MWP

Ecological Impact Assessment

Cloonmore Regeneration Large Residential Development at Boherbee, Tralee, County Kerry

Tulfarris CG Limited

August 2023

Contents

Tables

Figures

Plates

Appendices

Project No.	Doc. No.	Rev.	Date	Prepared By	Checked By	Approved By	Status
23824	6003	A	August 2023	Úna Williams	Ger Hayes		DRAFT
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1. Introduction

Tulfarris CG Ltd. intend to apply to Kerry County Council (KCC) for a 10-year planning permission for a mixed residential development at Cloon More in Tralee, County Kerry on a site of approximately 1.55 hectares. The proposal is regarded as being a Large-Scale Residential Development (LRD) since it consists of more than 100 dwelling units.

Malachy Walsh and Partners Engineering and Environmental Consultants (MWP) have been engaged by Tulfarris CG Ltd to prepare an Ecological Impact Assessment (EcIA) report on the proposed works to accompany the planning permission application. This report describes the existing biodiversity and ecological characteristics of the proposed development site, potential ecological impacts and mitigation measures to offset ecological effects.

A Stage 1 Screening for Appropriate Assessment Report and a Screening for Environmental Impact Assessment Report have also been prepared by MWP in relation to the proposal and will be submitted as part of the application.

1.1 Overview of the Proposed Project

The proposed development will consist of (a) the demolition (approximately 650 m^2) of existing on-site buildings; (b) installation of new vehicular and pedestrian entrances; and (c) the construction of a new residential and mixed-use scheme of 147 no. dwelling units to comprise 129 no. apartment units and 18 no. townhouse units in 2 no. blocks (Blocks A and B) ranging from 3 to 5 storeys high.

The proposed development will also include a public open space (approximately 3,738 m^2), private open space (approximately 2,798 m^2) including private balconies and gardens, 102 no. car parking spaces, and 330 no. private and visitor cycle spaces. The development shall be served via two new vehicular access points from Cloonmore Avenue to the new Ballymullen/Clash Link Road. Phase 1 of the Link Road has been completed and Phase 2 is due for completion within 18 months.

With an area of approximately 1.55 hectares, the proposed development site is predominantly a long, narrow urban site. It is currently occupied to the north by two partially demolished semi-detached, single-storey derelict dwellings with rear yards and greenfield extending southwards. A two-storey dwelling, Cluain Mór Guesthouse, is located within the southeast corner of the development site. The site is located within a mixed urban area of residential and commercial buildings: Austin Stack Park GAA stadium; Tralee Casement Railway Station; and University Hospital Kerry (UHK) all are located in the environs of the proposed development site (refer to **Figure 1**, below). The proposed development site is located within the 'Mitchel's Urban Regeneration Area', part of an on-going urban renewal and regeneration scheme by Kerry County Council to facilitate the sustainable redevelopment of derelict sites and improve the condition of the town's public realm.

1.2 Scope of the Assessment

- Identify and document protected habitats and species in the study area through desk top studies.
- Undertake baseline ecological surveys at the site.
- Evaluate the nature conservation importance of the ecological resources identified using a scientifically robust and objective methodology based on current National and International best practice guidelines.
- Predict the potential direct, indirect and cumulative effects of the project on local biodiversity.
- Prescribe mitigation measures to minimise potential effects on biodiversity.

- Identify site-specific measures that could be employed for the purpose of local biodiversity enhancement.

1.3 Statement of Competency

This Ecological Impact Assessment (EcIA) has been prepared by Úna Williams (MSc., BSc.), Ecologist and Environmental Scientist, and Hazel Dalton (BSc.), Senior Ecologist, both of Malachy Walsh and Partners (MWP).

Úna has worked with MWP for four years and is an experienced field ecologist. She is familiar with various ecological survey methodologies including habitat/survey mapping and zoological surveys and has worked on research teams both in Ireland and abroad. She has undertaken assessments for a wide variety of projects including renewable energy developments, and infrastructural and coastal developments. Úna has designed and carried out several Avian Collision Risk Models for proposed wind farms and has authored many ecological reports including Screenings for Appropriate Assessment Reports (Stage 1), Natura Impact Statements (Stage 2), and Ecological Impact Assessments.

Hazel has over eight years' experience with MWP in ecological surveying and impact assessment and has authored and contributed to numerous screening reports for AA, NIS and EIARs for a wide variety of projects. She is an experienced field ecologist and has a diverse ecological survey profile, including habitats and flora, mammals, birds and terrestrial/aquatic invertebrates. She has held National Parks and Wildlife Service (NPWS) Licences for small mammal trapping, tape lure/endoscope bird surveys, Kerry slug (*Geomalacus maculosus*) surveys, photographing wild animals at their resting/breeding places and disturbance of a bat roost for bridge works.

Ecological field surveys were undertaken by experienced MWP ecologists Orla van der Noll (MSc., BSc.) and Úna Williams (MSc., BSc.).

2. Details of Proposed Development

2.1 Site Location and Context

The proposed development area is located within the townland of Cloon More on the eastern extent of Tralee town in County Kerry, approximately 24 kilometres southwest of Listowel town and 26 kilometres northwest of Killarney town (see **Figure 1,** below).

The mixed urban area site is long and narrow, lying along a northwest to southeast axis with the R875 Boherbee Road running perpendicular to the site's northern boundary. Approximately 0.12 kilometres west of the development site, Mitchel's Road runs from north to south linking to the N86 Dan Spring Road that circumvents the southern part of the town. The new Gaelcholáiste Chíarraí building lies to the south while to the east are O'Connor Kerry Haulage Ltd. and Clonmore Cottages. West of the site lies a Community Centre, KVH Sheltered Apartments and some relatively small sports fields. A row of terraced houses known as O'Connor Terrace fronts onto Boherbee Road west of the derelict single-storey buildings within the proposed works area. Refer to **Figure 1**, below.

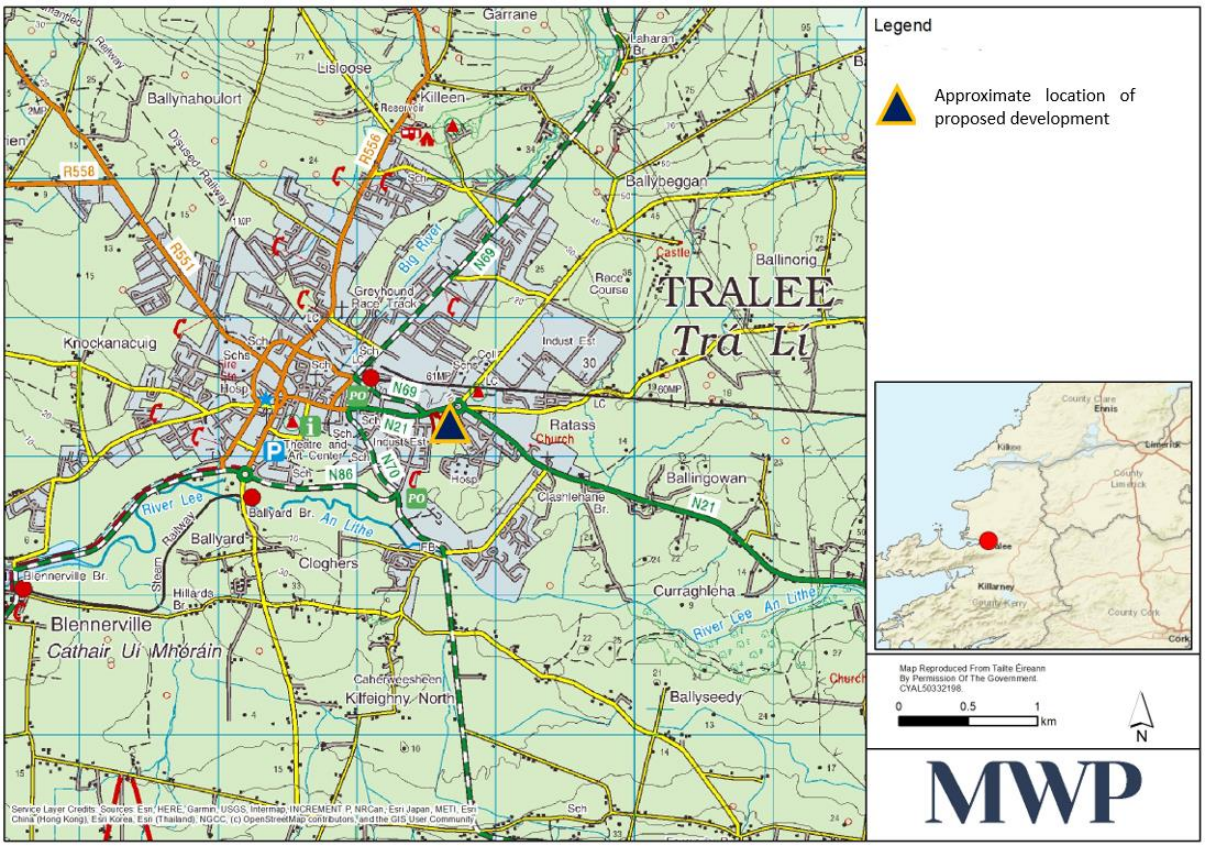

Figure 1: Approximate location of the proposed development site at Cloon More on the eastern side of Tralee town in County Kerry.

2.2 Characteristics of the Project

Once complete, the proposed development will comprise a total of 147 no. residential units distributed in two blocks (Blocks A and B) at a medium density of 97.7 dwellings per hectare. This will consist of 129 no. apartments and 18 no. townhouse units as summarised in the Schedule of Accommodation in Table 1, below.

The proposed development will consist of the following elements:

(a) the demolition of existing onsite guesthouse and outbuildings (total area approx. 480 m^2), and completion of demolition of two onsite derelict cottages;

(b) the installation of new vehicular and pedestrian entrances; and

(c) the construction of a new 147-unit mixed residential development in 2 no. blocks (Blocks A and B) ranging from 3 to 5 storeys in height, as follows:

– Block A (3 - 5 storeys) comprising 15 no. apartments (7 no. 1 bed and 8 no. 2 bed units) and 48 no. corner triplex apartments (24 no. 1 bed and 24 no. 2 bed units) and 18 no. townhouses (14 no. 2 bed and 4 no. 3 bed units)

– Block B (5 storeys) comprising 64 no. apartments (24 no. 1 bed and 40 no. 2 bed units).

Table 1. Schedule of Accommodation for the proposed residential development at Cloon More in Tralee.

	Unit Type		Total Units
	Apartment	Townhouse	
1 – bed	51	-	51 (34% of total)
2 – bed	78	14	92 (63% of total)
3 – bed	-	4	4 (3% of total)
Total Units	129	18	147

Each residential unit will be afforded a private open space in the form of a balcony, garden or patio in addition to a ground level residents' terrace and gardens with outdoor seating and planting along the southern border of the development. The total private open space amenity of the development is 2,798 m^2 (18.6% of total site area). Public open spaces with a combined area of 3,223 m^2 (21.4% of total site area) are also proposed in the form of parks, greens, rain gardens, sheltered gardens and terraces, outdoor seating and planting, and pedestrian and cyclist links.

A total of 102 no. car parking spaces are provided at ground floor level, including 7 no. Accessible spaces and 20 no. spaces for visitors or shared use. A total of 330 no. cycle spaces will also be provided for visitors and residents in bike stands and secure stacked spaces.

The proposed development shall be served via two new vehicular access points to the new Ballymullen-Clash Link Road, one via Cloonmore Avenue and one directly onto the Link Road. Phase 1 of the Link Road has been completed and Phase 2 is due for completion within 18 months. These new vehicular access points and infrastructural upgrading will facilitate construction of the proposed development and provide for improved access and egress for the overall development once complete. A pedestrian and cyclist access point will be provided on to Boherbee from the site.

The associated site and infrastructural works include provision for water services; foul and surface water drainage and connections; attenuation proposals; all landscaping works; boundary treatment; internal roads and footpaths; waste storage areas and electrical services and all associated site development works.

The development will be designed in full accordance with Sustainable Urban Design Principles. Surface water run-off from the proposed development will be routed through a series of onsite Sustainable Urban Drainage System (SuDS) elements, which have been incorporated into the project at design stage to reduce the run-off rate of any stormwater discharge. SUDS elements are widely used to alleviate detrimental effects of urban stormwater drainage on receiving watercourses.

SUDS elements to be employed include the use of rain gardens and tree pits, dry swales, soakaways, and petrol interceptors. These elements will utilise runoff interception, retention and infiltration at source before discharging to an on-site attenuation system. Each of these SUDS mechanisms provides various stormwater treatment, storage and/or attenuation functions by which surface run-off from the development will be managed.

Any run-off that occurs during the construction phase will be managed and controlled within the site via lined ponds positioned at the proposed stormwater infiltration area locations (before installation of the attenuation tanks). Upon completion of the construction phase, the ponds and their contents will be removed from site and disposed of accordingly by an approved and permitted Contractor as per construction industry best practice CIRIA[1] guidelines.

[1] CIRIA - Construction Industry Research and Information Association

The proposed foul sewer, fully separated from the proposed stormwater drainage, is designed for sewage and wastewater collection from the proposed buildings. It will discharge to the existing public foul sewer system. The development will connect to Tralee Urban Wastewater Treatment Plant (UWWTP)[2] via the public system. Following a pre-connection enquiry to Uisce Éireann (formerly known as Irish Water), a Confirmation of Feasibility letter was received by MWP on 29th May 2023 to confirm that, based on the network capacity currently available, the proposed network connection is feasible subject to minor upgrades. The Confirmation of Feasibility letter also specified that no stormwater will be accepted into the Uisce Éireann Wastewater Network, and therefore stormwater drainage at the proposed development site will be managed onsite by SUDS techniques described above. Stormwater will primarily be treated at source and then discharged within the site via infiltration to groundwater. Site testing has confirmed the adequacy of stormwater discharge to the ground and the infiltration location has been carefully chosen to minimise any possible impacts to building structures.

Water supply to the proposed development will be provided through an existing 150ø watermains to the north of the site on Boherbee Road. Refer to the engineering drawings in **Appendix 3** and to the Drainage Design Report and Drainage Layout Planning Drawings which accompany the planning application for more information.

A Construction Environmental Management Plan (CEMP) has also been prepared by MWP. The CEMP encompasses construction programming and phasing, excavations, site logistics, construction traffic and site access, construction lighting, air quality, noise and vibration, resource and waste management and surface water management.

3. Methodology

3.1 Legislation and Published Guidance

This assessment was undertaken with regard to the following publications:

- '*Guidelines on the information to be contained in Environmental Impact Assessment Reports*' (EPA, 2022).
- '*Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*' (CIEEM[3], 2019).
- '*Guidelines for Assessment of Ecological Impacts of National Road Schemes*' (NRA[4], 2009).

The following legislative framework was also considered:

- EU Habitats Directive (92/43/EEC)
- EU Birds Directive (79/409/EEC)
- EU Water Framework Directive (WFD) (2000/60/EC)
- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011) (as amended)
- Planning and Development Act 2000 (as amended)
- Wildlife Act 1976 (as amended)
- Flora (Protection) Order, 2015

[2] UWWTP Active Licence Number: D0040-01
[3] Chartered Institute of Ecology and Environmental Management
[4] National Roads Authority, now known as Transport Infrastructure Ireland (TII)

3.2 Desktop Study

A desktop study was carried out to collate and review available information and documentation relating to the biodiversity of the site and the geographical area extending away from it. The following publications, which include current best practice guidance, current scientific literature, up to-date data and datasets were reviewed:

- Ordnance Survey Ireland (OSI) aerial photography, 1:50000 mapping, GeoHive and online satellite imagery sources
- National Parks and Wildlife Service (NPWS) (website and online map viewer)
- National Biodiversity Data Centre (NBDC) (online map-viewer)
- BirdWatch Ireland
- Teagasc soil area maps (NBDC website)
- Geological Survey Ireland (GSI) area maps
- Bat Conservation Ireland (BCIreland)
- Environmental Protection Agency (EPA) water quality data
- Water Framework Directive (WFD) Cycle 2 subcatchment assessments and Cycle 3 catchment summaries
- Shannon International River Basin District (ShIRBD) datasets (Water Framework Directive)
- Kerry County Development Plan (2022 – 2028)[5]
- Tralee Municipal District Local Area Plan (2018 – 2024)[6]
- Review of requested records from NPWS Rare and Protected Species database
- Review of records of plant species protected under the Flora (Protection) Order of 2015 and the Irish Red Data Book (Wyse *et al*., 2016)
- Other information sources and reports footnoted throughout the report and listed in Section 14, below.

3.2.1 Database Searches and Data Requests

The study area lies within the Ordnance Survey National Grid hectad[7] Q81. Concise and site-specific information on species records available for this hectad was retrieved from the NBDC on-line database and reviewed.

A data request for records of rare and protected species from the hectad Q81 was submitted to NPWS on the 24th July 2023. Data was received from NPWS on the 4th August 2023.

Information received via the NPWS and the NBDC in response to the data requests and database searches was used to help inform the baseline surveys and impact assessment in relation to the proposed works.

3.3 Zone of Influence (ZOI)

The zone of influence (ZOI) of a proposed development is the area over which ecological features may be affected by biophysical changes arising from the proposed works and associated activities. Since the nature, size and location of each project differs, the ZOI varies from project to project, and changes for different ecological features depending on their sensitivity to environmental variances. Features affected can include habitats,

[5] County Development Plan | (c) Kerry County Cuncil (kerrycoco.ie) Accessed: 24th July 2023
[6] traleemdplan.pdf (kerrycoco.ie) Accessed: 24th July 2023
[7] Unit of land area measuring 10 km x 10 km

species, ecosystems and the processes on which they depend. These features may be geographically distant from a proposed project, but their ecological interests may be indirectly affected by the construction and operation of said project.

The following points were considered when ascertaining the potential ZOI of the proposed LRD at Cloon More:

- The nature, size and location of the project.
- Sensitive habitats and species identified within the study area.
- Any suitable habitats for high conservation value species identified within the study area and extending away from the study area.
- Ecological connectivity between the project and the wider landscape.
- The sensitivities of the relevant key ecological receptors.
- Identification of potential effect pathways to key ecological receptors.
- Habitat connectivity and foraging ranges of fauna.

Taking the above points into consideration and size and scale of the proposed development, the ZOI for this project was deemed to be a 15-kilometre radius around the proposed development site.

3.4 Study Area

The study area for the LRD at Cloon More comprised the full extent of all elements of the proposal including the entire 1.55-hectare development area and any adjacent lands, habitats and species considered ecologically connected to the site. See habitat map in Appendix 1.

3.5 Important Ecological Features (IEFs)

Important Ecological Features (IEFs) are ecological features/resources for which detailed assessment is required. These are taken to be those features deemed to have a 'Locally Important (higher value)' or higher classification based on NRA (2009).

Relevant habitats and associated flora, fauna, conservation sites and other ecological features/resources will be identified in Section 5, below, and then evaluated in terms of their local, national and international conservation importance using the evaluation criteria described in Section 3.7.1, below. Based on the outcomes of these evaluations, an assessment will then be made as to which of the ecological resources/features should be classed as an IEF. Finally, the significance of the potential ecological effects of the project on these IEFs will be assessed in Section 8, below.

3.6 Field Surveys

The desk top study undertaken by MWP was supplemented by ecological surveys for the habitats, flora and fauna of the proposed development site to determine the scope of the ecological assessment.

The ecological features of interest within and connected to the site were recorded and used to help identify the potential IEFs. The following literature was referred to during field surveys and throughout the ecological assessment process:

- Irish Red Lists - Terrestrial Mammals (Marnell, *et al*., 2019), and Amphibians, Reptiles and Freshwater Fish (King, *et al*., 2011).
- Birds of Conservation Concern in Ireland 2020 – 2026 (Gilbert *et al*., 2021)
- Irish Wildlife Manuals (IWM) 116 Checklists of protected and threatened species in Ireland. Version 2.1 Dec 2021 (Nelson, *et al*., 2019)
- Irish Red Data Book for Vascular Plants (Curtis & McGough, 1988)
- Review of records of plant species protected under the Flora (Protection) Order of 2015 and the Irish Red Data Book (Wyse *et al*., 2016).

Summaries of MWP field survey methodologies are provided in the following sections, Sections 3.6.1 and 3.6.2, below.

3.6.1 Habitats, Flora and Fauna (excluding bats)

A multi-disciplinary ecological walkover survey of the proposed works site carried out by MWP ecologists on the 4th July 2023.

The habitat survey had regard to '*Best Practice Guidance for Habitat Survey and Mapping*' (Smith *et al*., 2011) and '*A Guide to Habitats in Ireland*' (Fossitt, 2000). This survey was undertaken within the optimum flora survey period to ascertain the habitats present within and surrounding the subject site. Habitats were categorised to Level 3 according to Fossitt (2000) and were evaluated in terms of potential links with EU Annex I habitats. Any Invasive Alien Plant Species (IAPS) encountered onsite during the walkover surveys were also recorded and their location noted.

Habitats were also assessed for their potential suitability for fauna - evidence of mammal activity such as prints, droppings, burrow-holes, dens or setts, feeding signs, and trails or disturbed vegetation was searched for. The surveys had regard to '*Animal Tracks and Signs*' (Bang & Dahlstrom, 2006) and '*Surveying for Badgers: Good Practice Guidelines*' (Scottish Badgers, 2018). Any birds observed or heard calling during the walkover surveys were recorded. Any invasive alien plant species (IAPS) observed during the walkover surveys were also recorded.

A wildlife camera (Model: Browning Trail Camera – Dark Ops Unit) was deployed at a location along the eastern border of the proposed development site – see Figure 2, below, for location. The camera was deployed under NPWS Licence (215/2022) on the 4th July 2023 and collected on the 31st July 2023, and the footage reviewed.

Following the walkover survey, a habitat map for the development site was prepared (see Appendix 1).

3.6.2 Bats

The following surveys were undertaken by MWP ecologists in view of guidance by Marnell *et al*. (2022), Collins (2016) and Kelleher & Marnell (2006):

- Daytime building inspections
- Dusk/dawn surveys
- Potential Bat Roost (PBR) surveys of trees
- Static detector survey

A summary of the bat survey methods employed at the subject site are provided in the following sections.

3.6.2.1 Buildings and Structures

Daytime Inspection of Buildings and Structures

Structures, buildings and other likely places that may provide a roosting space for bats were inspected during daytime hours on the 4th July 2023 for evidence of bat usage including the presence of actual bats (visible or audible), bat droppings, urine staining, grease marks (oily secretions from glands present on stonework) and claw marks. Visual inspections were undertaken with the aid of a strong torch beam at the following structures:

- Building 1 - Cluain Mór House (large 2-storey house)
- Building 2 – Prefabricated structure immediately southeast of Cluain Mór House (utilised as a living area)
- Building 3 – Small flat-roofed shed immediately southwest of Cluain Mór House

Each of the three structures was examined and assessed to determine their suitability as a bat roost before being categorised as having either Negligible, Low, Medium or High suitability as specified in Kelleher & Marnell (2006). The level of suitability of the structures informed the level of surveying required.

Dusk and Dawn Surveys of Buildings and Structures

Dusk emergence surveys were completed on the evening of 10th August 2023 starting at 10 minutes before sunset until at least 110 minutes after sunset. Surveyors were positioned within the proposed development site adjacent to one of the three buildings/structures listed above to determine if bats were roosting within the buildings and to observe general bat activity in the area.

Dawn surveys were completed on the morning of 11th August 2023 beginning 110 minutes before sunrise and finishing 10 minutes after sunrise. Surveyors were positioned within the proposed development site adjacent to one of the three buildings/structures listed above to record any bats returning to roost after a night of foraging. Surveys were completed during mild and dry weather conditions with air temperature 8°C or greater.

For both surveys, the surveyors were positioned at three points – one to the front of Cluain Mór House, and two to the rear - within the proposed development site from where the three structures could be monitored to ascertain whether bats were emerging or returning to the buildings and to observe general bat activity within the area. All bat encounters were noted during the surveys.

3.6.2.2 Bat Habitat and Commuting Routes Mapping

The survey site was assessed during daytime walkover surveys on 4th July 2023 in terms of potential bat foraging habitat and bat commuting routes. Bat habitats and commuting routes identified were considered in relation to the wider landscape to determine landscape connectivity for local bat populations through the examination of aerial photographs.

3.6.2.3 Potential Bat Roost (PBR) Surveys of Trees

Trees that may provide a roosting space for bats were classified using the Bat Tree Habitat Key (BTHK, 2018) and the classification system adapted from Collins (2016) (see **Table 2**, below). The Potential Roost Features (PRFs) listed in this guide were used to determine the Potential Bat Roost (PBR) value of trees. Daytime inspections for evidence of bat usage were undertaken of all of the trees within the proposed development site identified as PBRs on the 4th July 2023.

Table 2. Bat roost category classification system of trees [adapted by Bat Eco Services (2022) from Collins (2016)].

Tree Category	Description
1 - High	Trees with multiple, highly suitable features (PRFs) capable of supporting larger roosts.
2 - Moderate	Trees with definite bat potential but supporting features (PRFs) suitable for use by individual bats.
3 - Low	Trees have no obvious potential although the tree is of a size and age that elevated surveys may result in cracks or crevices being found or the tree supports some features (PRFs) which may have limited potential to support bats.
4 - None	Trees have no potential.

3.6.2.4 Passive Static Bat Detector Surveys

A Passive Static Bat Survey involves leaving a static bat detector unit (with ultrasonic microphone) in a specific location, set to record for a specified period of time (i.e. a bat detector is left in the field, there is no observer present and bats which pass near enough to the monitoring unit are recorded and their calls are stored for analysis post surveying). The bat detector is effectively used as a bat activity data logger.

Two static Wildlife Acoustics Song Meter Mini Bat Units were deployed for five nights from 15th July to 19th July 2023 at the locations described in Figure 2 and Table 3, below. Wildlife Acoustics Song Meter Mini Bat Units use Real Time recording as a technique to record bat echolocation calls. The recordings are analysed using specific software Wildlife Acoustics Kaleidoscope Pro. The results are evaluated according to the number of bat passes per species per night in order to determine bat activity levels. Each bat pass does not correlate to an individual bat but is representative of bat activity levels.

Table 3. Location details of two static bat detectors deployed onsite from 15th July to 19th July 2023.

Detector Number	Location Description	ITM Coordinates
Static 1 (No. 2820)	Located in hedgerow traversing the centre of the site	0484557, 0614290
Static 2 (No. 1096)	Located on a large sycamore tree at the north of the site	0484574, 0614322

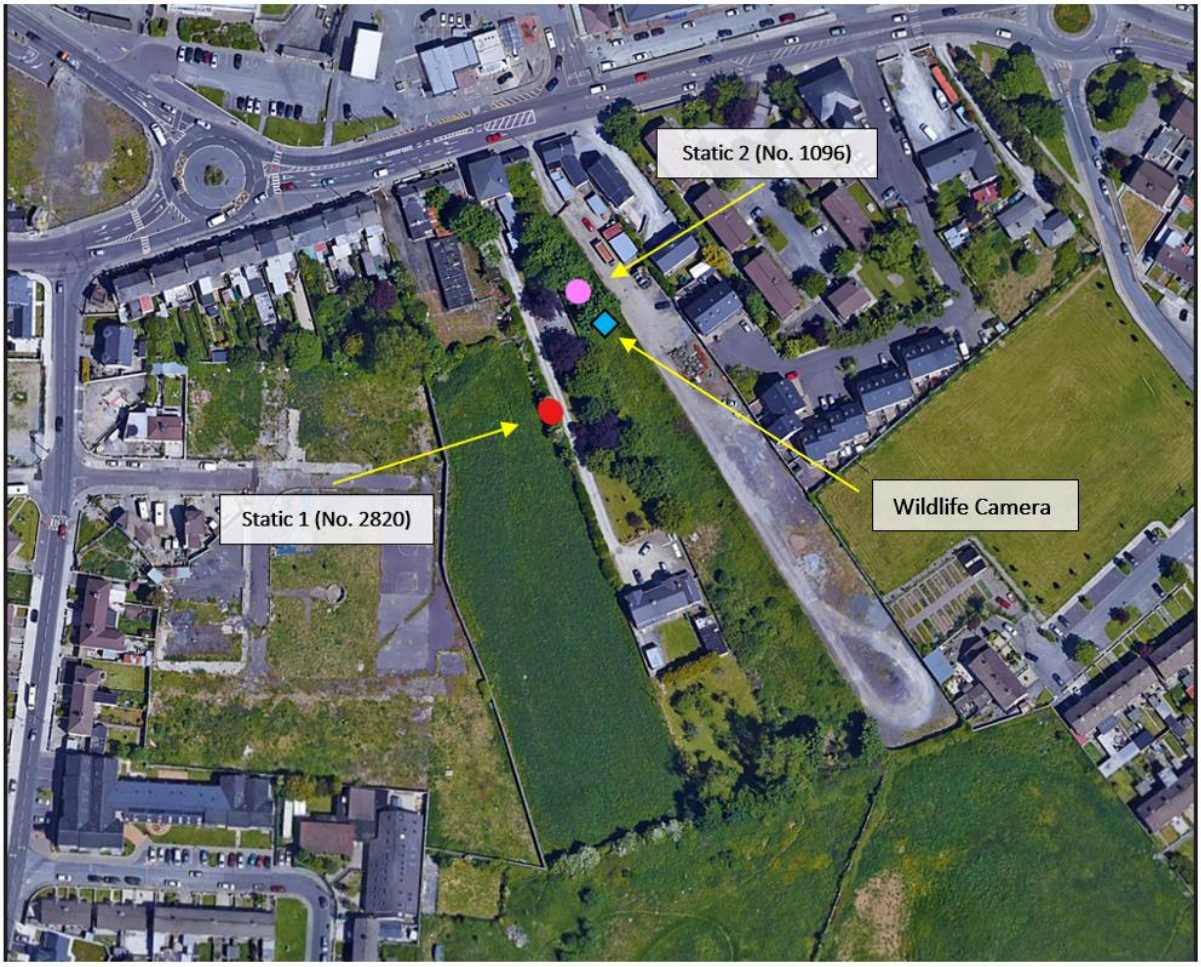

Figure 2: Locations of the two static bat detectors deployed for five nights and location of the wildlife camera deployed for 28 nights at the proposed development site.

3.7 Assessment Criteria

This section outlines the criteria upon which evaluations of the importance of ecological features and the assessments of the ecological impact of the project on these features are made, referring to relevant legislation and guidelines.

3.7.1 Evaluation

The evaluation outlined in this report and assessment of effects of the proposed project follows methodologies detailed in '*Guidelines for Ecological Impact Assessment in the UK and Ireland*' (CIEEM, 2018) and '*Guidelines for Assessment of Ecological Impacts of National Roads Schemes*' (NRA, 2009). The EPA (2022) document '*Guidelines on information to be contained in Environmental Impact Assessment Reports*' was also considered.

The habitats, flora, fauna and other ecological features/resources identified during desktop and field surveys are evaluated based on their conservation value by using the ecological evaluation guidance described in Appendix 2. The NRA (2009) guidelines provide a basis for determination of whether a particular ecological receptor is of importance on the following scale:

- International
- National

- County
- Local Importance (higher value), and
- Local Importance (lower value).

The NRA (2009) guidelines clearly set out the criteria by which each geographic level of importance can be assigned. At the lowest end of the scale, Locally Important (lower value) receptors contain habitats and species that are widespread, of low ecological significance, and are of importance only in the local area. In contrast, Internationally Important receptors can comprise sites designated for conservation at an international level as part of the Natura 2000 Network (SAC or SPA) or which provide the best examples of habitats, or internationally important populations of protected flora and fauna.

The criterion used to evaluate the value of ecological resources has been included in Appendix 2. The value of habitats is assessed based on habitat condition, size, rarity, conservation and legal status. The value of fauna is assessed on biodiversity value, legal status and conservation status. Biodiversity value is based on its national distribution, abundance or rarity, and associated trends.

3.7.2 Impact Assessment

The ecological significance of the effects of the proposed development are assessed using CIEEM (2018) guidance document which states: '*For the purposes of EcIA, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general*'.

Conservation objectives may be specific or broad and can be considered at a wide range of scales ranging from international to local (CIEEM, 2018). An impact on the conservation status of a habitat or species is considered to be significant if it will result in a change in conservation status. Significant effects encompass impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution). CIEEM (2018) defines the 'conservation status' for habitats and species, as follows:

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

Significant effects should be qualified with reference to an appropriate geographic scale (CIEEM, 2018).

EPA (2022) guidance and criteria were also considered in determining significance and for assessing impact. Professional judgement is used. The EPA (2022) criteria for assessing quality of effects and the significance of effects are set out in Table 4 and Table 5, below.

Table 4. Criteria for assessing impact quality based on EPA (2022).

Quality of Effect	Criteria
Positive	Change that improves the quality of the environment (for example, by increasing species diversity; or improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
Neutral	No effects or effects that are imperceptible within normal bounds of variation or within the margin of forecasting error.

Quality of Effect	Criteria
Negative/Adverse	A change which reduces the quality of the environment (e.g. lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health/property or by causing nuisance).

Table 5. Criteria for assessing impact significance based on EPA (2022).

Significance of Effects	Definition
Imperceptible	An effect capable of measurement but without significant consequences
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
Significant	An effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the environment
Very significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
Profound	An effect which obliterates sensitive characteristics

The following terms are used when quantifying the duration and frequency of the potential effects:

- Momentary – effects lasting from seconds to minutes;
- Brief – effects lasting less than a day;
- Temporary – effects lasting less than a year;
- Short-term – effects lasting 1 to 7 years;
- Medium term – effects lasting 7 to 15 years;
- Long term – effects lasting 15 to 60 years;
- Permanent – effects lasting over 60 years;
- Reversible – effects that can be undone, for example through remediation or restoration;
- Frequency – How often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).

Where ecological effects are assessed to be potentially significant, mitigation measures are proposed to remove or reduce the effects. The significance of the cumulative effects of the proposed project is also assessed by determining the ecological effects of the proposal in combination with other developments that either have planning permission, are under construction or are already in existence within the area. The cumulative impact

with existing activities in the area is also considered in terms of potential in-combination effects. The significance of the residual effects after mitigation is then assessed.

4. Description of Existing Environment

4.1 General Site Description

The proposed development site is located within a mixed urban area with Austin Stack Park GAA stadium, Tralee Casement Railway Station and Tralee Bus Station all located a short distance to the northwest. There is a petrol station, Dunnes Stores and the Horan Shopping Centre located on the R875 Boherbee Road opposite the proposal site. University Hospital Kerry (UHK) is located to the southwest of the Cloon More site. Refer to Figure 3, below.

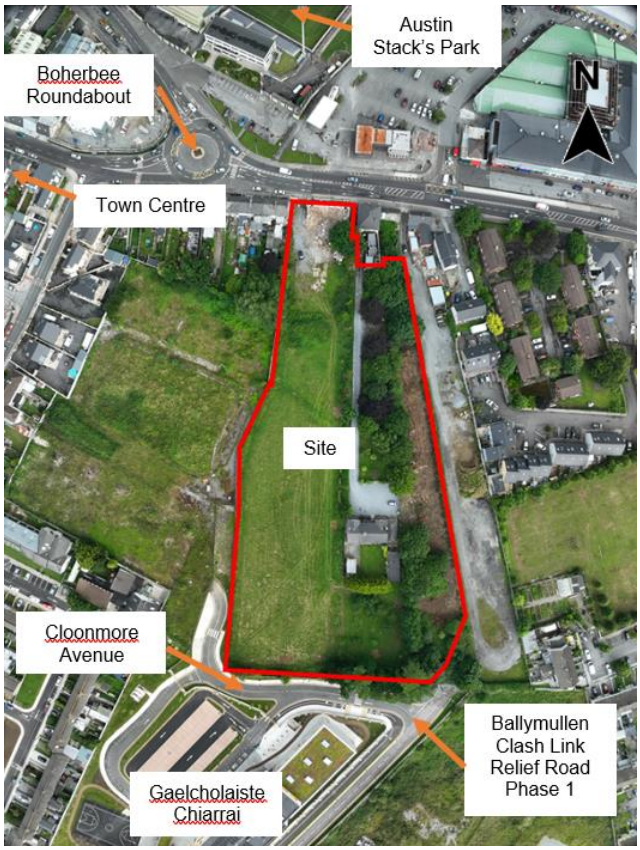

Figure 3: Proposed development site within a mixed urban area in eastern area of Tralee in County Kerry.

To the north of the site facing onto Boherbee Road are two semi-detached, single-storey derelict dwellings with rear yard area of concrete/tarmacadam and a narrow, green field area extending southwards. Cluain Mór House is a two-storey dwelling located at the southeasternmost corner of the site with access from the R875 via a long driveway of approximately 0.125 kilometres and adjacent front lawn/garden. To the rear of the House is a prefabricated structure currently utilised as a living area, a small, flat-roofed shed and a rear garden with small orchard.

The proposed development site borders Boherbee Road and is surrounded to the north, west and east by areas that consist predominantly of one- or two-storey residential buildings, and to the south by the new Gaelcholáiste Chiarraí Secondary School. There are greener areas to the southwest of the proposed development site towards University Hospital Kerry (UHK).

The site is situated within the 'Mitchel's Urban Regeneration Area' which was identified in 2004 as a region of Tralee in need of regeneration to rectify the underlying social and economic problems in the area. The Master Plan for this major ongoing transformative regeneration project includes the delivery of the Ballymullen/Clash Inner Relief Road, a Gaelscoil for 600 pupils, sporting facilities, community and enterprise building, public realm upgrades, and enhancement of parks and open spaces[8].

The proposed development site is situated within the townland of Cloon More approximately 0.9 kilometres east of Tralee town centre (see **Figure 1**, above) within the Electoral Division (ED) of Tralee Rural (ED Code: 77160) which, during the 2016 census, was found to have a total population of 17,825 residents[9].

The CORINE[10] (2018) land cover category for the proposed development area is 'artificial surfaces – discontinuous urban fabric' with a very small area within the northwestern corner of the site towards Tralee town centre classed as 'artificial surfaces – continuous urban fabric'. To the north and southeast within the surrounding area are pockets of 'artificial surfaces – industrial and commercial units' within the greater region surrounding the town are areas classed as 'agricultural areas - pastures'[11]. The site is relatively flat with levels varying from 8.12 metres AOD (above ordnance datum) in the east to 7.02 metres AOD in the west.

Bedrock at the proposed development site varies and occurs in three different bands. The northern section is underlain by 'bioclastic cherty grey limestone' of the Dirtoge Limestone formation. The middle section of the site is underlain by 'unbedded calcilutite limestone' while bedrock at the southern part of the site is categorised as 'massive, unbedded limes mudstones' of the Waulsortian Limestones formation[12].

4.2 Hydrology and Hydrogeology

The proposed development site is situated within the Lee [Tralee]_SC_010 Water Framework Directive (WFD) subcatchment (23_8) and the Lee [Tralee]_040 river sub-basin (IE_SH_23L010200) both located within the Tralee Bay-Feale WFD Catchment (23). The site lies approximately 2.6 kilometres northeast of the Transitional Waterbody Lee K Estuary[13]. The underlying groundwater body (GWB) is the Tralee GWB[14] described as 'Karstic' and, for most of the site, classified as a 'Regionally Important Aquifer' (Rkd) with only the very northern tip of the proposed development site within a region classed as a 'Locally Important Aquifer' (LI).

A review of the EPA map-viewer[15] determined that there are no watercourses mapped within the immediate vicinity of the proposed works area at Cloon More. The two closest mapped watercourses to the development site are the 5th Order River Lee, located approximately 0.7 kilometres to the southwest, and the Big River, located approximately 0.7 kilometres to the northwest. Both these watercourses are part of the Lee (Tralee)_040 Waterbody[16]. The 3rd Order Ballynabrennagh River (also known as the Ballybeggan River) lies approximately 1 kilometre east of the proposal site and is a constituent of the Lee (Tralee)_030 Waterbody[17]. All waterbodies in

[8] traleemdplan.pdf (kerrycoco.ie) Accessed: 1st August 2023
[9] https://cso.maps.arcgis.com/ Accessed: 9th July 2023
[10] **C**o-**OR**dinated **IN**formation on the **E**nvironment – data series initiated in 1985 by the European Commission to gather environmental data.
[11] EPA Maps Accessed: 9th July 2023
[12] Geological Survey Ireland Spatial Resources (arcgis.com) Accessed: 9th July 2023
[13] EPA Transitional Waterbody Code: IE_SH_050_0100
[14] EPA Groundwater Body Code: IE_SH_G_226
[15] EPA Maps Accessed: 2nd August 2023
[16] EPA River Waterbody Code: IE_SH_23L010200
[17] EPA River Waterbody Code: IE_SH_23L010100

the area drain into the Lee River which eventually empties into the Lee Estuary within Tralee Bay. Refer to **Figure 4**, below.

Compliance with the reporting requirements of the WFD (Directive 2000/60/EC) obliges each EU member state to publish reports providing summary information on individual waterbodies relating to their status, risks and objectives. The Lee (Tralee)_040 Waterbody has a latest WFD (2016-21) status of 'Moderate' while the Lee (Tralee)_030 Waterbody has a latest WFD (2016-21) status of 'Poor'. The Lee K Estuary transitional waterbody has a WFD status (2016-21) of 'Moderate' while the Tralee GWB has a latest WFD (2016-21) status of 'Good'.

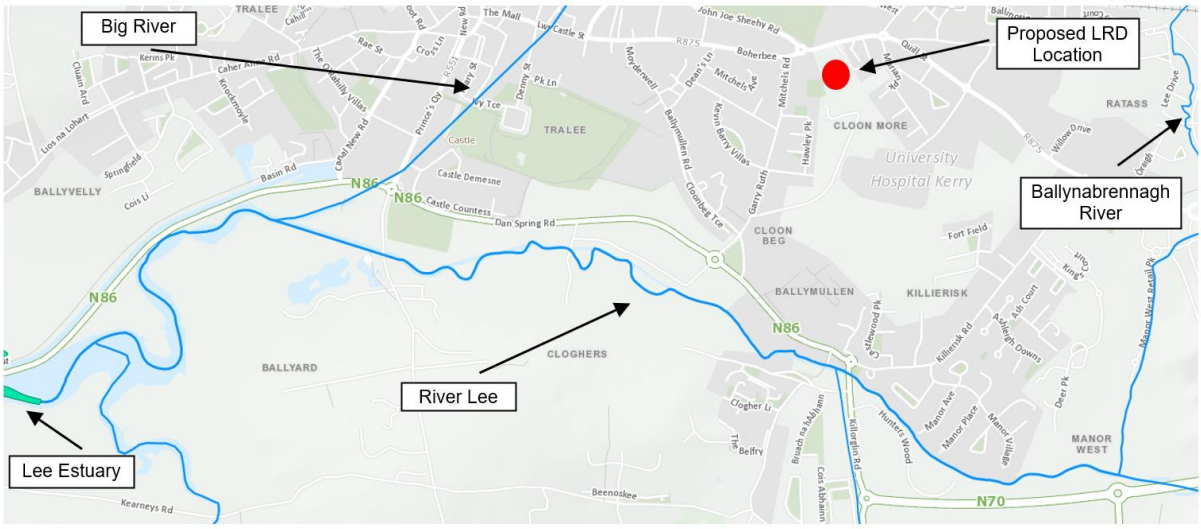

Figure 4: Closest mapped watercourses to the proposed works site (Adapted from GeoHive Map Viewer).

4.3 Habitats and Flora

The overall proposed works site comprises the existing derelict buildings and Cluain Mór House, the driveway and other artificial surfaces, the front and rear gardens of Cluain Mór House, and the western grassland area extending south from the derelict buildings. Refer to Habitat Map in **Appendix 1**.

The following habitat types were recorded during the ecological field surveys:

4.3.1 Buildings and Artificial Surfaces (BL3)

Cluain Mór House and the two structures to its rear – a prefabricated structure to the southeast and a small flat-roofed shed to the southwest – in addition to any surrounding paved areas are all categorised as 'Buildings and artificial surfaces (BL3)'. See **Plate 1**, below.

Plate 1: Rear of Cluain Mór House looking northeastwards with flat-roofed shed to the right and an area of 'Dry meadows and grassy verges (GS2)' visible in the foreground.

4.3.2 Buildings and Artificial Surfaces / Spoil and Bare Ground (BL3/ED2)

The access point from Boherbee Road, the two adjacent partially demolished single-storey derelict buildings and the associated spoil and rubble heaps of largely unvegetated unconsolidated material are classed as a mosaic of 'Buildings and artificial surfaces / Spoil and bare ground (BL3/ED2)' (see Plate 2, below).

4.3.3 Spoil and Bare Ground (ED2)

The driveway and carpark to the front of Cluain Mór House are categorised as 'Spoil and bare ground (ED2)' because they both are regularly used by vehicles and are without any significant amounts of vegetation. See Plate 7, below.

4.3.4 Recolonising Bare Ground (ED3)

In the northwesternmost corner of the proposed development site and to the south of the demolished derelict dwellings are areas that are becoming recolonised by ruderal species in the absence of general maintenance and are classified as 'Recolonising bare ground (ED3)'. Smaller pockets of this habitat can also be found to the front of the derelict dwellings on Boherbee Road and in small square-shaped area off the driveway to Cluain Mór House. See Plate 7, below.

Species associated with this habitat-type within the site comprise mosses, grasses, dock (*Rumex* spp.), nettle (*Urtica dioica*), dandelion (*Taraxacum vulgaria*), knotgrass (*Polygonum aviculare*), daisy (*Bellis perennis*), greater plantain (*Plantago major*), and thistle (*Cirsium* spp). Butterfly-bush (*Buddleja davidii*) can be found near the Boherbee Road access point within this habitat.

Plate 2: Partially demolished derelict dwellings and associated spoil/rubble at Boherbee Road categorised as a mosaic of 'Buildings and artificial surfaces / Spoil and bare ground (BL3/ED2)', and a mature sycamore tree part of 'Treelines (WL2)' in the background.

4.3.5 Recolonising Bare Ground (ED3) / Spoil and Bare Ground (ED2)

A long strip of this habitat occurs at the eastern side of the site running parallel to the Cluain Mór House driveway. It consists of bare ground and areas of cleared vegetation where some minor recolonisation of plants has begun. Vegetation cover is minimal consisting only of some ruderal species such as grasses, dock, and young nettles. See Plate 3, below.

Plate 3: Strip of 'Recolonising bare ground / Spoil and bare ground (ED3/ED2)' mosaic looking northwestwards with mature 'Treelines (WL2)' to the west and north, and 'Hedgerows (WL1) to the east.

4.3.6 Scrub (WS1)

An area of this habitat is located south of the demolished dwellings between recolonising bare ground and the large western grassland area. 'Scrub (WS1)' species occurring in this area include bramble (*Rubus fruticosus*), nettle (*Urtica dioica*), ragwort (*Jacobaea vulgaris*), sycamore saplings (*Acer pseudoplatanus*), thistle (*Cirsium* spp.), and dock (*Rumex* spp.). There is also a pocket of dense scrub within the southeasternmost corner of the site consisting of species such as willow (*Salix* spp.), blackthorn (*Prunus spinosa*), bramble, and hawthorn (*Crataegus monogyna*). See Plate 4, below.

Plate 4: Area of Scrub (WS1) in southeastern corner of the proposed development site with a row of Treelines (WL2) visible in the background.

4.3.7 Improved Grassland (GA1)

Almost the entire western half of the site is made up of a narrow stretch of 'Improved grassland (GA1)' extending southwards for approximately 0.14 kilometres. Although the field has previously been artificially improved for agriculture, the recent lack of management and grazing has caused the field to start reverting and becoming rank, with briars and nettles encroaching from the boundaries. Species found within the field include various grasses such as Yorkshire fog (*Holcus lanatus*), tufted hairgrass (*Deschampsia cespitosa*) and meadow fescue (*Festuca pratensis*), and dandelion, dock, bramble, buttercup (*Ranunculus* spp.), mouse-ear (*Cerastium fontanum*), thistle, bindweed (*Calystegia sepium*), and self-heal (*Prunella vulgaris*). See Plate 5, below.

Plate 5: View looking southwards of 'Improved grassland (GA1)' with 'Hedgerows (WL1)' running through the centre of the site from Cluain Mór House. 'Treelines (WL2)' of tall poplar (*Populus* spp.) trees to the rear of house visible in the background (new Gaelcholáiste Chiarraí Secondary School pictured on right).

4.3.8 Treelines (WL2)

There is a relatively short row of 'Treelines (WL2)' comprising sycamore, hawthorn, and apple (*Malus* spp.) measuring between 8 and 15 metres high located east-southeast of the half-demolished buildings at Boherbee Road (see Plate 2, above). A longer row of trees consisting of willow (*Salix* spp.), lime (*Tilia cordata*), beech (*Fagus sylvatica*) and sycamore can be found running north to south parallel to the front garden of Cluain Mór House. Similarly, the rear garden is also surrounded by tree species such as sycamore, willow and poplar (*Populus* spp.), some of which at the southern border measure up to 20 metres high. See Plate 5, above.

4.3.9 Treelines/Scrub (WL2/WS1)

An area of 'Treelines/Scrub (WL2/WS1)' mosaic occurs to the northeast of the site and contains species such as sycamore, nettle, briar, ivy (*Hedera helix*), montbretia (*Crocosmia x crocosmiiflora*), and spurge (*Euphorbia* spp.). See Plate 6, below. A mature horse-chestnut (*Aesculus hippocastanum*) tree is also located within this area along the eastern boundary.

Plate 6: Area of Treelines / Scrub (WL2/WS1)' mosaic within the northeast corner of the site with nettle, ivy, montbretia and sycamore visible throughout.

4.3.10 Hedgerows (WL1)

Several areas of habitat classed as 'Hedgerows (WL1)' occur periodically throughout the site mainly at the site's borders. The eastern edge of the proposed development site consists almost entirely of a relatively small hedgerow that includes species such as bramble, blackthorn, hawthorn, and nettle with the hedgerow becoming slightly more established at the northern end. See Plate 3, above. Smaller lengths of hedgerow are located along part of the northwestern boundary. The site is also bisected by hedgerow running from north to south through the centre of the site, from the trees east of the demolished buildings and running south to Cluain Mór House. See Plate 5, above, and Plate 7, below.

4.3.11 Scattered Trees and Parkland (WD5) (and Ornamental/non-native shrub (WS3))

This habitat constitutes the front and rear gardens of Cluain Mór House. The rear garden consists of cultivated grassland and landscaping with approximately ten apple trees distributed around the area. Species within the grassland include self-heal, clover, creeping buttercup, and daisy (*Bellis perennis*). The front garden of 'Scattered trees and parkland (WD5)' occurs in mosaic with 'Ornamental/non-native shrub (WS3)' as the managed and landscaped grass contains non-native, planted shrubs and trees such as bamboo (unknown species), cherry laurel (*Prunus laurocerasus*), sycamore, hydrangea, snowberry (*Symphoricarpos albus*), copper beech (*Fagus sylvatica* f. purpurea) and montbretia. See Plate 7, below.

Plate 7: Small apple orchard and grassland to the rear of Cluain Mór House classed as 'Scattered trees and parkland (WD5)' (lefthand picture), and front garden featuring 'Ornamental/non-native shrub (WS3)' with 'Hedgerows (WL1)' to the right, 'Spoil and bare ground (ED2)' of the driveway at the centre, and a small area of 'Recolonising bare ground (ED3)' to the left (righthand picture).

4.3.12 Dry Meadows & Grassy Verges (GS2)

As discussed in Section 4.3.7, above, a lack of management and grazing within the site's western grassland area has resulted in the edges reverting to mainly rank grasses and ruderal species with a broadleaved herb component and is therefore categorised as 'Dry meadow and grassy verges (GS2)'. Species noted included Yorkshire fog, ribwort plantain (*Plantago lanceolata*), nettle, dandelion, clover (*Trifolium* spp.), dock, mouse-ear, thistle, ivy, meadow buttercup (*Ranunculus acris*), and vetch (*Vicia* spp.). In the southwestern corner and along half the southern boundary of the site, the habitat occurs in mosaic with 'Scrub (WS1)' as the vegetation, such as bramble and nettle, is slightly more established and grasses proliferate. See Plate 1, above.

4.3.13 Other Habitats

To the rear of Cluain Mór House between the two outbuildings, there is a small square of 'Amenity grassland (improved) (GA2)'. This habitat is well-managed to maintain short grass swards with likely regular mowing carried out. This habitat was found to be species-poor with some common broad-leaved herbs such as daisy and dandelion noted.

East of the Tralee Christian Fellowship Church is a derelict dwelling which, to the rear, has a small area of 'Stone walls and other stonework (BL1)' situated within the landholding boundary but located outside the redline development boundary. Species within this habitat-type include mosses, ivy, bramble, and herb-robert (*Geranium robertianum*).

4.3.14 Rare and Protected Flora

4.3.14.1 Desk-top Study

An on-line search of the NBDC database for species of conservation interest recorded within the hectad Q81 was carried out. Data of rare and protected species records received from NPWS was also reviewed.

The NBDC holds records for several rare species of flora within hectad Q81. These are pale flax (*Linum bienne*), slender thistle (*Carduus tenuiflorus*), chives (*Allium schoenoprasum*) and round-leaved crane's-bill (*Geranium rotundifolium*). The latter two are also on the Flora Protection Order (FPO) (2022)[18]. The habitats occurring within

[18] pdf (irishstatutebook.ie) Accessed: 8th August 2023

the proposed development site are not considered optimal for any of these species of flora with the exception perhaps of Round-leaved crane's-bill, based on their habitat requirements.

The species list for threatened and protected species records for the hectad Q81 is summarised in **Table 6**, below.

Table 6. Desktop records of rare and protected species of flora within the hectad Q81

Common Name	Scientific Name	Typical Habitat[19]	Record Location	Red List Category/Level of Protection[20]
Pale flax	*Linum bienne*	Dry banks, pastures and roadsides, often coastal.	Blennerville	NT
Slender thistle	*Carduus tenuiflorus*	Open, grassy ground, usually coastal.	Forge Cross	NT
Chives	*Allium schoenoprasum*	Found on seasonally flooded rocky ground, often limestone.	Oakpark	VU, FPO
Round-leaved crane's-bill	*Geranium rotundifolium*	Roadsides, walls, hedges or wasteland.	Mounthawk	LC, FPO

CR – Critically Endangered
EN - Endangered
VU – Vulnerable
NT – Near Threatened
LC – Least Concern
FPO – Flora Protection Order (2022)

4.3.14.2 Field Survey Results

No rare or protected flora species were encountered during the ecological field surveys.

4.3.15 Non-native/Invasive Flora

4.3.15.1 Desk-top Study

Documented NBDC records of high/medium impact invasive/non-native species of flora listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended) exist within the hectad Q81 encompassing the study area. Several invasive species not listed on the Third Schedule of the 2011 Regulations also occur including, amongst others, cherry laurel (*Prunus laurocerasus*), sycamore (*Acer pseudoplatanus*), turkey oak (*Quercus cerris*), and traveller's-joy (*Clematis vitalba*).

NBDC on-line records of invasive alien plant species (IAPS) that have been previously recorded in hectad Q81 are listed in **Table 7,** below. The nearest two records to the proposed works site are Indian balsam at UHK approximately 0.14 kilometres to the southeast of the proposed development site, and Japanese knotweed at Mitchel's Road approximately 0.2 kilometres to the west.

[19] Curtis & McGough (1988); http://www.irishwildflowers.ie/; https://bsbi.org/; British Bryological Society (2010)
[20] Wyse Jackson *et al*., (2016); Lockhart *et al*., (2012); Nelson *et al*., (2019)

Table 7. Desktop records of non-native/invasive species of flora within the hectad Q81

Species common name	Scientific name	Impact	Listed on Regulation S.I. 477? [21]
Black currant	*Ribes nigrum*	Medium	No
Brazilian giant rhubarb	*Gunnera manicata*	Medium	Yes
Butterfly-bush	*Buddleja davidii*	Medium	No
Cherry laurel	*Prunus laurocerasus*	High	No
Common cord-grass	*Spartina anglica*	High	Yes
Douglas fir	*Pseudotsuga menziesii*	Medium	No
Giant hogweed	*Heracleum mantegazzianum*	High	Yes
Giant rhubarb	*Gunnera tinctoria*	High	Yes
Himalayan honeysuckle	*Leycesteria formosa*	Medium	No
Indian balsam	*Impatiens glandulifera*	High	Yes
Japanese knotweed	*Fallopia japonica*	High	Yes
Japanese rose	*Rosa rugosa*	Medium	No
Parrot's-feather	*Myriophyllum aquaticum*	High	Yes
Rhododendron	*Rhododendron ponticum*	High	Yes
Spanish bluebell	*Hyacinthoides hispanica*	N/A	Yes
Sycamore	*Acer pseudoplatanus*	Medium	No
Three-cornered garlic	*Allium triquetrum*	Medium	Yes
Traveller's-joy	*Clematis vitalba*	Medium	No
Turkey oak	*Quercus cerris*	Medium	No

4.3.15.2 Field Survey Results

During the MWP multi-disciplinary ecological field surveys of the site, several invasive plant species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) were recorded, including Japanese knotweed (occurring outside the redline boundary behind the derelict semi-detached dwelling, east of the Christian Church), butterfly bush (occurring along the proposed development site's western border near the Boherbee access point) and cherry laurel (occurring as dense stands at the northern end of the driveway leading to Cluain Mór House). There was also a small area at the northern end of the driveway where montbretia and snowberry were present. See **Table 8**, below, for a summary of survey results.

[21] Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended)

Table 8. Locations of the Invasive Alien Plant Species (IAPS) recorded within the site during surveys.

Species common name	Scientific name	ITM Grid Coordinates
Butterfly-bush	*Buddleja davidii*	484509, 614345
Japanese Knotweed	*Fallopia japonica*	484551, 614359
Cherry Laurel	*Prunus laurocerasus*	484552, 614333
Snow berry	*Symphoricarpos albus*	484553, 614340
Montbretia	*Crocosmia x crocosmiiflora*	484561, 614329

4.4 Fauna

4.4.1 Terrestrial Mammals

4.4.1.1 Desktop Study

NBDC species lists, distribution maps generated on-line, and data received from NPWS were all examined to determine the distribution of protected terrestrial mammal species within the hectad Q81. Table 9, below, lists protected terrestrial mammal species which have been previously recorded in the hectad and summarises their legal and conservation status in Ireland with regards to national and international legislation, and the most recent Irish Red List for Mammals (2019).

Table 9. Records of protected terrestrial mammal species within the hectad Q81.

Species	Distribution in Ireland	Conservation/Legal Status	Approximate distance of closest NBDC/NPWS record
Badger *Meles meles*	Widespread	Irish Red Data Book: 'Least Concern'; Wildlife Acts	1.4 km east of works site
Pygmy shrew *Sorex minutus*	Widespread	Irish Red Data Book: 'Least Concern'; Wildlife Acts	3.2 km northeast of works site
Red squirrel *Sciurus vulgaris*	Widespread but may still be absent from midlands	Irish Red Data Book: 'Least Concern'; Wildlife Acts	1.5 km southwest of works site
Otter *Lutra lutra*	Widespread	Irish Red Data Book: 'Least Concern'; EU Habitats Directive Annex II & IV; Wildlife Acts; CITES Appendix 1	0.7 km south of works site
Irish hare *Lepus timidus* subsp. *hibernicus*	Widespread	Irish Red Data Book: 'Least Concern'; Wildlife Acts; EU Habitats Directive Annex V	1.8 km northeast of works site
Irish stoat *Mustela erminea* subsp. *hibernica*	Widespread	Irish Red Data Book: 'Least Concern'; Wildlife Acts	2 km southeast of works site

Species	Distribution in Ireland	Conservation/Legal Status	Approximate distance of closest NBDC/NPWS record
Hedgehog *Erinaceus europaeus*	Widespread but absent from The Burren, blanket bogs of Connemara, and northwest Mayo & Donegal	Irish Red Data Book: 'Least Concern'; Wildlife Acts	0.3 km northwest of works site

NBDC species lists generated on-line were also examined to assess the distribution of invasive terrestrial mammal species within the hectad Q81. The following invasive species have all been recorded within the hectad:

- American mink (*Mustela vison*)
- Bank vole (*Myodes glareolus*)
- Brown rat (*Rattus norvegicus*)
- European rabbit (*Oryctolagus cuniculus*)
- Sika deer (*Cervus nippon*)
- Feral goat (*Capra hircus*)
- House mouse (*Mus musculus*)

4.4.1.2 Field Survey Results

No evidence of protected terrestrial mammals was recorded during the site walkover surveys. A domestic cat (*Felis catus*) was noted on the concrete wall of the western boundary and is likely the source of the several minor mammal trails noted in areas of scrub or at grassy verges.

The wildlife camera that was deployed along the eastern boundary recorded only domestic cats and passerine birds.

4.4.2 Bats

4.4.2.1 Desk-top Study

NBDC species lists, distribution maps generated on-line, and data received from NPWS were all examined to determine the distribution of protected bat species within the hectad Q81. **Table 10,** below, lists bat species which have been previously recorded in the hectad and summarises their legal and conservation status in Ireland with regards to national and international legislation, and the most recent Irish Red List for Mammals (2019)[22].

Table 10. Records of protected bat species within the hectad Q81.

Species	Distribution in Ireland	Conservation/Legal Status	Approximate distance of closest NBDC record
Brown long-eared bat *Plecotus auritus*	Widespread	Irish Red Data Book: 'Least Concern'; EU Habitats Directive Annex IV; Wildlife Acts.	1.8 km northwest of works site
Daubenton's bat *Myotis daubentonii*	Widespread	Irish Red Data Book: 'Least Concern'; EU Habitats Directive Annex IV; Wildlife Acts.	0.9 km southwest of works site

[22] https://www.npws.ie/sites/default/files/publications/pdf/Red%20List%20No.%2012%20Mammals.pdf Accessed: 9th August 2023

Species	Distribution in Ireland	Conservation/Legal Status	Approximate distance of closest NBDC record
Lesser horseshoe bat *Rhinolophus hipposideros*	Confined to six western counties.	Irish Red Data Book: 'Least Concern'; EU Habitats Directive Annex II & IV; Wildlife Acts.	3.2 km southeast of works site
Leisler's bat *Nyctalus leisleri*	Widespread	Irish Red Data Book: 'Least Concern'; EU Habitats Directive Annex IV; Wildlife Acts.	2.1 km southeast of works site
Natterer's bat *Myotis nattereri*	Widespread but not common	Irish Red Data Book: 'Least Concern'; EU Habitats Directive Annex IV; Wildlife Acts.	2.4 km northeast of works site
Common pipistrelle *Pipistrellus pipistrellus*	Widespread	Irish Red Data Book: 'Least Concern'; EU Habitats Directive Annex IV; Wildlife Acts.	2.4 km northeast of works site
Soprano pipistrelle *Pipistrellus pygmaeus*	Widespread	Irish Red Data Book: 'Least Concern'; EU Habitats Directive Annex IV; Wildlife Acts.	1.8 km northwest of works site
Whiskered bat *Myotis mystacinus*	Widespread	Irish Red Data Book: 'Least Concern'; EU Habitats Directive Annex IV; Wildlife Acts.	3.2 km southeast of works site

The National Biodiversity Data Centre's online mapper[23] includes a Bat Habitat Suitability Index (BHSI) layer derived from an analysis of the habitat and landscape associations of Irish bats compiled by Lundy *et al*. (2011). The index evaluation ratings range from 0 to 100, with 0 being the least favourable for bats and 100 the most favourable for bats. Index evaluations are available for each species and an overall rating is also available for all species combined.

For the proposed development site, the BHSI rating is 34.11 for all bat species combined and is considered low. Brown long-eared bat was rated highest with a score of 52. See **Table 11**, below, for individual species ratings relating to the Bat Habitat Suitability Index (BHSI).

Table 11. Bat Habitat Suitability Index (BHSI) for Q81M (2 km grid square).

Bat Species	Suitability Index Rating for Q81M
All bat species	34.11
Brown long-eared bat	52
Soprano pipistrelle	42
Leisler's bat	41
Common pipistrelle	40
Daubenton's bat	37
Natterer's bat	36
Whiskered bat	30
Lesser horseshoe bat	27
Nathusius's pipistrelle *Pipistrellus nathusii*	2

[23] https://maps.biodiversityireland.ie/Map Accessed: 9th August 2023

4.4.2.2 Field Survey Results

Daytime Inspections of Buildings and Structures

No evidence of bat usage was recorded in any of the three buildings examined. Both structures to the rear of Cluain Mór House were found to be relatively damp and draughty with sub-optimal habitats for bat roosts. Additionally, the smaller of the structures had a flat roof of corrugated iron deemed unsuitable for roosting bats. During the surveys, Cluain Mór House had a very high rate of human activity and elevated noise levels with people constantly coming and going. Furthermore, the building itself does not have an attic space which is usually the optimal roosting space in a house for bats. For these reasons and considering that the proposed development site is located within an urban setting with little suitable bat habitat in the surrounding areas, the three structures were assessed as being of Low roosting value to bats.

Dusk and Dawn Surveys

No bats were recorded emerging from Cluain Mór House or associated outbuildings at dusk. Similarly, no bats were observed entering the buildings at dawn. Some minor levels of bat foraging activity occurred to the east of Cluain Mór House but in general, bat activity levels during the surveys were very low.

Potential Bat Roost (PBR) Surveys of Trees

Upon examination of all trees within the proposed development site, several were found to have some Potential Roost Features (PRFs) such as cracks, crevices, holes, or ivy, which were then used to assess the Potential Bat Roost (PBR) value of the trees (see Section 3.6.2.3 and Table 2, above). Of the nineteen trees or tree groups surveyed, 71% were assessed as having a Low PBR value. Four (21%) trees were categorised as having a Moderate PBR value and their details are summarised in Table 12, below. No trees were assessed as having a High PBR value.

Overall, this is a very urbanised area with high levels of anthropogenic disturbance and extensive street lighting within surrounding areas and, with the possible exception of the four trees listed in Table 12, below, the proposed development site has a low level of suitable bat habitat.

Table 12. Trees assessed to have the highest Potential Bat Roost (PBR) values based on the Potential Roost Features (PRFs) present.

Tree(s) ID Number	Tree Species	Approximate Tree(s) ITM Grid Coordinates	Potential Roost Features (PRFs)				PBR Value of Tree(s)
			Cracks	Crevices	Holes	Knots	
994	Sycamore (*Acer psuedoplatanus*)	484534, 614351	x	x	x	x	Moderate
1007	Silver birch (*Betula pendula*)	484578, 614277	x	x	x		Moderate
1008	Beech	484586, 614273			x		Moderate
Treeline 1	Poplar (*Populus* spp.)	484620, 614188	x	x	x		Moderate

Passive Static Bat Detector Surveys

A total of three bat species were recorded during the static surveys – common pipistrelle, Leisler's bat, and Soprano pipistrelle. Refer to Table 13, below.

The most frequently recorded species was the common pipistrelle which had nearly double the number of bat passes as the next most commonly recorded species, the Leisler's bat. Only four Soprano pipistrelle bat passes were recorded in total, all from Static detector 1. Overall activity level recorded by the static detectors was

considered Low for Soprano pipistrelle and Leisler's bat, and Low to Medium for common pipistrelle when assessed using the bat activity scale detailed in Bat Eco Services (2022).

Table 13. Results of the static bat detector survey detailing the number of bat passes per species that occurred over five nights from 15th July to 19th July 2023, inclusive.

	15th July		16th July		17th July		18th July		19th July		Total Bat Passes
Species	Static 1	Static 2	Static 1	Static 2	Static 1	Static 2	Static 1	Static 2	Static 1	Static 2	
Common pipistrelle	25	93	77	30	107	0	40	44	70	28	514
Soprano pipistrelle	0	0	0	0	1	0	2	0	1	0	4
Leisler's bat	2	41	5	47	13	12	8	43	23	35	229
Total Bat Passes	27	134	82	77	121	12	50	87	94	63	747

4.4.3 Marine Mammals

NBDC records for Q81 list one marine mammal species as having previously occurred within the hectad – common dolphin (*Delphinus delphis*). The species is protected in Irish waters by the Irish Wildlife Acts and is listed as an Annex IV species under the EU Habitats Directive. Common dolphin was recorded on two occasions at a location in Blennerville, approximately 3.2 kilometres southwest of the proposed development site. There is no suitable habitat for this species within the proposed works area and there are no watercourses draining the site.

4.4.4 Birds

4.4.4.1 Desk-top Study

Reviews of the species list generated via the NBDC on-line mapping tool and data received from NPWS for rare and protected bird species were carried out. A wide variety of bird species, including some species of conservation concern, have been previously recorded within the hectad Q81M. These species are considered typical of the habitats in the general vicinity of the subject site and the surrounding area.

Species of conservation concern[24] which have been previously recorded in the 2-kilometre grid square Q81M include the following:

- Black tern (*Chlidonias niger*)
- Mallard (*Anas platyrhynchos*)
- Woodcock (*Scolopax rusticola*)
- Curlew (*Numenius arquata*)

[24] Factor determined by most recent listing of species on the Birds of Conservation Concern (BoCCI) 2020-2026 (Gilbert *et al*., 2021). All commonly occurring species are given a status of either Red (high concern), Amber (medium concern) or Green (all other species), depending on a combination of threat categories.

- Northern lapwing (*Vanellus vanellus*)
- Barn swallow (*Hirundo rustica*)
- Buzzard (*Buteo buteo*)
- Kestrel (*Falco tinnunculus*)
- Barn owl (*Tyto alba*)
- Common swift (*Apus apus*)
- Oystercatcher (*Haematopus ostralegus*)
- House sparrow (*Passer domesticus*)
- Common starling (*Sturnus vulgaris*)
- Mute swan (*Cygnus olor*)
- Skylark (*Alauda arvensis*)
- Black-headed gull (*Larus ridibundus*)
- Herring gull (*Larus argentatus*)
- Common gull (*Larus canus*)
- Yellowhammer *(Emberiza citronella*)
- Grey wagtail (*Motacilla cinerea*)
- Redwing (*Turdus iliacus*)
- Greenfinch (*Carduelis chloris*)
- Goldcrest (*Regulus regulus*)

There are several Special Protection Areas (SPAs) located within 15 kilometres of the proposed development site (or within the site's ZOI) including Tralee Bay Complex SPA, and Castlemaine Harbour SPA which are both designated for a range of wintering waders and wildfowl, including internationally important populations of light-bellied brent goose (*Branta bernicla hrota*), and nationally important populations of other wintering species. See Section 4.5.1, below. A third SPA - Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle – also lies within the ZOI of the proposed development and is designated for breeding hen harrier (*Circus cyaneus*).

4.4.4.2 Field Survey Results

During the ecological walkover survey of the proposed development site, several bird species were observed and/or heard. Since most of the surrounding areas are built up with artificial surfaces, the trees, hedgerows and grassy verges within the proposed development site are particularly ecologically valuable for local bird populations. In general, species occurring within the vicinity of the subject site are likely to comprise species typical of urban settings.

The following bird species were recorded at the proposed development site on 4th July 2023 and are considered typical of the habitats at the subject site and within the surrounding area:

- Robin (*Erithacus rubecula*)
- Blackbird (*Turdus merula*)
- Magpie (*Pica pica*)
- Barn swallow
- Starling (*Sturnus vulgaris*)
- Wren (*Troglodytes troglodytes*)
- Goldfinch (*Carduelis carduelis*)
- Hooded crow (*Corvus cornix*)
- Chaffinch (*Fringilla coelebs*)
- Goldcrest
- Mistle thrush (*Turdus viscivorus*)
- Great tit (*Parus major*)
- Collared dove (*Streptopelia decaocto*)
- Wood pigeon (*Columba palumbus*)
- Unidentified gulls (*Larus* spp.)

4.4.5 Fish, Amphibians, Reptiles and Invertebrates

Reviews of the species list generated via the NBDC on-line mapping tool and data received from NPWS were carried out for rare or protected fish, amphibian, reptile and invertebrate species for the hectad Q81.

Records exist for common frog (*Rana temporaria*), smooth newt (*Lissotriton vulgaris*) and common lizard (*Zootoca vivipara*) within the hectad. Common frog has a widespread distribution in Ireland and is found from coastal areas to uplands. Smooth newt is also widespread within the country but is locally distributed. Newts and frogs are amphibious, breeding in freshwater and utilising woodland, damp grassland, marsh and scrub for foraging. However, there is no suitable habitats for these species within the proposed development site.

Common lizards are a widespread native reptile species in Ireland (apart from Laois and Westmeath) and are primarily found in areas of bog, heath, coastline and along the fringes of coniferous woodland, but may also occupy other habitats, such as non-intensive grassland, gardens and built-up areas (King *et al.*, 2011).

There are also NBDC records for numerous fish species within hectad Q81 including European eel (*Anguilla anguilla*), rainbow trout (*Oncorhynchus mykiss*), blonde ray (*Bathyraja brachyurops*) and undulate ray (*Raja undulata*). However, there is no suitable habitat for these fish species within the proposed works area as there are no waterbodies within or watercourses draining the site.

Within hectad Q81 and approximately 4 kilometres south of the Cloon More site, online NBDC data has one record for small heath (*Coenonympha pamphilus*) butterfly which is listed as 'Near Threatened' on Ireland's Butterfly Red List (Regan *et al*., 2010). The small heath butterfly is a generalist species that can be found on a range of habitats from unimproved dry grassland to coastal dunes and machair, preferring a low sward height and abundant flowers. Flowers favoured by the species include bramble, buttercup, Devil's-bit scabious (*Succisa pratensis*), kidney vetch (*Anthyllis vulneraria*), ragwort, and yarrow (*Achillea millefolium*)[25].

NBDC records from the hectad indicate documented records for other butterflies and moths (Lepidoptera), beetles (Coleoptera), bees (Hymenopteran) and other terrestrial invertebrate groups.

4.4.5.1 Field Survey Results - Butterflies

Butterflies were numerous within the western area of 'Improved grassland' and the adjoining area of 'Scrub' to the north. The most frequently encountered species was the ringlet (*Aphantopus hyperantus*) – see **Plate 8,** below. This widespread generalist species is usually found on grasslands, field margins and urban parks, and prefer bramble, thistles (*Cirsium* spp. and *Carduus* spp.), kidney vetch, and ragwort as nectar sources while larvae feed mainly on tufted hairgrass[26].

On the edge of a large patch of scrub at the northern end of the grassland area, numerous peacock butterfly (*Aglais io*) larvae were recorded on nettle plants on which they exclusively feed – see **Plate 8**, below. Peacock butterflies are found across many habitats including urban parks and gardens, woodland clearings and field margins, and adults feed on species such as thistles, bluebell (*Hyacinthoides non-scriptus*), dandelion, Devil's-bit scabious, yarrow, and ragwort[27].

[25] Species Profile Browser · Species Profile (biodiversityireland.ie) Accessed: 9th August 2023
[26] Species Profile Browser · Species Profile (biodiversityireland.ie) Accessed: 10th August 2023
[27] UK Butterflies - Peacock - Aglais io Accessed: 10th August 2023

Plate 8. Ringlet butterfly (*Aphantopus hyperantus*) in grassland area (left), and peacock butterfly (*Aglais io*) larvae on nettle plant in area of scrub (right).

4.5 Designated Sites

This section describes the designated sites considered to be located within the potential ZOI of the proposed development, including their qualifying features, distance from the proposed development, and whether it is considered that a source-receptor ecological pathway exists between the proposed development and each designated site.

4.5.1 Sites of International Importance

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats of wild fauna and flora by the designation of Special Areas of Conservation (SACs), while the Birds Directive (79/409/EEC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). It is the responsibility of each member state to designate SPAs and SACs, both of which form part of Natura 2000, a network of protected sites throughout the European Community.

Adopting the precautionary principle in identifying potentially affected Natura 2000 sites, it was decided to include all SACs and SPAs within a 15-kilometre radius of the proposal site. Due to the nature and scale of the project under consideration, Natura 2000 sites outside this 15-kilometre radius are deemed to be outside the potential ZOI of the proposed development. **Table 14,** below, lists the Natura 2000 sites located within the potential ZOI of the proposal and includes each site's qualifying features of conservation interest.

Table 14. Qualifying features of conservation interest of Natura 2000 sites located within 15 kilometres of the proposed works area.

Designated site	Site code	Proximity of designated site to closest point of subject site	Qualifying features of conservation interest
Ballyseedy Wood SAC	002112	1.9 km southeast of proposal site	- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]
Tralee Bay Complex SPA	004188	2.1 km southwest of proposal site	- Whooper Swan (*Cygnus cygnus*) [A038] - Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] - Shelduck (*Tadorna tadorna*) [A048] - Wigeon (*Anas penelope*) [A050] - Teal (*Anas crecca*) [A052] - Mallard (*Anas platyrhynchos*) [A053] - Pintail (*Anas acuta*) [A054] - Scaup (*Aythya marila*) [A062] - Oystercatcher (*Haematopus ostralegus*) [A130] - Ringed Plover (*Charadrius hiaticula*) [A137] - Golden Plover (*Pluvialis apricaria*) [A140] - Grey Plover (*Pluvialis squatarola*) [A141] - Lapwing (*Vanellus vanellus*) [A142] - 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] - Common Gull (*Larus canus*) [A182] - Wetland and Waterbirds [A999]
Tralee Bay and Magharees Peninsula, West to Cloghane SAC	002070	2.2 km southwest of proposal site	<u>Habitats</u> - Estuaries [1130] - Mudflats and sandflats not covered by seawater at low tide [1140]

Designated site	Site code	Proximity of designated site to closest point of subject site	Qualifying features of conservation interest
			- Coastal lagoons [1150] - Large shallow inlets and bays [1160] - Reefs [1170] - Annual vegetation of drift lines [1210] - Perennial vegetation of stony banks [1220] - *Salicornia* and other annuals colonising mud and sand [1310] - Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] - Mediterranean salt meadows (*Juncetalia maritimi*) [1410] - Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] - Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] - Dunes with *Salix repens* ssp. *argentea* (Salicion arenariae) [2170] - Humid dune slacks [2190] - *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] - Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] **Species** - Otter (*Lutra lutra*) [1355] - Petalwort (*Petalophyllum ralfsii*) [1395]
Slieve Mish Mountains SAC	002185	3.3 km south of proposal site	**Habitats** - Northern Atlantic wet heaths with *Erica tetralix* [4010] - European dry heaths [4030] - Alpine and Boreal heaths [4060] - Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) [8110] - Calcareous rocky slopes with chasmophytic vegetation [8210] - Siliceous rocky slopes with chasmophytic vegetation [8220] **Species** - Killarney Fern (*Trichomanes speciosum*) [1421]
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	004161	5.6 km northeast of proposal site	- Hen Harrier (*Circus cyaneus*) [A082]

Designated site	Site code	Proximity of designated site to closest point of subject site	Qualifying features of conservation interest
Akeragh, Banna and Barrow Harbour SAC	000332	9.9 km northwest of proposal site	**Habitats** – Annual vegetation of drift lines [1210] – *Salicornia* and other annuals colonising mud and sand [1310] – Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] – Mediterranean salt meadows (*Juncetalia maritimi*) [1410] – Embryonic shifting dunes [2110] – Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] – Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] – Humid dune slacks [2190] – European dry heaths [4030]
Lower River Shannon SAC	002165	11.3 km northeast of proposal site	**Habitats** – Sandbanks which are slightly covered by sea water all the time [1110] – Estuaries [1130] – Mudflats and sandflats not covered by seawater at low tide [1140] – Coastal lagoons [1150] – Large shallow inlets and bays [1160] – Reefs [1170] – Perennial vegetation of stony banks [1220] – Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] – *Salicornia* and other annuals colonising mud and sand [1310] – Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] – Mediterranean salt meadows (*Juncetalia maritimi*) [1410] – Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] – *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] – Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] **Species** – Freshwater Pearl Mussel (*Margaritifera margaritifera*) [1029] – Sea Lamprey (*Petromyzon marinus*) [1095] – Brook Lamprey (*Lampetra planeri*) [1096]

Designated site	Site code	Proximity of designated site to closest point of subject site	Qualifying features of conservation interest
			– River Lamprey (*Lampetra fluviatilis*) [1099] – Atlantic Salmon (*Salmo salar*) [1106] – Common Bottlenose Dolphin (*Tursiops truncatus*) [1349] – Otter (*Lutra lutra*) [1355]
Castlemaine Harbour SAC	000343	11.6 km southwest of proposal site	<u>Habitats</u> – Estuaries [1130] – Mudflats and sandflats not covered by seawater at low tide [1140] – Annual vegetation of drift lines [1210] – Perennial vegetation of stony banks [1220] – Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] – *Salicornia* and other annuals colonising mud and sand [1310] – Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] – Mediterranean salt meadows (*Juncetalia maritimi*) [1410] – Embryonic shifting dunes [2110] – Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] – Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] – Dunes with *Salix repens* ssp. *argentea* (Salicion arenariae) [2170] – Humid dune slacks [2190] – Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] <u>Species</u> – Sea Lamprey (*Petromyzon marinus*) [1095] – River Lamprey (*Lampetra fluviatilis*) [1099] – Atlantic Salmon (*Salmo salar*) [1106] – Otter (*Lutra lutra*) [1355] – Petalwort (*Petalophyllum ralfsii*) [1395]
Castlemaine Harbour SPA	004029	12.9 km southwest of proposal site	- Red-throated Diver (*Gavia stellata*) [A001] - Cormorant (*Phalacrocorax carbo*) [A017] - Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]

Designated site	Site code	Proximity of designated site to closest point of subject site	Qualifying features of conservation interest
			- Wigeon (*Anas penelope*) [A050] - Mallard (*Anas platyrhynchos*) [A053] - Pintail (*Anas acuta*) [A054] - Scaup (*Aythya marila*) [A062] - Common Scoter (*Melanitta nigra*) [A065] - Oystercatcher (*Haematopus ostralegus*) [A130] - Ringed Plover (*Charadrius hiaticula*) [A137] - Sanderling (*Calidris alba*) [A144] - Bar-tailed Godwit (*Limosa lapponica*) [A157] - Redshank (*Tringa totanus*) [A162] - Greenshank (*Tringa nebularia*) [A164] - Turnstone (*Arenaria interpres*) [A169] - Chough (*Pyrrhocorax pyrrhocorax*) [A346] - Wetland and Waterbirds [A999]

The Natura 2000 sites within the potential ZOI of the proposed development are shown on a map in **Figure 5,** below.

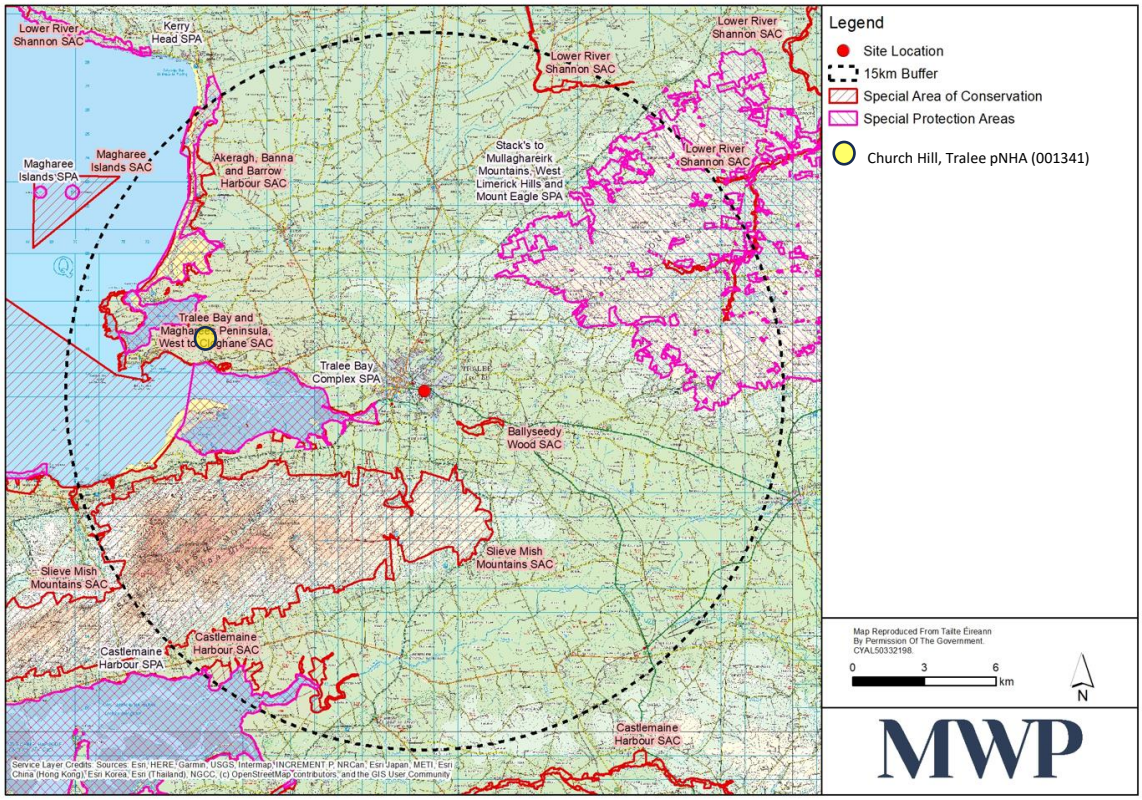

Figure 5: Natura 2000 sites and pNHA site within potential zone of influence (ZOI) of the proposed works.

4.5.2 Sites of National Importance

In Ireland, sites of national importance are termed Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs). While the Wildlife (Amendment) Act 2000 has been passed into law, pNHAs will not have legal backing until the consultative process with landowners has been completed. This process currently remains ongoing. On a precautionary basis, nationally designated sites within 10 kilometres of the proposed development are deemed to be within the potential ZOI. With regards to the nature and scale of the project, it is considered that anything beyond this distance is highly unlikely to experience any impact from the proposed works and thus is outside the potential ZOI of the development.

A review of nationally designated sites determined that there are no NHAs and one pNHA located within the potential ZOI of the proposal. Details of the pNHA are described in **Table ,** below, and shown in **Figure 5,** above.

Table 15: Nationally important sites within the potential Zone of Influence (ZOI)

Designated site & code	Approximate distance from subject site	Features of conservation interest[28]
Church Hill, Tralee pNHA (001341)	8.4 km to the west	Small (4 ha), rocky limestone ridge with many species of calcareous flora. Habitats include lowland dry grassland and a former limestone quarry. Heavy application of fertiliser is major threat to survival of area.

[28] https://www.npws.ie/sites/default/files/general/pNHA_Site_Synopsis_Portfolio.pdf Accessed: 27th July 2023

4.5.3 Evaluation of Designated Sites as Ecological Receptors

A screening for Appropriate Assessment report was undertaken by MWP to determine whether the project, alone or in combination with other plans or projects, is likely to result in significant effects on Natura 2000 sites considered to be within the ZOI of the proposal, in view of the site's Conservation Objectives.

A total of nine Natura 2000 sites were identified as being within the potential ZOI of the proposal (see **Table 14**, above). The screening for Appropriate Assessment report concluded that significant effects are not considered likely to occur for any of these sites. Therefore, none of the designated sites listed in **Table 14,** above, are considered to comprise IEFs in relation to the project and will not be considered further in this evaluation. For more information, refer to the Screening for Appropriate Assessment Report (MWP, 2023) prepared by MWP which has been submitted for the proposed development.

The sole nationally designated site listed above in **Table 15**, above, namely 'Church Hill, Tralee pNHA' does not spatially overlap with any of the designated sites listed in **Table 14,** above. Furthermore, when the ecological features of interest and the intervening distance is considered, the pNHA is not hydrologically or ecologically connected to the proposed works site at Cloon More and there is no potential impact pathway through which significant effects could ensue. Consequently, the pNHA site is not considered to comprise any IEFs in relation to the project so significant effects to the designated site because of the proposed works are not envisaged and, therefore, 'Church Hill, Tralee pNHA' will not be considered further in this evaluation.

4.5.4 Additional Designated Sites

The Convention on Wetlands of International Importance especially as Waterfowl Habitat, more commonly known as the Ramsar Convention, was ratified by Ireland in 1984 and came into force for Ireland on 15th March 1985. Ireland presently has 45 sites designated as Wetlands of International Importance, with a surface area of 66,994 hectares. There is one Ramsar site located within 15 kilometres of the proposed development site - 'Tralee Bay' (Site No. 440) located approximately 7 kilometres to the west[29].

The Important Bird and Biodiversity Areas (IBAs) Programme, overseen by Birdlife International, aims to identify, conserve and protect those areas throughout the world considered to be of the greatest significance to bird populations[30]. Bird Life International has produced a compendium of Important Bird Areas (IBAs) in Europe. The IBA programme of BirdWatch Ireland is a worldwide initiative aimed at identifying and protecting a network of critical sites of importance for birds. There are 105 IBA's on the island of Ireland and the majority support wintering water birds and two are located within 10 kilometres of the proposed Cloon More development site.

'Tralee Bay and Barrow Harbour' IBA (IE069) is located approximately 2.5 kilometres to the southwest of the proposal site and overlaps with the Ramsar site mentioned above. It is a wetland of international importance for wintering waterfowl and regularly holds at least 20,000 migratory waterbirds. It also supports nationally important numbers of wintering species such as Eurasian teal (*Anas crecca*), common scoter (*Melanitta nigra*), and Northern lapwing (*Vanellus vanellus*). The 'Stacks to Mullaghareirk Mountains, West Limerick and Mount Eagle' IBA is located approximately 7.1 kilometres northeast of the proposal site and provides excellent foraging and nesting habitat for hen harrier while supporting the largest concentration of the species in the country.

[29] Available at: https://rsis.ramsar.org/ Accessed: 27th July 2023
[30] Available at: BirdLife Data Zone Accessed: 3rd August 2023

5. Identification and Evaluation of Habitats, Flora and Fauna as Important Ecological Features (IEFs)

The habitats and associated flora, fauna and other ecological features or resources identified in Sections 4.3 and 4.4, above, will now be evaluated based on their local, national and international conservation importance using the evaluation criteria described in Section 3.7, above, and in Appendix 2.

Following these evaluations, an assessment will then be made as to which of these habitats and/or species are considered to be IEFs that may be impacted upon by the project i.e. which habitat and/or species has the potential to be significantly impacted during the construction or operational phase of the proposed works.

With regards designated sites, please refer to Section 4.5.3, above.

5.1 Rare and Protected Flora Species

There are no records for rare and protected plant species within the proposed development site and none were recorded during the ecological walkover surveys. None of the species outlined in Section 4.3.14, above, are considered to comprise IEFs for the project and so will not be considered further in this evaluation.

5.2 Habitats

The following table (**Table 16**) presents an evaluation of the ecological value/importance of the habitats identified within the receiving environment of the proposed development, and rationale for inclusion, or exclusion, as an IEF.

Table 16. Evaluation of habitats within the proposed development site at Cloon More

Habitat type	Ecological value relative to proposed works site (NRA, 2009)	Approx. area of loss (ha)	Important Ecological Feature?	Rationale
Buildings and artificial surfaces (BL3)	Local importance (lower value)	0.05	No	Existing Cluain Mór House, rear yard and outbuildings to be demolished and removed. Species-poor. Artificial habitat of negligible ecological value.
Spoil and bare ground (ED2)	Local importance (lower value)	0.07	No	The disturbed, unconsolidated surfaces of Cluain Mór House driveway and carpark. Species-poor. Artificial habitat of negligible biodiversity value.
Recolonising bare ground (ED3)	Local importance (lower value)	0.07	No	Previously disturbed habitat in the process of recolonising, mainly with ruderal species and grasses. Low species diversity, limited value to fauna.
Buildings and artificial surfaces / Spoil and bare ground (BL3/ED2)	Local importance (lower value)	0.08	No	Partially demolished derelict buildings and associated spoil/rubble, largely unvegetated unconsolidated material. Artificial habitat of negligible biodiversity value
Recolonising bare ground / Spoil and bare ground (ED3/ED2)	Local importance (lower value)	0.20	No	Previously cleared and disturbed habitat with a mix of bare areas and some that are in the process of being recolonised, mainly with ruderal species and grasses. Low species diversity, very limited value to fauna.
Improved grassland (GA1)	Local importance (higher value)	0.58	No	Relatively large stretch of grassland making up almost the entire western half of site. Modified/disturbed habitat comprising mainly rank grasses and ruderal species. May be of limited local biodiversity value for some birds and invertebrates.
Amenity grassland (GA2)	Local importance (lower value)	0.01	No	Minor pocket occurs to the rear of Cluain Mór House between existing outbuildings. Modified/managed and species-poor habitat of negligible biodiversity value.
Scattered trees and parkland (WD5)	Local importance (lower value)	0.08	No	Small area of relatively modified and disturbed habitat to rear of Cluain Mór House. Apple trees of some local biodiversity value for some birds and invertebrates.
Scrub (WS1)	Local importance (higher value)	0.08	**Yes**	Pockets of this habitat at southeastern corners and to the northwest of site. Provides nesting and foraging habitat for passerine bird species. For bat

Habitat type	Ecological value relative to proposed works site (NRA, 2009)	Approx. area of loss (ha)	Important Ecological Feature?	Rationale
				species it also acts as a means of navigation, maintains habitat connectivity and is a foraging resource. Provides cover and ecological corridors for birds, bats, and small mammals. Provides food and shelter for invertebrates.
Hedgerows (WL1)	Local importance (lower value)	0.03	No	Minor fragments forming eastern border and bisecting the site, and small pocket to the northwest. Of limited local biodiversity value for some birds and invertebrates but habitat area is small and fragmented and much of it is managed and/or not well established.
Treelines (WL2)	Local importance (higher value)	0.08	**Yes**	Lengths of this habitat found throughout the site with some large, well-established examples particularly to the east of the site. Provides nesting and foraging habitat for passerine bird species. Acts as a means of navigation, maintains habitat connectivity and is a foraging resource for bat species. Provides cover and ecological corridors for birds and small mammals. Provides food and shelter for invertebrates.
Dry meadows and grassy verges (GS2)	Local importance (higher value)	0.04	No	Occurs as narrow strips running along the edges of the western grassland area. Modified/disturbed habitat comprising mainly rank grasses and ruderal species.
Dry meadows and grassy verges / Scrub (GS2/WS1)	Local importance (higher value)	0.008	No	Minor strip located along short stretch of the southwestern boundary. Modified/disturbed habitat comprising mainly rank grasses and ruderal species. May be of limited local biodiversity value for some birds and invertebrates.
Treelines / Scrub (WL2/WS1)	Local importance (higher value)	0.04	**Yes**	Relatively small area located at the northeastern corner of the development site. Many mature trees and lower, open scrub layer are of local biodiversity value. Provides nesting and foraging habitat for passerine bird species. Acts as a navigational tool, maintains habitat connectivity and is a foraging resource for bat species. Provides resources to pollinators and other invertebrates, and cover for small mammals.
Scattered trees and parkland / Ornamental/non-native shrub (WD5/WS3)	Local importance (lower value)	0.09	No	Large swathe of this habitat at the centre of the site comprising the front garden of Cluain Mór House. Modified and managed habitat with a large non-native component. May be of limited value for some birds and invertebrates but ecological value reduced due to presence of invasive alien and non-native ornamental planting. Limited value to biodiversity.

5.3 Fauna

Table 17 presents an evaluation of the ecological value/importance of the faunal species identified as occurring or having the potential to occur within the receiving environment of the proposed development and rationale for inclusion, or exclusion, as an IEF.

Table 17. Evaluation of faunal species in relation to the proposed works at Cloon More

Species	Ecological value relative to works site (NRA, 2009)	Important ecological feature?	Rationale
Badger *Meles meles*	Local importance (lower value)	No	No evidence of species at the site and no past records within immediate area. Possible that badgers occasionally forage in the study area, however no evidence of breeding and no badger setts were recorded. Also, no evidence of foraging activity/snuffle holes.
Pygmy shrew *Sorex minutus*	Local importance (higher value)	**Yes**	No evidence of species recorded within the site. Nearest NBDC record is 3.2 km northeast of site. Species has a widespread distribution and small areas of treeline, scrub and grassy edges may be suitable habitats for foraging/breeding. Precautionary principle.
Red squirrel *Sciurus vulgaris*	Local importance (higher value)	**Yes**	No evidence of this species recorded. No records from the area; however, some suitable habitat occurs, and species has a widespread distribution. Precautionary principle.
Otter *Lutra lutra*	Local importance (higher value)	No	No evidence of species recorded at the site. Habitats within subject site not considered suitable and no watercourses present. Nearest NBDC record is 0.7 km to the south.
Irish hare *Lepus timidus* subsp. *hibernica*	Local importance (higher value)	**Yes**	No evidence of this species recorded within the site. Habitats are considered suitable. Records in the greater area. Precautionary principle.
Irish stoat *Mustela erminea* subsp. *hibernica*	Local importance (higher value)	**Yes**	No evidence of species recorded within the site, but habitats are considered suitable, and species has widespread distribution. Records in the greater area. Precautionary principle.
Hedgehog *Erinaceus europaeus*	Local importance (higher value)	**Yes**	No evidence of this species recorded and no past records from the area; however, suitable habitat occurs. Species has a widespread distribution. Precautionary principle.
Birds	Local importance (higher value)	**Yes**	Habitats within and surrounding the site valuable for breeding/foraging passerines and raptors. Can be used as a commuting corridor for variety of species.
Amphibians & reptiles	Local importance (higher value)	**Yes**	No evidence of these species recorded within the site. Habitats are considered to have limited foraging/resting suitability. Precautionary principle.
Bats	Local importance (higher value)	**Yes**	No evidence of roosting bats within the site, trees at the site considered suboptimal roosting habitat. Bat activity was recorded at the site, and hedgerows/trees may potentially act as foraging resource and/or a means of navigation/connection. The precautionary principle and legal status and ecological sensitivity of these species merits their selection as an IEF.

6. Do-nothing Scenario

The proposed development site is comprised mainly of open grassland and large areas of scrub and trees with some semi-natural habitat in addition to existing buildings and spoil/rubble. The site is located within an urban setting where the surrounding habitats are heavily modified/disturbed and are generally associated with residential and/or commercial structures.

If the proposed development does not progress beyond the planning application stage, it is likely that the spoil/rubble from the partially demolished structures will be removed, and the current land-use practices will continue at the site. It is also possible that the development's design will be altered, and a subsequent application lodged.

7. Potential Impacts of the Project

There is potential for the proposed development to impact on the natural environment (habitats, flora, fauna and water quality). This section will identify the ecological impacts of the construction, operational and decommissioning phases of the proposed development on the local natural environment. For the proposed project, the construction phase is likely to have the most potential for effects on biodiversity.

The potential impacts of the proposed project were considered and assessed to ensure that all effects on IEFs are adequately addressed, and that no significant residual effects are likely to remain following the implementation of mitigation measures, and best practice construction methodology.

7.1 Construction Phase

The construction phase effects associated with the proposed development are considered to be/may comprise the following as outlined in Table 18.

Table 18. Construction phase effects potentially associated with the proposed LRD at Cloon More.

Construction Phase Effect	Source
Direct habitat loss/alteration	Construction of temporary site compound, felling of trees and clearance of vegetation, demolition works and removal/storage of spoil/rubble, excavations for structure foundations, movement of plant and machinery, ancillary site development works, landscaping and installation of services. Treatment/management of invasive species including use of chemical herbicides (multi-annual treatment approach) and risk of airborne drift. Risk of spreading of invasive species within the site via on-site physical remediation and/or excavation of infested soil and removal from site for certain IAPS infestations. Risk of spread/introduction of invasive species from construction activity. Soil disturbance and movement associated with preliminary groundworks and general construction activity poses risk of spread and/or introduction. Plant/machinery, tools/equipment, workers clothing/footwear, imported building and other materials including soil and fill can all potentially be contaminated with IAPS-infested soil, viable seed or other IAPS material.

Construction Phase Effect	Source
Indirect water quality effects	On-site temporary toilets and washing facilities. Leaching of fuels/oils etc to groundwater in the event of accidental spillage. Potential use of chemical herbicides.
Direct species disturbance/displacement	Increased anthropogenic activity and presence. Noise/vibration/lighting associated with construction works, human activity and use of plant and machinery.
Indirect species disturbance/displacement	Increased anthropogenic activity and noise at the site. Physical disturbance (injury/mortality).

7.2 Operational Phase

The operational phase effects associated with the proposed development are considered to be/may comprise the following as outlined in Table 19.

Table 19. Potential operational phase effects associated with the proposed LRD at Cloon More.

Operational Phase Effect	Source
Indirect surface water quality effects/ Indirect habitat alteration	Via wastewater discharges to the public system should the system be unable to process the extra wastewater.
Direct/ Indirect species disturbance/displacement	Due to increased lighting/noise, indirect water quality effects, indirect impacts on prey biomass, indirect alteration of foraging, breeding or commuting habitat (e.g. within receiving waters of the public foul sewer/stormwater system). Uncontrolled run-off of sediment, silt or other polluting substances e.g. fuel residues from the operational development could have adverse impacts on aquatic life.

8. Assessment of Potentially Significant Effects

A significant ecological effect is an effect that undermines biodiversity in general, while in broad terms it is the impact on the structure and function of designated sites, habitats or ecosystems. A significant effect is one that is of sufficient importance to require an assessment so that the decision maker is adequately informed of the environmental consequences of permitting a project (CIEEM, 2018). The significance of the potential ecological effects of the proposed Cloon More residential development in Tralee in County Kerry was determined using professional judgement and with reference to the following guidance:

- Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2019).
- Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022).

8.1 Potential Habitat Loss/Alteration Impacts

Table 20 describes each of the habitats that have been identified as IEFs (see Section 5.2, above), quantifies the required areas of loss of each habitat, describes the predicted construction phase and operational phase impacts on each habitat in the absence of mitigation, and characterises the significance of these unmitigated impacts.

Table 20. Description and evaluation of the significance of unmitigated potential impacts of the construction and operational phases of the proposed development at Cloon More on the habitats identified as Important Ecological Features (IEFs).

Important Ecological Feature	Extent/ location/ evaluation (NRA, 2009)	Description of unmitigated impact	Significance of unmitigated impact (EPA, 2022)
Scrub (WS1)	This habitat stretches almost the entire length of the eastern side of the site - approximately 0.13 km. Also, a large area located between the demolished derelict dwellings and the western grassland area. Assessed as Local importance (higher value). Valuable to wide variety of species including birds, bats, mammals and invertebrates.	Habitat Loss All this habitat-type will be lost - approximately 0.08 hectares.	Habitat loss effects are assessed as **Permanent, Slight, Negative effects.**
Treelines (WL2)	This habitat surrounds the orchard area to the rear of Cluain Mór House with a lengthier stretch to the front of the House forming the front garden's eastern border. Shorter lines of mature trees located near Boherbee Road. Assessed as Local importance (higher value).	Habitat Loss All this habitat-type will be lost - approximately 0.08 hectares.	Habitat loss effects are assessed as **Permanent, Moderate, Negative effects.**
Treelines / Scrub (WL2/WS1)	Large area in the northeast corner of proposed development site comprising scrub and several mature trees deemed to be of either a 'High' or 'Moderate' value and quality (Garry, 2023). Valuable to wide variety of species including birds, bats, mammals and invertebrates. Evaluated as Local importance (higher value).	Habitat Loss All this habitat-type will be lost - approximately 0.04 hectares.	Habitat loss effects are assessed as **Permanent, Moderate, Negative effects**.

8.2 Potential Impacts to Water Quality

8.2.1 Construction Phase

As described in Section 4.2, above, there are no watercourses, drainage features or waterbodies within the proposed development site. The closest watercourses are both approximately 0.7 kilometres from the construction works boundary – the River Lee to the south and the Big River to the northwest. Therefore, there will be no direct impacts on the water quality of these water features during the construction phase.

The temporary welfare facilities will be located within an on-site temporary welfare compound that will be maintained and serviced by a licensed Contractor throughout the works period. Effluent will be removed from site by the licensed Contractor and disposed of to a licensed facility.

While construction works can have indirect impacts on water quality, construction run-off is expected to be of a negligible level due to the flat topography of the site.

Bearing the above in mind, it is considered that the project has some potential to result in Temporary to Short-term, Slight, Negative Effects on water quality since construction works in general can pose a risk to the aquatic environment via several mechanisms.

Excavation works, ground movement and disturbance, storage and stockpiling of materials can result in sediment erosion and run-off which can lead to siltation of the aquatic environment. Use of plant and machinery poses a risk of accidental ingress of fuel, oils, lubricants etc, to the aquatic environment, as does on-site storage of these and other such substances. Use of concrete and other cementitious materials, generation of wash-out and use of chemicals also poses a risk to water quality. In general, such materials can enter the aquatic environment via direct discharges to drainage features, overland flow and/or leaching to groundwater in the event of a spillage/leakage. Use of temporary on-site welfare facilities will result in the generation of effluent/wastewater.

Based on the precautionary principle, standard best practice construction phase water quality protection measures are included in Section 9.4, below.

8.2.2 Operational Phase

During the operational phase of the proposed development, the most likely sources of indirect water quality/habitat alteration impacts which could potentially result in secondary effects on receiving aquatic habitats and/or species are those arising from wastewater discharge and from surface water run-off.

A review of the existing Uisce Éireann services plan of the area and the completion of pre-construction topographical surveys by MWP engineers confirmed the presence of a 750 mm diameter combined sewer and manhole located inside the western boundary of the site. Once operational, wastewater from the proposed development will be served by a gravity sewer system that will discharge to the foul sewer network via the existing 750 mm diameter combined sewer manhole.

In response to a pre-connection enquiry, Uisce Éireann noted in a Confirmation of Feasibility (COF) letter that stormwater generated from the proposed development 'will not be accepted into the existing Wastewater Network'. Consequently, and because there are no watercourses located within the immediate area for stormwater discharge, a system of on-site infiltration has been designed for the management of stormwater during the operational phase of the proposed development. BRE[31] 365 infiltration testing carried out by MWP engineers on 15th June 2023 found the subsoil to have a high permeability and confirmed that on-site infiltration is a viable method of removing surface water from the proposed development once operational.

[31] BRE – Building Research Establishment

The levels of surface water run-off generated during the operational phase of the proposed development will be higher than current levels due to the construction of impermeable hard surfaces and the loss of the existing greenfield conditions. Therefore, there is a theoretical risk to the water quality in the receiving watercourses via storm run-off from built areas which has the potential to result in ingress of fuel and oil residues, sediment/silt to the aquatic environment. This risk is heightened during periods of heavy rainfall. In the absence of appropriate mechanisms to control both the rate and quality of storm run-off from the operational development, stormwater generated could therefore impair water quality within receiving watercourses which could impact on aquatic species/habitats. However, management of surface water during the operational phase of the development has been considered in detail at the project design stage and has been designed to replicate, insofar as is practicable, the same run-off characteristics for the developed site as existed for pre-development conditions.

The proposed drainage design has incorporated several widely used SUDS mechanisms to alleviate any potential detrimental effects of urban stormwater drainage on receiving watercourses. These SUDS mechanisms include the use of bioretention rain gardens and tree pits, dry swales, petrol interceptors, soakaways, and attenuation tanks/basins. Cellular attenuation storage tanks will be used to maximise the allowable volume of water which can be stored on site while also allowing infiltration to occur. The site will contain six separate tanks of varying volume which are hydraulically connected, allowing an extra safety measure in the event one isn't performing to its design capacity. Petrol interceptors and silt traps will be provided on the inlet to the proposed attenuation storage tanks to improve the quality of the discharge by capturing all possible debris and hydrocarbon contaminants from the operational development. A flow control device or 'hydrobrake' provided on the outfall pipe of the attenuation system will control flow to greenfield run-off rates. For more information, refer to the Drainage Design Report and proposed drainage layout drawing prepared by MWP Engineers which accompany the planning application.

Bearing the above in mind, it is considered that generation of stormwater during the operational phase of the proposed development could result in **Long-term, Not Significant Negative Effects** on water quality.

It is proposed that wastewater from the operational development will discharge to the existing public foul system and from there to Tralee Urban Wastewater Treatment (UWWT) plant (D0040-01). This UWWT plant discharges treated effluent (following secondary treatment) into the estuarine waters of the River Lee which drains into Tralee Bay. The latest EPA plant compliance for Tralee UWWT plant is 'Pass'[32].

Part 2, Schedule 3, of the Urban Wastewater Regulations, S.I. No. 272 of 2009 (as amended) / S.I. No. 77 of 2019, set physio-chemical standards for 'High' and 'Good' status in transitional and coastal waterbodies to be complied with 'outside the allocated mixing zone of a licenced discharge'[33]. A review of the latest Annual Environmental Report (AER) 2020 for Tralee UWWT plant (D0040-01), available on the EPA website, determined that even though the UWWT plant discharge exceeded the Emission Limit Value (ELV) for ammonia set in the wastewater discharge license, 'it does not have an observable impact on the water quality' in the vicinity of the outfall point and 'it does not have an observable negative impact on the Water Framework Directive status'. Furthermore, there is currently no Improvements Programme for this Agglomeration[34] required.

In relation to potential indirect water quality impacts which may arise as a result of generation of wastewater and the proposal to discharge to Tralee UWWT plant, it is noted that the latest WFD Transitional Waterbody status 2016 – 2021 of the 'Lee K Estuary' is 'Moderate' and the latest WFD Coastal Waterbody status 2016 – 2021 of 'Inner Tralee Bay' is 'Good'[35], as outlined in **Section 4.2,** above. Moreover, information publicly available on the EPA website specifies that Tralee UWWT plant has a population equivalent (PE) of 32,637 and a plant design

[32] EPA Maps Accessed: 16th August 2023
[33] S.I. No. 254/2001 - Urban Waste Water Treatment Regulations, 2001 (irishstatutebook.ie) Accessed: 16th August 2023
[34] D0040-01_2020_AER.pdf (water.ie) Accessed: 16th August 2023
[35] EPA Maps Accessed 16th August 2023

capacity of 50,333, thereby the plant has sufficient capacity to process the wastewater generated by the proposed development during its operational phase.

It is noted that results of a pre-connection enquiry to Uisce Éireann in relation to the development, in which Uisce Éireann considered the capacity currently available in the network, that a wastewater connection is feasible but may be subject to upgrades being carried out beforehand. However, it also states that no necessary upgrades are known at present, but some may be identified when the Drainage Area Plan for Tralee becomes available in early 2024.

Bearing in mind that the proposal will connect to the existing public foul system and that Tralee UWWT plant has sufficient processing capacity, and considering the degree of mixing and dilution of final treated effluent naturally occurring within the River Lee Estuary following discharge from Tralee UWWT plant, initially within the estuary channel and then the greater Tralee Bay area, it is considered that generation of wastewater during operation of the development could result in **Long-term, Not Significant Negative Effects** on water quality.

8.3 Potential Impacts to Fauna

The following table (**Table 21**) describes the potential construction phase and operational phase effects on faunal IEFs at the proposed development site, and the significance of the impact.

In terms of potentially significant disturbance/displacement of species, it is considered that habitat loss, noise and increased human activity required for construction of the development (see **Section 8.2**, above), have the most potential for disturbance/displacement effects to faunal IEFs.

Table 21. Potential impacts on faunal species identified as IEFs during the construction and operational phases and the significance of the impact.

Important Ecological Features	Extent/location/ evaluation (NRA, 2009)	Description of unmitigated impact	Significance of unmitigated impact (EPA, 2022)
Hedgehog, Irish stoat, pygmy shrew, Irish hare, red squirrel	Local importance (higher value)	Habitat Loss There will be loss of areas of potentially suitable habitat; however, there are no records for any of these species at the site and no evidence of their presence was observed during the onsite MWP ecological surveys. The site's urban setting and its heavily disturbed and/or managed nature mean that loss of habitat for these species because of the proposed development is not likely to be significant. Disturbance/Displacement Disturbance and/or displacement effects could potentially ensue because of increased noise, lighting and human activity during both construction and operational phases. However, since the site is already highly disturbed and is surrounded by busy roads and built-up areas that see a substantial amount of footfall, the disturbance created during the construction and operation phases of the proposed development is not expected to significantly exceed the current levels of background noise, lighting and human presence in the area. Therefore, these species are not expected to be significantly disturbed and/or displaced because of the proposed development.	Potential habitat effects on these IEFs assessed as **Permanent, Slight, Negative Effects**. Potential disturbance/ displacement effects on these IEFs assessed as **Long-term, Not significant, Negative Effects.**
Bird species	Local importance (higher value)	Habitat Loss There will be loss of potentially suitable nesting and foraging habitat for a wide variety of bird species, comprising mature trees, scrub, and grassland. All bird	Habitat loss/alteration effects on birds assessed as **Permanent to Temporary, Slight, Negative Effects**.

Important Ecological Features	Extent/location/ evaluation (NRA, 2009)	Description of unmitigated impact	Significance of unmitigated impact (EPA, 2022)
		species encountered on-site are common and widespread species typical of the habitats occurring. It is noted that the habitats which will be in-situ once the development is constructed, including amenity areas/planting, residential gardens etc, will have value for foraging and breeding birds.	
		Disturbance/Displacement Direct/indirect disturbance and/or displacement effects could potentially ensue because of increased noise, lighting and human activity during the construction phase. It is likely that any birds present in the area during heavy civil works associated with the project will temporarily avoid the area and move to alternative suitable areas during intermittent periods. Once operational, the proposed development is unlikely to generate levels of noise and light that are significantly over and above existing levels since the site is located within an urban area that is surrounded by busy roads and amenities with substantial footfall.	Potential disturbance/displacement effects for bird species are assessed as **Temporary, Slight, Negative Effects.**
		A reduction in water quality due to accidental spillages or run-off during the construction phase may indirectly affect foraging/roosting/loafing habitat and the availability of prey biomass for bird species. However, given the lack of on-site watercourses/drains, any impacts which may arise are expected to be temporary and highly localised given the nature and scale of the works.	Potential disturbance/displacement effects to bird species during construction assessed as **Temporary, Slight, Negative Effects.**
Bats	Local importance (higher value)	Habitat Loss There will be loss of potentially suitable bat foraging/roosting habitat since all trees, hedgerows and structures will be removed. However, bat activity at the site was found to be extremely low and no bat roosts were recorded at any of the on-site structures (see **Section 4.4.2.2**, above).	Habitat loss/alteration effects on bats assessed as **Permanent, Slight, Negative Effects**.
		Disturbance/Displacement Direct/indirect disturbance and/or displacement effects could potentially ensue because of increased noise, lighting and human activity during the construction phase. However, works will take place during standard construction hours when bats are not active, and the site is already highly modified within an urban setting.	Potential disturbance/ displacement effects on bats during construction assessed as **Temporary, Imperceptible, Negative Effects**

Important Ecological Features	Extent/location/ evaluation (NRA, 2009)	Description of unmitigated impact	Significance of unmitigated impact (EPA, 2022)
		Once operational, the proposed development is unlikely to generate levels of noise and light that are significantly over and above existing levels since the site is located within an urban area that is surrounded by busy roads and amenities with substantial footfall. However, as a precaution, bat mitigation measures are presented in **Section 9.10**, below, to ensure that the lighting scheme for the proposed development has a neutral residual impact on local bat populations and that landscaping will have a positive residual impact on local biodiversity	Potential disturbance/ displacement effects on bats during operation assessed as **Long-term, Imperceptible, Negative Effects**
Amphibians and Reptiles	Local importance (higher value)	The habitats encompassed within the site are considered suboptimal for amphibians and reptiles and the loss of habitat will not be significant in the context of more suitable locations within the surrounding areas. Indirect disturbance and/or displacement effects could potentially ensue because of increased noise and human activity during construction phase. Since the area already sees high footfall and activity, disturbance during the operational phase of the project is not expected to be higher than existing levels. No operational phase disturbance/displacement impacts are envisaged to amphibians or reptiles.	Potential habitat effects assessed as **Permanent, Imperceptible, Negative Effects**. Potential disturbance/ displacement effects on these IEF's assessed as **Temporary, Not Significant, Negative Effects.**

9. Mitigation

9.1 Construction Environmental Management Plan (CEMP)

A Construction Environmental Management Plan (CEMP) has been prepared by MWP to accompany the application. The CEMP encompasses construction programming and phasing, excavations, site logistics, construction traffic and site access, construction lightings, air quality, noise and vibration, resource and waste management and surface water management.

A detailed final CEMP will be developed and implemented by the appointed Contractor before commencing work on-site. The CEMP will manage the environmental commitments of the project. The implementation of proposed mitigation measures, as well as the monitoring and supervision of these measures, will be managed through the CEMP. Mitigation measures will be monitored for compliance in-line with the requirements of the Planning Consent.

The finalised CEMP will take cognisance of the following Best Practice Guidance:

- CIRIA[36] C532: Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters-Williams *et al*., 2001)
- CIRIA C648 – Control of Water Pollution from Linear Construction Projects: Technical Guidance (Murnane *et al*., 2006)
- CIRIA C753 – The SUDS Manual
- CIRIA C698 – Site handbook for the construction of SUDS
- CIRIA C692: Environmental Good Practice on Site (Audus *et al*., 2010)
- Bat Conservation Trust (2018). Guidance Note 08/18. Bats and Artificial Lighting in the UK - Bats and the Built Environment Series.

The CEMP will also include the following elements:

- Noise, Vibration, Dust and Air Control Plan
- Construction and Demolition Waste Management Plan
- Water Quality/Sediment and Erosion Control Plan
- Fuel Management Plan
- Emergency Response Plan (in the event of a spill of chemical, fuel or other hazardous wastes, a fire, or non-compliance incident with any permit of license issues).

9.2 Ecological Clerk of Works (ECoW)/Ecologist

All construction works will be monitored by a suitably qualified and experienced Ecological Clerk of Works (ECoW)/Ecologist with responsibility for the oversight and auditing of the Contractor's implementation of all environmental measures stipulated in the EcIA and CEMP. Prior to commencement of construction works, the

[36] CIRIA - Construction Industry Research and Information Association

ECoW will brief the construction team on their environmental responsibilities for the site and inform them of the required environmental mitigation measures to be put in place.

The ECoW will be awarded a level of authority to enable them to halt construction works if there is potential for adverse environmental effects other than those predicted and mitigated for. Regular inspections of construction activity and the overall development site will also be carried out by the ECoW to ensure all controls to prevent environmental impacts, relevant to the construction activities taking place at the time, are in place.

These inspections are to ensure that all works are undertaken in compliance with the environmental controls and mitigation measures set out in the CEMP and the EcIA, and any other relevant Conditions of Planning.

The main responsibilities of the appointed ECoW/Ecologist include:

- Undertaking/overseeing pre-construction checks/surveys for protected species.
- Review of method statements of contractors to ensure that all relevant aspects of the CEMP have been incorporated.
- Providing toolbox talks and other training necessary to ensure that mitigation measures are fully understood by site personnel.
- Evaluating the effectiveness of mitigation measures implemented and engaging with contractor staff where additional measures/environmental controls are deemed necessary.
- Keeping records of works undertaken, effectiveness of measures implemented, and additional controls implemented where required.

9.3 Landscaping

The Landscaping Plan (refer to **Appendix 3** for Landscaping Plan Map) for the proposed development site incorporates areas of extensive soft landscaping and has a strong focus on native tree and plant species to compensate for the loss of low-value semi-natural habitat within the site. The Plan includes the creation of three new parks and a large communal garden complemented by vertical gardens, rain gardens and a tree planting programme of 150 native trees of mixed species along with a suite of native shrub and wildflower species. The planting list for the Landscaping Plan should be drawn up with reference to the All-Ireland Pollinator Plan 2021-2025[37] to ensure the incorporation of a diverse range of pollinator/bee-friendly plant species to provide a valuable food-source for a wide variety of invertebrates within an urban environment. Planting of species should be staggered to achieve structural heterogeneity, avoid excessive shading and promote natural diversity as the field and shrub layers establish over-time.

All existing trees at the proposed development site will be removed to facilitate the development. Where practical, there will be short- to medium-term retention of some of the southern border's poplar trees. However, these will only be retained until the planted native trees become established. Overall, there will be a loss of approximately 0.12 hectares of trees from the site with the majority being of 'High' or 'Moderate' quality and value - refer to the Tree Report by Garry (2023) that accompanies the planning application. However, most trees currently at the site - such as copper beech, sycamore, poplar - are not native species.

Parkland areas are to be planted with a mix of native tree species including hawthorn, blackthorn, rowan (*Sorbus aucuparia*), alder (*Alnus glutinosa*), hazel (*Corylus avellana*), and holly (*Ilex aquifolium*) while silver birch and wild cherry (*Prunus avium*) will be used at parking areas. Smaller tree and shrub species such as blackthorn, wild cherry, crab apple (*Malus sylvestris*) and holly will be planted within the green buffer zone in front of the houses. This

[37] All-Ireland-Pollinator-Plan-2021-2025-WEB.pdf (pollinators.ie) Accessed: 28th August 2023.

planting register will substantially increase the diversity of native arboreal species at the site and, when established, will compensate for the removal of trees needed to facilitate the development.

According to the Landscaping Plan, the grassed areas of the parklands will consist of a mix of grasses such as red fescue (*Festuca rubra*) and perennial ryegrass (*Lolium perenne*). A mix of native wildflowers is to be planted along the peripheries with species such as meadowsweet (*Filipendula ulmaria*), common knapweed (*Centaurea nigra*), cornflower (*Centaurea cyanus*), common poppy (*Papaver rhoeas*), red clover (*Trifolium pratense*), Devil's-bit scabious, and cowslip. The planting of these native species at the site will compensate for the loss of the comparatively species-poor 0.1 hectares of scrub currently at the site and provide a nectar-source for invertebrates which in turn will provide a food-source for some bat and bird species.

Rain gardens of differing sizes will be strategically positioned around the development bringing yet more complexity and diversity to the flora of the site. By replacing paved surfaces or managed/disturbed grassland areas with rain gardens, excess surface water can be more effectively absorbed and trapped while also increasing the wildlife and habitat value of the area. The rain gardens will be planted with a range of both water-resistant and drought-resistant species such as yellow flag (*Iris pseudacorus*), meadowsweet and sedges (*Carex* spp.), and trees such as willows (*Salix* spp.) and birch. Rain gardens provide habitat for many invertebrates throughout the year via the diversity of plant species planted and the fluctuating nature of water levels within the system. Insectivorous birds will also benefit from any increase in invertebrate populations as will seed-eating birds during the autumn months.

As identified in Section 5, above, there is relatively scant habitat of ecological value at the proposed development site. Consequently, while the Landscaping Plan and its tree, shrub, and wildflower planting programme will mitigate for the loss of habitat from the site, measures to enhance the ecological value of the site such as installation of bat and bird boxes will be discussed in Section 12, below.

9.4 General Protection of Water Quality during Construction

The Contractor will appoint a suitably qualified person to oversee the implementation of generic measures for the prevention of pollution to the aquatic environment. The following construction industry best practice measures will be put in place to avoid or minimise negative effects to water quality because of the project during the construction phase.

9.4.1 Temporary Site Compound

- Adequate parking facilities will be made available within the Construction Compound for all site workers during construction. There is to be no parking of vehicles outside of designated parking areas during the construction phase.
- A designated wash down area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water.

9.4.2 Excavated Materials, Soil and Surface Water Management

- Measures will be implemented throughout the construction stage to reduce and attenuate site run-off and protect the existing drainage network from excessive silt load.
- Topsoil on-site will be preserved where possible. Topsoil stripping will be scheduled to be carried out during dry weather and all stockpiling will be kept as far away as possible from any drains.
- Excavated material will be deposited in designated material deposition areas.

- The area of exposed ground will be minimised. Early covering/seeding/planting of exposed surfaces will be undertaken once opened areas have been reinstated.
- The drainage system will be inspected daily during construction, or after storm events, to check for blockages/drainage issues. Where any drainage issues are identified, these will be addressed on the same day to ensure water quality protection.

9.4.3 Management of Fuel, Oil, etc.

The management of fuel/oil and other chemicals on site will have regard to the following elements:

- Chemicals will be bunded and where applicable, stored within double skinned tanks/containers with the capacity to hold 110% of the volume of chemical contents. Ancillary equipment such as hoses and pipes will be contained within the bund.
- Bunds will be located on flat ground at a minimum distance of 50 metres from any watercourse or other notable water conducting features, in a designated, secure, impermeable storage area.
- Taps, nozzles and valves will be fitted with a lock system and will be regularly inspected for leaks and signs of damage.
- Measures will be implemented throughout the construction stage to prevent contamination of the soil from oil and petrol leakages.
- Where required, refuelling of plant on-site will only be carried out at a designated area within the site compound. Only designated trained operators will be authorised to refuel plant on site. Rigid and articulated vehicles will be fuelled off site as will all site vehicles (jeeps, cars and vans).
- Only mechanically sound plant will be permitted access to the Site. All plant used should be regularly inspected for leaks and to confirm fitness for purpose.
- Controls will be regularly inspected and maintained. Regular cleaning and servicing of bunds, gullies, pipe work, oil interceptors will be carried out to ensure the optimum operation of the system.
- Procedures and contingency plans will be set up to deal with emergency accidents or spills. An emergency spill kit with oil boom and absorbers will be kept on site in the event of an accidental spill/emergency. The contents of the spill kit will be replenished if used and they will be checked on a scheduled basis during environmental inspections and audits. All crews will be trained in the use of spill kit equipment.
- All emergency procedures and equipment will be in place prior to the commencement of any works. An Emergency Response Plan will be implemented in the event of any environmental incidents such as spillage of oil/fuel during the construction phase of the project.
- Kerry County Council will be informed immediately of any spillage or pollution incident that may occur on-site during the construction phase.

9.4.4 Refuelling of Construction Plant

- All plant will be refuelled at designated refuelling locations within the site compound. Rigid and articulated vehicles will be fuelled off site as will all site vehicles (jeeps, cars and vans).
- Designated fuel filling points will have appropriate oil and petrol interceptors to provide protection from accidental spills.
- Only designated trained and competent Operatives will be authorised to refuel plant on site.

- All plant used should be regularly inspected for leaks and fitness for purpose.

9.4.5 Use of Concrete

There shall be a requirement for concrete works at the site. Wet concrete is silty and very alkaline (high pH) and can have a serious detrimental effect on watercourses and aquatic life if ingress occurs, therefore, it is important to prevent concrete from entering the aquatic environment, including groundwater.

The following measures will be implemented during construction of the development:

- A designated trained operator, experienced in working with concrete, will be employed during the pouring of cementitious materials. There shall be no pouring of concrete during extreme/prolonged rainfall.
- Any small volumes of incidental wash generated from cleaning hand tools, cement mixers or other plant, as required, will be trapped on-site to allow sediment to settle out and reach neutral pH before the clarified water is released and allowed to percolate to ground. Settled solids will be appropriately disposed of off-site.
- Washout of concrete trucks will not occur at the site.
- Washout of mixing trucks and plant is to be carried out in designated, contained, impermeable areas.

9.4.6 Weather

- Works will not be carried out in inclement weather to reduce the likelihood of contaminated run-off entering preferential flow pathways.
- The works will only commence when a suitable weather window is forecast. If a sudden and unforeseen weather event occurs the works will be stopped.

9.5 Management of Construction Waste

- Appropriate storage of all non-hazardous and hazardous wastes on-site will be undertaken to minimise potential for environmental impacts.
- All wastes are to be removed from site by relevant, licenced waste contractors to suitable waste facilities.
- Dedicated bunded storage containers will be provided for hazardous wastes which may arise such as batteries, paints, oils, chemicals.
- If any buried waste or potentially contaminated material is encountered, this will be segregated from clean, inert material, and then tested and classified.
- In the unlikely event of hazardous material being encountered, it will be transported for treatment/recovery or exported abroad for disposal in suitable facilities.

9.6 Storage of Materials

- The storage of materials, containers, stockpiles and waste, however temporary, should always follow best practice and be restricted to designated areas only within the demarcated extent of works footprint.
- Material stockpiles should be kept to a minimum size and located on impermeable bases, where necessary.

- Storage of materials will be located away from any temporary drains and moving plant, machinery and vehicles.
- Fuel, oils etc. will be stored in a secure, bunded area within a designated location and under cover to prevent damage from the elements.
- Excavated material will be deposited in designated material deposition areas only.
- All material stockpiles are to be inspected for IAPS growth as part of regular site inspections by the ECoW.

9.7 Construction Site Bio-security

The following measures are recommended in relation to construction site bio-security and reducing the risk of introduction or spread of invasive species within the proposed development site:

- To reduce the likelihood of invasive species being introduced to the site from other areas, prior to first accessing site, validation is to be provided by all suppliers that construction machinery and vehicles are free from any invasive species.
- All vehicles, machinery and equipment/tools are to arrive to site clean. Visual inspections are to take place before entering the site.
- All PPE brought to site is to be clean and dry. All PPE will be visually inspected, and any attached vegetation or debris removed. Work boots will be dipped in or scrubbed with a disinfectant solution and thoroughly dried afterwards before being used on the site for the first time. PPE and tools will remain on site for the duration of construction.
- Prior to being brought to site, certification is to be obtained from suppliers that all raw materials including soil, fill, sand, gravel and landscaping materials, where required to be imported, are free from invasive species.
- A schedule of regular site inspections for invasive species is to be prepared and undertaken for the duration of the construction works. These inspections are to encompass the IAPS growing season for the duration of the construction works programme to monitor existing IAPS growth, identify any new IAPS stands, inspect materials storage areas and monitor implementation of IAPS management measures on-site, where required e.g. fencing, signage etc. This should be undertaken by a suitably qualified specialist.
- Where there is a requirement for IAPS control areas, all vehicles, equipment/tools, footwear etc. used in these areas should be thoroughly cleaned in a designated area once works in that area are complete to prevent spread of IAPS.
- Wheel inspection/wash down areas are to be provided at the access/egress points to controlled IAPS remediation works areas. Vehicles are to be pressure-washed in these specific designated areas.
- The use of tracked machinery within IAPS infested areas is to be prohibited. The use of tracked machinery within close proximity of IAPS infested areas is to be strictly controlled.
- In the event of IAPS or other invasive species being introduced to site within raw building materials or on plant/machinery etc., the area/equipment is to be isolated, and the advice and direction of an invasive specialist is to be sought as soon as possible in relation to the management/treatment/disposal approach to be adopted.

9.8 Management/Treatment of IAPS On-site

- A pre-construction survey for IAPS is to take place in advance of the commencement of site works to inspect existing stands of IAPS for new growth and identify any new stands which may have emerged in the intervening period.
- Where any IAPS is identified within/adjacent to the works footprint, fencing and/or advisory signage is to be erected around stands. Where stands are small, comprising individual plants, the use of signage may suffice.
- No non-essential ground maintenance, opening up or any other ground disturbance should take place within IAPS identified areas. Where works are required within/adjacent to infested areas, the appointed contractor is to develop and implement an appropriate method statement with regard to managing IAPS on-site and ensuring bio-security compliance. This should be done in consultation with a suitably qualified specialist.
- Under no circumstances is any IAPS plant or rhizome material to be cut, dug out or in any other way disturbed without the advice of a suitably qualified specialist.
- Large areas of disturbed/bare soil should be mulched, where appropriate, and seeded/planted at the earliest opportunity with native species to stabilise the soil and deter subsequent reinvasion. Planting should be carried out with regard to '*Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species*' in accordance with Kelly (2012).
- Where application of herbicides is required to treat IAPS on-site, the proximity of IEFs are to be considered.
- Herbicide use is to be minimised as much as possible and targeted to the specific IAPS. Where use of herbicides is required, non-residual and aquatic approved herbicides are to be used.
- Herbicides are not to be used in windy or foggy weather, during or preceding rainfall or where rainfall is forecast within 12 hours or during particularly cold weather to reduce risk of spray drift, run-off or poor plant uptake.
- Herbicides are to be applied strictly in accordance with the manufacturer's recommendations and by competent, experienced and licenced personnel registered as Professional Pesticides User, and fully in compliance with the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. 155 of 2012) and Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003).
- All management and control measures implemented on-site during the construction phase are to be carried out strictly in accordance with best practice guidance as set out in '*The Management of Invasive Alien Plant Species on National Roads (GE-ENV-01104)*' TII (2020), '*The Management of Noxious Weeds and Non-native Invasive Species on National Roads*' NRA (2010), '*Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species* (Kelly, 2012) and '*Best Practice Management Guidelines Rhododendron Rhododendron ponticum and Cherry Laurel Prunus laurocerasus*' Maguire, et al., (2008).

9.9 General Protection of Fauna

- Immediately prior to construction, the site should be inspected for the presence of breeding/resting sites of protected fauna species to confirm the findings of the baseline surveys and confirm that site circumstances have not changed in relation to breeding/resting sites of protected species.
- Construction materials and wastes are to be kept in designated areas to reduce risk of accidental injury/entrapment of any wildlife on-site and construction vehicles and personnel will not encroach onto habitats beyond the proposed development footprint.
- Removal of vegetation will ideally be undertaken outside the bird breeding and nesting season (March 1st to August 31st, inclusive), in accordance with Section 40 of the Wildlife Acts.
- All temporary construction lighting is to be turned off after daylight hours.
- To reduce the level of disturbance to nocturnal fauna, construction activities will be restricted to between 08.00 and 18.00, Monday to Friday, and between 08.00 and 14.00 on Saturdays. No construction work will be permitted on Sundays and Bank Holidays without the prior permission from the Local Authority.
- In the unlikely event that protected species are found actively using the site for breeding/resting during the construction phase, works will cease immediately, the area cordoned off until advice is sought from a suitably qualified expert, and the NPWS is informed.

9.10 Protection of Bats

9.10.1 Lighting

The three bat species recorded commuting and foraging within the survey area are Light Tolerant or Semi-tolerant bat species. It is still important that strict lighting guidelines are employed to reduce the potential impact of the proposed development on local bat populations as standard best practice. Potential impacts to local bat populations have been taken into consideration at design stage in relation to the development's proposed lighting plan.

Appropriate lighting will be employed during the construction phase to minimise impacts on local bat populations. Use of lighting will be minimised and avoided, where possible. Construction lighting will be targeted to minimise/avoid light spill to enable the retention of dark-corridor connectivity within the landscape for commuting bats.

Any external lighting for the proposed development should conform to the following guidelines and be strictly implemented during the construction phase of the proposed development:

- Bat Conservation Trust (2018). Guidance Note 08/18. Bats and Artificial Lighting in the UK - Bats and the Built Environment Series.
- Bats & Lighting. Guidance Notes for: Planners, engineers, architects and developers (BCI, 2010).

Luminaire design is extremely important to achieve an appropriate lighting regime. Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following BCT Lighting Guidelines (BCT, 2018) should be considered when choosing luminaires:

- Lighting that meets the lowest light levels permitted under health and safety will be installed.

- LED luminaires will be used due to the fact that they are highly directional, lower intensity, good colour rendition and dimming capability.
- All lighting used will lack UV/IR elements to reduce impact.
- Column heights should be carefully considered to minimise light spill. The shortest column height allowed should be used where possible.
- A warm white spectrum (2200 Kelvins will be used to reduce the blue light component of the LED spectrum).
- Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Only luminaires with an upward light ratio of 0% and with good optical control will be used.
- Luminaires will be mounted on the horizontal, i.e. no upward tilt.
- As a last resort, accessories such as baffles, hoods or louvres will be used to reduce light spill and direct it only to where it is needed i.e. avoid overspill on to retained linear habitat features, or other habitat features for bats.
- All temporary lighting used throughout the site will be switched off after daylight hours as a means of reducing light pollution and ensuring that there is no residual lighting during hours of darkness.
- Any external security lighting will be set on motion-sensors and short (1 minute) timers.

9.10.2 Tree-felling/Vegetation Removal

All tree-felling is to be conducted in a manner sensitive to bats, and in accordance with NRA (2005). Where mature trees require felling, they will ideally be felled between September and early November to avoid the disturbance of any roosting bats. Tree felling will be completed by mid-November at the latest because bats roosting in trees are very vulnerable to disturbance during their hibernation period (November to April). Once felled, trees will be left intact on-site for a minimum 24 hours prior to disposal to allow any bats which may be present to leave.

Any accumulations of ivy growing on structures should be removed in the autumn months and left on the ground for 24 hours to allow any residing bats to exit safely.

9.10.3 Landscaping

The Landscaping Plan for the proposed development utilises a wide range of native trees, shrubs and plant species to maximise the biodiversity value of the planting for bat species.

The wildflower edges of the parkland areas will encourage pollinators and other invertebrates to the site thereby providing a food source for foraging bats. Also featured in the Landscaping Plan are night-scented species such as honeysuckle (*Lonicera periclymenum*) and wild roses (*Rosa canina*, *Rosa arvensis*). These species are attractive to night-time insects, thus providing a valuable food-source for bats within an urban setting.

Once established, the 150 native trees of mixed species proposed within the tree planting programme of the Landscaping Plan (discussed in Section 9.3, above) will provide important roosting habitat for local bat populations as well increasing the invertebrate numbers at the site.

9.11 Mitigation by Management (Operational Phase)

9.11.1 Lighting

Bats (and other species such as swifts) are sensitive to lighting. Specific measures to avoid unnecessary external artificial lighting and minimise the incidence of light spill from the proposed development onto adjacent lands/habitats have been incorporated into the proposed Lighting Plan to reduce the potential impact on bats and other fauna. This approach to lighting is in line with the Kerry CDP (Council Objective: KCDP 11-42).

The following guidelines, taken from the Bat Conservation Trust 2018 'Guideline Note 08/18', have been incorporated into the proposed Lighting Plan for the development. In addition to the measures listed in Section 9.10.1, above, in relation to bats and lighting, external lighting for the proposed development is to conform to the measures outlined below, to be implemented during the operational phase of the proposed development.

- All luminaires used to lack UV/IR elements to reduce impact.
- Column heights will be carefully considered to minimise light spill. The shortest column height allowed will be used where possible.
- Motion-sensors, where used, to be set with short timers.
- In any swift nest box schemes, care will be taken to ensure that high intensity lighting will not be shining onto or from any known or proposed nest site.

Consideration of the BCT (2018) guidelines with regard to proposed lighting and bats is in line with the Kerry CDP (Council Objective: KCDP 11-44) and also the Kerry Biodiversity Action Plan 2022 – 2028.

9.11.2 General Maintenance

For the SUDS strategy to work as designed, it is important that the entire surface water drainage system is regularly maintained and cleaned out if needed. The recommended programme of maintenance for the attenuation tanks, swale and rain gardens should be adhered to and carried out by the site management team.

It is also highly recommended that the use of vermicides (substances poisonous to earthworms) during maintenance of amenity grassland areas is avoided to ensure the continuing health of soil and entire ecosystem.

10. Cumulative Impacts

As well as singular effects, the potential for cumulative effects should also be considered. A cumulative effect arises from incremental changes caused by other past, present or reasonably foreseeable future actions together with a proposed development. According to EPA (2022), cumulative effects can be described as 'the addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects'.

10.1 Plans

With regards to the potential for in-combination effects, the Kerry County Development Plan (2022-2028) was considered. This Plan was adopted on the 4th of July 2022 and came into effect on the 15th August 2022. One element of this plan, within Volume 1, Chapter 4 – Town & Villages, the Mitchel's Regeneration Masterplan, is considered to have the potential to interact with the proposal in the context of potentially significant in-combination effects. The proposal lies within the footprint of the Mitchels Regeneration Masterplan.

The objective of the Mitchel's Regeneration Masterplan is community regeneration through the provision of community, social and residential property[38]. The plan includes the construction of a day care centre, residential developments (including sheltered housing), road upgrades, Gaelcholáiste Chiarraí Secondary School, parks and open spaces, and sporting facilities. The Mitchel's Regeneration Master Plan will continue to be updated in consultation with the local community, and its implementation and delivery will be supported by the Kerry County Development Plan (2022-2028).

In general, County Development Plans and Local Area Plans have a range of environmental and natural heritage policy safeguards in place. These safeguards to protect the natural environment will also apply to the proposal described in this report. No significant cumulative impacts are predicted with the Kerry County Development Plan (2022-2028), or the Mitchel's Regeneration Masterplan contained within it.

10.2 Permitted and Proposed Developments in the Locality

A search of Kerry County Council's online planning enquiry system for granted or on-going planning applications for the townland of 'Cloon More' was undertaken on 14th July 2023. Details are presented in **Table 22**, below.

The proposal will result in the loss of minor areas of habitat including mature trees and scrub which has the potential to be used by bats as a foraging resource. Although other permitted/proposed developments in the surrounding area may also result in habitat loss and alteration, given the dearth of bat activity recorded at the site during the suite of bat surveys carried out by MWP ecologists (**Section 4.4.2**, above) and the urban setting of the site, significant cumulative effects on bats arising from interaction between the project and other permitted/proposed developments are not envisaged.

The proposed development will result in a temporary increase in artificial lighting within the vicinity of the subject site during the construction phase followed by a permanent increase in lighting levels during the operational phase. Light pollution associated with the proposed development has the potential to result in indirect effects on bats by virtue of alteration and subsequent displacement from foraging and commuting habitat and potential effects on prey resource. In the absence of mitigation measures in relation to use of artificial lighting at the site during both phases, it is considered that there is potential for indirect cumulative effects on bats in the vicinity of the subject site due to an overall cumulative increase in light pollution in the general area, arising from the proposed development, and potentially other permitted and proposed developments.

However, the implementation of the recommended mitigation measures, as outlined in **Section 9.10.1,** above, will avoid any significant residual disturbance/displacement effects on bats due to light levels. Therefore, no significant cumulative disturbance/displacement effects on bats are envisaged because of potential interaction between the proposed Cloonmore development and proposed/permitted developments elsewhere.

There is also some limited potential for water quality impacts within receiving waterbodies due to construction/operational site drainage. These aspects of the project could potentially act in combination with other facilities discharging to the public system. However, general construction industry standard best practice water quality protection measures designed to ameliorate any significant water quality effects that may arise during either the construction or operational phases of the project have been included as part of the project design. With the implementation of these measures, outlined in **Section 9.4,** above, any residual cumulative water quality impacts due to interaction with other developments in the greater area will not be significant, and will comprise **Short-term to Long-term, Slight Negative Effects.**

[38] https://consult.kerrycoco.ie/en/consultation/draft-kerry-county-development-plan-2022-2028/chapter/14-urban-regeneration Accessed: 16th August 2023

Table 22. List of granted and/or on-going planning applications within the vicinity of the proposed development site at Cloon More.

Application No.	Applicant	Location	Proposed Development	Decision	Decision Date
191064	The Health Service Executive	University Hospital Kerry, Cloon More, Tralee, Co. Kerry	Construct a new single storey roof level extension comprising new laboratories and laboratory support accommodation, located at first floor level, on an existing roof above an existing single storey portion of the existing hospital, and will include a new stairs extending through existing accommodation at ground floor level, new circulation linkages to existing accommodation at first floor level, together with the upgrading and recladding of part of the existing single storey frontage of the hospital, including the existing main entrance at ground floor level, together with associated localised demolitions and new site works and services.	Conditional	09/12/19
191198	Peter Williams and Lorraine O'Sullivan	107, New Marian Park, Tralee, Co. Kerry	Retain extension to existing house	Refused	04/03/20
19272	Kerry Education and Training Board	Cloon More, Tralee, Co. Kerry	(a) closure of existing site entrance at Kevin Barry Villas, new vehicular and pedestrian site entrance and secondary pedestrian entrance of proposed Bally Mullen Clash link relief road. This access includes a new internal access road for access to east of St Brigid's community centre, new pedestrian entrance to northeast of St Brigid's community centre. New boundary wall treatments generally (b) the project comprises the construction of a 600 pupil post primary school with connected sports hall and ESB sub station, 4 no ballcourts, new internal road with set down for buses and cars and accessing 55 no. Car parking spaces and associated ancillary landscaping and site works including reprofiling of material on site. The total development area is 7159 m2 plus 80 m2 external store. Current site access is from Kevin Barry Villas, proposed site access will be from the approved part 8 Ballymullen Clash link relief road.	Conditional	15/05/19
19655	Health Service Executive (HSE) South	University Hospital Kerry, Cloon More, Tralee Co. Kerry	Construction of waste compound including erection of security fencing, demolition of redundant oil bund, erection of demountable canopy, extension of hallway to create storm lobby and all associated site works.	Conditional	15/08/19

Application No.	Applicant	Location	Proposed Development	Decision	Decision Date
20335	Tulfarris LTD	Cloon More, Boherbee Tralee, Co. Kerry	(A) demolish 2 no. Dwelling houses and associated outhouses and sheds (b) form new vehicular and pedestrian access (c) construct 6 no. One and a half storey 3-bedroom semi-detached dwellings, 6 no. 2 storey 3 bedroom and 6 no. 2 storey 2 bedroom dwellings, 7 no. 1 bedroom ground floor apartments and 7 no. 3 bedroom maisonettes in duplex format. (d) estate road, footpaths, boundary walls, services and all associated site works.	Refused	17/07/20
211468	Sarah Kingston	No. 10, Cúl Na Chlaishe, Clash, Tralee, Co. Kerry	Construct a new rear/side single storey extension to the existing dwelling house, including all associated ancillary site works.	Conditional	18/02/22
21513	Tulfarris CG LTD	Cloon More, Tralee, Co. Kerry	(A) demolish two dwelling houses and ancillary works (b) construct new vehicular access to the site via 2 new road connections to the new school shared public access road accessed off the new Bally Mullen- Marion Park relief road. (c) construct 85 residential units, comprising 2 apartment buildings (containing 47 no. One or two-bedroom apartments) 4 triplex buildings (each containing 6 one bedroom apartments, 12 two bedroom townhouses and 2 three bedroom townhouses. Including all associated works, roads, pavements and services.	Refused	07/07/21
21740	Kerry Hospice Foundation LTD	Cloonmore, Rathass, Tralee, Co. Kerry	Erect a patio canopy to bedroom 15 at the existing palliative care inpatient unit together with ancillary site works.	Conditional	25/08/21
22857	Jamie Lowham	56 Mitchel's Road, Tralee, Co. Kerry	Construct a two-story dwelling on his property with all ancillary site works associated with the application on site.	Conditional	20/04/23

10.3 Existing Land-use and On-going Activities

Existing land-use within the proposed development site comprises an existing residential building and two partially demolished derelict dwellings within an urban environment on the eastern outskirts of Tralee town. The site also comprises a long, narrow stretch of grassland that was once heavily maintained but is now relatively unmanaged and unused. The land-use of the surrounding areas is commercial and residential to the north, south and east with amenity spaces and sports grounds together with a small number of private dwellings to the west.

It has been concluded that there is some limited potential for water quality impacts within receiving waters from construction/operational site drainage. These aspects of the project could potentially act in combination with existing land-use activity (i.e. other built ground/artificial surfaces, other discharges to the public system etc).

However, general standard best practice water quality protection measures designed to ameliorate any significant water quality effects from either the construction or operational phases of the project have been included as part of the project design. With the implementation of the measures outlined in **Section 9.4,** above, it is considered that any residual cumulative water quality impacts due to interaction with existing land-use activities in the greater area will not be significant and will be **Short-term to Long-term, Slight Negative Effects.**

10.4 EPA Licenced Facilities

A review of EPA licensed[39] operators within the area located an historic IPPC Licensed facility 'Henry Denny & Sons Ltd.' (Licence No.P0161-01), formerly located at Rackett Lane, Tralee. This business premises has since been demolished and the site is being redeveloped. There are no licensed waste facilities in the surrounding area. Another surrendered IPPC was held by Amann Industries Limited located in Clash. The only current IPPC licenced facility is Sports Socks Co. (Ireland) Ltd. located northwest of the proposed development in IDA Industrial Estate.

The Tralee Urban Wastewater Treatment (UWWT) Plant (Active License Number: D0040-01) is situated in Lohercannon, approximately 3 kilometres west of the proposed development site. The plant has a primary effluent emission point north of Blennerville and emptying into Tralee Bay. There are also several stormwater overflow emission points located along the River Lee and the Lee K Estuary.

It has been concluded that there is some limited potential for water quality impacts within receiving waterbodies from construction/operational site drainage. These aspects of the project could potentially act in combination with existing land-use activity (i.e. other built ground/artificial surfaces, other discharges to the public system etc).

However, general standard best practice water quality protection measures designed to ameliorate any significant water quality effects which may arise during either the construction or operational phases of the project have been included as part of the project design. With the implementation of these measures, as outlined in **Section 9.4,** above, it is considered that any residual cumulative water quality impacts due to interaction with existing land-use activities in the greater area will not be significant, and will comprise **Short-term to Long-term, Slight Negative Effects.**

Furthermore, in light of the characteristics of the subject site and its surrounds, being located within a built-up area within Tralee town and in the absence of any watercourses draining the site as outlined in **Section 4.2**, above, and considering the size and scale of the proposal significant cumulative impacts due to potential interaction with EPA licenced facilities are not envisaged.

[39] Integrated Pollution Control (IPC) Licence (formerly IPPC Licence), and Industrial Emissions Licence (IEL)

11. Residual Effects

Residual effects are impacts that remain once mitigation has been implemented or impacts that cannot be mitigated against. **Table 23,** below, provides a summary of the predicted residual effects for the IEFs identified at the proposed development site.

Table 23. Summary of predicted residual effects on Important Ecological Features (IEFs).

Receptor	Construction phase effects (without mitigation)	Operational phase effects (without mitigation)	Mitigation Measures	Residual Effects
Scrub (WS1)	Habitat loss effects are assessed as **Permanent, Slight, Negative effects.**	Potential habitat effects assessed as **Permanent, Slight, Negative effects**	Presence of ECoW CEMP Construction site biosecurity	Construction and operational phases potential residual habitat effects assessed as **Permanent, Imperceptible, Negative residual effects.** **No significant residual effects.**
Treelines (WL2)	Habitat loss effects are assessed as **Permanent, Moderate, Negative effects.**	Potential habitat effects assessed as **Permanent, Moderate, Negative Effects.**	Presence of ECoW CEMP Construction site biosecurity	Construction and operational phases potential residual habitat effects assessed as **Permanent, Slight, Negative residual effects.** **No significant residual effects.**
Treelines / Scrub (WL2/WS1)	Habitat loss effects are assessed as **Permanent, Moderate, Negative effects.**	Habitat loss effects are assessed as **Permanent, Moderate, Negative effects.**	Presence of EcoW CEMP Construction site biosecurity	Construction and operational phases potential residual habitat effects assessed as **Permanent, Slight, Negative residual effects.** **No significant residual effects.**
Hedgehog, Irish stoat, pygmy shrew, red squirrel, Irish hare	Potential habitat effects on these IEFs assessed as **Permanent, Slight, Negative effects**. Potential disturbance/ displacement effects on these IEFs assessed as **Long-term, Not Significant, Negative Effects.**	Potential habitat effects on these IEFs assessed as **Permanent, Slight, Negative effects**. Potential disturbance/ displacement effects on these IEFs assessed as **Long-term, Not Significant, Negative Effects.**	Presence of ECoW CEMP	Potential residual habitat effects assessed as **Permanent, Not Significant, Negative effects**. Potential residual disturbance/displacement effects assessed as **Long-term, Not Significant, Negative effects.** **No significant residual effects.**

Receptor	Construction phase effects (without mitigation)	Operational phase effects (without mitigation)	Mitigation Measures	Residual Effects
Birds	Potential habitat effects on birds assessed as **Permanent to Temporary, Slight, Negative effects**. Potential disturbance/ displacement effects on birds assessed as **Temporary, Slight, Negative Effects.**	Neutral	CEMP Presence of ECoW Compliance with Wildlife Acts regarding vegetation removal Pre-construction breeding surveys if works occur during breeding season	Potential habitat effects assessed as **Permanent to Temporary, Not significant, Negative residual effects.** Potential residual disturbance/ displacement effects assessed as **Temporary, Not Significant, Negative effects**. **No significant residual effects.**
Bats	Habitat loss/alteration effects on bats assessed as **Permanent, Slight, Negative Effects**. Potential direct/indirect disturbance or displacement effects on bats assessed as **Temporary, Imperceptible, Negative Effects**.	Potential disturbance/ displacement effects on bats assessed as **Long-term, Imperceptible, Negative Effects.**	Best practise CEMP	Potential disturbance/ displacement residual effects are assessed as **Long-term, Not significant, Negative effects.** **No significant residual effects.**
Amphibians and Reptiles	Potential habitat effects assessed as **Permanent, Imperceptible, Negative Effects**. Potential disturbance/ displacement effects assessed as **Temporary, Not Significant, Negative Effects.**	Neutral	Presence of ECoW CEMP	Potential residual habitat effects assessed as **Permanent, Not significant, Negative effects.** Potential residual disturbance/ displacement effects assessed as **Temporary, Not Significant, Negative effects**. **No significant residual effects.**
Water Quality	Potential water quality effects are assessed as **Temporary to Short-term, Slight, Negative Effects at the local level.**	Potential water quality effects are assessed as **Long-term, Not significant, Negative Effects**	CEMP Site Management Best practise	Potential water quality effects are assessed as **Long-term, Not Significant, Negative effects** at the local level. **No significant residual effects.**

12. Enhancement Opportunities

12.1 Bird Boxes

To enhance the site for birds, at least 50 No. artificial nest boxes will be installed at appropriate locations to provide additional nesting habitat for a variety of species. Installation of a nest box scheme should be undertaken under the direction and guidance of the appointed ecologist.

BirdWatch Ireland[40], the British Trust for Ornithology (BTO)[41] and the Royal Society for the Protection of Birds (RSPB) have produced various guidelines in relation to the construction/purchase and installation of nest boxes for various common species, many of which occur within the site, such as blue tit, great tit, house sparrow, robin and pied wagtail. Guidelines are also available for species-specific types of nest-boxes for species such as swift[42] and house martin[43]. Refer to **Figure 6**, below, for a basic bird box design. These guidelines outline the various factors which should be considered when planning the installation of nest boxes for specific species, such as nest box characteristics/dimensions, appropriate height above ground for installation, aspect and degree of vegetation cover required.

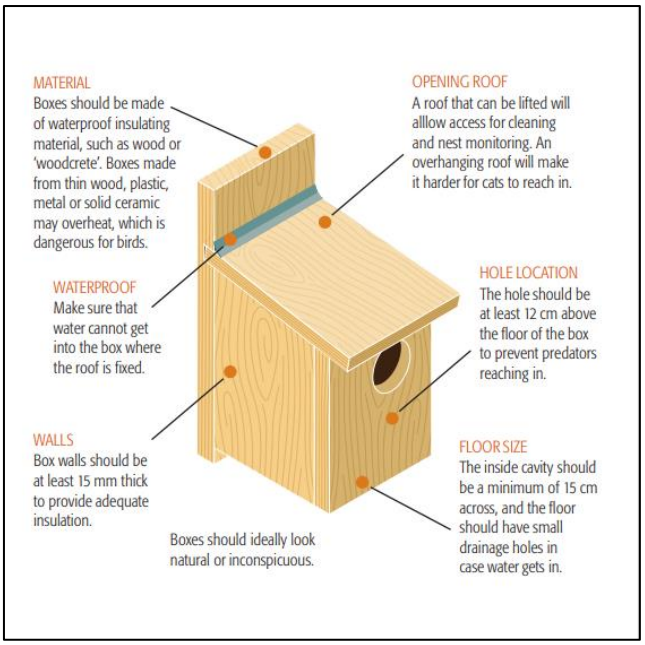

Figure 6: Example of a generic bird box design outlining all necessary features [adapted from bto-nest-boxes-essential-guide.pdf Accessed: 28th August 2023].

12.2 Nesting Blocks for Birds

Any concrete block walls to be erected at the site could incorporate nesting blocks into their structures to provide increased nesting opportunities to local passerine populations. A minimum of 20 No. nesting blocks will be installed on buildings at the proposed development site. The nesting blocks should be located within/near vegetated areas and be selected for species that usually nest at lower levels in recesses or cavities such as robins and wagtails. The nesting brick blocks have a lightweight design and are specially designed to have a narrowing

[40] Build a Nest Box for Birds and Biodiversity in Your Garden This Spring - BirdWatch Ireland Accessed: 28th August 2023
[41] bto-nest-boxes-essential-guide.pdf Accessed: 28th August 2023
[42] Saving-Swifts-Guide_pdf.pdf (birdwatchireland.ie) Accessed: 28th August 2023
[43] Attracting House Martins to Nest | Birds & Wildlife - The RSPB Accessed: 28th August 2023

entrance to prevent magpies (*Pica pica*), jays (*Garrulus glandarius*), pine martens (*Martes martes*) and domestic cats from gaining access. There are several designs available including species-specific models and the bricks can also be mounted externally onto the wall's surface with a bracket if necessary. **Figure 7**, below, shows the Brick Box 1HE design from the German company Schwegler[44].

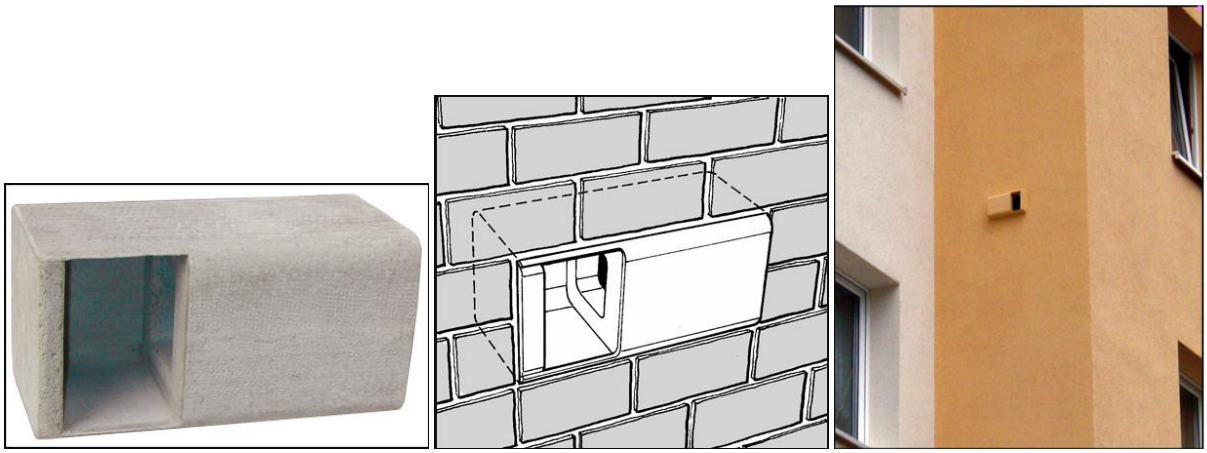

Figure 7: The 1HE Brick Box from Schwegler (left), illustration of the Brick Box integrated into brickwork (centre), and, picture of the Brick Box installed on an outer wall with mounting bracket (right) [adapted from Brick Box 1HE » Schwegler Natur (schwegler-natur.de)].

12.3 Bat Bricks

A bat-brick scheme will be implemented to enhance the value of the site for bats by providing artificial roost-sites on buildings. With many options available, bat brick schemes[45] are recommended by BCI to provide bat roosts in new buildings[46] where there are no mature trees on-site. A minimum of 20 No. bat bricks will be installed on buildings at the proposed development site. A variety of bat bricks will be used. For example, Schwegler Brick Roosts[47] (see **Figure 8**, below) are recommended for this site since they are suitable for the three species recorded at the site - common pipistrelle, soprano pipistrelle, and Leisler's bat (see **Section 4.4.4.2**, above).

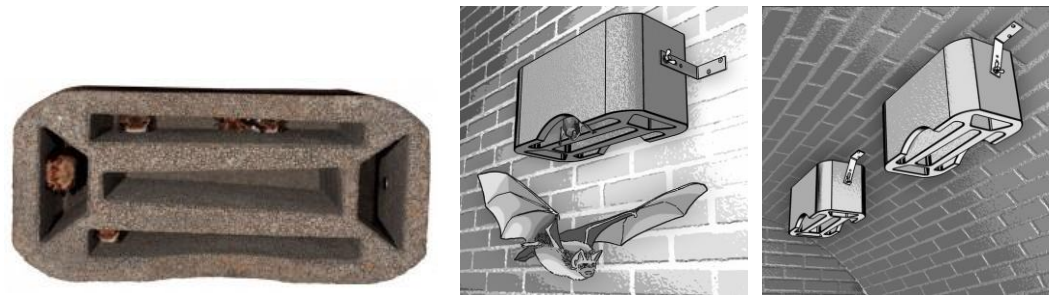

Figure 8: Schwegler Brisk Roost 1GS (left), installed on wall (centre), and hanging (right) [adapted from Brick Roost 1GS » Schwegler Natur (schwegler-natur.de)].

[44] Vogelschutz » Schwegler Natur (schwegler-natur.de) Accessed: 28th August 2023
[45] https://www.schwegler-natur.de/fledermaus/?lang=en Accessed: 28th August 2023
[46] https://www.batconservationireland.org/irish-bats/bat-roosts/775-2 Accessed: 28th August 2023
[47] https://www.schwegler-natur.de/portfolio_1395072079/fledermaus-gewoelbestein-1gs/?lang=en Accessed: 28th August 2023

The design, siting and installation of any bat-box scheme should be selected and undertaken by a bat specialist and/or the appointed ECoW and should follow NRA guidance[48] and Bat Conservation Ireland (BCIreland) guidance[49, 50]. Any bat box scheme should be registered with BCIreland.

12.4 Signage

Interpretative signage, biodiversity information panels and educational display boards could be erected in landscaped areas such as at the wildflower areas to identify pollinators and associated plants. There are many templates available at Resources » All-Ireland Pollinator Plan (pollinators.ie). Informative panels may also be provided at larger rain gardens detailing how a rain garden functions and what species are present.

The signage should reflect its purpose and be of a robust design that is suitable for the outdoors and be UV stable. There is also the opportunity to consider the creation of tactile signage that can be read by the visually impaired. The signs should rely largely on graphics to convey the message in a clear and interesting way and, where feasible, QR codes could be included to provide links to further ecological and biodiversity information or to the information translated into different languages. Additionally, the signage should identify links between being outside in nature and improved health/wellbeing.

Plate 9: Examples of educational signage used to inform on biodiversity features and associated species [adapted from Signs » All-Ireland Pollinator Plan (pollinators.ie) Accessed: 28th August 2023].

13. Conclusion

Residual impacts on biodiversity including impacts to designated sites, habitats, flora, fauna and water quality are not considered significant provided best practice methodologies and mitigation measures are employed during the construction and/or operational phases.

Provided that the proposed project is constructed and operated in accordance with the design, and that construction industry best practice measures and other mitigation described within this report are adhered to, significant effects on IEFs are not anticipated at any geographical scale.

The application of construction and operational phase mitigation and protection measures will ensure that no significant residual ecological impacts, either alone or cumulatively with other plans or projects, will arise from the project.

[48] untitled (tii.ie) Accessed: 28th August 2023
[49] Microsoft Word - BCI_Leaflet_3_batboxes.doc (batconservationireland.org) Accessed: 28th August 2023
[50] BCIrelandGuidelines_BatBoxes.pdf (batconservationireland.org) Accessed: 28th August 2023

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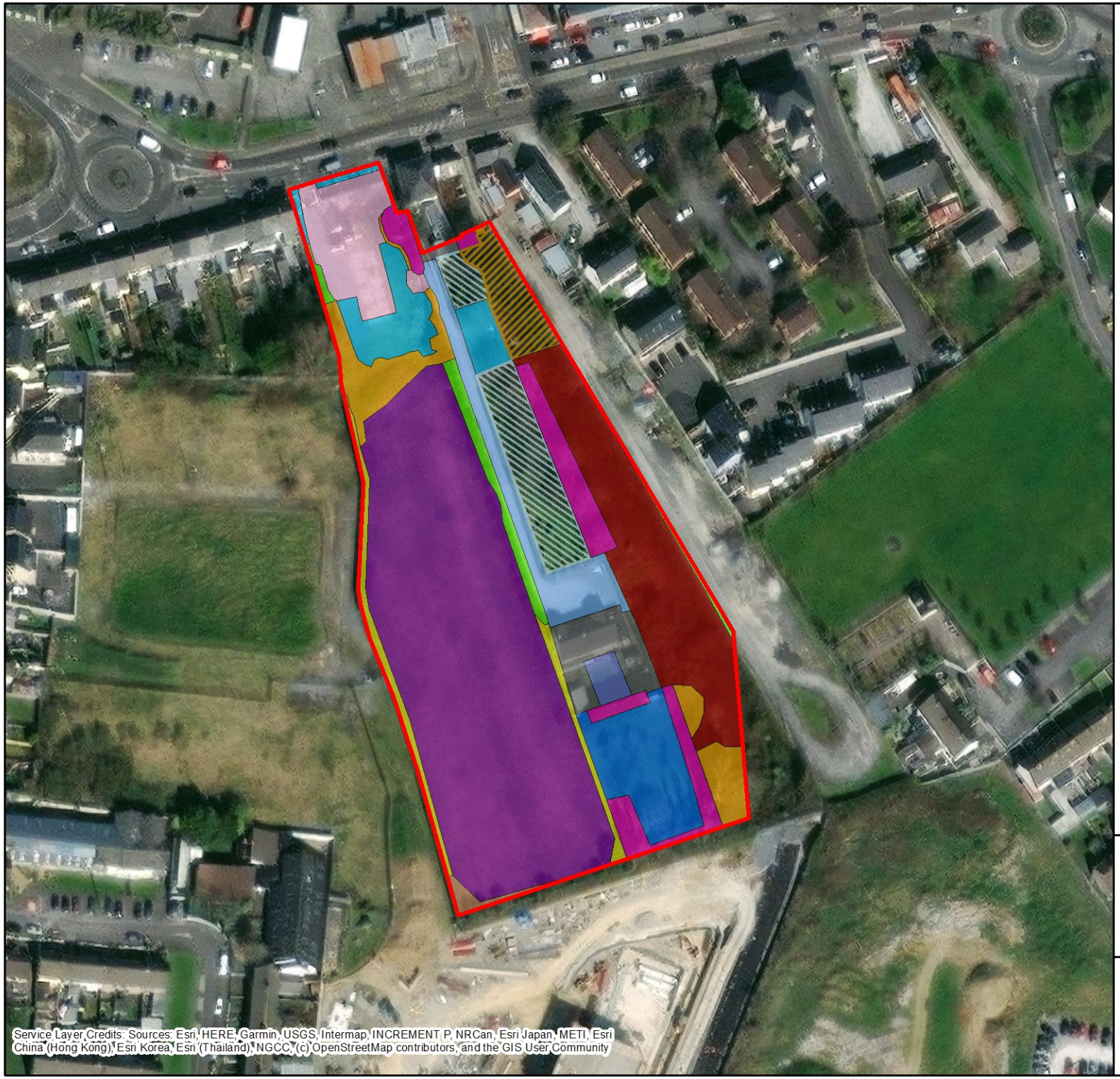
Appendix 1

Habitat Map



Legend

Site Boundary

Habitat

- BL1: Stone walls and other stonework
- BL3: Buildings and artificial surfaces
- BL3/ED2: Buildings and artificial surfaces/Spoil and bare ground
- ED2: Spoil and bare ground
- ED2/ED3: Spoil and bare ground/Recolonising bare ground
- ED3: Recolonising bare ground
- GA1: Improved grassland
- GA2: Amenity grassland
- GS2: Dry meadows and grassy verges
- GS2/WS1:Dry meadows and grassy verges/Scrub
- WD5: Scattered trees and parkland
- WD5/WS3: Scattered trees and parkland/Ornamental or non-native shrub
- WL1: Hedgerows
- WL2: Treelines
- WS1: Scrub
- WS1/WL2: Scrub/Treelines

Map Reproduced From Tailte Éireann
By Permission Of The Government.
CYAL50332198.

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N

MWP

Appendix 2

NRA Ecological Evaluation Criteria

Examples of valuation at different geographical scales (Source NRA, 2009[1])

International Importance	'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation. Proposed Special Protection Area (pSPA). Site that fulfils the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). Features essential to maintaining the coherence of the Natura 2000 Network.[1] 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)[2] 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). Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). Biogenetic Reserve under the Council of Europe. European Diploma Site under the Council of Europe. Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).[3]
National Importance	Site designated or proposed as a Natural Heritage Area (NHA). Statutory Nature Reserve. Refuge for Fauna and Flora protected under the Wildlife Acts. National Park. Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park. Resident or regularly occurring populations (assessed to be important at the national level)[4] of the following: Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. Site containing 'viable areas'[5] of the habitat types listed in Annex I of the Habitats Directive.

[1] See Articles 3 and 10 of the Habitats Directive.

[2] 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.

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

[4] 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.

[5] 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).

[1] NRA (2009). Environmental Assessment and Construction Guidelines. Published by the National Roads Authority.

County Importance	Area of Special Amenity.[6] Area subject to a Tree Preservation Order. Area of High Amenity, or equivalent, designated under the County Development Plan. Resident or regularly occurring populations (assessed to be important at the County level)[7] of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance. County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP,[8] 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.
Locally Important (higher level)	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)[9] of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality; Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value
Locally Important (lower level)	Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; Sites or features containing non-native species that are of some importance in maintaining habitat links.

[6] 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.

[7] 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.

[8] BAP: Biodiversity Action Plan

[9] 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 3

Drawings

NORTH

NOTES:

1. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, BILLS OF QUANTITIES, ARCHITECTURAL, SERVICES AND ENGINEERING DRAWINGS.
2. ANY DISCREPANCIES BETWEEN THESE DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
3. ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS NOTED OTHERWISE.
4. ALL LEVELS ARE IN METRES RELATED TO ORDNANCE DATUM.
5. DRAWINGS ARE NOT TO BE SCALED.

LEGEND:

- SITE OWNERSHIP BOUNDARY
- SITE BOUNDARY
- PROPOSED FLUSH KERB
- PROPOSED 125mm UPSTAND BULLNOSE KERB
- PROPOSED 80mm UPSTAND BULLNOSE KERB
- PROPOSED 65mm UPSTAND BULLNOSE KERB
- PROPOSED ROAD
- PROPOSED CONCRETE FOOTPATH
- PARKING AREA
- TACTILE PAVING
- GRASS
- PATIO
- TRAFFIC CALMING PEDESTRIAN AND CYCLIST PRIORITY ZONE
- PROPOSED CONCRETE APRON
- ACCESSIBLE PARKING
- WHEEL STOPS

A = APARTMENT TYPE "A"
B = APARTMENT TYPE "B"
C = TRIPLEX UNITS
D = TOWNHOUSE

REV	DATE	DESCRIPTION	BY	APP
P01	25.08.23	ISSUED FOR INFORMATION	JH	I.B.

PROJECT:
CLOONMORE REGENERATION LRD,TRALEE

TITLE:
SITE LAYOUT MASTER SHEET

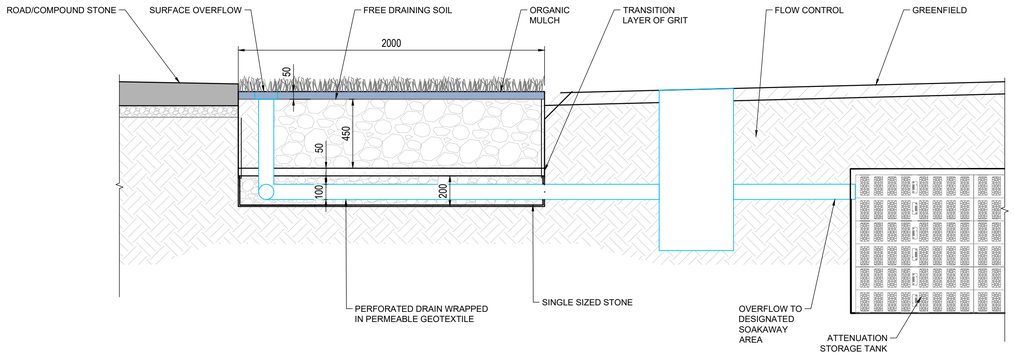
CLIENT:
TULFARRIS CG LTD

MWP
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
CORK | TRALEE | LONDON | LIMERICK
mwp.ie

DRAWN:	CHECKED:	APPROVED:
J.H.	G.F.	I.B.
PROJECT NUMBER:	DATE:	SCALE @ A1:
23824	AUG.2023	1:500

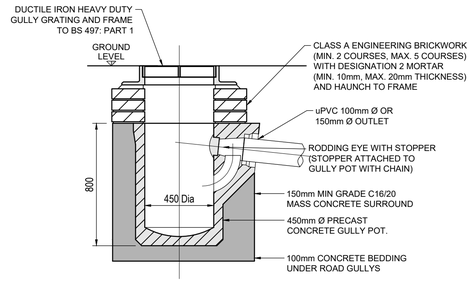
STATUS DESCRIPTION: FOR INFORMATION
STATUS: S2

DRAWING NUMBER: 23824 - MWP - 00 - 00 - DR - C - 0100
REV: P01



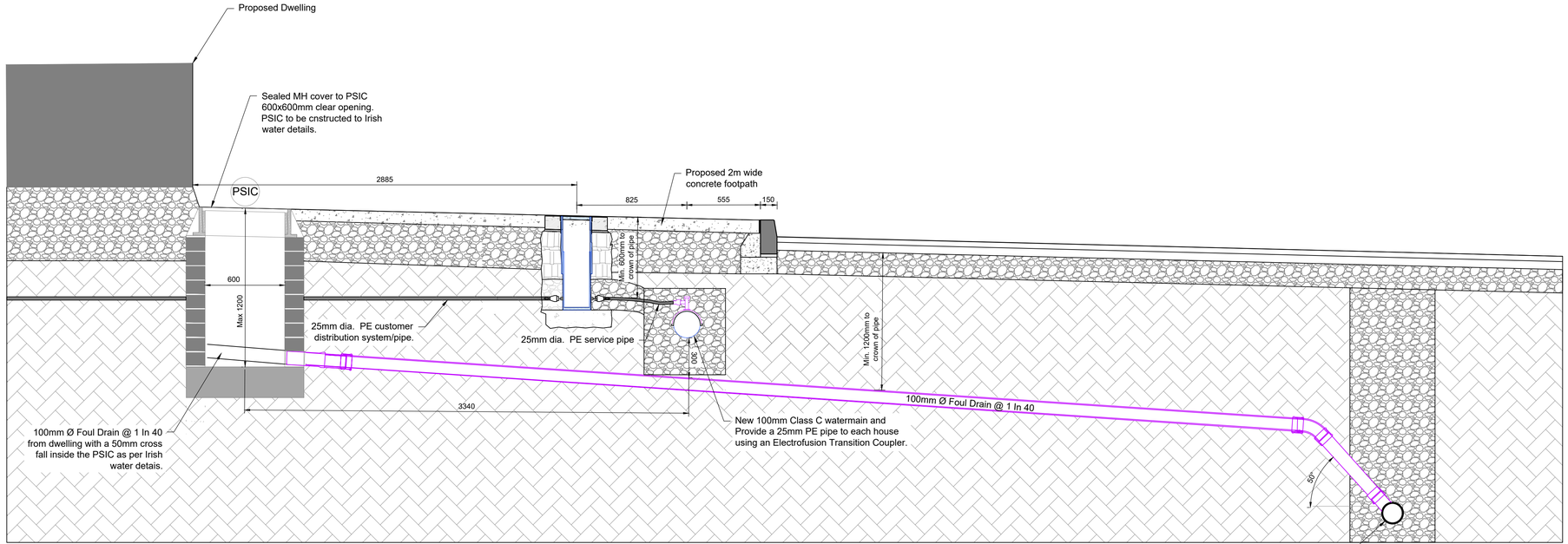
TYPICAL BIORETENTION RAIN GARDEN DETAIL FOR ROADS

SCALE: 1:20



ROAD GULLY DETAIL

SCALE: 1:20



TYPICAL SITE SERVICES DETAIL

NOTES:

1. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, BILLS OF QUANTITIES, ARCHITECTURAL, SERVICES AND ENGINEERING DRAWINGS.
2. ANY DISCREPANCIES BETWEEN THESE DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
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REV	DATE	DESCRIPTION	BY	APP
P01	25/08/23	ISSUED FOR PLANNING	O.B.	I.B.

PROJECT:

CLOONMOORE REGENERATION LRD, TRALEE, Co. KERRY.

TITLE:

TYPICAL DRAINAGE DETAILS

CLIENT:

TULFARRIS CG LTD.

MWP
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
CORK | TRALEE | LONDON | LIMERICK
mwp.ie

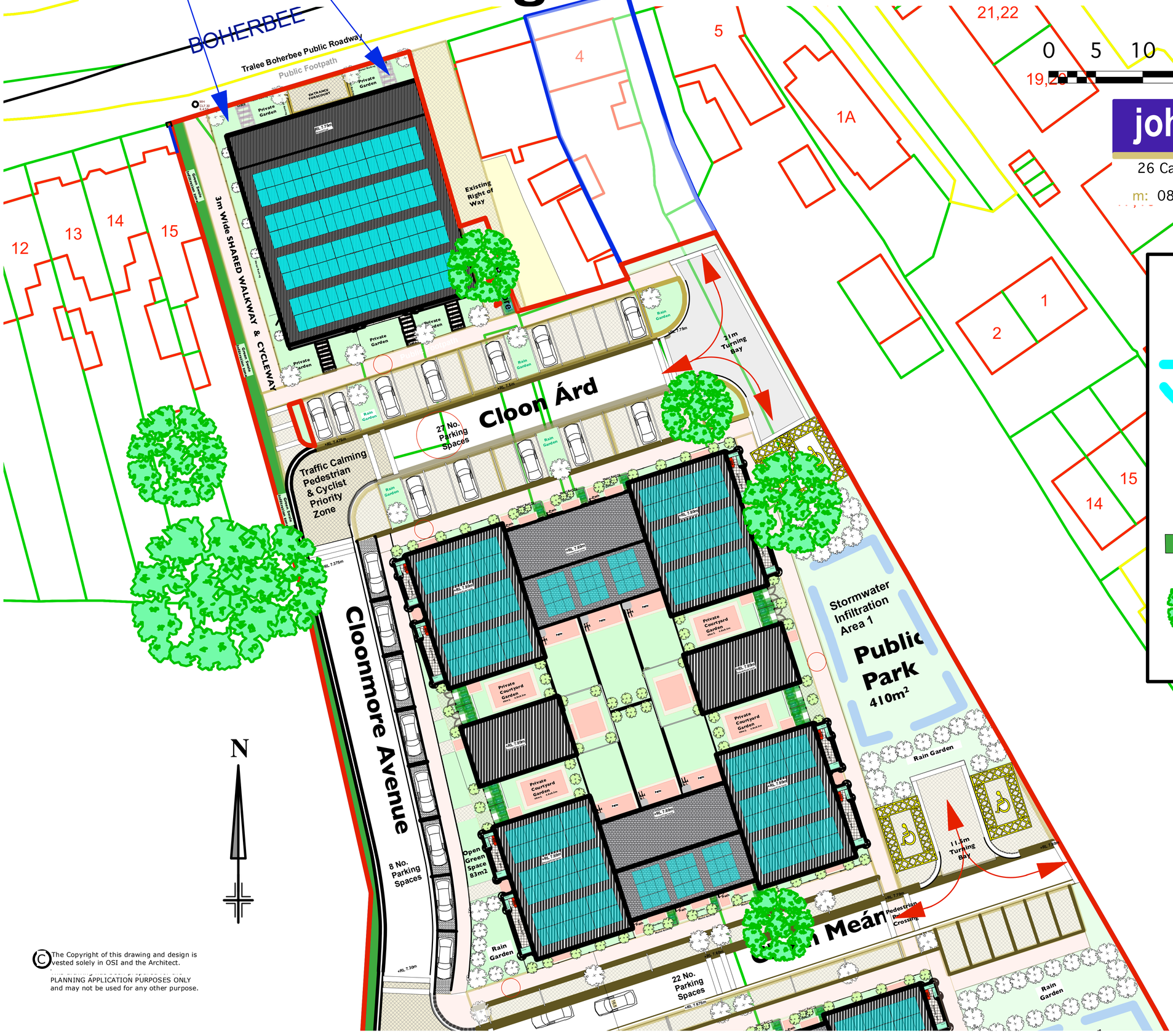
DRAWN:	CHECKED:	APPROVED:
O.B.	G.F	I.B.

PROJECT NUMBER:	DATE:	SCALE @ A1:
23824	25/08/2023	AS SHOWN

STATUS DESCRIPTION	STATUS:
FOR INFORMATION	S2

DRAWING NUMBER:	REV:
23824 - MWP - 00 - 00 - DR - C - 2105	P01

Cloonmore Regeneration LRD Landscaping Plan



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john phelan | architects

26 Castle Countess, Tralee, Co.Kerry t: 066-7171968

m: 087-2427859 e: johnphelanarchitect@gmail.com

LANDSCAPING LEGEND

Rain Gardens in parking areas in front of Houses with miscellaneous water tolerant planting and small specimen silver birch or miniture cherry tree

Stormwater Retention Basin

Stormwater Retention Basin
Undergroung retention basin designed to infiltrate stormwater discharge from Apartments

New Silver Birch Trees designed to screen houses and green areas

New Cherry Trees designed to screen houses and green areas

Selection of Shrubs designed to screen houses and green areas

Green Swale Infiltration Zone
Sunken grassed swale designed to infiltrate stormwater discharge from Road surfaces

Existing Trees to be retained to enhance landscape layout.

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2301-PA-06.1

Landscaping Plan

Sheet 1 of 2 14th August 2023
Scale 1:200 @ A1 or 1:400 @ A3

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Traffic Calming Pedestrian & Cyclist Priority Zone

Pedestrian Priority Crossing

Cloonmore Avenue

Public Green 550 m2

Public Park 1000 m2

Stormwater Infiltration Area 2

Stormwater Infiltration Area 3

Link Road Ph

Future Traffic Calmed Ancilliary Access from Phase 2 Link Roa

Cloon lárr

Temporary Turning Bay Pending connection to Link Road

Bin Store

45 No. Parking Spaces

Rain Garden

Cobblestone Pavement

100mm Tarmacadam

2m wide Concrete Pavement

Green Swale Infiltration Zone

Open Green Space 265m2

Private Courtyard Garden

Private Garden

Ramp Up

Gate

Existing Public Access Road (Cloonmore Avenue)

Residents Terrace 8

Ground Floor Plan
1335 m2

Cluain
Cloon

Cloonmore LRD Landscaping Plan

2301-PA-06.2

Landscaping Plan

Sheet 2 of 2 14th August 2023
Scale 1:200 @ A1 or 1:400 @ A3