED3 Recolonising bare ground
- GA2 Amenity Grassland (Improved)
- GS2 Dry meadow and grassy verges
- WL1 Hedgerows/ WL2 Treelines
- WS1 Scrub
- WS3 Ornamental/Non-native shrub

BL3 Buildings and artificial surfaces

This habitat was comprised mainly of roads and footpaths and therefore no species were noted.

ED3 Recolonising bare ground

An area of recolonising bare ground was recorded in one of the fields at the centre of the proposed Development. This habitat appeared to be an area of previously cleared scrub and includes the following species: bramble (*Rubus fruticosus agg*), creeping thistle (*Cirsium arvense*), nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*), rosebay willowherb (*Epilobium angustifolium*) and lesser celandine (*Ficaria verna*).

GA2 Amenity Grassland (Improved)

This habitat is generally intensely managed and species poor, often associated with buildings and artificial surfaces (BL3). This habitat was recorded in the south of the field survey area and within the grounds of the Naas Racecourse and included the following species; white clover (*Trifolium repens)*, perennial ryegrass (*Lolium perenne*), creeping bentgrass (*Agrostis stolonifera)*, Yorkshire fog (*Holcus lanatus*), dandelion (*Taraxacum officinale agg.*), yarrow (*Achillea millefolium*) and docks (*Rumex spp.*).

GS2 Dry meadow and grassy verges

The two fields at the centre of the Naas Racecourse Residential Development project are comprised mainly of dry meadow and grassy verges habitat. These fields appeared to be not frequently managed and relatively species-poor including species such as meadow buttercup (*Ranunculus acris*), Yorkshire fog, cock's-foot (*Dactylis glomerata*), ribwort plantain (*Dactylis glomerata*), dandelion, red clover (*Trifolium pratense*), white clover, fescue grass (*Festuca sp.*), creeping bentgrass, field woodrush (*Luzula campestris*), docks, yarrow, and rare observations of common sorrel (*Rumex acetosa*).

WL1 Hedgerows /WL2 Treelines

Hedgerows and treelines, form the boundaries to the two fields of GS2 habitat and a section of the 'The Gallops' road connecting the proposed residential development with the R445 road through Naas town. Hedgerow habitat bordering the GS2 habitat are not regularly managed and although mostly contain native species areas of non native species occur. The individual hedgerows are dealt with below in **Section 4.4.1**. Woody species observed within the hedgerows included hazel (*Corylus avellana*), ash (*Fraxinus excelsior*), elder (*Sambucus nigra*), Wilson's honeysuckle (*Lonicera nitida*),

blackthorn (*Prunus spinosa*), hawthorn (*Cretagus monogyn*a), holly (*Ilex aquifolium*), horse chestnut (*Aesculus hippocastanum*) and ivy (Hedera helix). Ground flora species included cow parsley (*Anthriscus sylvestris)*, nettle, hogweed, and cleavers (*Galium aparine*). Treelines bordering private property and roads included ash, birch (*Betula sp.*), oak (*Quercus sp.*) and lime (*Tillia sp.*).

WS1 Scrub

A small patch of scattered scrub habitat was present alongside the red line boundary in the north-west corner of the GS2 habitat. Species included nettle, hogweed, lesser celandine, bramble, cow parsley, yellow archangel (*Lamium galeobdolon*).

WS3 Ornamental/Non-native shrub

A section of ornamental/non-native shrub forms the boundary of the structure within the southeast the Proposed Development boundary. This includes species such as *Viburnum tinus,* dogwoods *(Cornus sp.)* and ornamental trees.

4.5.2 Bats

4.5.2.1 Desk Study

Habitats in the surrounding area were classified as being of moderate value to commuting and foraging bats. The National Biodiversity Data Centre (NBDC) maps landscape suitability for bats based on Lundy *et al*., (2011). The maps are a visualisation of analyses on a habitat suitability index, which ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The overall assessment of bat habitats for the study area is given as 31.22, a moderate score. **Table 4-3** gives the suitability of the study area for the bat species found across the study area (based on NBDC) along with their Irish Red List Status (Marnell *et al.,* 2019).

Table 4-3: Suitability of the study area for the bat species found in the Naas area (based on NBDC data)

Common Name	Scientific Name	Suitability Index	Irish Red List Status
All bats	-	31.22 - 38.89	Least concern
Soprano pipistrelle	*Pipistrellus pygmaeus*	41 - 49	Least concern
Brown long-eared bat	*Plecotus auritus*	42 - 51	Least concern
Common pipistrelle	*Pipistrellus pipistrellus*	50 – 58	Least concern
Lesser-horseshoe bat	*Rhinolophus hipposideros*	0	Least concern
Leisler’s bat	*Nyctalus leisleri*	47 - 55	Least concern
Whiskered bat	*Myotis mystacinus*	19 - 26	Least concern
Daubenton’s bat	*Myotis daubentonii*	30 - 44	Least concern
Nathusius’s pipistrelle	*Pipistrellus nathusii*	19 - 23	Least concern
Natterer’s bat	*Myotis nattereri*	33 - 44	Least concern

4.5.2.2 Field Study

4.5.2.2.1 Bat Roosting - Trees

A preliminary ground level assessment was conducted on all trees within the Proposed Development boundary. No potential roosting features were identified on any of the trees. Therefore, no further assessment was required.

4.5.2.2.2 Bat Roosting –Structures

The preliminary roost assessment also included the assessment of three structures **(Figure 4-8**). The results of the preliminary roost assessment of structures is provided in **Appendix B** and the location of these structures are shown in **Figure 4-8.**

One of these structures (BS02) was located within the Proposed Development and will be demolished as part of the Proposed Development. This structure was assessed internally and externally on the 4th September 2025. The overall suitability for potential roosting bats was considered 'negligible' for this structure. A portacabin (BS03) adjacent to this structure was also assessed as having negligible suitability. No further assessments (i.e., emergence surveys) were required for these structures.

Structure BS01 is located outside of the red line boundary to the southwest of the Proposed Development (**Figure 4-8**). However, considering the proximity of this structure to the Proposed Development, it was scoped in for assessment due to potential impact from noise and/or disturbance from construction works associated with the Proposed Development. The overall suitability for potential roosting bats was considered 'low' for this structure, following an external preliminary ground level roost assessment on 27th March 2025. Therefore, the structure was subject to an emergence survey.

An emergence survey of the structure was carried out on the 4th September 2025 by two ecologists. During the emergence survey, no bats were recorded emerging from any of the potential bat roost features. The dates, timing, and weather conditions for the bat emergence survey is detailed in below in **Table 4-4.**

Table 4-4: Dates, timings and weather conditions for emergence surveys – structures

Date	Structure Code	Sunset Time	Start Time of Survey	End Time of Survey	Cloud Cover (%)	Precipitation	Wind (0-7)	Temp. (°C)
04/09/25	BS01	20:10	19:55	22:10	75	Light rain	3	14

4.5.2.2.3 Bat Activity – Transect

Bat activity transects were walked in August and September 2025. The dates, timing, and weather conditions for the two surveys are detailed in **Table 4-5**. Data from the bat activity transects indicate that the site offers a foraging and commuting resource for common pipistrelle and soprano pipistrelle (**Table 4-6** and **Table 4-7**).

The location of each pass and the species of bat is for each transect is shown in (**Figure 4-9**) and (**Figure 4-10**Figure 4-8)

Table 4-5: Dates, timings and weather conditions for bat activity transect surveys

Date	Transect	Sunset/ Sunrise Time	Start Time of Survey	End Time of Survey	Cloud Cover (%)	Precipitation (mm)	Temperature (C)
29/08/2025	Transect 1	20:30	20:15	22:30	90	>1	13
22/09/2025	Transect 2	19:25	19:10	21:25	15	0	12

Table 4-6: Bat Activity Results Transect 1 of 2

Scientific Name (Common Name)	Number of Passes	% of Total Passes
Pipistrellus Pygmaeus (Soprano Pipistrelle)	4	9.8
Pipistrellus Pipistrellus (Common Pipistrelle)	32	78.0
Pipistrelle species *(Pipistrellus sp.)*	4	9.8
Leisler's bat (*Nyctalus leisleri*)	1	2.4
Total	41	100

Table 4-7: Bat Activity Results Transect 2 of 2

Scientific Name (Common Name)	Number of Passes	% of Total Passes
Pipistrellus Pipistrellus (Common Pipistrelle)	12	92.3
Plecotus auritus (Brown long-eared bat)	1	7.7
Total	13	100.0

The level of bat activity recorded is regarded as being relatively low and of common and widespread species. The vast majority of the bat recorded relate to pipistrelle species with only single records of Leisler's bat and brown long-eared bat.

The areas where the majority of the bat activity occurred appeared to be the length of street trees to the northeast of the site, where pipistrelle bats were observed foraging along The Gallops road and into the site during the August 2025 survey. During the second survey in September 2025 the majority of pipistrelle bats were recorded to the west of the proposed development along an existing line of cypress trees.



Figure 4-8: Structures surveyed for bat roost suitability



Figure 4-9: Bat Activity Transect 1 of 2



Figure 4-10: Bat Activity Transect 2 of 2

4.5.3 Badger

Badger (*Meles meles*) records from 2013 were noted within the within the 2km^2 (N92A) grid which intersects with the Proposed Development. However, no setts or evidence of badger activity (latrines, footprint) were noted during the field walkover survey. No suitable habitat occurs within the ZoI of the Proposed Development for badger, as defined in **Table 3-2.** Therefore, this species is not considered for assessment.

4.5.4 Otter

One record of otter from 2012 was noted from the data search (NBDC) within the 2km^2 (N91E) grid. No holts, evidence of otter activity (scat, slides), or suitable habitat for otter were noted during the field walkover survey. Additionally, it is considered that there is no suitable habitat to support otter within 150 m of the Proposed Development. Therefore, this species is not considered to occur within the ZoI as defined in **Table 3-2**, and is not considered for assessment.

4.5.5 Other Protected Mammals

The habitat on site was also deemed to be able to support other mammal species such as hedgehogs, mice, and shrews.

Records of hedgehog (*Erinaceus europaeus*) were returned for the 2km^2 grids (N91E and N92A). Hedgehog is a protected species under the Wildlife Acts and are presumed to occur within the hedgerow within the footprint of the Proposed Development. Breeding is from May to October (Hayden and Harrington, 2001). There are no known national or county population estimates for the species in Ireland where they are common and assigned a conservation status of Least Concern (Marnell *et al*., 2019).

4.5.6 Birds

A total of 13 bird species were listed for the 2km^2 grid square (N91E) from records in the past 15 years (**Table 4-8**). Multiple passerine bird species are presumed to occur within the hedgerows within the footprint of the Proposed Development due to the suitability of the habitat.

Table 4-8: Desk study bird results

Species Name	Date of Latest Record	BoCCI Level
Blackbird (*Turdus merula*)	18th June 2018	Green
Buzzard (*Buteo buteo*)	19th January 2018	Green
Dipper (Cinclus cinclus)	12th April 2019	Green
Goldfinch (*Carduelis carduelis*)	15th August 2019	Green
Jackdaw (*Coloeus monedula*)	24th May 2015	Green
Kingfisher (*Alcedo atthis*)	15th November 2014	Amber
Little Egret (*Egretta garzetta*)	16th December 2021	Green
Lesser Black-backed gull (*Larus fuscus*)	31st December 2011	Amber
Magpie (*Pica pica*)	24th May 2015	Green

Merlin (*Falco columbarius*)	26th October 2021	Amber
Peregrine (*Falco peregrinus*)	19th October 2021	Green
Robin (*Erithacus rubecula*)	4th June 2018	Green
Skylark (Alauda arvensis)	23rd March 2020	Amber
Song Thrush (*Turdus philomelos*)	24th May 2015	Green
Starling (*Sturnus vulgaris*)	24th March 2021	Amber
Swallow (*Hirundo rustica*)	1st April 2021	Amber
Willow Warbler (*Phylloscopus trochilus*)	24th May 2015	Amber
Woodpigeon (*Columba palumbus*)	24th May 2015	Green

4.5.7 Amphibians

The NBDC returned 2 records for common frog (*Rana temporaria)* from 2019. Common frog is protected under Annex V of the EU Habitats Directive. The walkover study did not identify suitable habitats to support common frog. Therefore, amphibians are not considered within the ZoI of the Proposed Development and are not considered for assessment.

4.5.8 Invasive Alien Animal Species

One record of the Scheduled species grey squirrel (*Sciurus carolinensis*) was returned from 2010 from the 2km grid square N92A. Grey squirrel is listed under the First Schedule of European Union (EU) (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024).

No observations of Scheduled invasive animal species were noted during the field survey.

4.6 Important Ecological Features

All ecological features identified within the ZoI (described in **Section 0**) for the Proposed Development have been identified and assessed as to whether they are considered important ecological features (IEFs) to be scoped into impact assessment. IEFs are defined as ‘habitats, species and ecosystems, including ecosystem function and processes that may be affected, with reference to a geographical context in which they are considered important’ (CIEEM, 2018).

The evaluation of the ecological features is detailed in **Table 4-9**. The identification of IEFs are scoped into the impact assessment based on their ecological evaluation combined with whether or not they are at risk of significant negative impact from the Proposed Development.

Table 4-9: Summary of valuation of ecological Features within the ZoI of the Proposed Development

Category	Ecological Features	Highest ecological valuation within ZoI of Proposed Development	At risk of potential significant negative impact	Important Ecological Features (Scoped into impact assessment)
Designated Sites	European Sites	International	No. Direct or indirect effects to these sites are not predicted.	**No**. The connectivity between the Study Area and the relevant European sites is deemed insufficient for a significant effect to occur due to the nature of the pathway to the sites and scale and extent of the proposed works.
	National Sites	National	No. Direct or indirect effects to these sites are not predicted.	**No**. The connectivity between the Study Area and the relevant National sites is deemed insufficient for a significant effect to occur due to the nature of the pathway to the sites and scale and extent of the proposed works.
Habitats	WL1 Hedgerow / WL2 Treelines	Local (Higher)	Yes. Potential direct and indirect effects to these features have been identified as: • Habitat loss, fragmentation, degradation, and alteration	**Yes.** Although this habitat is classified as being of local higher importance, it is situated adjacent to an urban environment, with residential housing directly to the south and west. The hedgerows are managed poorly currently with limited management and evidence of significant fly tipping and non-native species. However, through appropriate management could offer a limited function as an ecological corridor and provide habitat for protected species. .
Fauna	Bats (commuting and foraging)	Local (Higher)	Yes. Potential direct and indirect effects to this feature have been identified as: • Biodiversity loss, degradation, fragmentation, and alteration; and	**Yes**. The hedgerows and treelines offer suitable commuting and foraging habitat for common and soprano pipistrelle, and potential direct and indirect effects have been identified..

Category	Ecological Features	Highest ecological valuation within ZoI of Proposed Development	At risk of potential significant negative impact	Important Ecological Features (Scoped into impact assessment)
			• Disturbance from noise, vibration, lighting, and human presence.	
	Bats (roosting)	Local (Higher)	No. No evidence of roosting bats found within the footprint of the Proposed Development, or within the immediate vicinity.	**No.**
	Birds (breeding)	Local (Higher)	Yes. Potential direct and indirect effects to this feature have been identified, as: • Biodiversity loss, fragmentation, degradation, and alteration; and • Disturbance from noise, vibration, lighting, and human presence.	**Yes** The hedgerow habitat and tree lines offer suitable nesting habitat for breeding birds and potential direct and indirect effects have been identified..
	Other protected mammals	Local (Higher)	Yes. Potential direct and indirect effects to this feature have been identified, as: • Biodiversity loss, fragmentation, degradation, and alteration; and • Disturbance from noise, vibration, lighting, and human presence	**No.** While the relevant hedgerow habitat offers suitable habitat for non-volant mammals and potential direct and indirect effects have been identified, this feature is not considered an IEF based on the following rationale: • Non-volant mammals are likely to occur in the ecological study area, however the population potentially impacted is considered to be much less than 1% of the local population as described in the NRA (2009) guidance. Therefore, the effect of the loss of habitat supporting other protected mammals is considered negligible.

5 Ecological Impact Assessments

5.1 Construction Phase – Assessment of Impacts

5.1.1 Habitats and flora

Hedgerows

Biodiversity loss, fragmentation and alteration

There is approximately 938 m of native hedgerows within the Site, of this approximately 247m will be lost to the Proposed Development. The majority of the hedgerow to be lost relate to hedgerows H1 and H2 (212m) which are not considered to be long established hedgerows and would have been planted within the last 30 years. The further 35m of hedgerow loss relates to hedgerows H3 and H17 where minor loss are required to permit access.

The majority of the hedgerows will be retained and protected during the construction of the Proposed Development with appropriate tree protection fencing as set out within the Arboricultural Report and Landscape Design Report submitted alongside this application. This will ensure that during the construction phase the retained hedgerow is protected from accidental damage and a suitable root protection has been provided.

The proposed landscape plan includes the provision of significant area of native hedgerow planting and the relocation and the planting of standard trees, which will more than offset the loss of the species poor hedgerows.

The magnitude and extent of the effect caused by disturbance and removal of hedgerow is the length of hedgerow which will be removed or disturbed (i.e. approximately 945 m). The effect will commence during site clearance and is considered largely medium-term and reversible as the proposed planting of native hedgerow and trees throughout the scheme matures. Although the extent of hedgerow clearance is a small proportion of the hedgerow habitat in the local area and the proposed landscape plan will partially reverse the effect, the fragmentation of these ecological corridors increases the significance of the effect. Despite this, due of its reversible and medium-term nature, the impact of biodiversity loss, fragmentation and alteration is predicted to result in a **not significant**, medium-term, and reversible adverse effect on hedgerows.

The impacts of the severance of these ecological corridors on IEF fauna species are assessed below.

5.1.2 Fauna

Bats (commuting and foraging)

Biodiversity loss, fragmentation and alteration

Construction of the Proposed Development will result in a small loss, fragmentation and degradation of habitat currently used by bat populations for foraging and commuting. However, the surveys have shown that the site although utilised by bats, shows relatively low levels of activity and the majority of the activity is concentrated in areas that will be little affected by the proposals. Fragmentation is kept to a minimum, through the retention of the majority of the hedgerows and that there is limited habitat that the corridors link to. The proposed landscape plan includes the provision of relocated and planted standard trees, and native hedgerow mix planting to bolster the retained vegetation.

The extent of the effect of the removal, fragmentation, degradation and alteration of commuting/foraging habitat is the area of the Proposed Development. The magnitude of the effect is the potential reduced foraging success of a small number of common bat species. The effect will commence during site clearance and is considered largely short-term and reversible as the

proposed native hedgerows, shrub and standard trees mature. As the effect will largely be reversed in the short to medium term, biodiversity loss, fragmentation and alteration is predicted to result in a **not significant**, short to medium-term, and reversible slight adverse effect on commuting and foraging bats.

Disturbance from noise, vibration, lighting and human presence

Lighting has the potential to indirectly impact on foraging and/or commuting bat species due to the potential increase in the existing light levels during construction within and adjacent to the Proposed Development. Most construction activities will be carried out during regular daylight hours, therefore disturbance is not anticipated to significantly impact commuting and foraging bats, which are nocturnal.

The extent of the effect is the illuminated area in the immediate vicinity of the Proposed Development. The magnitude of the effect is the displacement of a small number of common bat species. The effect is infrequent, as most construction activities will be carried out during regular daylight hours. The effect is short term and reversible upon completion of the construction phase. The timing of the construction works may influence the magnitude (i.e. the greatest potential magnitude is during the summer months of May to September when bat foraging and commuting activity is highest). Because of its infrequent occurrence, disturbance from noise, vibration, lighting and human presence is predicted to result in a **not significant**, short-term, and reversible adverse effect on commuting and foraging bats.

Birds (breeding)

Biodiversity loss, fragmentation and alteration – nesting habitat

Construction will result in removal of trees and vegetation with suitability for nesting birds within the area of the Proposed Development.

The extent of the effect is the suitable nesting habitat/vegetation (e.g. hedgerows, scrub and trees) proposed to be removed within the Proposed Development. The magnitude of the effect is the displacement of breeding birds of a range of common urban edge species. The effect is considering largely medium-term and reversible after the construction phase as the new landscaping matures, providing new suitable nesting habitat. There is an abundance of equivalent suitable nesting habitat in the locality. Therefore, the impact of nesting habitat loss, fragmentation, and alteration is predicted to result in a **not significant**, medium-term, and reversible adverse effect on breeding birds**.**

Biodiversity loss, fragmentation and alteration – mortality through the destruction of nests

Vegetation removal during construction may result in mortality of eggs and chicks of the breeding birds onsite via the destruction of nests.

The extent of the effect is the suitable nesting habitat/vegetation (e.g. hedgerows, scrub and trees) proposed to be removed within the Proposed Development. The magnitude of the effect is the mortality of the eggs/chicks of breeding birds of a range of common urban edge species. The effect is long-term and irreversible. The timing of the construction works influences the magnitude (i.e. vegetation removal between 1st March and 31st August, inclusive, are more likely to affect breeding birds). Therefore, in the absence of mitigations, the potential for mortality of chicks/eggs is predicted to result in a **significant, long-term, and irreversible adverse effect at the local (higher) geographic scale** on breeding birds. Measures, as set out in **Section** Error! Reference source not found., will be required to mitigate this effect.

Disturbance from noise, vibration, lighting and human presence – nesting habitat

The construction phase will result in disturbance to breeding birds from noise, vibration, lighting and human presence associated with construction works.

The extent of the effect is the suitable nesting habitat/vegetation (e.g. hedgerows, scrub and trees) in the immediate vicinity of the Proposed Development. The magnitude of the effect is the increased mortality rates of the eggs/chicks of breeding birds of a range of species. The effect is short-term and reversible. The timing of the construction works influences the magnitude (i.e. construction works between 1st March and 31st August, inclusive, are more likely to affect breeding birds). Because of its small extent, magnitude, and short-term nature, disturbance at nesting habitats is predicted to result in a **not significant**, short-term, and reversible adverse effect on breeding birds.

Breeding birds – commuting and foraging

Biodiversity loss, fragmentation and alteration – commuting and foraging habitat

Construction will result in removal of habitats with suitability for foraging birds within the area of the Proposed Development.

The extent of the effect is the suitable foraging habitat/vegetation proposed to be removed within the Proposed Development. The magnitude of the effect is the displacement of foraging birds of a range of species. The effect is largely medium-term and reversible after the construction phase as the new landscaping matures, providing new suitable foraging habitat. There is an abundance of equivalent suitable foraging habitat in the locality. Therefore, commuting and foraging habitat loss, fragmentation and alteration is predicted to result in a **not significant**, medium-term, and reversible adverse effect on breeding birds**.**

Disturbance from noise, vibration, lighting and human presence – commuting and foraging habitat

The construction phase will result in disturbance to foraging birds from noise, vibration, lighting and human presence associated with construction works.

The extent of the effect is the area within the vicinity of the Proposed Development. The magnitude of the effect is the displacement of foraging birds of a range of species. The effect is short-term and reversible after construction works are completed. There is an abundance of equivalent suitable foraging habitat in the locality. Therefore, disturbance at commuting and foraging habitat is predicted to result in a **not significant**, short-term, and reversible adverse effect on breeding birds**.**

5.2 Operational Phase – Assessment of Impacts

5.2.1 Habitats and flora

Hedgerows

Disturbance and degradation from human presence

The boundary hedgerows are already heavy affected by the presence of humans with the evidence of fly-tipping and the introduction of non-native species.

The retained hedgerow that is enclosed between residential properties will be protected by the erection of a 1.8m high welded mesh fence. The retained hedgerow will ultimately lie within the ownership of the future residential property owners of the proposed units, with the legal boundary extending to the site boundary line. The proposed welded mesh fence will form the physical boundary treatment on the development side. This approach avoids potential ownership or maintenance issues and prevents the creation of unmanaged ‘no-man’s land’ areas between the development and the retained hedgerow. The extent of the effect is the retained and created hedgerows within the Proposed Development. The magnitude of the effect is the negligible disturbance or degradation of retained hedgerow habitat. The duration of the effect is long-term, for the operational phase of the Proposed Development and reversible. Given the already high levels of disturbance and degradation of the existing hedgerows and the protection offered through

appropriate fencing the impact is predicted to be a **not significant**, long-term, and reversible adverse effect on hedgerows.

5.2.2 Fauna

Bats (commuting and foraging)

The lighting plans for the Proposed Development provided with this application show the light spill lux contours of the proposed lighting strategy for the residential and creche area and for the road section. This operational light and noise can disturb bats and displace them from foraging and commuting habitat. Light disturbance can also have a significant negative effect on bat activity as high light levels can cause disorientation. Lighting can attract some bat species and deter others (BCT and the Institute of Lighting Professionals (ILP), 2018), altering their fitness. The majority of the bat species that the where utilising the site are relatively light tolerant as can be seen from the survey results where pipistrelle bat species were recorded foraging along the existing lite road (The Gallops) and into the site in the northeastern section of the Site.

The lighting design has utilised lighting that minimises light spill and restricts where possible the direction of light spill. The design has demonstrated that there is very little light spill above the 1 Lux level on the boundary hedgerows to provide continued foraging and commuting routes around the Proposed Development. The magnitude of effect is a potential reduced foraging success of a small number of common bats. The effect is long-term, for the operational phase of the Proposed Development Scheme, and reversible. Due to the measures incorporated in the design of the Proposed Development disturbance from lighting and human presence is predicted to result in a **not significant**, long-term, and reversible adverse effect on commuting and foraging bats.

Birds (breeding)

Breeding birds – nesting

Disturbance from lighting and human presence

During the operational phase of the Proposed Development noise and light generated by street lighting, as well as human presence, can potentially disturb nesting birds. However, this impact will be confined to the immediate vicinity of the Proposed Development, which will be a small proportion of the potential nesting habitat/vegetation within the locality.

The extent of the effect of operational phase disturbance from lighting and human presence is the suitable nesting habitat/vegetation in immediate vicinity of the Proposed Development. The magnitude of the effect is the displacement of nesting birds. The duration of the effect is long-term, for the operational phase of the Proposed Scheme, and is reversible. Because of the small extent and magnitude of the effect, disturbance of nesting birds is predicted to result in a **not significant**, long-term, and reversible adverse effect on breeding birds.

Breeding birds – commuting and foraging

Disturbance from lighting and human presence

During the operational phase of the Proposed Development light generated by street lighting, as well as human presence, can potentially disturb commuting and foraging birds. However, this impact will be confined to the immediate vicinity of the Proposed Development, which will be a small proportion of the potential commuting and foraging habitat within the locality.

The extent of the effect of operational phase disturbance from lighting and human presence is the suitable commuting and foraging habitat in immediate vicinity of the Proposed development. The magnitude of the effect is the displacement of commuting and foraging birds. The duration of the effect is long-term, for the operational phase of the Proposed Scheme, and will be reversible.

Because of the small extent and magnitude of the effect, disturbance of commuting and foraging birds is predicted to result in a **not significant**, long-term, and reversible adverse effect on breeding birds.

6 Mitigation and Enhancement Measures

6.1 IEF Mitigation

Although the majority of the predicted impacts on the IEFs are not predicted to be significant the following measures outlined below are included to lessen adverse effects and contribute positively to the local environment.

6.1.1 Construction

6.1.1.1 Hedgerows

The following measures are required to lessen or avoid the identified or potential non-significant effects on hedgerow caused by biodiversity loss, fragmentation and alteration:

- In addition to the fencing of the Site boundary as part of the enabling works, any other vegetation within the Site which is capable of being retained during the construction works will be fenced-off with suitable protective fencing. This includes the retention of trees and hedgerows etc. The same measures as stipulated below with respect to avoiding unintended incursion will also be applied to these areas:
- To avoid unintended incursion by personnel, equipment and materials, the construction site boundary will be fenced off and site access/egress points constructed. Only site access/egress points will be used by personnel and equipment; and
- Signage will be placed at intervals along the fencing stating, “no access or storage of materials beyond this point” (or similar). The signage is to face inwards into the construction site.

6.1.1.2 Birds (Breeding)

The following mitigation is proposed to avoid/minimise impacts on breeding birds during the construction phase:

- The removal of existing vegetation shall avoid the bird nesting season (1st March and 31st August, inclusive);
- If any active nests are discovered, then work in the immediate vicinity (at least 5 m) of the nest shall cease and an appropriate buffer zone (≥5 m) shall be established which shall be left in place until it has been confirmed that the chicks have fledged; and
- Any retained vegetation within the works corridor shall be kept clear of machinery and materials shall not be stored against them as per the recommendations in BS5837 (2012) – Trees in Relation to Design, Demolition and Construction.

6.1.1.3 Bats (commuting and foraging)

No significant effects on commuting and foraging bats are anticipated. Nonetheless, the following measures shall be implemented to lessen or avoid the identified or potential insignificant effects on commuting and foraging bats caused by biodiversity loss, fragmentation and alteration and disturbance from noise, vibration, lighting:

- All works shall be restricted to daylight hours to minimise impacts to these nocturnal species. Where this is not possible, a construction phase lighting design should be compliant with the following:

- The use of directional lighting is required to reduce disturbance to bats, especially at previously unlit features such as trees and hedgerows, treelines (which are occasionally used as foraging corridors).
- For previously unlit areas, the aim would be to maintain a lux level of below 1 to the areas where bats would forage and commute. This will be done through the use of baffles, hoods or louvres to reduce light spill and direct it only to where it is needed (see ILP's guidance note GN08/23 (2023) *Bats and Artificial Lighting at Night*).

6.1.2 Operation

No additional IEF mitigation measures are proposed, as measures incorporated into the design are sufficient to avoid/minimise operational phase impacts on IEFs. However, a Biodiversity Management Plan has been prepared to ensure that the retained and created habitats will be managed to maximise the biodiversity value of the Site through it's operational phase. This document is provided under separate cover.

6.2 Enhancement Measures

6.2.1 Birds

Providing bird boxes can increase the nesting opportunities for breeding birds, in which the following measures should be adhered to as to ensure the highest chance of successful uptake by birds:

- Bird boxes should be draught proof and made from a mix of concrete and FSC wood fibres (Woodstone and Woodcrete are the advised brands[3]). This material is strong and highly insulating;
- Bird boxes should have an entrance hole ranging from 25mm (Blue Tits, Coal Tits), 28mm (Great Tit, Tree Sparrow) to 32mm (House Sparrow);
- To increase the chances of birds nesting, it should be placed adjacent to vegetation features such as hedges and treelines; and
- The boxes should be integrated into the masonry of a new house or fixed onto an external wall using strong screws and wall plugs and placed a minimum of 2m above ground.

Further details on the installation of bird boxes are provided within the Biodiversity Management Plan provided under separate cover.

6.2.2 Bats

Providing bat boxes can increase the roosting opportunities for bats in the local area. The bat boxes will be Schwegler-type (woodcrete) type boxes (or similar) and a range of different type boxes (e.g. 2F, 1FF, 1 FS, and 1FTH) will be used. Further details on the installation of bat boxes is provide within the Biodiversity Management Plan provided under separate cover.

[3] https://nhbs.com

7 Conclusion

This Ecological Impact Assessment has assessed the ecological value of the Site with regards to habitats and fauna.

The majority of the habitats have been classified as having local (lower) value or less, with only the hedgerows having been valued to have local higher value. The Site also has local (higher) value for commuting and foraging bat and breeding birds.

The Proposed Development has been designed to retain where possible the hedgerow features of ecological value, especially the boundary hedgerows.

The landscape proposals have been designed to maintain the boundary hedgerows and provide complementary planting to buffer these features and provide additional opportunities for foraging and commuting bats and breeding birds.

The Proposed Development will not have any significant adverse residual effects on the important ecological features of the Ecological Study Area, provided that the mitigation measures are implemented in full as outlined in this assessment.

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Appendices

Appendix A Valuation of Important Ecological Features (IEFs)

The table below outlines the geographic scales used to inform the valuation of IEFs (which is adapted from the National Roads Authority Guidelines (NRA, 2009)) and is used to inform the sensitivity of the ecological receptors.

Ecological Valuation

International importance:

- 'European Site', including SACs and candidate SACs, Sites of Community Importance, SPAs, or proposed SPAs (pSPAs).
- Site that fulfils the criteria for designation as a 'European Site' (see Annex III of the Habitats
- Directive, as amended).
- Features essential to maintaining the coherence of the Natura 2000 Network[4]
- Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive.
- Resident or regularly occurring populations (assessed to be important at the national level)[5] of
- the following:
- Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or
- Species of animal and plants listed in Annex II and/or IV of the Habitats Directive.
- Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl
- Habitat 1971).
- World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972).
- Biosphere Reserve (UNESCO Man & The Biosphere Programme).
- Site hosting significant species populations under the Bonn Convention (Convention on the
- Conservation of Migratory Species of Wild Animals, 1979).
- Sites hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).
- Biogenetic Reserve under the Council of Europe.
- European Diploma Site under the Council of Europe.
- Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations 1988 (S.I. No. 293 of 1988)[6].

National Importance:

- Site designated or proposed as a Natural Heritage Area/proposed NHA.
- Statutory Nature Reserve.
- Refuge for Fauna and Flora protected under the Wildlife Acts 1976-2012.
- Undesignated site fulfilling the criteria for designation as an NHA; a Statutory Nature Reserve; a Refuge for Fauna and Flora protected under the Wildlife Acts 1976-2012; and/or a National Park.
- Resident or regularly occurring populations (assessed to be important at the national level)[7] of
- the following:
- Species protected under the Wildlife Acts; and/or
- Species listed on the relevant Red Data list.
- Site containing 'viable areas'[8] of the habitat types listed in Annex I of the Habitats Directive.

County Importance:

- Area of Special Amenity[9]
- Area subject to a Tree Preservation Order.
- Area of High Amenity, or equivalent, designated under the County Development Plan (CDP).
- Resident or regularly occurring populations (assessed to be important at the county level)[10] of the following:
- species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and
- species of animal and plants listed in Annex II and/or IV of the Habitats Directive; and
- species protected under the Wildlife Acts; and/or
- species listed on the relevant Red Data list.
- Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or national importance.

4 See Articles 3 and 10 of the Habitats Directive

5 It is suggested that, in general, 1% of the national population of such species qualifies as an internationally important population. However, a smaller population may qualify as internationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

6 Note that such waters are designated based on these waters' capabilities of supporting salmon (Salmo salar), trout (Salmo trutta), char (Salvelinus) and whitefish (Coregonus).

7 It is suggested that, in general, 1% of the national population of such species qualifies as a nationally important population. However, a smaller population may qualify as nationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

8 A 'viable area' is defined as an area of a habitat that, given the particular characteristics of that habitat, was of a sufficient size and shape, such that its integrity (in terms of species composition, and ecological processes and function) would be maintained in the face of stochastic change (for example, as a result of climatic variation).

9 It should be noted that whilst areas such as Areas of Special Amenity, areas subject to a Tree Preservation Order and Areas of High Amenity are often designated on the basis of their ecological value, they may also be designated for other reasons, such as their amenity or recreational value. Therefore, it should not be automatically assumed that such sites are of County importance from an ecological perspective.

10 It is suggested that, in general, 1% of the County population of such species qualifies as a County important population. However, a smaller population may qualify as County important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

- County important populations of species or viable areas of semi-natural habitats or natural heritage features identified in the National or Local Biodiversity Action Plan (BAP)[11], if this has been prepared.
- Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.
- Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.

Local Importance (higher value):

- Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared.
- Resident or regularly occurring populations (assessed to be important at the local level)[12] of the following:
- species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and
- species of animal and plants listed in Annex II and/or IV of the Habitats Directive; and
- species protected under the Wildlife Acts; and/or
- species listed on the relevant Red Data list.
- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality.
- Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.

Local Importance (lower value):

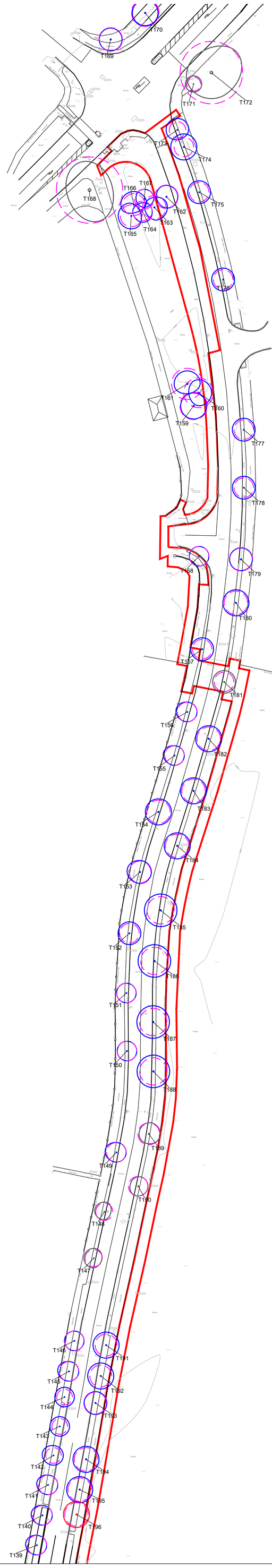
- Sites containing small areas of semi-natural habitats that are of limited local importance for wildlife.
- Sites or features containing non-native species that are of some importance in maintaining habitat links.

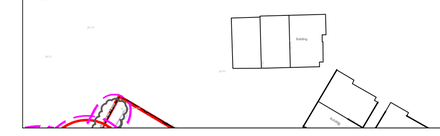
12 It is suggested that, in general, 1%of the local population of such species qualifies as a locally important population. However, a smaller population may qualify as locally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

Appendix B Bat Roost Assessment - Structures

ID	Coordinates (ITM)	Overall photo	Description	Structure roost Suitability	Internal Access	Internal Photos	Emergence Survey
BS01	690157, 719601		Bungalow. Some gaps in roof soffit which may allow entry for bats.	Low	No	NA	Yes. One emergence survey was carried out on 04/09/25. No emerging bats observed.
BS02	690347, 719835		Agricultural shed within the red line boundary. Access points for bats above four rolling doors were observed however, no obvious roosting locations were found within the structure.	Negligible	Yes		No. Further surveys not required as structure was assessed as “negligible”.
BS03	690343, 719817		Portacabin. No suitable roosting potential.	Negligible.	No	NA	No. Further surveys not required as structure was assessed as “negligible”.

Appendix C Tree Survey Plan





This drawing is to be read in conjunction with the respective arboricultural schedules and reports relevant to this project.

Where contradictions between this drawing and any other design information becomes apparent, the respective authors should be contacted immediately.

It is the responsibility of the main site contractor to check and verify all information and measurements onsite and confirm prior to the commencement of works, and to ensure that all site operatives work in accordance with respective arboricultural reports and BS5837:2012, Trees in relation to design, demolition and construction.

BS5837:2012 Tree Categorisation

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years

Category B
Trees of moderate quality with an estimated life expectancy of at least 20 years

Category C
Trees of low quality with an estimated life expectancy of at least 10 years, or young trees with a stem diameter below 150mm

Category U
Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years

Key

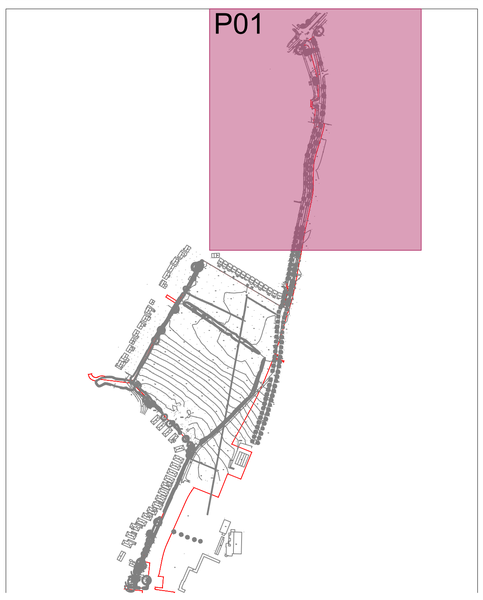
Root Protection Areas
The minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the trees viability

Tree, Shrub or Hedgerow Group

T23 — Reference Number for Tree, Group or Hedgerow

Site boundary

0 5m 10m 20m 30m 40m 50m 60m 70m



Revision	Date	Description
B	24.03.2026	Updated site boundary

Title:
Tree Survey & Constraints Plan 01

Project:
Naas Racecourse LRD

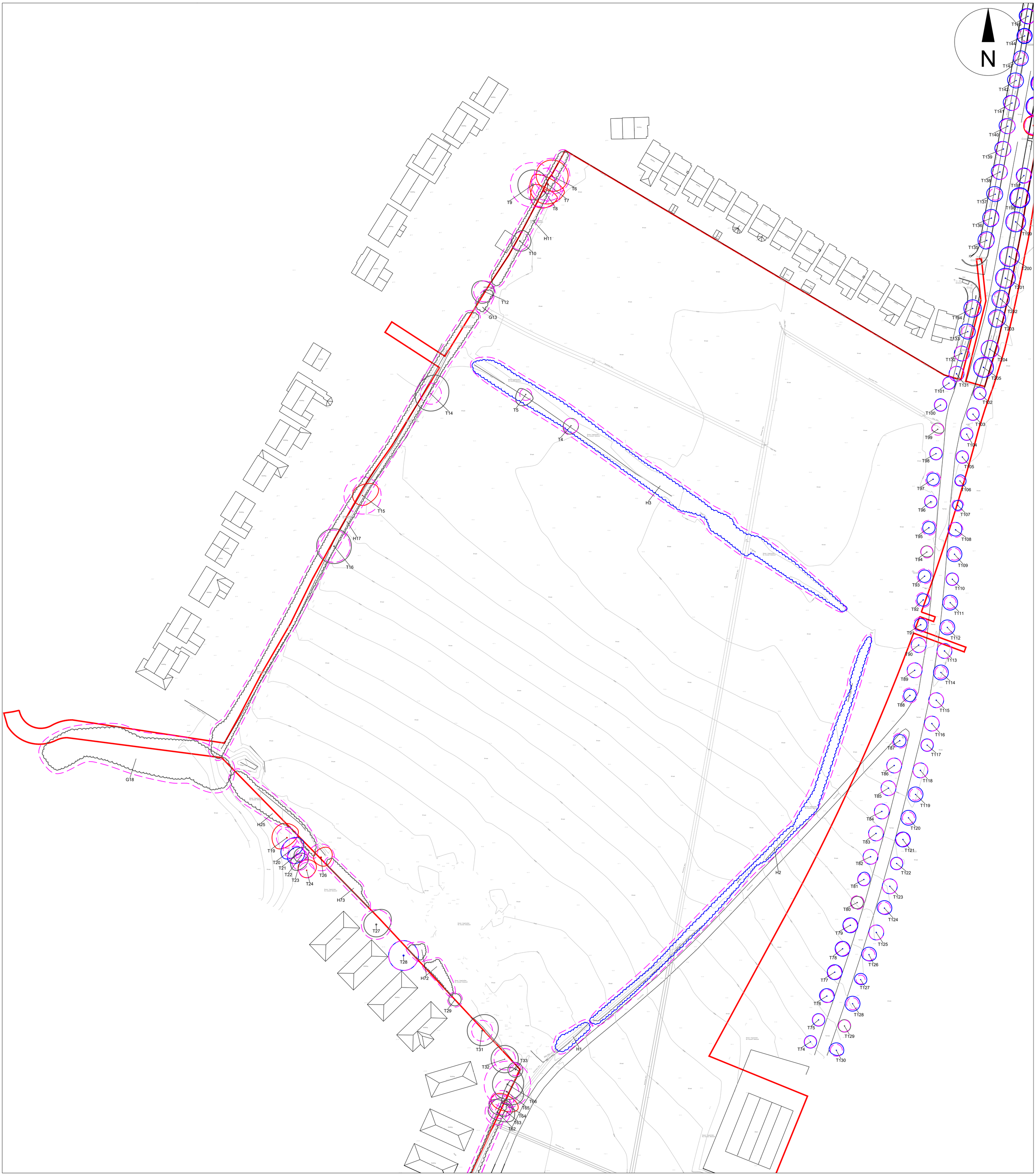
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Date: 30 Mar 2026	Scale: 1:500 @ A0	Status: Planning	
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Checked by: CMcC			

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BS5837:2012 Tree Categorisation

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years

Category B
Trees of moderate quality with an estimated life expectancy of at least 20 years

Category C
Trees of low quality with an estimated life expectancy of at least 10 years, or young trees with a stem diameter below 150mm

Category U
Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years

Key

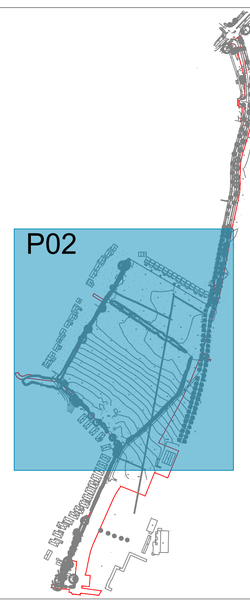
Root Protection Areas
The minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the trees viability

Tree, Shrub or Hedgerow Group

T23 — Reference Number for Tree, Group or Hedgerow

Site boundary

0 5m 10m 20m 30m 40m 50m 60m 70m



Revision	Date	Description
B	24.03.2026	Updated site boundary

Title:
Tree Survey & Constraints Plan 02

Project:
Naas Racecourse LRD

Client:
Ballymore Developments Ltd.

Date: 30 Mar 2026	Scale: 1:500 @ A0	Status: Planning	
Drawn by: CMcC	Dwg ref: 241202 -P-10 -02	Rev: B	
Checked by: CMcC			

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It is the responsibility of the main site contractor to check and verify all information and measurements onsite and confirm prior to the commencement of works, and to ensure that all site operatives work in accordance with respective arboricultural reports and BS5837:2012, Trees in relation to design, demolition and construction.

BS5837:2012 Tree Categorisation

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years

Category B
Trees of moderate quality with an estimated life expectancy of at least 20 years

Category C
Trees of low quality with an estimated life expectancy of at least 10 years, or young trees with a stem diameter below 150mm

Category U
Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years

Key

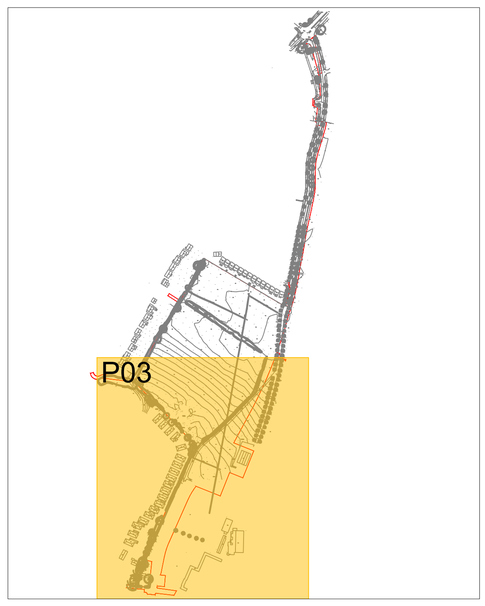
Root Protection Areas
The minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the trees viability

Tree, Shrub or Hedgerow Group

T23 — Reference Number for Tree, Group or Hedgerow

Site boundary

0 5m 10m 20m 30m 40m 50m 60m 70m



Revision	Date	Description
B	24.03.2026	Updated site boundary

Title:
Tree Survey & Constraints Plan 03

Project:
Naas Racecourse LRD

Client:
Ballymore Developments Ltd.

Date: 30 Mar 2026	Scale: 1:500 @ A0	Status: Planning
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