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- Explain how the measures will avoid the adverse impacts on the site
- Explain how the measures will reduce the adverse impacts on the site

Then, for each of the listed mitigation measures:

- Provide evidence of how they will be secured and implemented and by whom
- Provide evidence of the degree of confidence in their likely success
- Provide a timescale, relative to the project or plan, when they will be implemented

Where residual impacts remain, further mitigation measures may be required.

Monitoring

Evidence should be provided of how the mitigation measures will be monitored, and, should mitigation failure be identified, how that failure will be rectified. The applicant should not use any proposed post construction monitoring as mitigation to supplement inadequate information in the assessment.

The above observations/recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations that the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority, in his role as statutory consultee under the Planning and Development Act, 2000, as amended.

You are requested to send any further communications to this Department's Development Applications Unit (DAU) at manager.dau@npws.gov.ie, or to the following address:

The Manager
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Wexford
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Sinéad O' Brien

Sinéad O' Brien
Development Applications Unit

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APPENDIX 4

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Baseline Bat Report

Kingston Stables, Knocknacarra West Proposed Large Scale Residential Development

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DOCUMENT DETAILS

Client:	**Kingston Stables Ltd**
Project Title:	**Kingston Stables, Knocknacarra West Proposed Large Scale Residential Development**
Project Number:	**251145**
Document Title:	**Baseline Bat Report**
Document File Name:	**BBR F1 – 2026.07.17 - 251145**
Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

Planning and Environmental Consultants

Rev	Status	Date	Author(s)	Approved By
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1. INTRODUCTION

1.1 Purpose of this Report

MKO was commissioned to complete a comprehensive assessment of the potential effects on bats, as part of an Environmental Impact Assessment Report (EIAR) for an application for planning permission of a proposed Large-scale Residential Development (LRD), at Knocknacarra, Co. Galway. This report provides details of the bat surveys undertaken, including survey design, methods and results, and recommendation to safeguard bats. An impact assessment based on the information contained in this report is carried out within the accompanying EIAR. The Proposed Development for which planning permission is being sought is a component of a larger residential development known as the Proposed Project. The Proposed Project involves the construction of more than 500 residential units and forms part of an overarching masterplan for a wider landholding referred to as the EIAR Study Area. It should be noted that the surveys and results outlined in this report cover the entire EIAR Study Area.

The report presents the ecological baseline recorded within the EIAR Study Area in relation to bats. Initial surveys were carried out in August 2023 to inform the project masterplan. Subsequent surveys were carried out between April and September 2024. An additional dusk emergence survey was carried out on the 11th May 2026. Surveys included a suitability appraisal and inspection of the habitats and potential roosting features present on site. Manual activity surveys and roost inspection surveys were carried out, as well as ground-level static detectors surveys. Ground levels static detectors were deployed at different locations across the site for a minimum of 10 nights during Autumn 2023 and Spring and Summer 2024.

The main objective of the surveys was to assess the site for its suitability for foraging and commuting bats, as well as assess and inspect any structures for potential roosts, including maternity roosts. The bat surveys were designed to establish the nature, scale and locations of potential bat activity within the site.

The bat survey and assessment were informed by a desk study and with reference to the following guidelines:

- *Bat Survey Guidelines: Traditional Farm Buildings Scheme. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny (Aughney, T., Kelleher, C. & Mullen, D., 2008)).*
- *'Bat Workers' Manual' (3rd edn). JNCC, Peterborough (Mitchell-Jones, A.J. & McLeish, A.P. (eds) 2004).*
- *The Lesser Horseshoe Bat Conservation Handbook, Vincent Wildlife Trust (Schofield, HW., 2008).*
- *Bat Surveys for Professional Ecologists – Good Practice Guidelines (4th edn.) (Collins, 2023)*
- *Bat Roosts in Trees (Andrews, 2018)*
- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006a)*
- *CIEEM (2013) Competencies for Species Surveys: Bats. Chartered Institute of Ecology and Environmental Management, Winchester.*
- *Guidelines for the Treatment of Bats during the Construction of National Road Schemes (NRA, 2006b)*
- *British Bat Calls: A Guide to Species Identification (Russ, 2012)*
- *Bat Mitigation Guidelines for Ireland – V2. Irish Wildlife Manuals, No. 134. (Marnell, Kelleher & Mullen 2022)*
- *UK Bat Mitigation Guidelines, (Reason, P. F. and Wray, S. 2023)*
- *Guidance Note 08/23: Bats and Artificial Lighting at Night (ILP, 2023)*
- *Lesser Horseshoe Bat Species Action Plan 2022-2026 (NPWS & VWT, 2022).*

1.2 Development Description

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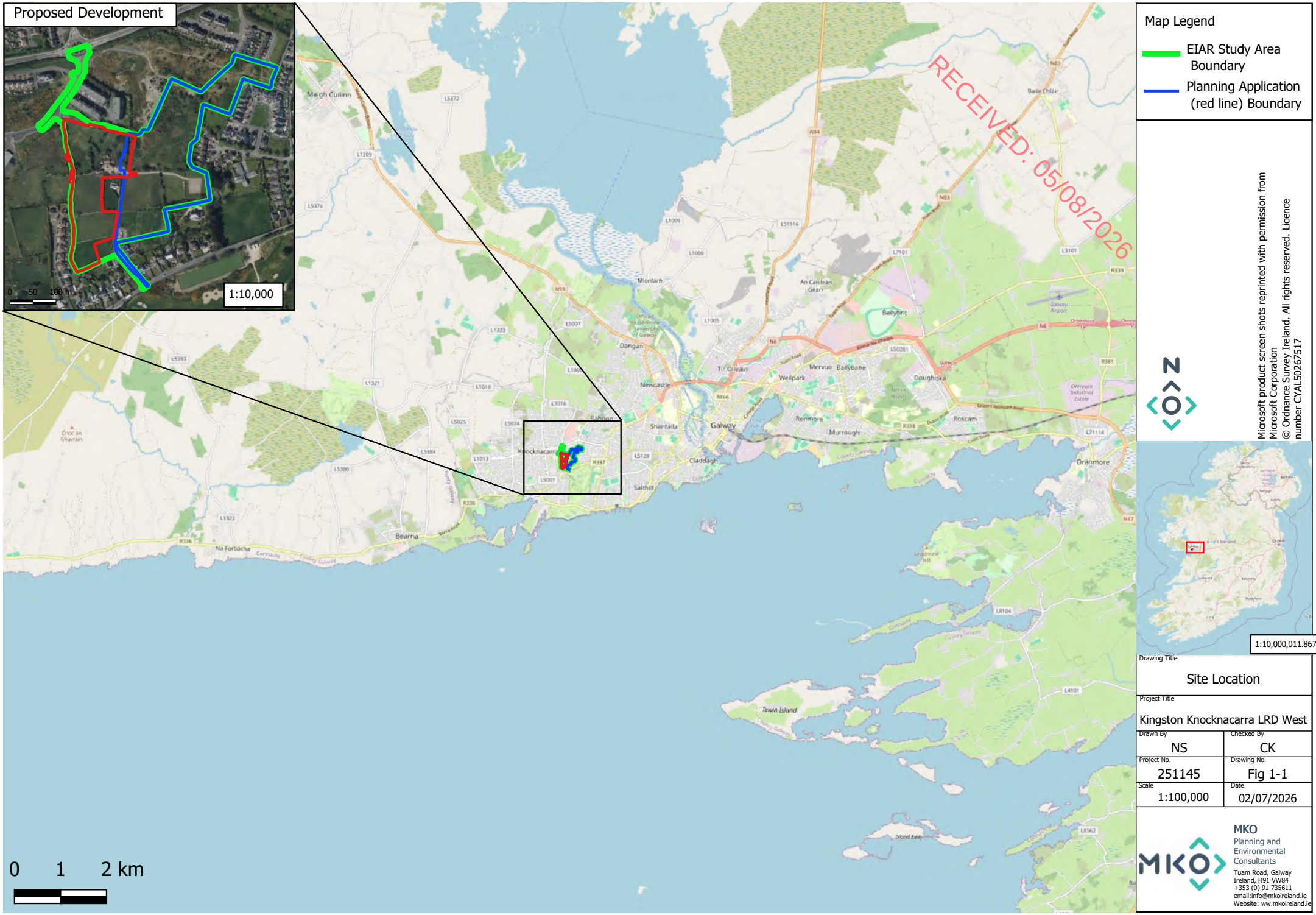
Planning permission is sought by Kingston Stables Ltd for development of a Large-Scale Residential Development (LRD) for a 10-year planning permission, on a site which extends to 2.9ha on lands located at Knocknacarra, Galway.

The Proposed Development will consist of the following:

- Provision of 133 no. residential units in 2 no. development areas with a mix of duplex and house types on a site area of 2.9 ha. The buildings range between 2 no. and 3 no. storeys in height. The development will comprise the following:
  - 51 no. 3-bed townhouses;
  - 6 no. 4-bed townhouses;
  - 1 no. 1-bed duplex apartments;
  - 1 no. 2-bed duplex houses;
  - 37 no. 2-bed ground floor duplex apartments;
  - 37 no. 3-bed duplex houses.
- Demolition of existing structures (388 m^2);
- Vehicular access to the Proposed Development from a permitted road (Planning Reference 24/60370 refers);
- Upgrades to the permitted road (Planning Reference 24/60370 refers);
- Pedestrian and cycle access to the adjacent Kingston Park (ACP Ref: 323873);
- Conversion and upgrade of an existing structure to a local centre (65.6 m^2);
- The provision of public open space;
- The provision of 192 no. bicycle parking spaces;
- The provision of 142 no. car parking spaces;
- Public lighting, bin stores, signage, services, 2 no. ground mounted substation kiosks, site landscaping and all ancillary site development and enabling works.

The proposed site lies in Galway city. The primary land use in the area is agriculture and husbandry. Previously cleared areas within the site are left unmanaged. The wider landscape consists of urban development and a golf course immediately to the south. A location map of the Proposed Development site is provided in Figure 1-1.

The Proposed Development described above for which planning permission is being sought is a component of a larger residential development known as the Proposed Project. The Proposed Project involves the construction of more than 500 residential units and forms part of an overarching masterplan for a wider landholding referred to as the EIAR Study Area. It should be noted that the surveys and results outlined in this report cover the entire EIAR Study Area.



Drawing Title
Site Location

Project Title
Kingston Knocknacarra LRD West

Drawn By	Checked By
NS	CK
Project No.	Drawing No.
251145	Fig 1-1
Scale	Date
1:100,000	02/07/2026

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1.3 Policy and Legislation

All Irish bats are protected under European legislation, namely the Habitats Directive (92/43/EEC). All Irish species are listed under Annex IV of the Directive, requiring strict protection for individuals, their breeding sites and resting places. The lesser horseshoe bat (*Rhinolophus hipposideros*) is further listed under Annex II of the Directive, requiring the designation of conservation areas for the species. Under this Directive, Ireland is obliged to maintain the favourable conservation status of Annex-listed species. This Directive has been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011, as amended).

In addition, Irish species are further protected by national legislation (Wildlife Acts 1976, as amended). Under this legislation, it is an offence to intentionally disturb, injure or kill a bat or disturb its roost. Any work at a roost site must be carried out with the agreement of the National Parks and Wildlife Service (NPWS) and a derogation licence must be granted before works commence.

The NPWS monitors the conservation status of European protected habitats and species and reports their findings to the European Commission every 6 years in the form of an Article 17 Report. The most recent report for the Republic of Ireland was submitted in 2019. Table 1-1 summarises the current conservation status of Irish bat species and identified threats to Irish bat populations.

Table 1-1 Irish Bat Species Conservation Status and Threats (NPWS, 2019). Pressures and Threats are ranked from medium importance (M) to high importance (H) in the 2019 Article 17 report.

Bat Species	Conservation Status	Principal Threats
Common pipistrelle *Pipistrellus pipistrellus*	Favourable	**A05** Removal of small landscape features for agricultural land parcel consolidation (M) **A14** Livestock farming (without grazing) [impact of anti-helminthic dosing on dung fauna] (M) **B09** Clear--cutting, removal of all trees (M) **F01** Conversion from other land uses to housing, settlement or recreational areas (M) **F02** Construction or modification (e.g. of housing and settlements) in existing urban or recreational areas (M) **F24** Residential or recreational activities and structures generating noise, light, heat or other forms of pollution (M) **H08** Other human intrusions and disturbance not mentioned above (Dumping, accidental and deliberate disturbance of bat roosts (e.g. caving) (M) **L06** Interspecific relations (competition, predation, parasitism, pathogens) (M) **M08** Flooding (natural processes) **D01** Wind, wave and tidal power, including infrastructure (M)
Soprano pipistrelle *Pipistrellus pygmaeus*	Favourable	
Nathusius' pipistrelle *Pipistrellus nathusii*	Unknown	
Leisler's bat *Nyctalus leisleri*	Favourable	
Daubenton's bat *Myotis daubentoni*	Favourable	
Natterer's bat *Myotis nattereri*	Favourable	
Whiskered bat *Myotis mystacinus*	Favourable	
Brown long-eared bat *Plecotus auritus*	Favourable	
Lesser horseshoe bat *Rhinolophus hipposideros*	Inadequate	

1.4 Bat Roosting Behaviour

Bats use a variety of natural and manmade structures as roosting or resting places. The type of roost and its level of use is determined by its function in the bat life cycle. Table 1-2 provides a summary of different types of bat roosts.

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Table 1-2 Bat Roost Types and Definitions

Roost Type	Definition
Day	Where individuals or small groups of male's rest/shelter in the day but are rarely found by night in summer.
Night	Where bats rest/shelter at night but are rarely found in the day.
Feeding	Where individuals rest/feed during the night but are rarely found during the day.
Transitional	Used by a few individuals for short periods of time prior to or following hibernation.
Swarming	Where large numbers gather in late summer to autumn. Important mating sites.
Mating	Where mating takes place in late summer to winter.
Maternity	Where females give birth and raise their young.
Hibernation	Where bats are found during winter (constant cool temperature and high humidity).
Satellite	An alternative roost found in close proximity to the main nursery colony.

There are currently no clear guidelines to determine the significance of a bat roost. All the largest roosts of lesser horseshoe bat in Ireland are of international importance and it is anticipated that all large Leisler's bat roosts (>100) would also have international significance (NRA, 2006). Table 1-3 provides some criteria for determining the significance of different building roosts, as determined by the Bat Expert Panel of the Heritage Council in 2003 (NRA, 2006).

Table 1-3 Level of Importance of Various Roosts

Species	Indicator	Significance
Lesser horseshoe bat	Special Area of Conservation	Very significant
	If present	Significant
Whiskered bat	>10	Very significant
	If present	Significant
Natterer's bat	>10	Very significant
	If present	Significant
Daubenton's bat	Maternity roost	Significant
Leisler's bat	Maternity roost	Significant
Common pipistrelle	Maternity roost	Significant
Soprano pipistrelle	Maternity roost	Significant
Brown long-eared bat	Maternity roost	Significant

The likelihood of detecting active roosts is determined by the timing of the roost survey. In general;

- April surveys may detect transitional roosts used by bats following hibernation and prior to summer roosting.

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- May-August surveys may detect maternity colonies and male/non-breeding female summer roosts.
- August surveys are best to determine maximum counts of adult and juvenile bats.
- August – October surveys may detect swarming and mating bats.
- September and October surveys may detect transitional roosts used by bats following the dispersal of maternity colonies and prior to hibernation.
- Day, night, feeding and satellite roosts may be found anytime between April and October.
- November – March surveys may detect hibernacula.

1.5 Statement of Authority

MKO employs a dedicated bat unit within its Ecology team, experienced in scoping, carrying out, and reporting on bat surveys, as well as producing impact assessments in relation to bats. MKO ecologists have relevant academic qualifications and are qualified in undertaking surveys to the levels required. MKO's Ecology team holds a bat derogation licence from NPWS. The licence is intended for professionals carrying out surveys with the potential to disturb roosting bats (i.e. roost inspections). Graduate and seasonal ecologist staff are included under the licence under condition of being accompanied by more experienced colleagues.

Survey scoping was prepared by Sara Fissolo. The daytime walkover survey and inspections were carried out by Sara Fissolo and David Culleton. Manual activity surveys were carried out by David Culleton, Kate Greaney, Laura McEntegert, Mairead Kavanagh, Fiona Killeen and Charlie Meehan. Data manual ID were carried out by David Culleton and Charlie Meehan. This report was prepared by David Culleton, was reviewed by Sara Fissolo, and was approved by Aoife Joyce. Staff's roles and relevant training are presented in Table 1-4 below.

Table 1-4 Project team qualifications and training.

Staff	Role	Qualifications and Training
Aoife Joyce (B.Sc., M.Sc.) 6 years' experience	Project Director	B.Sc. (Hons) Environmental Science, University of Galway, Ireland. M.Sc. (Hons) Agribioscience, University of Galway, Ireland. Advanced Bat Survey Techniques – Trapping, biometrics, handling (BCI), Bat Impacts and Mitigation (CIEEM), Bat Tree Roost Identification and Endoscope Training (BCI), Bats in Heritage Structures (BCI), Bats and Lighting (BCI), Kaleidoscope Pro Analysis (Wildlife Acoustics).
Sara Fissolo (B.Sc.) 4 years' experience	Project Ecologist	B.Sc. (Hons) Ecology and Environmental Biology, University College Cork, Ireland. Advanced Bat Survey Techniques (BCI), Bat Impacts and Mitigation (CIEEM), Bats in Heritage Structures (BCI), Bat Care (BCT), Bats and Lighting (BCI), Kaleidoscope Pro Analysis (Wildlife Acoustics).
David Culleton (B.Sc., M.Sc.) 2 years' experience	Bat Ecologist	B.Sc. (Hons) Zoology, University College Cork, Ireland. M.Sc. (Hons) Conservation Behaviour, Atlantic Technological University, Galway, Ireland. Bat Detector and Survey Training (BCI), Kaleidoscope Pro Analysis (Internal), Endoscope Training (Internal), Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal), Emergence and Re-Entry Surveys (Internal).
Charlie Meehan (B.Sc., M.Sc.)	Seasonal Bat Ecologist	B.A. History and Classical Studies, National University of Ireland, Galway

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		M.Sc., Sustainable Environments, National University of Ireland, Galway Kaleidoscope Pro Analysis (Wildlife Acoustics), Endoscope Training (Internal), Structure and Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal), Emergence and Re-Entry Surveys (Internal)
Laura McEntegert (B.Sc.) **3 years' experience**	Ecologist	B.Sc. (Hons) Botany and Plant Science, National university of Ireland, Galway Bat Handling Training Course (BCI), Bats: Assessing the Impact of Development on Bats, Mitigation & Enhancement - (CIEEM), Kaleidoscope Pro Analysis (Wildlife Acoustics). Endoscope Training (Internal), Emergence and Re-Entry Surveys (Internal) Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal).
Kate Greaney (B.Sc., M.Sc.) **2 years' experience**	Ecologist	B.Sc. (Hons) Botany and Plant Science National university of Ireland, Galway, M.Sc. (Hons) Climate Change, Agriculture, and Food Security (MScCCAFS) National university of Ireland, Galway Kaleidoscope Pro Analysis (Wildlife Acoustics). Endoscope Training (Internal), Emergence and Re-Entry Surveys (Internal) Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal)
Mairead Kavanagh (B.Sc.) **2 years' experience**	Ecologist	B.Sc. (Hons) Botany and Plant Science National university of Ireland, Galway AASR and NIS for applications for clearfelling, reforestation, thinning, CCF, and forest road licenses. Experienced in the undertaking of impact assessments, evaluating scope, habitat and species identification, conducting project research, in-field surveys, data analysis and scientific report writing. Plant identification and fieldwork skills. Fossitt habitat identification, including habitat assessments in a forestry setting. Internal training Bat Detector and Survey Training (Internal), Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal), Emergence and Re-Entry Surveys (Internal).
Fiona Killeen (B.Sc.) **2 years' experience**	Ecologist	B.Sc. (Hons) Environmental Science, University of Galway, Ireland Internal training Bat Detector and Survey Training (Internal), Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal), Emergence and Re-Entry Surveys (Internal).

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2. METHODOLOGY

2.1 Desktop Study

A desktop review of published material was undertaken to inform all subsequent field studies and assessments. The aim of the desktop review was to identify the presence of species of interest within the site and surrounding region.

The following list describes the sources of data consulted:

- *Review of online web-mappers: National Parks and Wildlife Service (NPWS) mapping.*
- *Review of NPWS Article 17 Report.*
- *Review of the publicly available National Biodiversity Data Centre web-mappers.*
- *Review of specially requested records from the NPWS Rare and Protected Species Database for the hectads which overlap with the study area.*
- *Adopted Galway County Development Plan 2022-2028*
- *Galway City Development Plan 2023 -2029 – Appropriate Assessment*
- *BCI Database*
- *Review of NPWS Lesser Horseshoe Bat national dataset*

2.1.1 Bat Species' Range

EU member states are obliged to monitor the conservation status of natural habitats and species listed in the Annexes of the Habitats Directive. Under Article 17, they are required to report to the European Commission every six years. In April 2019, Ireland submitted the third assessment of conservation status for Annex-listed habitats and species, including all species of bats (NPWS, 2019).

The 2019 Article 17 Reports were reviewed for information on bat species' range and distribution in relation to the location of the EIAR Study Area.

2.1.2 National Bat Database of Ireland

The National Bat Database of Ireland and the National Lesser Horseshoe Bat Database holds records of bat observations received and maintained by Bat Conservation Ireland. These records include results of national monitoring schemes, roost records as well as ad-hoc observations. The database was searched for bat presence and roost records within a 10km radius of the EIAR Study Area, as well as general landscape suitability for bats.

2.1.3 Designated Sites

The potential for the proposed works to impact on sites that are designated for nature conservation is considered in separate Ecological Impact Assessment (EcIA) and Appropriate Assessment Screening (AASR) reports. Special Areas of Conservation (SACs) are designated under EU Habitats Directive. The European Sites that are within the Zone of Likely Impact, with bats identified as Qualifying Interests, are listed in Section 3.1.3 below.

Natural Heritage Areas (NHAs) are designated under the Wildlife (Amendment) Act 2000, and their management and protection is provided by this legislation and planning policy. Proposed Natural Heritage Areas (pNHAs) were designated on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. Any identified NHAs and pNHAs designated for the protection of bats are presented in Section 3.1.3 and potential for impacts was fully considered.

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2.1.4 Habitat and Landscape

2.1.4.1 Ordnance Survey Mapping

Ordnance survey maps (OSI 1:5,000 and 1: 50,000) and aerial imagery (ortho-based maps) were reviewed to identify any habitats and features likely to be used by bats. Maps and images of the site and general landscape were examined for suitable foraging, commuting or roosting habitats including woodlands and forestry, hedgerows, tree lines and watercourses.

2.1.4.2 Geological Survey Ireland

The Geological Survey Ireland (GSI) online mapping tool and University of Bristol Speleological Society (UBSS) Cave Database for the Republic of Ireland were consulted for any indication of natural subterranean bat sites, such as caves, within 10km of the proposed site (BCI, 2012) (last searched on the 13th March 2024).

2.1.4.3 National Monuments

The archaeological database of national monuments was reviewed for any evidence of manmade underground structures, e.g. souterrains, that may be used by bats (last searched on the 13th March 2024).

2.1.5 Previous Surveys

MKO reviewed any documentation of previous ecological assessments carried out in proximity to the site to inform the survey scope and determine what species composition and bat activity has been recorded in the wider area. A summary of relevant results from previous surveys is provided within the report.

2.2 Field Study

2.2.1 Bat Habitat Appraisal

The bat surveys described below cover the entire EIAR Study Area as shown in Figure 1-1. An initial bat habitat appraisal was undertaken by two surveyors in August 2023, using the since updated Collins (2016) guidelines. A second walkover survey of the EIAR Study Area was carried out during daylight hours on the 20th March 2024. All bat habitat assessments have since been updated to adhere to the current (Collins, 2023) guidance as a result of the 2024 survey. The landscape features on the site were visually assessed for potential use as bat roosting habitats and commuting/foraging habitats using a protocol set out in BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th edn.) (Collins, 2023). The aim of the survey was to identify suitable bat habitats within the site.

Table 4.1 of the 2023 BCT Guidelines identifies a grading protocol for assessing structures, as well as commuting/foraging habitat for bats, which is summarised in Table 2-1. The protocol is divided into five Suitability Categories: *High, Moderate, Low*, *Negligible and None*. Table 4.2 of the 2023 BCT Guidelines identifies a grading protocol to assess trees, which is divided into three Suitability Categories: NONE (No suitability), FAR (Further Assessment Required), and PRF (Potential Roosting Feature present). This initial tree grading protocol can inform a preliminary roost assessment (PRA) to determine the available tree-roosting resource within the site, depending on whether a PRF could accommodate a small number of bats (PRF-I) or a larger roost, including maternity roosts (PRF-M). More information on PRAs is provided below.

Table 2-1 BCT protocol for bat habitat appraisals (Collins, 2023)

Assessment	Rationale
High	Structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat. Continuous, high-quality, well-connected habitats, connected to known roosts.
Moderate	A structure used by bats due to their size, shelter, protection, conditions and surrounding habitat, but are unlikely to support a roost of high conservation status, and suitable, connected habitats.
Low	Structures with one or more potential roost sites that could be used by an individual bat opportunistically, and suitable but isolated habitats that could be used by a small number of bats.
Negligible	No obvious features present, but a level of uncertainty remains.
None	No habitat features likely to be used by roosting, foraging or commuting bats.

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2.2.1.1 Preliminary Roost Assessment

A search for roosts was undertaken within the EIAR Study Area by three licenced ecologists to inspect any structures and to identify any potential roost features (PRFs).

The western section of the site was initially visited in August 2023 and all structures present were subject to an interior inspection. The site was re-visited in March and August 2024 and May 2026. All structures identified within the site were again assessed for their potential to support roosting bats. A systematic search of all accessible interiors, including all attic spaces, was undertaken. The exterior of each building was inspected first from ground level and included all accessible windowsills, walls, eaves, roof ridge and roof slates. Inspections were carried out with the aid of torches, a ladder, an endoscope, a thermal camera and binoculars, and searched for evidence of bat use, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises, as well as potential access points into the structure.

The EIAR Study Area contains a number of trees isolated or within treeline habitats. Roosting suitability was assessed at feature level, and areas were marked in accordance to BCT Guidance (Collins, 2023) during the initial walkover surveys to inform need for further surveys and assessment.

Trees present within the site/within the Proposed Development footprint were examined from ground level for the presence of rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other PRFs identified by Andrews (2018).

Ten structures and fourteen trees were assessed and are described in Section 3.2.1 below.

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2.3 Bat Activity Surveys

2.3.1 Presence/Absence and Night Bat Walkover Surveys

Manual activity surveys included presence/absence surveys focusing on features identified as having potential for roosting bats, as well as night-time bat walkovers (NBW). For each of the surveys, surveyors were equipped with active full spectrum bat detectors, Batlogger M (Elekon AG, Lucerne, Switzerland). Where possible, species identification was made in the field and any other relevant information was also noted, e.g., numbers, behaviour, features used, etc. All bat echolocation was recorded for subsequent analysis to confirm species identifications, as detailed in Section 2.4. The survey effort is summarised in Table 2-2 and presented in Figure 2-1.

Table 2-2 Bat Activity survey effort

Date	Surveyors	Type	Sunrise/Sunset	Weather
03/08/2023	Ryan Connors & Laura Granicz	Roost Emergence & Walkover	22:43	15°C, Dry, Calm
24/04/2024	Laura McEntegert & Fiona Killeen	Night-time bat walkover	20:56	14°C, Dry, Calm
02/05/2024	David Culleton & Charlie Meehan	Roost Emergence	21:08	13°C, Drizzle, Calm
20/05/2024	David Culleton & Mairead Kavanagh	Roost Emergence	21:38	14-16°C, Dry, Light Breeze
06/06/2024	David Culleton & Kate Greaney	Night-time bat walkover	20:17	13°C, Dry, Light Breeze
03/07/2024	Laura McEntegert & Charlie Meehan	Roost Emergence	22:06	13°C, Dry, Light Breeze
04/09/2024	David Culleton & Kate Greaney	Roost Emergence	21:59	14°C, Dry, Light Breeze
11/05/2026	Deepali Mooloo Chandra Walters Jo Ruane	Roost Emergence	21:22	11 - 12°C; dry; calm - light breeze

2.3.1.1 Presence/Absence Surveys

Four structures identified during the bat habitat appraisal as having potential to host roosting bats were subject to presence/absence surveys in the form of dusk emergence surveys. Rationale for survey effort was based on guidelines proposed by Collins in Tables 7.1 and 7.2 (Collins, 2023).

Surveyors were located at various vantage points with a focus on potential access point and roosting features identified during the daylight walkover surveys. The purpose was to identify any bat species, numbers, access points and roosting locations within each the PRF structure. Night vision aids (NVAs), including a thermal camera and an infrared camera, aided the 2024 survey effort, as detailed below. Surveys were carried out in favourable weather conditions (Table 2-2). Roost emergence surveys commenced at least 15 minutes before sunset and concluded approximately 1.5 hours after sunset.

A dusk emergence survey was undertaken in May 2026 survey at the proposed structures to be demolished/modified, as part of the Proposed Development (i.e. Stone Shed 1 and Stone Shed 2). Three surveyors were present during the emergence survey. The aim of this survey was to identify bat species using the site and to gather any information on bat behaviour and important features used by bats. Bat activity was also monitored in the surrounding area. Surveyors were equipped with active full

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spectrum bat detectors, Batlogger M (Elekon AG, Lucerne, Switzerland). Surveyors were positioned surrounding the buildings with a clear view of the structures and associated linear features and habitats. Where possible, species identification was made in the field and any other relevant information was also noted, e.g. numbers, behaviour, features used, etc. The dusk survey commenced 15 minutes before sunset and was completed within 2 hours after sunset. Conditions were suitable for bat survey with no to light wind, dry and mild weather (see Table 2-2 for full details).

Night Vision Aids

The use of NVAs is now considered standard best practice for bat activity surveys. MKO employs thermal camera equipment (InfiRay Eye II V2.0 and Pixfra RANGER R625). The thermal camera, mounted on a tripod, was used during roost surveys to identify potential roosting hotspots and monitor emergence activity. The camera was fully monitored by a surveyor, who was equipped with a bat detector to record bat echolocation calls.

Footage from NVAs was saved and reviewed in office in full, with any instances of emergence marked for future use.

2.3.1.2 Night-time Bat Walkover

Manual activity surveys also comprised night-time bat walkovers at dusk, which were carried out on the 3rd August 2023, and on the 24th April and 6th June 2024. The aim of this survey was to observe bat species using the site and visually assess bat behaviour and important features used by bats within the site.

The walkovers were undertaken by two surveyors, recording bats in real time. Surveys commenced at sunset and were completed within 2 hours after sunset. Surveyors were equipped with one active full spectrum bat detector. The walkover routes were prepared with reference to the proposed layout, desktop and walkover survey results, as well as any health and safety considerations and access limitations. As such, they generally followed existing roads and tracks. The transect routes are presented in Figure 2-1.

2.3.2 Static Detectors Surveys

In 2023, five full spectrum SM4 bat detectors (Wildlife Acoustics, Maynard, MA, USA), were deployed during the main bat activity period to record bat activity for an extended period. The detectors were deployed on the 3rd August 2023 and collected on the 1st September 2023. The five locations of static detectors were selected to represent the range of habitats present within the areas of the site accessible at the time, and particularly suitable bat habitats. This data informed the scope for further survey effort in 2024.

In 2024, six full spectrum SM4 bat detectors were deployed across the site. Detectors were deployed on the 2nd of May 2024 and collected on the 20th May 2024. They were deployed in the same six locations on the 3rd July 2024 and collected on the 30th July 2024. The detector locations were spread out across the site, including areas not previously surveyed in 2023, and covered a range of seasons i.e. spring, summer, autumn.

Settings used were those recommended by the manufacturer for bats, with minor adjustments in gain settings and band pass filters to reduce background noise when recording. Detectors were set to record from 30 minutes before sunset until 30 minutes after sunrise. The Song Meter automatically adjusts sunset and sunrise times using the Solar Calculation Method when provided with GPS coordinates. Static detector locations are shown in Figure 2-1 and presented in Table 2-3.

Table 2-3 Static Detector Locations

Year	Detector ID	IG Reference	Habitat
2024	D01	M 26867 24816	Scrub
	D02	M 26822 24685	Hedgerow
	D03	M 26789 24589	Treeline, Scrub
	D04	M 26625 24463	Treeline, Stone wall
	D05	M 26638 24656	Stone wall, Hedgerow
	D06	M 26627 24765	Stone wall, Hedgerow
2023	D01A	M 26623 24467	Treeline
	D02A	M 26822 24691	Stone wall, Treeline
	D06A	M 26626 24760	Scrub, Stone wall
	D07A	M 26754 24793	Spoil
	D08A	M 26785 24962	Treeline, Stone wall

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2.4 Bat Call Analysis

All recordings were later analysed using bat call analysis software Kaleidoscope Pro v.5.6.8 (Wildlife Acoustics, MA, USA). The aim of this was to identify, to a species or genus level, what bats were present within the EIAR Study Area. Bat species were identified using established call parameters, to create site-specific custom classifiers. All identified calls were also manually verified.

Echolocation signal characteristics (including signal shape, peak frequency of maximum energy, signal slope, pulse duration, start frequency, end frequency, pulse bandwidth, inter-pulse interval and power spectra) were compared to published signal characteristics for local bat species (Russ, 1999). *Myotis* species (potentially Daubenton's bat *(M. daubentonii),* Whiskered bat *(M. mystacinus),* Natterer's bat *(M. nattereri)*) were considered as a single group, due to the difficulty in distinguishing them based on echolocation parameters alone (Russ, 1999). The echolocation of Soprano pipistrelle *(P. pygmaeus)* and Common pipistrelle *(P. pipistrellus)* are distinguished by having distinct (peak frequency of maximum energy in search flight) peak frequencies of ~55 kHz and ~46 kHz respectively (Jones & van Parijs, 1993). Some overlapping is possible between these species: where no certainty could be achieved, calls were identified to genus level.

Individual bats of the same species cannot be distinguished by their echolocation alone. Thus, 'bat passes' was used as a measure of activity (Collins, 2023). A bat pass was defined as a recording of an individual species/species group's echolocation containing at least two echolocation pulses and of maximum 15s duration. All bat passes recorded in the course of this study follow these criteria, allowing comparison. Due to the volume of bat activity data recorded, where multiple bat passes were recorded within the same registration, rarer or harder to record species were identified. Underreporting of common species is possible using this method, and is accounted for within the assessment.

Echolocation calls by Brown long-eared bats (*Plecotus auritus*) are intrinsically quiet and hard to record by static equipment. All data collected, including Noise files and Auto ID files are checked to ensure all calls for this species have been captured. However, a level of underrepresentation is expected for this species and is accounted for in the assessment of activity levels.

Echolocation by Lesser horseshoe bats (*Rhinolophus hipposideros*) is directional and can be missed by detectors, particularly manual detectors. MKO employs omni-directional microphones to limit under-recording for the species.

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2.5 Assessment of Bat Activity Levels

The online database tool Ecobat (mammal.org.uk) is recommended by Collins to assess bat activity levels within a site. This web-based interface, launched in August 2016, allows users to upload activity data and to contrast results with a comparable reference range, allowing objective interpretation. Uploaded data then contributes to the overall dataset to provide increasingly robust outputs. Ecobat generates a percentile rank for each night of activity and provides a numerical way of interpreting levels of bat activity in order to provide objective and consistent assessments.).

Ecobat was unavailable for a cross-site analysis of static data as the platform has been undergoing maintenance since late 2022 with no proposed timeline of a relaunch. Therefore, activity levels were assessed based on professional experience gained from performing bat surveys in a wide variety of Irish habitats.

All statistical analyses and graphical representations in this report were conducted using R (version 4.3.2), and RStudio (Version 2024.09.+375.). R is a powerful statistical programming language and provided the framework for data manipulation and statistical testing. To allow this, data were standardised into bat passes per hour. RStudio, as an integrated development environment for R, facilitated efficient coding, visualization, and reproducibility. The 'ggplot2' package in R was particularly instrumental in creating the detailed graphs presented in the results section.



Map Legend

- Planning application (red line) boundary
- LRD East boundary
- EIAR Study Area Boundary
- Inspected buildings
- Transect Route 03.08.2023
- Transect Route 24.04.2024
- Transect Route 06.06.2024

Static Detectors

- 2023
- 2024

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Drawing Title: Survey Effort

Project Title: Kingston Knocknacarra LRD West

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Scale	Date
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3. RESULTS

3.1 Desktop Study

3.1.1 Galway City Development Plan 2023 -2029

The Galway City development plan 2023-2029 – Appropriate Assessment was searched for references specific to the protection of bats. The objective in the following Table 3-1 was found.

Table 3-1 Galway City Development plan 2023 – 2029 – Appropriate Assessment

Policies and Objectives	Background recommendation	Recommendation
Policy 9.7.1 - Light Pollution	Lighting: Ensure that new developments meet the most up-to-date standards provided for lighting measures, including inclusion of dark zones, and sensor lighting and warmer spectrum lights. Bats and Lighting: Guidance Notes for: Planners, engineers, architects and developers (Bat Conservation Ireland, 2010) incorporates details of suitable lighting designs. Lighting on linear infrastructures can lead to disturbance or disruption along the route of an important ecological corridors, such as hedgerows and watercourses. Greenways and blue spaces often make amenity use of such linear features, and as such lighting should be carefully managed to ensure coherence of the supporting habitats of European sites, as outlined in Article 10 of the Habitats Directive.	Recommendation: Ensure the design of **external lighting minimises the incidence of light pollution, glare and spillage into the surrounding environment** and has due regard to the visual and residential amenities of surrounding areas and is so designed to mitigate adverse impacts on wildlife and ecosystems. Inclusion of **dark zones and sensor lighting** should be included where feasible. Lighting on linear infrastructures, including greenways and blueways, should be carefully managed to ensure the ecological coherence of the Natura 2000 network in accordance with Article 10 of the Habitats Directive.

3.1.2 Galway Co. Development Plan – 2022-2028

The adopted Galway County Development Plan was searched for references specific to the protection of bats. The following objective was found:

NHB 9 Protection of Bats and Bats Habitats
Seek to protect bats and their roosts, their feeding areas, flight paths and commuting routes. Ensure that development proposals in areas which are potentially important for bats, including areas of woodland, linear features such as hedgerows, stonewalls, watercourses and associated riparian vegetation which may provide migratory/foraging uses shall be subject to suitable assessment for potential impacts on bats. This will include an assessment of the cumulative loss of habitat or the impact on bat populations and activity in the area and may include a specific bat survey. Assessments shall be carried out by a suitably qualified professional and where development is likely to result in significant adverse effects on bat populations or activity in the area, development will be prohibited or require mitigation and/or compensatory measures, as appropriate. The impact of lighting on bats and their roosts and the lighting

up of objects of cultural heritage must be adequately assessed in relation to new developments and the upgrading of existing lighting systems.

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3.1.3 Bat Species' Range

The EIAR Study Area is within the range for all resident bat species in Ireland, as mapped in the Article 17 reporting.

3.1.4 National Bat Database of Ireland

A review of the National Bat Database of Ireland and National Lesser Horseshoe Bat Database on the 2nd July 2026 yielded results of bats within a 10km hectad of the EIAR Study Area. The search yielded 7 bat species within 10km. Table 3-1 lists the bat species recorded within the hectad which pertains to the proposed works site (M22).

A review of the NBDC bat landscape map provided a habitat suitability index of 37.44 (red). This indicates that the area within which the EIAR Study Area is located has high habitat suitability for bat species.

Table 3-2 NBDC Bat Records

Hectad	Species	Date of last record	Database	Status
M22	Brandt's bat (*Myotis brandtii*)	24/09/2015	National Bat Database of Ireland	Annex IV
M22	Brown Long-eared Bat (*Plecotus auritus*)	14/08/2021	National Bat Database of Ireland	Annex IV
M22	Daubenton's Bat (*Myotis daubentonii*)	23/08/2021	National Bat Database of Ireland	Annex IV
M22	Lesser Horseshoe Bat (*Rhinolophus hipposideros*)	02/06/2021	National Lesser Horseshoe Bat Database	Annex II, Annex IV
M22	Lesser Noctule (*Nyctalus leisleri*)	20/09/2022	Ireland's BioBlitz	Annex IV
M22	Natterer's Bat (*Myotis nattereri*)	11/08/2021	National Bat Database of Ireland	Annex IV
M22	Nathusius'pipistrelle (*Pipistrellus nathusii*)	30/05/2021	National Bat Database of Ireland	Annex IV
M22	Pipistrelle (*Pipistrellus pipistrellus* sensu lato)	15/09/2021	Ireland's BioBlitz	Annex IV
M22	Soprano Pipistrelle (*Pipistrellus pygmaeus*)	20/09/2022	Ireland's BioBlitz	Annex IV

3.1.5 Designated Sites

Within Ireland, the lesser horseshoe bat is the only bat species requiring the designation of Special Areas of Conservation (SACs). The EIAR Study Area is situated within the current known range for this species and there is one SAC designated for its protection within 10km of the EIAR Study Area. However, the roost for which the SAC is designated is located 33km away from the site (Table 3-3).

Table 3-3 Special Areas of Conservation within 10km designated for bats

Designated Site	Distance to Site	Approx. distance to the roost of the designated species	Species
Lough Corrib SAC	2.7km	33km	Lesser horseshoe bat

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One Natural Heritage Areas (NHAs), or proposed NHAs, designated for the protection of bats were identified within 10km of the EIAR Study Area (Table 3-4).

Table 3-4 European and National and proposed National Sites Designated to Bats

Designated Site	Distance to Site	Species	Roost Type
Killarainy Lodge, Moycullen	9.2km	Natterer's bat	Maternity

3.1.6 Habitat and Landscape

A review of mapping and photographs provided insight into the habitats and landscape features present within the EIAR Study Area. In summary, the primary land use within the EIAR Study Area is agriculture and animal husbandry.

A review of the GSI online mapper did not indicate the possible presence of any subterranean sites within the EIAR Study Area and a search of the National Monuments Database did not reveal the presence of any manmade subterranean sites within the EIAR Study Area.

A search of the UBSS Cave Database for the Republic of Ireland found three caves within 10km of the study area (Table 3-5).

Table 3-5 Caves within 10km of the EIAR Study Area

Name	Distance to Site	Description
Terryland/Coole's cave	2.9km	10m passage to collapsed chamber
Cooper's Cave	5.7km	3x1m opening to cave. Identified Lesser Horseshoe roost
Newry hole	6.8km	Chamber with calcite and pool

No national monuments are reported within the site.

3.1.6.1 Menlo Castle Restoration Project (2022)

Menlo Castle is a protected structure located approximately 3.5km from the EIAR Study Area, in the outskirts of Galway City. Regular monitoring has been conducted on Menlo Castle to record the number of roosting bats since the discovery of a lesser horseshoe bat maternity roost in 2000. Surveys have been conducted by consultants (including MKO) and the NPWS. A summary of results of previous surveys MKO conducted, along with surveys detailed in public reports are shown in Table 3-6.

Table 3-6 Number of species recorded roosting in Menlo Castle per survey year.

Year	Maximum count of roosting bats
2024	13 Lesser horseshoe bat
2023	6 Lesser horseshoe bat
2022	37 Lesser horseshoe bat 4 Soprano pipistrelles
2021	34 Lesser horseshoe bat
2018	20 Lesser horseshoe bat
2017	43 Lesser horseshoe bat
2016	35 Lesser horseshoe bat
2015	32 Lesser horseshoe bat
2014	35 Lesser horseshoe bat
2012	27 Lesser horseshoe bat
2009	38 Lesser horseshoe bat
2006	2 Lesser horseshoe bat
2005	5 – 10 Lesser horseshoe bat
2000	12+ Lesser horseshoe bat 20 Daubenton's bat 20+ Brown long-eared bat <30 Natterer's bat 1 Soprano pipistrelle

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3.1.7 Other Surveys

As part of the masterplan, surveys were conducted on a derelict bungalow located outside the southern boundary of the EIAR Study Area (IG Ref: M 26693 24436). Access was not granted for an interior inspection in 2023, but the structure was inspected in 2024. No evidence of roosting bats was found within structure during the interior inspection on 20th March 2024, however a small number of gaps potentially suitable for crevice dwelling bats was identified (Plate 3-29). It was assigned a *Low* roosting potential. Two Soprano pipistrelles were observed emerging from the structure during surveys in 2023. A demolition proposal for the bungalow has been granted in 2021 as part of a previous planning application. A derogation licence to remove the roost has been granted by NPWS on 25th April 2024 (DER-BAT-2024-103).

3.1.8 Conclusion of the Desktop Study

The desktop study has provided information about the existing bat activity up to 10km around the EIAR Study Area. The existing records showed the presence of nine bat species in the area including notably the Brandt's bat recorded in 2015 according to the NBDC records. The species is considered vagrant in Ireland. The lesser horseshoe bat was also present in the existing records.

Lough Corrib SAC is the only designated site for lesser horseshoe bat within the Zone of Influence of the EIAR Study Area. The EIAR Study Area is not within the core 2.5km foraging range of the roost for which the SAC is designated. The site is located within 3.3km of the lesser horseshoe bat populations recorded at Menlo castle and is therefore outside of the core foraging range of the species. Menlo castle not designated as an SAC; however, the population of lesser horseshoe bats associated with this roost are considered of National Importance.

3.2 Field Surveys

3.2.1 Bat Habitat Appraisal

The EIAR Study Area consists primarily of recolonising bare ground, scrub, grassland and buildings and artificial surfaces. Treelines and hedgerows are also present at each boundary, and throughout the

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southern section of the site. A detailed description of the habitats located onsite are presented in the Biodiversity Chapter of the accompanying Environmental Impact Assessment Report (EIAR).

With regard to foraging and commuting bats, the site is considered of *Moderate* suitability due to the large amount of scrub habitat, current lack of artificial lighting, access to roosting resources and network of treelines and hedgerows throughout the site. However, there is low habitat diversity and lack of connectivity to the wider landscape. Built and open areas, such as building yards and open grassland are considered of *Low* suitability; however, they are usually surrounded by linear habitats and do not limit connectivity within the site.

With regard to roosting bats, trees which include mature deciduous trees present some suitable roosting spaces for bats, in varying capacity. Where trees are proposed for felling, they were subject to a roost inspection which is described below. In general, habitats within the site were assessed as having *Low* suitability to host roosting bats. Structures on site contain multiple access points and potential roosting features with varying levels of suitability and are assessed further below.

3.2.1.1 Preliminary Roost Assessment

3.2.1.1.1 *PRF Structures*

Ten structures were identified as part of the roost assessment effort. Each building was subjected to an interior inspection, to detect potential evidence of bat use. The majority of the buildings are located in close proximity to each other, within a farmyard located in the centre of the EIAR Study Area. The locations of the buildings are shown in Figure 3-1.

Stone Shed 1

Stone Shed 1 is a derelict old stone dwelling with a corrugated roof located within the farmyard (IG Ref: M 26647 24686) (Plate 3-1). Multiple potential access points were identified within crevices in the stone walls, and in gaps in the roof and doorways (Plate 3-2). Evidence of feeding remains in the form of butterfly wings were found within the structure (Plate 3-3, Plate 3-4). It was assigned a *Moderate* roosting potential. The shed was subject to a dusk emergence survey on the 2nd of May and 4th September 2024 and the 11th May 2026, as detailed in Section 3.3. This structure is contained within the boundary of the Proposed Development site and will be affected by the proposed works.



Plate 3-1 Stone Shed 1 northern aspect



Plate 3-2 Access through the window



Plate 3-3 Feeding remains within Stone Shed 1



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Plate 3-4 Stone Shed 1 interior

Stone Shed 2

Stone Shed 2 is a derelict stone shed with a partially collapsed asbestos roof located to the southwest of Stone Shed 1 (IG Ref: M 26631 24667) (Plate 3-5 and 3-6). No evidence of roosting bats was found within the derelict shed during the inspection, however numerous potential access points and a number of gaps suitable for crevice dwelling bats were identified (Plate 3-7, Plate 3-8). Thus, it was assigned a *Moderate* roosting potential. The shed was subject to a dusk emergence survey on the 20th May and 3rd of July 2024 and 11th May 2026, as detailed in Section 3.3. This structure is contained within the boundary of the Proposed Development site and will be affected by the proposed works.



Plate 3-5 Stone Shed 2 northern aspect



Plate 3-6 Stone Shed 2 southern aspect



Plate 3-7 Stone Shed 2 interior



Plate 3-8 Large crack in interior stonework

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Stone Shed 3

Stone Shed 3 is a plastered stone stable building with a corrugated roof southeast of Stone Shed 1 (IG Ref: M 26654 24678) (Plate 3-9, Plate 3-10, Plate 3-11). Gaps in the doors and a large crack in the north-facing wall provide potential access for bats to the interior (Plate 3-12). No evidence of roosting bats was found within the derelict shed during the inspection, and little roosting potential was identified. Therefore, it was assigned a *Low* roosting potential. The shed was subject to a dusk emergence survey on 2nd of May and 4th September 2024, as detailed in Section 3.3. This structure is contained within the boundary of the Proposed Development site and will be affected by the proposed works.

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Plate 3-9 Stone Shed 3, southern aspect



Plate 3-10 Stone Shed 3, northern aspect



Plate 3-11 Stone Shed 3, interior



Plate 3-12 Large crack in stonework on northern wall

Large Shed

The Large Shed is a farm building currently used for storage and machinery (IG Ref: M 26680 24691) (Plate 3-13). The structure is located beyond the Proposed Development site boundary. It will be demolished as part of the adjacent proposed LRD East development (GCC Planning Ref. 25/60320; ACP Ref.-ACP 324237-26). No evidence of roosting bats was found within the structure during the inspection. Multiple potential access points were identified but no roosting features were present. It was therefore assigned a *Negligible* roosting potential.



Plate 3-13 Large Shed, western aspect



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Plate 3-14 Large Shed, interior

Shed

The Shed is a newly built, uninsulated concrete structure used for livestock and storage (IG Ref: M 26679 24676). The structure is open at the southern side, and has a corrugated roof (Plate 3-15 below). No evidence of roosting bats was found within during the inspection. It was therefore assigned a *Negligible* roosting potential. The structure is located beyond the Proposed Development site boundary. It will be demolished as part of the adjacent proposed LRD East development (GCC Planning Ref. 25/60320; ACP Ref.-ACP 324237-26).

Stables

The Stables are a newly built concrete structure with a corrugated iron roof located to the north of the Large Shed (IG Ref: M 26675 24699) (Plate 3-16 below). No evidence of roosting bats was found within the Stables, and no potential roost features were identified during the inspection. It was assigned a *Negligible* roosting potential. The structure is located beyond the Proposed Development site boundary. It will be demolished as part of the adjacent proposed LRD East development (GCC Planning Ref. 25/60320; ACP Ref.-ACP 324237-26).

Small Steel Shed

The Small Steel Shed is a newly constructed corrugated steel structure (IG Ref: M 26652 24660) (Plate 3-17 below). No evidence of roosting bats was found within the derelict shed. It was assigned a *Negligible* roosting potential. This structure is contained within the boundary of the Proposed Development site and will be demolished to facilitate the proposed works.



Plate 3-15 Shed, southern aspect



Plate 3-16 Stables, southern aspect

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Plate 3-17 Small Steel Shed, northern aspect

Lean-to Shed

The Lean-to Shed is a corrugated iron shed that is connected to a stone wall on its south and eastern sides (IG Ref: M 26659 24665) (Plate 3-18). The north face of the structure is completely open (Plate 3-19). Interior roof felt provides roosting potential within this structure (Plate 3-20), though no evidence of roosting bats was found. It was assigned a *Low* roosting potential. The Lean-to shed was subject to a dusk emergence survey on 3rd July of 2024. This structure is contained within the boundary of the Proposed Development site and will be demolished to facilitate the proposed works.



Plate 3-18 Northern aspect of lean-to shed



Plate 3-19 Lean-to shed interior

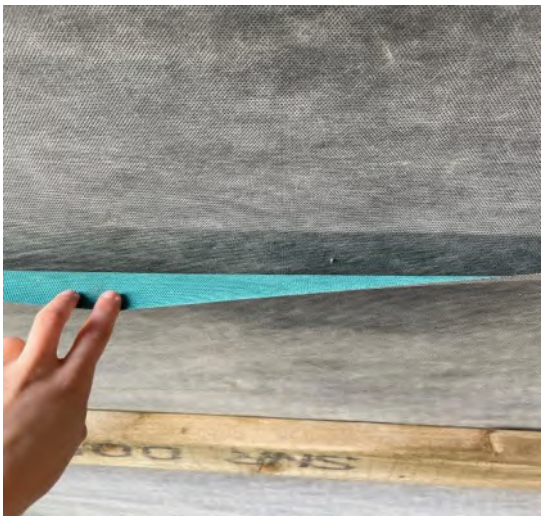


Plate 3-20 Interior roof felt



Plate 3-21 Gaps under corrugated roof

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Occupied House

The Occupied House (Plate 3-22 and 3-23) is located in the centre of the EIAR Study area and outside the Proposed Development site boundary (IG Ref: M 26662 24635). The structure was inspected on the 20th August 2024. The roof of the structure has been newly renovated and the attic is currently in use (Plate 3-25). No evidence of roosting bats was found within the house and no access points for roosting bats were identified during the inspection. It was therefore assigned a *Negligible* roosting potential.



Plate 3-22 Occupied House, northern aspect



Plate 3-23 Occupied house, southwest aspect



Plate 3-24 Attic interior



Plate 3-25 Attic interior

3.2.1.1.2 PRF Trees

The site comprised a network of treelines and hedgerows bordering existing tracks and roads, as well as agricultural grassland. Deciduous trees identified throughout the Proposed Development boundary and EIAR Study Area were assessed for their potential to host roosting bats. The majority of linear features comprised hedgerows with sparse, immature trees with no potential roosting features. 14 trees were identified as having suitable Potential Roosting Features. Those trees identified as having suitable PRFs were further inspected to determine whether bats were present. Details of the assessment are presented in Table 3-5, with pictures in Plate 26. The location of the trees assessed is presented in Figure 3-1.

Table 3-7 Tree inspection results

#	Species	Potential	Notes	Inspection Results	IG Ref	Plate
1	*Fagus* sp.	PRF-I	Single mature tree along a hedgerow, some ivy cover.	No evidence	M 26726 24670	3-26-1
2	*Acer* sp.	PRF-I	Mature tree with vertical crack.	No evidence	M 26774 24669	3-26-2
3	*Fraxinus* sp.	PRF-I	Mature tree with heavy ivy cover.	No evidence	M 26679 24756	3-26-3

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4	*Fraxinus* sp.	PRF-I	Mature tree with rot hole and ivy cover.	No evidence	M 26689 24749	3-26-4
5	*Crataegus* sp.	PRF-I	Some ivy cover.	No evidence	M 26673 24744	3-26-5
6	*Fraxinus* sp.	PRF-I	Broken limbs.	No evidence	M 26668 24732	3-26-6
7	*Fraxinus* sp.	PRF-I	Light ivy cover.	No evidence	M 26660 24720	3-26-7
8	*Fraxinus* sp.	PRF-I	Ivy cover.	No evidence	M 26639 24703	3-26-8
9	*Fraxinus* sp.	PRF-I	Multiple pruning cuts and rot holes.	No evidence	M 26637 24659	3-26-9
10	*Fraxinus* sp.	PRF-I	Mature tree with potential features including rot holes and broken limbs.	No evidence	M 26641 24657	3-26-10
11	*Crataegus* sp.	PRF-I	Mature tree.	No evidence	M 26576 24656	3-26-11
12	*Fraxinus* sp.	PRF-I	Mature tree with shallow cracks.	No evidence	M 26572 24646	3-26-12
13	*Fraxinus* sp.	PRF-I	Small, shallow crack	No evidence	M 26583 24569	3-26-13
14	*Fraxinus sp.*	PRF-I	Some ivy cover.	No evidence	M 26969 24864	3-26-14



Tree # 1



Tree # 2



Tree # 3







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Tree # 4



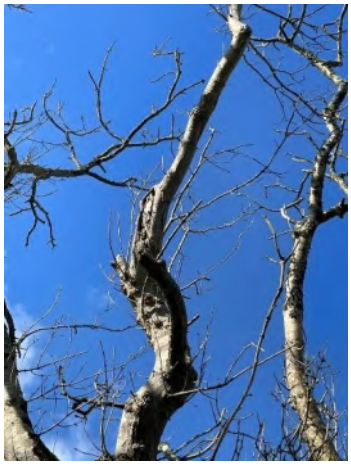
Tree # 5



Tree # 6



Tree # 7



Tree # 8



Tree # 9



Tree # 10



Tree # 11

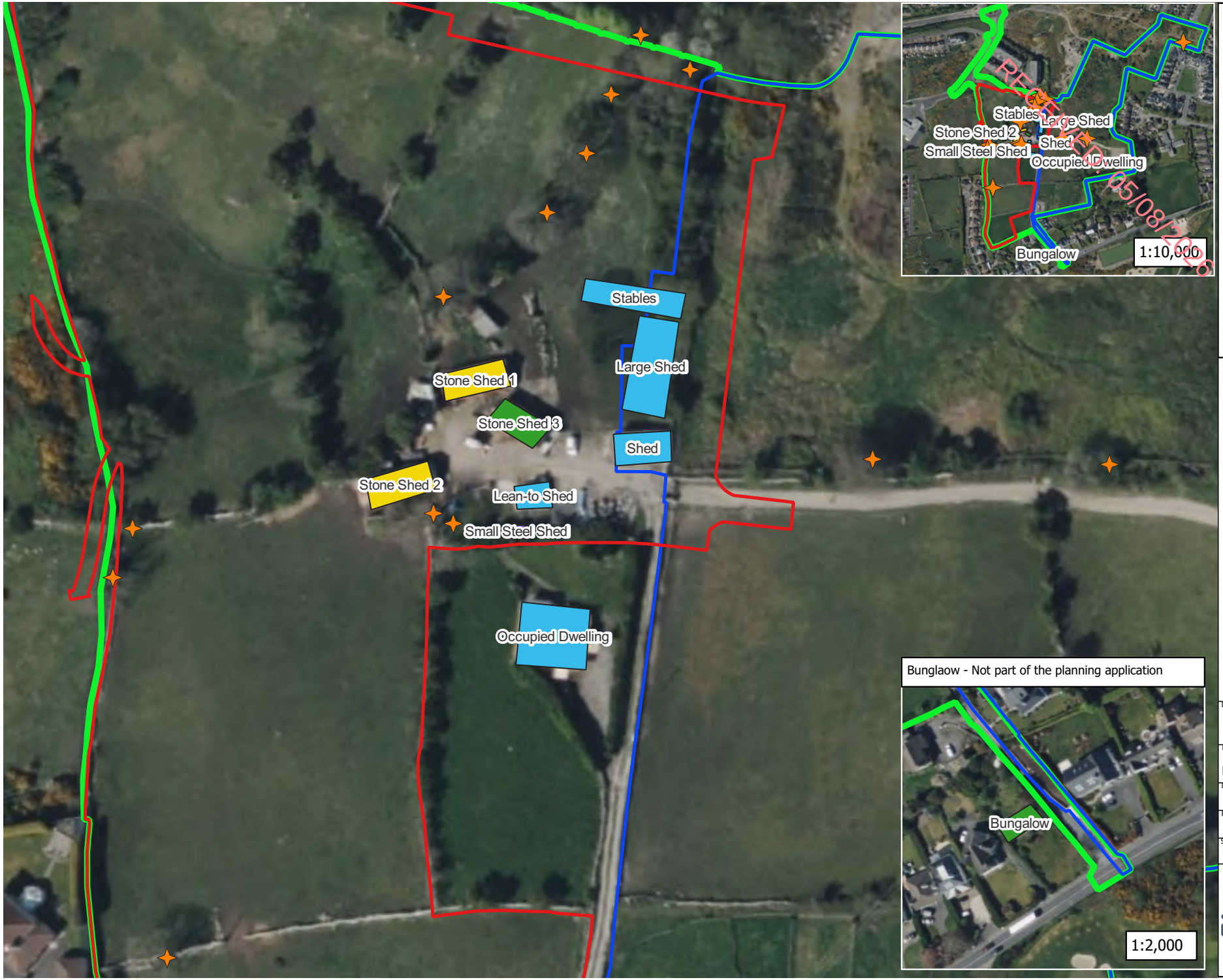


Tree # 12

Tree # 13

Tree # 14

Plate 3-26 Trees within the study area.



Bunglaow - Not part of the planning application

Map Legend

- Planning application (red line) boundary
- LRD East boundary
- EIAR Study Area Boundary
- Trees assessed as PRF-I

Buildings Suitability

- Low
- Moderate
- Negligible
- None

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Drawing Title: Roost assessment

Project Title: Kingston Knocknacarra LRD West

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NS	SF
Project No.	Drawing No.
251145	Fig 3-1
Scale	Date
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3.2.2 Bat Activity Surveys

3.2.2.1 Manual Surveys

3.2.2.1.1 *Presence/Absence Surveys*

Nine structures with roosting potential were identified within the EIAR Study Area during surveys carried out at early design stages. Four of the structures within the EIAR Study Area with roosting potential were subjected to dusk emergence surveys. In addition, one structure with a confirmed roost located outside the EIAR Study Area was assessed. Table 3-6 summarises the results of the completed dusk surveys. Individual surveys are described below.

Table 3-8 Dusk emergence surveys at PRFs.

PRF	Suitability	IG Ref.	Date	Results
Stone Shed 1	Moderate	M 26647 24686	2nd May 2024	No emerging bats
			4th September 2024	4 Soprano pipistrelles observed emerging.
			11th May 2026	No emerging bats
Stone Shed 2	Moderate	M 26630 24667	20th May 2024	1 Soprano pipistrelle observed emerging
			3rd July 2024	No roosting bats.
			11th May 2026	No emerging bats
Lean-to shed	Low	M 26658 24665	3rd July 2024	No roosting bats.
Stone Shed 3	Low	M 26656 24677	2nd May 2024	No roosting bats.
			4th September 2024	No roosting bats.
Bungalow (outside of the site boundary)	Low	M 26694 24436	3rd August 2023	2 soprano pipistrelles emerging

Stone Shed 1

During the first presence/absence survey, a low level of soprano and common pipistrelle foraging activity was recorded in the mature trees to the north of the structure but no bats were observed emerging from the structure during either of the surveys. During the second presence/absence survey, four soprano pipistrelles were observed emerging from the structure. Three individuals emerged from the southern aspect, while one emerged from a gap between the roof and stone wall at the northern side. During the survey, constant foraging activity was recorded in the trees to the north. During the 2026 duck emergence survey no emerging bats were recorded.

Stone Shed 2

One bat was observed emerging from the structure during the 20th May emergence survey. There was foraging activity along the treeline to the west of the structure. No bats emerged from the structure during the second survey on the 3rd of July. Some low foraging and commuting pipistrelle activity was recorded from the southeast, flying towards the north and west. During the 2026 duck emergence survey no emerging bats were recorded.

Stone Shed 3

No bats were observed emerging from the structure during either of the surveys.

Lean-to shed

No bats were observed emerging from the structure during the survey.

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Bungalow

The structure is not part of the planning application. Two soprano pipistrelles were observed emerging from the structure. The roost is likely opportunistic.

3.2.2.1.2 *Night-time Bat Walkovers*

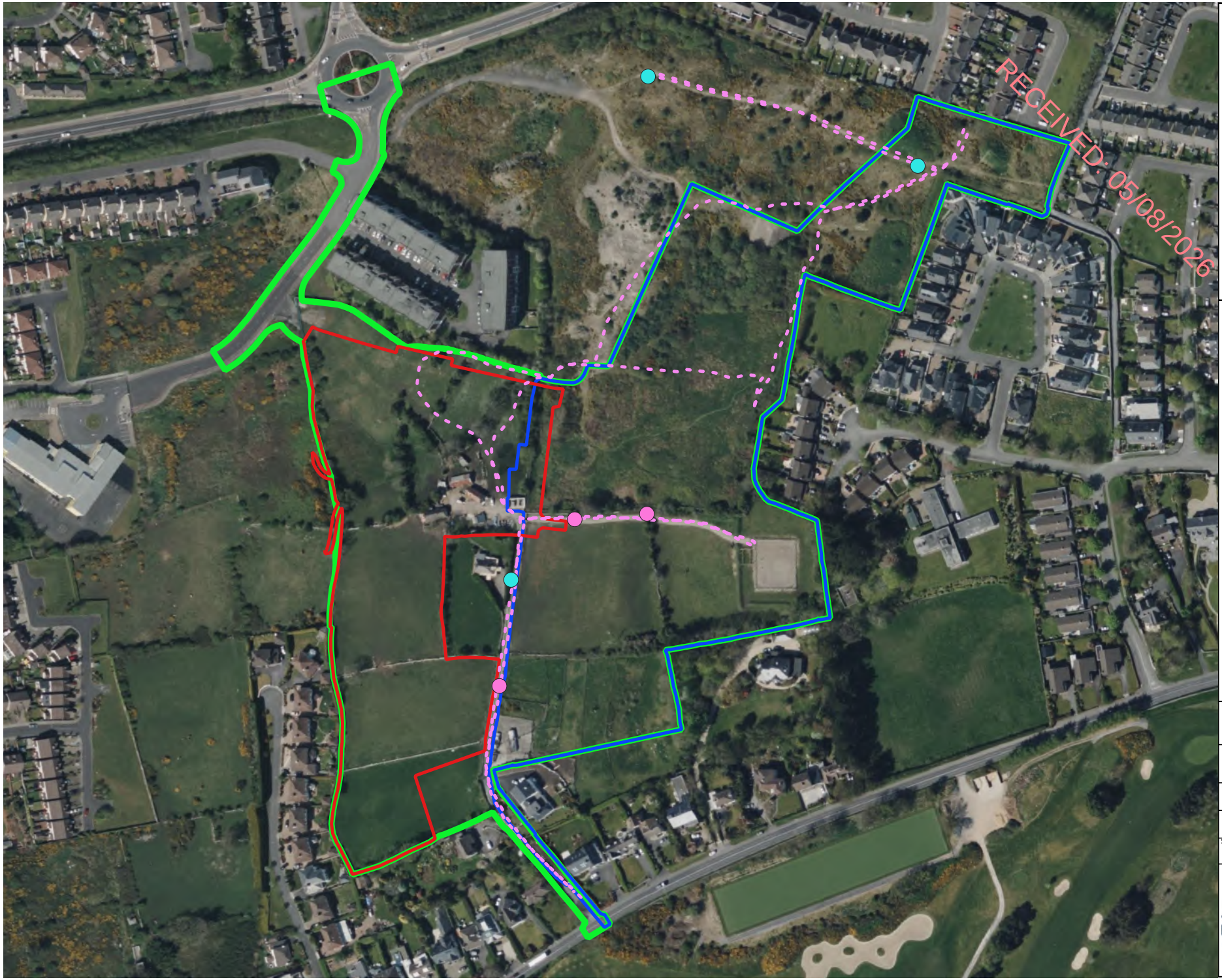
Manual activity surveys also comprised night-time bat walkovers at dusk. The survey effort for both 2023 and 2024 is presented in Table 3-7 below.

Table 3-9 Night Walkover survey results

Date	Km	Common pipistrelle	Soprano pipistrelle	Leisler's bat
03/08/2023	2.2km	3	3	-
24/04/2024	2.4km	39	64	4
06/06/2024	3.1km	2	24	1

Walkover surveys focused on the use of linear features and other habitats within the site by bats. The April survey included the northern section of the EIAR Study Area, while the June survey was undertaken within the central and southern area of the EIAR Study Area. Bat activity was dominated by soprano pipistrelles, with most of this taking place along the mature treeline outside of the eastern border of the EIAR Study Area. Common pipistrelle and Leisler's bats were also recorded to a lesser extent.

Figure 3-2 to Figure 3-4 present the spatial distribution of bat activity across the presence/absence and night walkover surveys.



Map Legend

- Planning application (red line) boundary
- LRD East boundary
- EIAR Study Area Boundary
- Transect Route 03.08.2023

Species Results

- Common pipistrelle
- Soprano pipistrelle

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N

Drawing Title
Manual transect results
3rd of August 2023

Project Title
Kingston Knocknacarra LRD West

Drawn By	Checked By
NS	CK
Project No.	Drawing No.
251145	Fig 3-2
Scale	Date
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Map Legend

- Planning application (red line) boundary
- LRD East boundary
- EIAR Study Area Boundary
- Transect Route 24.04.2024

Species Results

- Leisler's bat
- Common pipistrelle
- Soprano pipistrelle

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N

Drawing Title
Manual transect results
24th of April 2024

Project Title
Kingston Knocknacarra LRD West

Drawn By	Checked By
NS	CK
Project No.	Drawing No.
251145	Fig 3-3
Scale	Date
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Map Legend

- Planning application (red line) boundary
- LRD East boundary
- EIAR Study Area Boundary
- Transect Route 06.06.2024

Species Results

- Leisler's bat
- Common pipistrelle
- Soprano pipistrelle

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N

Drawing Title
Manual transect results
6th of June 2024

Project Title
Kingston Knocknacarra LRD West

Drawn By	Checked By
NS	CK
Project No.	Drawing No.
251145	Fig 3-4
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3.2.2.2 Static Detectors Surveys

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In total 67,852 bat passes were recorded across 2023 and 2024 surveys. Analysis of the detector recordings positively identified six bats to species level with *Myotis* genus also present. Soprano pipistrelle (*Pipistrellus pygmaeus*) made up the vast majority of the activity recorded within the site (n=47,469), followed by common pipistrelle (*Pipistrellus pipistrellus*) (n=14,665). Leisler's bat *(Nyctalus leisleri*) (n=4,016) and brown long-eared bat (*Plecotus auritus*) (n=1,525). *Myotis* spp. (n=137) and Nathusius' pipistrelle (*Pipistrellus nathusii*) (n=40). No instances of lesser horseshoe bat were recorded at the site. Plate 3-27 shows total bat species composition recorded at the site.

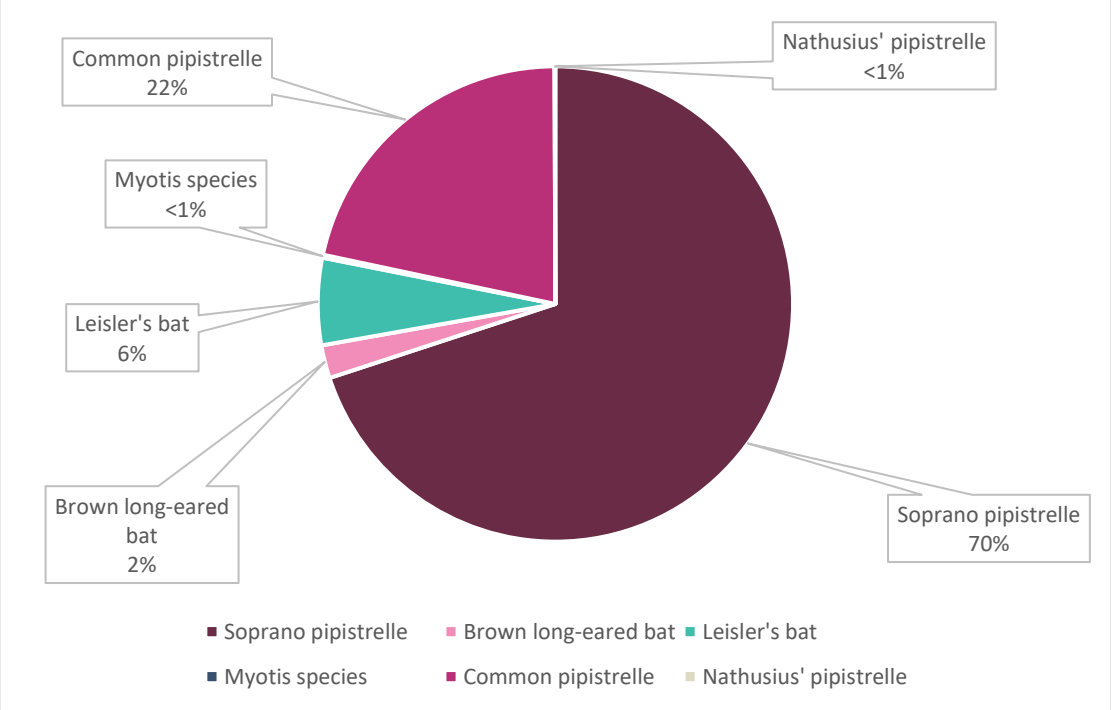
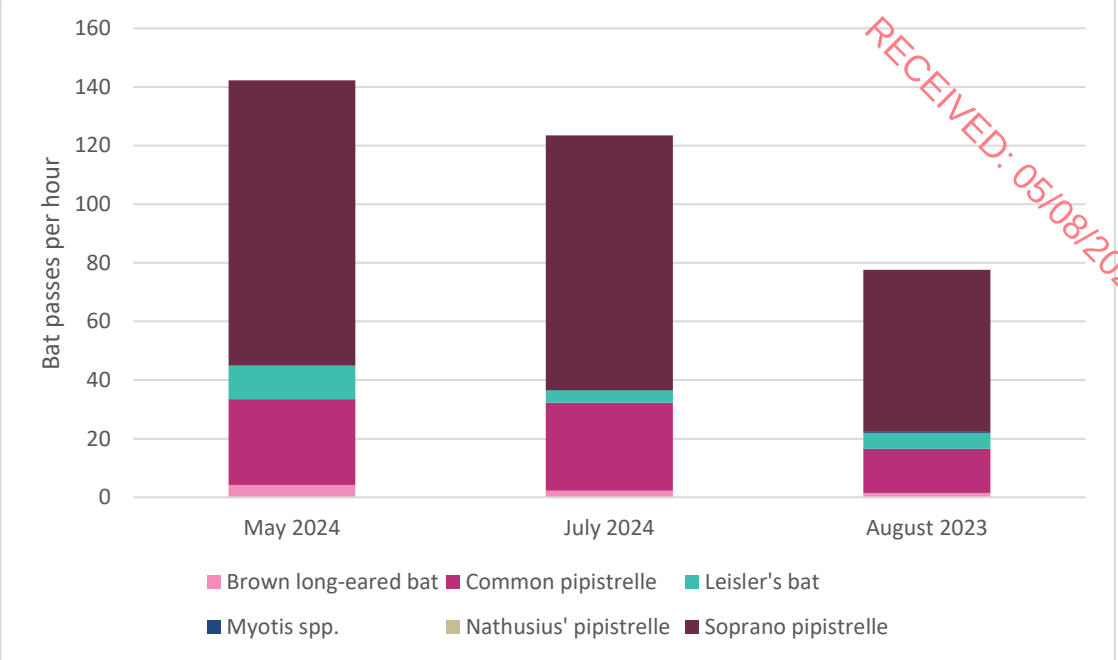


Plate 3-27 Total bat species composition

Plate 3-28 shows total bat passes per hour, per species per season. Overall bat activity was lowest during August 2023. However, while *Myotis* spp. and Nathusius' pipistrelle activity was low overall, the majority of their activity occurred during the August period. May and July 2024 recorded similar activity and species composition, though Leisler's bat activity was much higher in Spring than in Summer. Brown long-eared bat activity was also highest in the May 2024 season.



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Plate 3-28 Total bat passes per hour per season.

Plate 3-29 shows the nightly bat activity (bat passes per hour per night). The highest single night activity was recorded on the 23rd July 2024, with over 280 bat passes per hour. Activity was higher during the 2024 surveys (May and July) than that of the 2023 (August) survey. Activity on all nights was dominated by soprano pipistrelle, with common pipistrelle and Leisler's bat also present on all nights surveyed. Brown long-eared bat activity was highest during the May 2024, specifically between the 8th and 11th May 2024. *Myotis* spp. activity was low throughout the months surveyed. Nathusius' pipistrelle activity was low throughout, though the majority of activity was recorded during the Autumn 2023 survey.

Analysis of the detector recordings also highlighted the median bat passes per hour, per species, per detector, per month surveyed (Plate 3-30). The median bat passes per hour were higher in the May 2024 than during the July 2024 at all detectors, with the exception of D04. The median bat activity varied greatly between May and July 2024 at D02. Species composition was similar at all detectors, with soprano pipistrelle dominant at all detectors in all seasons. Brown long-eared bat activity was highest at D03 in May and July 2024. August 2023 had low brown long-eared bat activity.

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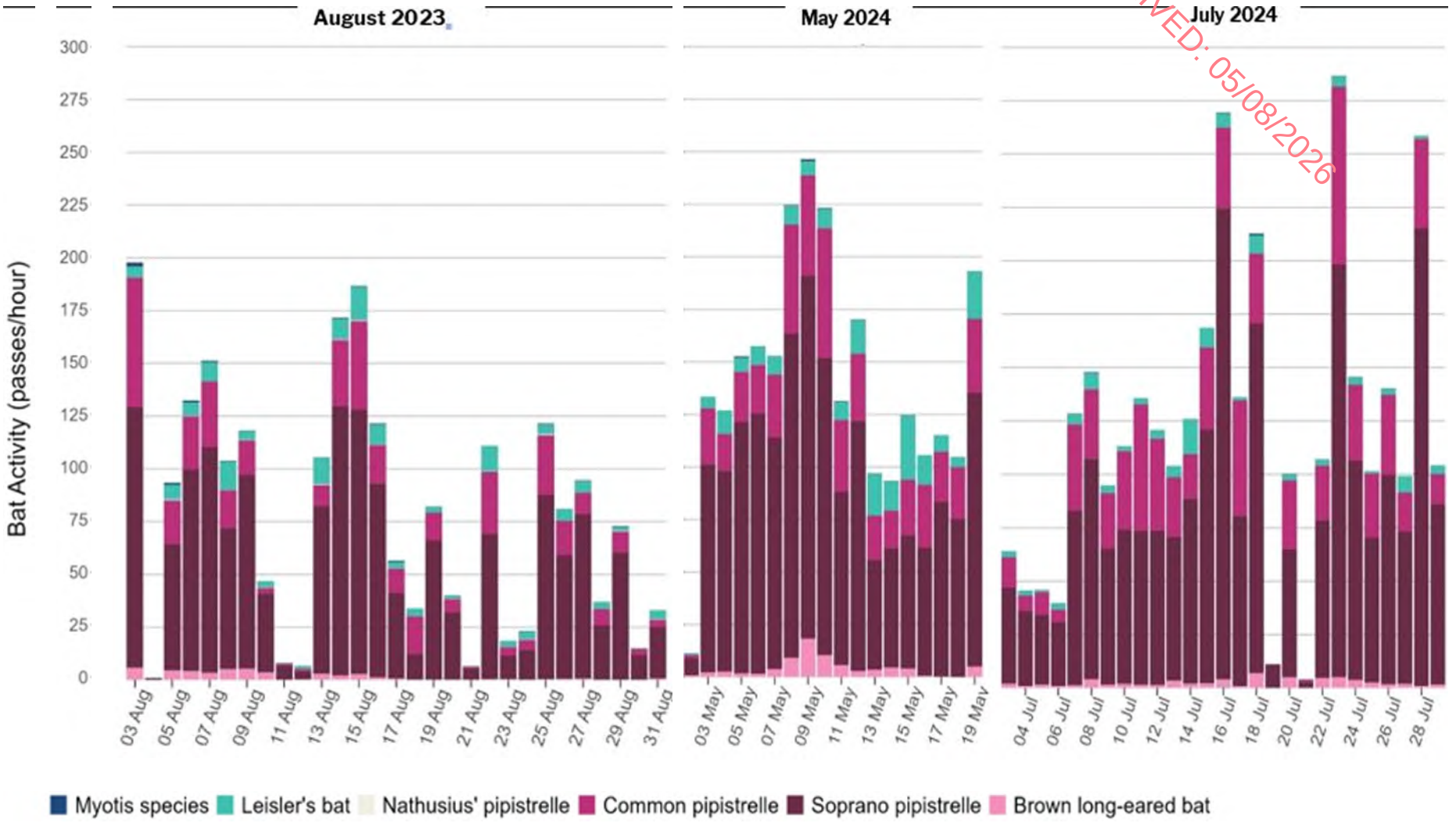


Plate 3-29 Bat passes per hour per species per night in 2024 and 2023

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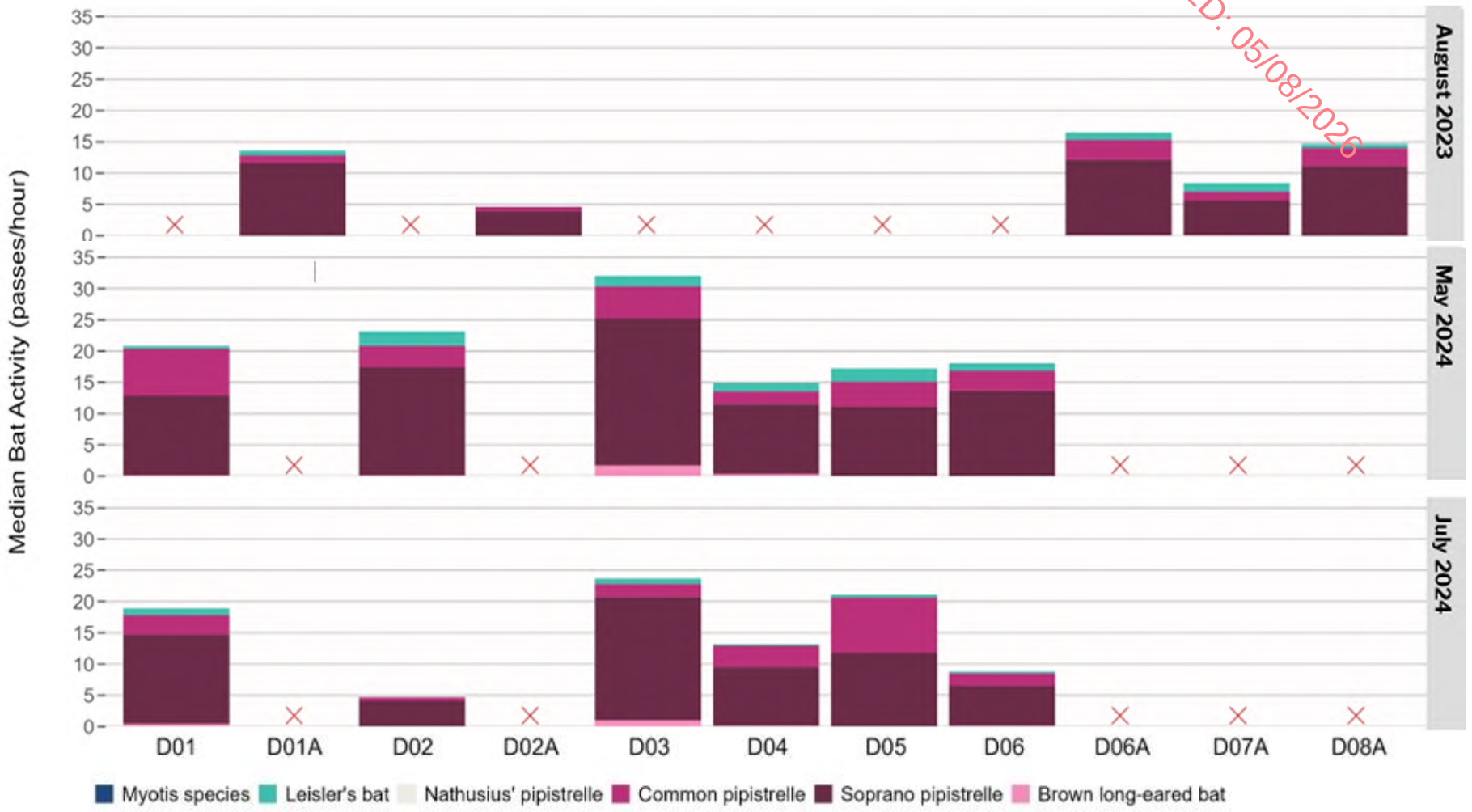


Plate 3-30 Median bat passes per hour per species per detector per season in 2024 and 2023. X denotes an area where no static detector was deployed during the period.

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4. DATA EVALUATION

4.1.1 Importance of Bat Population Recorded at the Site

Ecological evaluation within this section follows a methodology that is set out in Chapter three of the '*Guidelines for Assessment of Ecological Impacts of National Roads Schemes'* (NRA, 2009).

All bat species in Ireland are protected under the Bonn Convention (1992), Bern Convention (1982) and the EU Habitats Directive (92/43/EEC). Additionally, in Ireland bat species are afforded further protection under the Birds and Natural Habitats Regulations (2011) and the Wildlife Acts 1976 (as amended). Bats as an Ecological Receptor have been assigned ***Local Importance (Higher value)*** on the basis that the habitats within the study area are utilized by a regularly occurring bat population of Local Importance.

The site does not have the potential to support a roosting site of ecological significance, and no evidence of large roosts was found within the inspected structures during the surveys. Small numbers of roosting bats (soprano pipistrelle) were observed emerging from two structures during the surveys carried out in 2023 and 2024. No roosting site of National Importance (i.e. site greater than 100 individuals) was recorded within the site. No lesser horseshoe bat was recorded on site during the surveys.

4.1.2 Survey limitations

A comprehensive suite of bat surveys were undertaken of the EIAR Study Area. The surveys undertaken in accordance with BCT Guidance, provide the information necessary to allow a complete, comprehensive and robust assessment of the potential impacts of Proposed Development on bats receptors.

Access limitations can relate to static deployments and roost inspections:

- No significant access issues were encountered with the site during static deployments, as the detectors were deployment where intended.
- Access was gained throughout the site and within all structures identified. Where health and safety prevented full inspections to be completed, particularly into higher sections of the derelict buildings, the subsequent dusk surveys ensured no significant information was missed.

Survey limitations can relate to deployment coverage, data storage, equipment failure or deployment-related incidents:

- Good survey coverage of the site has been achieved, with five and six detectors being deployed in 2023 and 2024 respectively across the site covering the range of habitats present at the site.
- MKO employs data storage redundancy methods to ensure no data is lost from the field to final analysis - no data was lost.
- SD card corruption or fill-up can prevent data from being collected during deployments – no issues with on-site data storage were encountered.
- Bat detector's microphones are checked before every season to ensure they have good sensitivity for data collection, and detectors' software updates are installed as soon as they become available - no issues related to equipment were encountered during the surveys.
- Incidents during deployments, such as tampering or livestock interference, can prevent data from being collected effectively - no incidents were reported during the surveys.

Activity assessment limitations can relate to data analysis procedures and a lack of standardised and Ireland-based assessment methods:

- MKO's data analysis methods include manually checking of 100% of bat passes identified by Auto ID Software, as well as noise and no ID files. Where multiple species, or multiple individuals of the same species, are identified within the same call, only one is reported, prioritising hard to detect species. This is due to the large volumes of data collected. While this method is likely to introduce a bias, it is not believed to affect the overall conclusions of the assessment, as only commonly recorded species might be underreported.

No limitations in the scope, scale or context of the assessment have been identified.

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5. CONCLUSION & RECOMMENDATIONS

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The following points set out the main conclusions following the completion of the surveys described above:

- Five bat species, as well as Myotis sp. were recorded commuting and foraging across the EIAR Study Area during the bat surveys carried out in 2023 and 2024, including soprano pipistrelle, common pipistrelle, Leisler's bat, brown long-eared bat, and Nathusius' pipistrelle.
- The existing landscape occurring within the EIAR Study Area provides Moderate quality habitats for commuting and foraging bats.
- Nine structures within the EIAR Study Area underwent detailed inspection. Two buildings were assessed with a Moderate roosting suitability, two with a Low suitability and five with a Negligible suitability.
- Two small active soprano pipistrelle roosts (4 individuals and 1 individual., respectively) were recorded during the 2024 surveys in Stone Shed 1 and Stone Shed 2, which are included within the boundary of the current application and as such will be affected by the construction of the Proposed Development.
- No large permanent or maternity roosts were recorded within the Proposed Development site boundary.
- No lesser horseshoe bat was recorded.

The following measures are recommended to safeguard bats and mitigate for potential impacts:

- Two buildings within the EIAR Study Area were found to be active bat roosts. As such, a derogation licence from the NPWS is required in order to restore/demolish buildings where evidence of bats was identified. The derogation licence was received on the 8th July 2026 and is included as Appendix 6-5 of Chapter 6 of the EIAR.
- A pre-commencement survey is recommended on each of the roost structures to assess the buildings prior to any works. The requirement for a pre-commencement survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. The function of this survey will be to assess any changes in baseline environment since the time of undertaking the survey in 2023, 2024 and 2026.
- 14 trees were identified as PRF-I across the wider EIAR Study Area. Eleven of these trees are proposed for removal under the current planning application. A pre-commencement survey, at the appropriate time of year, will be undertaken on trees to be felled/pruned with suitable potential roost features, by a qualified ecologist to ensure no changes in the baseline have occurred. The requirement for a pre-commencement survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. If a bat roost is identified within any of the trees to be removed/pruned, a bat derogation licence will be obtained from the NPWS, prior to felling and the felling activity will be supervised by a qualified ecologist.
- The lighting plan for the operational phase of the Proposed Development has been designed with consideration of the following guidelines: Bat Conservation Ireland guidelines; Bat Conservation Ireland (Bats and Lighting: Guidance Notes for Planners, Engineers, Architects and Developers, BCI, 2010) and the Guidance Note 08/23: Bats and Artificial Lighting at Night (ILP, 2023), to minimise light spillage, thus reducing any potential disturbance to bats.
- The landscape and lighting plan have both been designed in collaboration with project ecologists to avoid significant effects on wildlife by design and to mitigate any unavoidable impacts. A dark corridor has been incorporated into the design of the Proposed Development to maintain suitable foraging and commuting habitat.

Artificial lighting towards these features will be avoided or kept to a minimum, with unavoidable light spill being limited to between 1-2 lux.

The surveys undertaken provide a good understanding of the use of the buildings and surrounding habitats by bats and the report provides recommendations to safeguard bats as part of the Proposed Development.

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BIBLIOGRAPHY

RECEIVED: 05/08/2026

Abbott, I., Aughney, T., Langton, S. and Roche, N. (2015) BATLAS 2020 Pilot Project Report. Bat Conservation Ireland, Virginia, Cavan.

Andrews, H. (2013) Bat Tree Habitat Key. AEcol, Bridgewater.

Aughney, T. (2008) An investigation of the impact of development projects on bat populations: Comparing pre- and post-development bat faunas. Irish Bat Monitoring Programme. Bat Conservation Ireland, Virginia, Cavan.

Aughney, T., Langton, S. and Roche, N. (2011) Brown long-eared bat roost monitoring scheme for the Republic of Ireland: synthesis report 2007-2010. Irish Wildlife Manuals, No.56. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Aughney, T., Langton, S. and Roche, N. (2012) All Ireland Daubenton's Bat Waterway Monitoring Scheme 2006-2011. Irish Wildlife Manuals, No. 61. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.

Baerwald, E. F., D'Amours, G. H., Klug, B. J., & Barclay, R. M. (2008). Barotrauma is a significant cause of bat fatalities at wind turbines. Current biology, 18(16), R695-R696.

Baerwald, E. F., & Barclay, R. M. (2009). Geographic variation in activity and fatality of migratory bats at wind energy facilities. Journal of Mammalogy, 90(6), 1341-1349.

BCI (2012b) Bats and Appropriate Assessment Guidelines, Version 1, December 2012. Bat Conservation Ireland, Virginia, Co. Cavan Berthinussen, A., Richardson. O.C. and Altringham, J.D. (2014) Bat Conservation: Global evidence for the effects of interventions. Exeter: Pelagic Publishing.

Carden, R., Aughney T., Kelleher C. and Roche, N. (2010) Irish Bat Monitoring Schemes. BATLAS Republic of Ireland Report for 2008-2009.

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London.

Collins, J., and Jones, G. (2009). Differences in bat activity in relation to bat detector height: implications for bat surveys at proposed windfarm sites. Acta Chiropterologica, 11(2), 343-350.

DAFM (2019). Felling & Reforestation Standards (v.Oct2019). Department of Agriculture, Food & the Marine. See Forest Service Circular 14 / 2019, www.agriculture.gov.ie/forestservice/grantsandpremiumschemes2014-2020/schemecirculars/2019circulars/

Galway City Development Plan 2023-2029

Galway County Development Plan 2022-2028 (2022).

Hill D., Fasham, M., Tucker P., Shewry, M. and Shaw, P (eds) (2005) Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring, 433-449. Cambridge University Press, Cambridge.

Hundt L. (2012) Bat Surveys: Good Practice Guidelines, 2nd edition. Bat Conservation Trust ISBN-13: 9781872745985.

ILP (2023). Bats and Artificial Lighting At Night, Guidance Note 08/23, Institution of Lighting Professionals, Bat Conservation Trust, London

Kunz, T.H. and Parsons, S. (2009). Ecological and Behavioral Methods for the Study of Bats, 2nd Edition. The Johns Hopkins University Press, USA.

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Marnell, F., Kelleher, C. & Mullen, E. (2022) Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

Mitchell-Jones, A. J. and McLeish, A. P. (2004). The Bat Worker's Manual, 3rd Edition. JNCC, Peterborough.

Montgomery, W. I., Provan, J., McCabe, A. M., and Yalden, D. W. (2014). Origin of British and Irish mammals: disparate post-glacial colonisation and species introductions. Quaternary Science Reviews, 98, 144-165.

NRA (2006a) Best practice guidelines for the conservation of bats in the planning of national road schemes. National Roads Authority, Dublin, Ireland.

NRA (2006b) Guidelines for the treatment of bats during the construction of national road schemes. National Roads Authority, Dublin, Ireland.

Nealon, Ú.C. (2016) Bats and wind farms in Ireland: An assessment of current practices in surveying and monitoring. Oral presentation at the 1st Ecology and Evolution Ireland conference, Sligo.

NPWS & VWT (2022) Lesser Horseshoe Bat Species Action Plan 2022-2026. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield.

Regini, K. (2000) Guidelines for ecological evaluation and impact assessment, In Practice: Bulletin of the Institute of Ecology and Environmental Management, 29, 1-7.

Roche, N., Langton, S. & Aughney T. (2012) Car-based bat monitoring in Ireland 2003-2011. Irish Wildlife Manuals, No. 60. National Parks and Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Ireland.

Roche, N., T. Aughney, F. Marnell, and M. Lundy (2014). Irish Bats in the 21st Century. Bat Conservation Ireland, Virginia, Co. Cavan, Ireland.

Roche, N., Aughney T. & Langton S. (2015) Lesser Horseshoe bat: population trends and status of its roosting resource. Irish Wildlife Manuals, No 85. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.

Russ, J. (2012). British bat calls: a guide to species identification. Pelagic publishing.

Schofield H. (2008). The Lesser Horseshoe Bat: Conservation Handbook. The Vincent Wildlife Trust, Ledbury, UK.

Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. December (2010). Valuing Bats in Ecological Impact Assessment, CIEEM In-Practice.

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APPENDIX 5

1. ASSESSMENT OF CUMULATIVE EFFECTS

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1.1 Plans

The following development plans have been reviewed and taken into consideration as part of this assessment:

- Galway County Development Plan 2022-2028
- Galway City Council Development Plan 2023-2029
- Regional Spatial and Economic Strategy: for the Northern and Western Regional Assembly – Project Ireland 2040
- 4th National Biodiversity Action Plan 2023-2027

The review focused on policies and objectives that relate to Natura 2000 sites and natural heritage. Policies and objectives relating to sustainable land use were also reviewed

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Table 8.1 Review of plans

Plan	Key Policies/Issues/Objectives Directly Related to European Sites in The Zone of Influence	Assessment of development compliance with policy
Galway County Development Plan 2022-2028	It is the Policy of the Council in relation to: **Policy Objectives Natural Heritage and Biodiversity** **NHB 1 Natural Heritage and Biodiversity of Designated Sites, Habitats and Species:** Protect and where possible enhance the natural heritage sites designated under EU Legislation and National Legislation (Habitats Directive, Birds Directive, European Communities (Birds and Natural Habitats) Regulations 2011 and Wildlife Acts) and extend to any additions or alterations to sites that may occur during the lifetime of this plan. Protect and, where possible, enhance the plant and animal species and their habitats that have been identified under European legislation (Habitats and Birds Directive) and protected under national Legislation (European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011), Wildlife Acts 1976-2010 and the Flora Protection Order (SI 94 of 1999). Support the protection, conservation and enhancement of natural heritage and biodiversity, including the protection of the integrity of European sites, that form part of the Natura 2000 network, the protection of Natural Heritage Areas, proposed Natural Heritage Areas, Ramsar Sites, Nature Reserves, Wild Fowl Sanctuaries (and other designated sites including any future designations) and the promotion of the development of a green/ ecological network. **NHB 2 European Sites and Appropriate Assessment:** To implement Article 6 of the Habitats Directive and to ensure that Appropriate Assessment is carried out in relation to works, plans and projects likely to impact on European sites (SACs and SPAs), whether directly or indirectly or in combination with any other plan(s) or project(s). All assessments must be in compliance with the European Communities (Birds and Natural Habitats) Regulations 2011. All such projects and plans will also be required to comply with statutory Environmental Impact Assessment requirements where relevant. **NHB 3 Protection of European Sites:** No plans, programmes, or projects etc. giving rise to significant cumulative, direct, indirect or secondary impacts on European sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this Plan (either individually or in combination with other plans, programmes, etc. or projects*.	The Development Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network. No potential for cumulative effects, considered in conjunction with the proposed development, were identified. There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.

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	* Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be: (a) no alternative solution available; (b) imperative reasons of overriding public interest for the plan to proceed; and (c) adequate compensatory measures in place. **NHB 4 Ecological Appraisal of Biodiversity:** Ensure, where appropriate, the protection and conservation of areas, sites, species and ecological/networks of biodiversity value outside designated sites. Where appropriate require an ecological appraisal, for development not directly connected with or necessary to the management of European Sites, or a proposed European Site and which are likely to have significant effects on that site either individually or cumulatively. **NHB 5 Ecological Connectivity and Corridors:** Support the protection and enhancement of biodiversity and ecological connectivity in non-designated sites, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, stonewalls, geological and geo-morphological systems, other landscape features and associated wildlife areas where these form part of the ecological network and/or may be considered as ecological corridors in the context of Article 10 of the Habitats Directive. **NHB 6 Implementation of Plans and Strategies:** Support the implementation of any relevant recommendations contained in the National Heritage Plan 2030, the National Biodiversity Plan, the All-Ireland Pollinator Plan and the National Peatlands Strategy and any such plans and strategies during the lifetime of this plan. **NHB 7 Mitigation Measures:** Require mitigating measures in certain cases where it is evident that biodiversity is likely to be affected. These measures may, in association with other specified requirements, include establishment of wildlife areas/corridors/parks, hedgerow, tree planting, wildflower meadows/marshes and other areas. With regard to residential development, in certain cases, these measures may be carried out in conjunction with the provision of open space and/or play areas. **NHB 10 NPWS & Integrated Management Plans:** Article 6(1) of the Habitats Directive requires that Member States establish the necessary conservation measures for European sites involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans. The NPWS's current priority is to identify site specific conservation objectives; management plans may be considered after this is done. Where Integrated Management Plans are being prepared by the NPWS for European sites (or parts thereof), the NPWS shall be engaged with in order to ensure that plans are fully integrated with the Plan and other plans and programmes, with the intention that such	

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	plans are practical, achievable and sustainable and have regard to all relevant ecological, cultural, social and economic considerations, including those of local communities.	
Galway City Council Development Plan 2023-2029	It is the Policy of the Council to: 5.2.1: Protect European sites that form part of the Natura 2000 network (including Special Protection Areas and Special Areas of Conservation) in accordance with the requirements in the EU Habitats Directive (92/43/EEC), EU Birds Directive (2009/147/EC) and associated national legislation. 5.2.2: Ensure that all plans or projects within the Plan area will only be authorised and / or supported after the competent authority has ascertained based on scientific evidence, screening for appropriate assessment and /or a Habitats Directive Assessment that: i) The plan or project will not give rise to an adverse direct, indirect or secondary effect on the integrity of any European site (either individually or in combination with other plans or projects); or ii) The plan or project will have an adverse effect on the integrity of any European site (that does not host a priority natural habitat type/and or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or iii) The plan or project will have an adverse effect on the integrity of any European site (that hosts a natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000. 5.2.4: Protect, conserve and support the development of an ecological network throughout the city which will improve the ecological coherence of the Natura 2000 network in accordance with Article 10 of the Habitats Directive.	There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development. The Development Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network. No potential for cumulative effects, considered in conjunction with the proposed development, were identified.

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	5.2.7: Encourage, in liaison with the NPWS, the sustainable management of features which are important for the ecological coherence of the network of European sites and essential, by their linear or continuous nature or as stepping stones for the migration, dispersal and genetic exchange of wild species. 5.2.9: Co-operate with the NPWS, landowners and stakeholders in the preparation and implementation of management plans for designated sites and support conservation objectives of lands within Designated Sites for nature conservation Natura 2000 (SAC/SPA) and NHA sites. 5.2.10: Protect and conserve rare and threatened habitats and their key habitats, (wherever they occur) listed on Annex I and Annex IV of the EU Habitats Directive (92/43EEC) and listed for protection under the Wildlife Acts 1976-2000 and plant species listed in the Flora Protection Order 2015. 5.2.11: Ensure that plans and projects with the potential to have a significant impact on European sites (SAC or SPA) whether directly, indirectly or in combination with other plans or projects are subject to Appropriate Assessment, under Article 6 of the Habitats Directive (92/43EEC) and associated legislation and guidelines, to inform decision making.	
Regional Spatial and Economic Strategy: for the Northern and Western Regional Assembly – Project Ireland 2040	Overarching Environmental Regional Policy Objectives: The Assembly supports the process whereby applications for development consents for projects emanating from any policies that may give rise to likely significant effects on the environment will need to be accompanied by one or more of the following, as relevant: i. An Ecological Impact Assessment Report (EcIA) ii. Environmental Report (ER) iii. An Environmental Impact Assessment Report (EIAR) if deemed necessary under the relevant legislation (statutory document) Natura Impact Statement (NIS) if deemed necessary under the relevant legislation (statutory document).	The Regional Spatial and Economic Strategy was comprehensively reviewed with particular focus on policies and objectives related to the Natura 2000 network. No negative effects to the Natura 2000 Network were identified with regard to the proposed development. There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.

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4th National Biodiversity Action Plan 2023-2027	**Objective 2 - Meet Urgent Conservation and Restoration Needs** **Outcome 2A:** The protection of existing designated areas and species is strengthened and conservation and restoration within the existing protected are network are enhanced. **Outcome 2B:** Biodiversity and ecosystem services in the wider countryside are conserved. **Outcome 2C:** All freshwater bodies are of at least 'Good Ecological Status' as defined under the EU Water Framework Directive. **Outcome 2D:** Genetic diversity of wild and domesticated species is safeguarded 39 Outcome 2E: A National Restoration Plan is in place to meet EU Biodiversity Strategy 2030 nature restoration targets. **Outcome 2F:** Biodiversity and ecosystem services in the marine environment are conserved and restored. **Outcome 2G:** Invasive alien species (IAS) are controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity and measures are undertaken to tackle the introduction and spread of new IAS to the environment.	The 4th National Biodiversity Action Plan was comprehensively reviewed with particular focus on policies and objectives related to the Natura 2000 network. No negative effects to the Natura 2000 Network were identified with regard to the proposed development. There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.

1.2 Other Projects

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Assessment material for this in-combination impact assessment was compiled on the relevant developments within the vicinity of the Proposed Development and was verified in July 2026. The material was gathered through a search of relevant online Planning Registers, reviews of relevant documents, planning application details and planning drawings, and served to identify past and future projects, their activities, and their environmental impacts. All relevant projects were considered in relation to the potential for in-combination effects. All relevant data was reviewed (e.g., individual EISs/EIARs, layouts, drawings etc.) for all relevant projects where available. The projects considered include those listed below as well as small-scale residential, commercial and agricultural development and extensions, modifications and remediation works to same.

- Permission for retention of the following development: for existing equestrian centre on revised site boundaries & planning permission for an indoor equestrian arena building including ancillary stables, tack & storage rooms & parking area with all associated works & ancillary services at Toin na Brocai , Rahoon , Co. Galway (Pl.Ref: 2261189). Gross floor space of work to be retained 481.00sqm. This application was granted retention permission, subject to conditions, on the 18th September 2023.
- Permission for the following development which comprises the construction of an all weather surface horse exercise area, horse walker, manure pit and seepage tank at Tóin na Brocaí , Rahoon , Galway (Pl.Ref: 2630). This application was submitted to Galway County Council on the 10th February 2026 and additional information was requested on the 2nd April 2026.
- Permission for development which will consist of: 1) Demolition of existing derelict bungalow and outbuilding. 2) Construction of 82 no. residential units comprising: 53 no. houses, 14 no. apartment units, 8 no. duplex units, 7 no. community units. 3) Construction of 1 no. community facility (Ability West Day Centre). 4) Provision of footpath along the Letteragh Road. 5) Provision of shared communal and private open space, car and bicycle parking, bin storage, site landscaping, services, access with Letteragh Road and all associated site development works at Letteragh Road , Letteragh , Rahoon, Co. Galway (Pl. Ref: 2256). The application is accompanied by a Natura Impact Statement (NIS). This application was granted planning permission, subject to conditions, on the 20th October 2022.
- Permission for development which will consist of amendments to previously granted planning permission ref. 21/264. The proposed amendments are as follows: new bin and bicycle store arrangement and location along with minor amendments to its surrounds including re-arrangement of car parking spaces at Lenabower Rd , Cappagh Road , Galway (Pl. Ref: 23118). This application was granted planning permission, subject to conditions, on the 3rd August 2023.
- Permission for development which consists of a Large-Scale Residential Development on a site located to the South of the Letteragh Road (L1323), in the townlands of Rahoon and Letteragh, Co. Galway. The application is being made under the provisions of the Planning and Development (Amendment) (Large Scale Residential Development) Act 2021. The development will consist of the following: 1. Demolition of a small lean-to stone shed structure. 2. Construction of 148 no. residential units comprising: i. 93 no. houses (4 no. 2-bed units, 81 no. 3-bed units, and 8 no. 4-bed units) ii. 20 no. duplex units (10 no. 2-bed ground floor units and 10 no. 3-bed upper floor units) iii. 35 no. apartment units (19 no. 1-bed units and 16 no. 2-bed units) 3. Provision of shared communal and private open space, an Active Travel pedestrian and cycle path, car and bicycle parking, site landscaping and public lighting, site services, vehicular and pedestrian access with Letteragh Road and pedestrian and cycle access with Bóthar Dhiarmuida and all associated site development works. 4. Erection of a gabion retaining wall faced with local limestone with additional 1.2m high estate railing along parts of the western boundary of the site to be constructed in the event the subject site is developed prior to the proposed N6 Galway City Ring Road Strategic Infrastructure Development (ABP-Ref: PL07.302885-18). 5. Temporary permission for a period of 3 years for the erection of marketing signage on the site. The application contains a statement setting out how the proposal will be consistent with the objectives of the relevant development plan (Pl. Ref: 23129). A Natura Impact Statement (NIS) has been prepared in respect of the proposed development. This application was granted planning permission, subject to conditions, on the 28th February 2024.
- Permission for development which consists of: the provision of 2 No. sheltered padel courts and all associated site works at Galway Lawn Tennis Club , Threadneedle Road Salthill , Galway (Pl. Ref:

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2560278). This application was granted planning permission, subject to conditions, on the 11th December 2025.

- Permission for development which consists of; (i)amalgamation of existing basement level units 19 & 20, (ii) change of use from existing retail and radio studio to Gym (1210sqm), (iii) addition of new mezzanine level for gym use (300sqm) creating total development area = 1510sqm, (iv)associated internal signage and minor elevational changes, all at basement level at Units 19 & 20 , Wellpark Retail and Leisure Centre , Dublin Road, Galway (Pl. Ref: 2430). This application was granted planning permission, subject to conditions, on the 2nd September 2024.
- Permission for development which consists of: We, Cairn Homes Properties Limited, intend to apply for permission for development of a amendment to the permitted Large Scale Residential (LRD) scheme (Planning Authority Ref 2460270 / An Coimisiún Pleanála (ACP) Ref 321970) located to the west of the Ballymoneen Road (L5024), in the townlands of Keeraun (An Caorán) and Ballynahown East (Baile na hAbhann Thoir), Galway. The proposed amendment the subject of this application is located in the permitted apartment block located in the southern portion of the site, in the townland of Ballynahown East (Baile na hAbhann Thoir) (Pl. Ref: 2560285). The development will consist of; 1. The change of use of the of excess space at the plant room on the ground floor to 1 no.1-bedroom apartment. 2. The proposed amendment will include modifications to the elevation of the ground floor of the apartment block to facilitate window and door openings for the additional apartment. The footprint of the apartment building remains the same as what was permitted under Pl Ref 2460270 / ACP Ref 321970. This application was granted planning permission, subject to conditions, on the 11th December 2025.
- Permission for development which consists of; We, Burkeway Homes Limited, intend to apply for planning permission to Galway City Council for development on a site located on the Letteragh Road (L1000), in the townland of Letteragh, Co. Galway. The proposed development will consist of the following: 1. Demolition of 1 no. dwelling house (222.3sqm) and 5 no. sheds on the southern portion of the site and the removal of the existing vehicular access fronting onto the Letteragh Road. The decommissioning and demolishing of the existing septic tank. 2. Construction of 53 no. units comprising of: a. 25 no. semi-detached houses (15 no. 3-bed and 10 no. 4-bed) b. 2 no. detached houses (2 no. 4-bed) c. Provision of Block A1 comprising 14 no. apartment units (13 no. 2-bed and 1 no. 3-bed) d. Provision of Block A2 comprising 2 no. apartments (2 no. 2-bed) e. Provision of Block A3 comprising 4 no. apartments (4 no. 2-bed) f. Provision of Block D2 comprising 6 no. duplex units (3 no. 2-bed and 3 no. 3-bed) 3. Provision of shared communal and private open space, car and bicycle parking, bin storage, site landscaping, public lighting and ESB substation. 4. Provision of pedestrian, cyclist and vehicular access via the existing Garraí na Sailí development. 5. Provision of pedestrian and cyclist entrance from the Letteragh Road (L1000). 6. Extension of existing footpath connecting into Garraí na Sailí fronting onto the Letteragh Road (L1000), and road improvements in the south of the development site to tie into the Letteragh Road (L1000). 7. All associated site works and ancillary services necessary to facilitate the proposed development. This application is accompanied by a Natura Impact Statement (NIS) (Pl. Ref: 2460394). This application was granted planning permission, subject to conditions, on the 5th August 2025.
- Permission for development which will consist of an external fire stairs & material alterations to the first floor of an existing school at Colaiste Einde (Protected Structure Ref: 10250) at Threadneedle Road , Salthill , Galway (Pl. Ref: 219). This application was granted planning permission, subject to conditions, on the 31st May 2021.
- Permission for development which will consist of the construction of an ESB Substation and associated site works within a previously granted residential development (Pl. Ref. 18/199) accessed from Gaelcarrig Park and Carn Ard at Gaelcarrig , Letteragh , Galway (Pl. Ref: 21145). This application was granted planning permission, subject to conditions, on the 10th August 2021.
- Permission for retention which will consist of (1) Retention of change of use from office areas to storage use (263.7 sqm) (2) Retention of change of use from storage to office use and associated staff facilities (72.4 sqm) (3) Retention of change of use from staff facilities use (8.9sqm) (4) Retention of change of use from staff facilities to commercial kitchen (23.9 sqm) and (5) Permission for extract duct at roof level to serve first floor of commercial kitchen at Joyce's Supermarket , Knocknacarra , Galway (Pl. Ref: 21181). This application was granted planning permission, subject to conditions, on the 24th August 2021.

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- Permission for development which will consist of the construction of an on-course Male & Female WC including all ancillary site works at Galway Golf Club , Blackrock , Salthill (Pl. Ref: 22121). This application was granted planning permission, subject to conditions, on the 20th October 2022.
- Permission for development which will consist of: 1. Convert existing shop into two number two bed apartments. 2. Construct 6 no. external stores and all ancillary works at 36 Lower Salthill , Galway (Pl. Ref: 2124). This application was granted planning permission, subject to conditions, on the 30th June 2021.
- Permission for development which will consist of change of crèche plans, elevations and revised roof type from the crèche plans previously granted under planning applications reference numbers: 19/366, 19/68. 19/208 and 17/30 and all ancillary site works at Gleann Na Mona , On land West of Ballymoneen Road , at the junction with Western Distributor Road (Pl. Ref: 21259). This application was granted planning permission, subject to conditions, on the 3rd November 2021.
- Permission to vary a condition of planning permission 11/277, granted on 24/4/2012. Permission Ref: 11/277 granted permission for a change of the existing hockey pitch, at an Astro Turf all-weather surface. Condition 3 confined the use of the hockey pitch, to use of the pitch, to only the school for its own activities and shall not be rented out, or leased on a commercial basis. The school now wishes to be allowed to use the hockey pitch, by parties, other than the school at Dominican College , Taylors Hill , Galway (Pl. Ref: 21297). This application was granted planning permission, subject to conditions, on the 14th June 2023.
- Permission for development which consists of 3 no. offices blocks (GFA: 14,650 sqm) and all associated site development works as follows: • Block 1: 8 storey office building providing offices, stair and lift cores and plant rooms (GFA: 7,330 sqm). • Block 2: 6 storey office building providing offices, stair and lift cores and plant rooms (GFA: 4,445 sqm). • Block 3: 4 storey office building providing offices, stair and lift cores and plant rooms (GFA: 2,875 sqm). • The development includes a surface car park which comprises of 167 no. car parking spaces (including 9 no. accessible spaces and 33 no. EV charging spaces), and 216 no. bicycle parking spaces (including 22 no. electric bicycle charging spaces) and 9 no. motorbike spaces. • Provision of new vehicular access to site. • Provision of bin stores, ESB substation, roof mounted solar PV, landscaping, boundary treatments, staff changing facilities, public lighting and all other site development works and services ancillary to the proposed development, all at Galway Business Park , Knocknacarra , Galway (Pl. Ref: 2460021). A Natura Impact Assessment (NIS) will be submitted to the planning authority with the planning application. This application was granted planning permission, subject to conditions, on the 14th May 2025.
- Permission for development which consists of: retention permission for a single storey glazed conservatory at 4.8m height for use as an extension to the existing Prom Restaurant and including a 132 sq.m, safety drain at the south elevation of the conservatory, a 16sq.m flat roof extension to provide separate entrance to spa area, new mechanical plant area, internal alterations to include new doors and glazing and cocktail bar area and alterations to basement access, fire exit doors and new fire escape stairway at ground and first floor level, landscaping and all ancillary development at Salthill Hotel , The Promenade , Salthill Co. Galway (Pl. Ref: 2560347). This application was granted planning permission, subject to conditions, on the 15th June 2026.
- Permission for development which consists of: a new part two storey/part single storey Cuan na Gaillimhe primary school to an existing greenfield site around proposed courtyard with new pedestrian access from Ballyburke road and both pedestrian/vehicular access from existing Colaiste na Coribe access road with on-site drop-off, parking, ballcourt, hard & soft landscaping, drainage, external plant, signage and all related works at existing site at Ballyburke road , Knocknacarra , Galway (Pl. Ref: 2560358). This application was granted planning permission, subject to conditions, on the 12th May 2026.
- Permission for development which consists of permission for a two storey extension of an existing school, landscaping & hardscaping, external retaining structures, parking, temporary construction access to Threedneedle road and related works at Coláiste Éinde (Protected Structure Ref: 10250) Threadneedle Road, Salthill, Galway (Pl. Ref: 2560091). This application was granted planning permission, subject to conditions, on the 23rd June 2025.
- Permission is sought by Leadlane (Mincloon) Ltd for the construction of a Residential Development at Mincloon, Rahoon road, Galway City. The development will consist of:1.Construction of 48 no. own door apartments across 5 no. Duplex building blocks; a.Block 01 consists of a 1-3 storey building, comprising of a 1 no. 2 storey 2 bed apartment, 2 no. 2 bed ground floor apartments, 1 no. 3 bed

ground floor apartment, 3 no. 3 bed upper floor apartments, integrated bin store and integrated bike store.b. Block 02 consists of a 3 storey building, comprising of 4 no. 2 bed ground floor apartments, 4no. 3 bed upper floor apartments, integrated bin store and integrated bike store c. Block 03 consists of a 3 storey building, comprising of 5 no. 2 bed ground floor apartments, 5no. 3 bed upper floor apartments. d.Block 04 consists of a 3 storey building, comprising of 6 no. 1 bed ground floor apartments, 1 no. 2 bed ground floor apartment, 7no. 2 bed upper floor apartments, 1no. 3 bed upper floor apartment, integrated bin store and integrated bike store. e.Block 05 consists of a 3 storey building, comprising of 4 no. 2 bed ground floor apartments, 4no. 3 bed upper floor apartments, integrated bin store and integrated bike store. 2. Upgrading of existing vehicular entrance and access road including road setback along Rahoon road frontage and provision of footpaths, 3. Establishment of a right of way across the site to also serve an existing house to the south-west of the site (Eircode H91ECC6), 4. Revised boundary treatment and revised site boundaries, 5. Partial demolition of existing shed, 6. Provision of public open space areas (to include for play spaces), private open space areas, bicycle parking, footpaths, public lighting, hard and soft landscaping, 7. Car parking including dedicated EV charge spaces, ducting to all spaces for future electric charging points, 8. Proposed connection to existing mains water infrastructure, and on-site surface water drainage arrangements, 9.Proposed connection to sewer network including provision for on-site pumping station, together with all associated site works and services, all at Mincloon, Rahoon road , Galway City (Pl. Ref: 2560375). A Natura Impact Statement will be submitted to the planning authority with this application. This application was submitted to Galway City Council on the 11th Decmeber 2025. Further information was requested on the 13th February 2026 and submitted on the 15th May 2026. A decision on this application is due on the 5th August 2026.

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- Permission for development which consists of: An Board Pleanála under (ABP) 312952-22 granted permission for change of use of the existing hockey pitch, at Dominican College Taylors Hill Galway. Condition 2 of that permission required that the proposed change of use shall cease, not later than 3 years from the date of the Bord Pleanála Order, unless a prior grant of permission for continuation of use has been obtained. Dominican College Taylors Hill now seek permission to continue to use the hockey pitch, by parties other than students of the school (Pl. Ref: 2533). This application was granted planning permission, subject to conditions, on the 20th February 2026.
- Permission for development which consists of: We, Cairn Homes Properties Limited, intend to apply for permission for development of an amendment to the permitted Large Scale Residential (LRD) scheme (Planning Authority Ref 2460270 / An Coimisiún Pleanála Ref 321970), and as amended by PL Ref 2560285, located to the west of Ballymoneen Road (L5024) in the townlands of Keeraun (An Caorán) and Ballynahown East (Baile na hAbhann Thoir), Galway. The proposed amendment the subject of this application is located in the southern portion of the site, in the townland of Ballynahown East (Baile na hAbhann Thoir) (Pl. Ref: 2660003). This application was granted planning permission, subject to conditions, on the 14th April 2026.
- Permission for development which consists of: The development will consist of a Park & Ride facility comprising a total of 176 car parking spaces, including 133 standard bays, 9 bays for mobility-impaired users (6 standard, 1 for electric vehicles, 1 futureproofed for electric vehicles and 1 large), 17 bays designated for electric vehicles, and a further 17 bays futureproofed for electric vehicle use. The facility will also include 4 bus bays, passenger shelters and hardstanding area for bike shelters at lands in the townlands of Lenabower & Cappagh west of the roundabout junction of Cappagh Road and Western Distributor Road , Knocknacarra , Galway (Pl. Ref: 2660032). This application was granted planning permission, subject to conditions, on the 1st April 2026 but was subsequently appealed to ACP on the 24th April 2026 and is currently awaiting a decision.
- Planning permission for development which consists of: planning permission for the construction of a GAA facility on lands at Keeraun and Mincloon, Rahoon, Galway. Works to consist of A) 2 no. grass playing pitches, 1 no. all weather synthetic playing pitch, with dugouts, floodlighting, ball stop netting system, score board structures, covered viewing stands and perimeter fencing to all pitches. B) a single storey proposed facilities building, C) a single storey pitch-maintenance building D) a public playground area with fencing E) a looped amenity walkway, F) parking for 95 cars, 3 coach spaces, 1 drop off zones and 144 bicycle parking spaces. G) electrical generator and associated storage, H) new vehicular and pedestrian access to the site from the Clybaun Rd (L-5021-0) with signage, entrance walls and gate. Development to include all associated site works and enabling works including but not limited to; road widening and provision of footpath/cycle track and lighting to existing Clybaun Rd (L-

5021-0), site levelling, internal site lighting, a proprietary onsite wastewater pumping station with a pumped rising main to the gravity foul sewer network on the Rahoon Rd (L-1017-0), all boundary treatments & landscaping, and surface water drainage system. Permission to include removal of the existing agricultural entrance and the partial demolition of the existing farm structures on the Clybaun Rd (L-5021-0) (Pl. Ref: 2660043). This application was received by Galway City Council on the 17th February 2026 and further information was requested on the 13th April 2026. No decision has been made in respect of this application to date.

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- Permission for development which consists of; RETENTION: Planning permission for new single storey glazed conservatory at 4.8m height and 132 sq.m, safety drain at the south elevation of the new conservatory, outdoor seating limited to patio area at area of 167 sq.m , raised deck 34 sq.m. floor area to be used as planter with access for maintenance only, New Fire escape stairs to facilitate escape from first floor bedrooms to place of safety, Hard and soft landscaping, Existing 1.8m high palisade fence to be fitted with painted timber privacy screen to be fixed on top of existing R.C. retaining wall to prevent overlooking from escape route. Guard rail to walkway and flat roof and all ancillary development at Salthill Hotel , The Promenade Salthill , Co. Galway (Pl. Ref: 2460191). ACP made a split decision with respect to this application, granting permission to retain, subject to conditions, the new fire escape stairs and palisade fence proposals but refusing the retention of the new single storey glazed conservatory. This decision was made on the 10th April 2025.
- Permission for development which consists of: alterations and extensions to an existing club house to include a) a two storey extension to the front (250 M²) comprising meeting and amenity / exercise rooms, b) a new glazed link corridor (46 M²) with balcony overhead to front of premises, c) revised entrance arrangement comprising a new vehicle access control barrier and separate pedestrian access from Threadneedle Road, d) a revised front parking area to include additional bicycle parking and e) all associated site works at Galway Lawn Tennis Club , Threadneedle Road Salthill , Galway (Pl. Ref: 2560141). This application was granted planning permission, subject to conditions, on the 20th August 2025.
- LRD Permission for development which consists of the following:1. Demolition of 2 no. existing dwellings including 1 no. two-storey dwelling (199 sqm) and 1 no. bungalow (234 sqm) and shed (13.64 sqm) 2. Construction of 156 no. residential units comprising: a. 113 no. houses (16 no. 2-bed, 91 no. 3-bed, and 6 no. 4-bed) b. 43 no. apartment units (21 no. 1-bed, 22 no. 2-bed). 3. Provision of a creche (179 sqm). 4. Provision of all surface water, watermain and foul water services and connections to existing facilities on Ballymoneen Road (L5024). 5. Provision of a new vehicular and pedestrian access with the Ballymoneen Road (L5024) and the provision of a new pedestrian crossing on the Ballymoneen Road (L5024). Provision of a grass verge and cycle lane in accordance with the Galway Transportation Strategy. 6. Provision of a potential pedestrian and cyclist connection on the eastern site boundary to the existing Slí Gheal development and the provision of 2 no. potential pedestrian connections from the proposed play area to the adjoining Slí Gheal development. 7. The provision of landscaping including play areas and SUDS features. 8. Provision of shared communal and private open space, resident and visitor car parking, electric vehicle charging points, bicycle parking, refuse storage, site landscaping and public lighting, and all associated site development works. 9. Erection of a retaining wall varying in height from 0.5m to 3.5m along parts of the western boundary of the site to be constructed in the event the subject site is developed prior to the proposed N6 Galway City Ring Road Strategic Infrastructure Development (ABP-318220-23). The application contains a statement setting out how the proposal will be consistent with the objectives of the Galway City Development Plan 2023-2029 (Pl. Ref: 2460270). This application was granted planning permission, subject to conditions, on the 10th June 2026.
- Permission for the construction of the N6 Galway City Ring Road Motorway Scheme 2018 and Protected Road Scheme 2018 (Pl. Ref: ACP 318217). This application was granted planning applications, subject to conditions and modifications, on the 7th April 2026. This application is currently under judicial review.
- Permission for development which consists of: We, Kingston Stables Limited, intend to apply for permission for development of a Large-Scale Residential Development (LRD) for a 10-year planning permission, on a site which extends to 5.37 ha on lands located at Rahoon, Knocknacarra, Galway. The application is being made under the provisions of the Planning and Development (Amendment) (Large Scale Residential Development) Act 2021. The proposed development will consist of: 1. Provision of 362 no. residential units in 4 no. development areas with a mix of apartment and

house types on a site area of 5.37 ha. The buildings range between 2 no. and 6 no. storeys in height. The development will comprise the following: • 4 no. 2-bed townhouses; • 40 no. 3-bed townhouses; • 21 no. 4-bed townhouses; • 15 no. 1-bedroom duplex apartments; • 46 no. 2-bedroon duplex apartments; • 15 no. 2-bedroom duplex houses; • 46 no. 3-bedroom duplex houses; • 114 no. 1-bedroom apartments; • 56 no. 2-bedroon apartments; • 5 no. 3-bedroom apartments. 2. Demolition of existing structures (333.8 sqm); 3. Vehicular access to the proposed development from a permitted road (Planning Reference 24/60370 refers); 4. The provision of new active travel cycle and pedestrian access from Millers Lane; 5. Upgrades to the existing access at Kingston Road 6. The provision of a childcare facility (440 sq.m.); 7. The provision of public open space; 8. The provision of 665 no. bicycle parking spaces; 9. The provision of 313 no. car parking spaces; 10. Public lighting, bin stores, signage, services, ESB substation, site landscaping and all ancillary site development and enabling works. An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) have been prepared in respect of the proposed development. This application was granted planning permission, subject to conditions, on the 9th April 2026 but was subsequently appealed to ACP, and is currently awaiting decision.

Permission for development which consists of; Galway City Council for permission for the development of a swimming pool and sports facility at a 0.87ha site accessed from Altán Road and Millers Lane, in the townlands of Rahoon, Knocknacarra, Galway. The proposed development will consist of the construction of a prefabricated aluminium frame and fabric tensile envelope with independently constructed facilities building within the envelope and will include the following: Provision of a 35 x 25m competition standard swimming pool with adjustable floor (max depth 2m); Ground floor changing rooms 'wet village' including steam room, sauna and first aid (425 sq.m.), pool deck and spectator area (476 sq.m), reception and staff offices (57 sq.m.), gymnasium (576 sq.m), storage areas and plant spaces (52 sq.m.); 2. Provision of ancillary spaces on the mezzanine floor including multifunctional sports court (760sq. m), gymnasium (92 sq.m), staff offices (54 sq.m.); bathroom facilities and plant spaces (389 sq.m.); 3. Provision of plant area at basement level (495 sq.m.); 4. Provision of a coffee dock at ground floor level (85 sq. m.); 5. The provision of new vehicular and pedestrian access from Altán Road along with the provision of upgraded cycle and pedestrian infrastructure along Altán Road; 6. The provision of new active travel cycle and pedestrian access from Millers Lane; 7. Provision of site landscaping, wall mounted signage, public lighting, bike parking (89 no. Spaces), car parking (75 no. Spaces), bus parking (2 no. Spaces), 1 no. ESB Substation, 1 no. LV Switch room, ground mounted solar PV (250 sq. m) and all associated site development and site enabling works. A Natura Impact Statement (NIS) has been prepared in respect of the proposed development. (pl. ref: 2460370).

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APPENDIX 6

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Construction and Environmental Management Plan

Kingston Stables
Knocknacarra West
Proposed Large-Scale Residential Development



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DOCUMENT DETAILS

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Project Title:	**Kingston Stables Knocknacarra West Proposed Large-Scale Residential Development**
Project Number:	**251145**
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Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

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Rev	Status	Date	Author(s)	Approved By
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1. INTRODUCTION

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This Construction and Environmental Management Plan (CEMP) has been prepared by MKO on behalf of Kingston Stables Ltd., who intend to apply to Galway City Council (GCC) for permission to construct a Large-Scale Residential Development (LRD) comprising 133 residential dwellings, open space and all associated works at a site in Knocknacarra, Galway (Proposed Development).

The Proposed Development forms one component of a larger residential project (Proposed Project) involving the construction of a total 495 residential units; 133 no. units from the Proposed Development and 362 no. units as part of a separate application on lands immediately to the east of the Proposed Development site. An application for this adjacent development was submitted to GCC in October 2025 (Planning Reference Number: 25/60320). Permission was granted by GCC on the 09/04/2026 and the application is currently under appeal with An Coimisiún Pleanála (ACP) under Planning Reference Number: ACP-324237-26). This development is referred to throughout this EIAR as the LRD East. Further details regarding the broader Proposed Project (i.e. the Proposed Development and LRD East combined) are set out in Chapter 1: Introduction of the accompanying Environmental Impact Assessment Report (EIAR).

This CEMP provides the environmental management framework to be adhered to during the pre-commencement and construction phases of the Proposed Development. It incorporates the mitigating principles to ensure that the work is carried out in a way that minimises the potential for any environmental impacts to occur. All measures identified herein will be finalised subsequent to any permission granted and updated prior to the commencement of construction.

This CEMP will serve as a single amalgamated document for use throughout the construction phase, providing a single point of reference for all construction and drainage requirements for the Planning Authority, developer, and contractors. The CEMP may be updated across further iterations as the construction works progress, but at all times must meet or exceed the standards and requirements set out herein. The contractor's current version of the CEMP will guide the construction activities on site at any given time, and its implementation will be audited, and updated as necessary during construction by the contractor.

1.1 Scope of the Construction and Environmental Management Plan

This report is presented as a guidance document for the management of construction activities and waste materials generated during the works and following completion. It outlines clearly the mitigation measures that are required to be adhered to in order to manage activities and waste materials in an appropriate manner.

For the purpose of the CEMP:

- Where the 'Proposed Development' is referred to, this relates to all the project components described in detail in Chapter 4 of EIAR i.e. large-scale residential development and all associated works as detailed below.
- Where the 'Proposed Development Site' is referred to, this relates to the full extent of lands subject of the planning application to GCC, within which the Proposed Development will be constructed.

This report is divided into nine sections as outlined below:

- **Section 1** provides a brief introduction as to the scope of the report.

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- **Section 2** outlines the Proposed Development details, detailing the construction methodologies that will be adopted throughout the construction phase of the Proposed Development.
- **Section 3** sets out details of the environmental controls to be implemented on site for drainage principles, traffic management, dust control and invasive species management. A waste management plan is also included in this section.
- **Section 4** sets out a fully detailed implementation plan for the environmental management of the Proposed Development outlining the roles and responsibilities of the project team.
- **Section 5** outlines the Emergency Response Procedure to be adopted in the event of an emergency in terms of site health and safety and environmental protection.
- **Section 6** consists of a summary table of all mitigation proposals to be adhered to during the Proposed Development, categorised into three separate headings, 1) pre-commencement measures; 2) construction-phase measures and 3) operational-phase measures.
- **Section 7** consists of a summary table of all monitoring requirements and proposals to be adhered to during the Proposed Development, categorised into three separate headings, 1) pre-commencement measures; 2) construction-phase measures and 3) operational-phase measures.
- **Section 8** sets out a programme for the timing of the works.
- **Section 9** outlines the proposals for reviewing compliance with the provisions of this report.

1.2 Targets and Objectives

The following key targets and objectives will be implemented at the site:

- Adopt a sustainable approach to construction and ensure sustainable sources for materials supply where possible.
- Implement correct fuel storage and refuelling procedures at all times.
- Alter construction methods where an adverse effect on the environment is identified.
- Implement good waste management and housekeeping practises throughout the construction phase.
- Using recycled materials, where possible, e.g., excavated material used for backfilling.
- Avoidance of vandalism.
- Implement measures to prevent air and noise pollution.
- Monitor construction works and any adverse effects on an ongoing basis.
- Provide adequate environmental training and awareness for all project personnel.

The key site objectives are as follows.

- Minimise the impact of construction activities on the local environment and wildlife.
- Ensure all construction works and activities are completed in accordance with any planning conditions for the development.
- Ensure construction works and activities cause minimal disturbance to local landowners and the local community.
- Ensure construction works and activities have minimal impact on the Natural Environment.

1.3 Potential Amendment Scenarios

This CEMP may require further updating and final agreement with the various stakeholders should the Proposed Development receive Planning Permission, in alignment with all the conditions which apply

and in order to identify, assess and satisfy the contract performance criteria. The final CEMP will also require updating by the selected contractor. Therefore, this is a working document and will be developed further prior to construction commencing.

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Triggers for amendments to the CEMP will include:

- When there is a need to improve performance in an area of environmental impact;
- As a result of changes in environmental legislation applicable and relevant to the project;
- Where the outcomes from auditing establish a need for change;
- Where Work Method Statements identify changes to a construction methodology to address high environmental risk; and
- As a result of an incident or complaint occurring that necessitates an amendment.

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2. SITE PROJECT AND DETAILS

2.1 Site Location

The Proposed Development comprises an area of 2.7 hectares (ha) located within the townland of Knocknacarra, Co. Galway, approximately 3 kilometres (km) west of Galway City. The Irish Transverse Mercator (ITM) coordinates for the approximate centre of the site are X 526577, Y 724658. A site location map is shown in Figure 2-1 below.

2.2 Site Description

The site itself is comprised of low input agricultural grassland in the southern section and areas of hardstanding, greenfield and agricultural sheds in the northern section. There are a number of hedgerows and stonewalls present within the Proposed Development site. In the wider area, there are existing residential developments to the north, west and south of the Proposed Development site. Lands immediately to the east are predominantly comprised of areas of low input agricultural grassland and greenfield. These lands immediately to the east are where the proposed LRD East development will be constructed.

Construction access will be provided via Altán Road to the north of the site, which connects to the Western Distributor Road. Operational vehicular and pedestrian access will be provided to the north of the site via Altán Road (GCC Planning Reference 24/60370).

There are no Protected Structures or National Inventory Architectural Heritage (NIAH) listed structures located within the Proposed Development site boundary. The closest monument listed in the Sites and Monuments Record (SMR) is a ringfort (GA094-019), located approximately 250 metres (m) to the southwest of the Proposed Development. This is also a Protected Structure (Reference 4801). Coláiste Éinde is located approximately 614 m to the southwest and is listed as a Protected Structure (Reference 10250) and within the NIAH (Reference. 30320001) for its social and technical significance.

The Proposed Development is not located within any European Designated Sites designated pursuant to the obligations under the Habitats Directive and Birds Directive. The site is located approximately 685 m north of the Galway Bay Complex Special Area of Conservation (SAC) and approximately 893 m north of the Inner Galway Bay Special Protection Area (SPA).

There are no Environmental Protection Agency (EPA) mapped watercourses located within the confines of the Proposed Development site boundary. The closest mapped watercourse is located approximately 80 m north and is named the Knocknacarragh Stream (EPA Code: 31K16 – Order 2). It should be noted that this stream is culverted and is not an open watercourse at this location.

The layout of the Proposed Development is outlined in Figure 2-2 below.

2.3 Proposed Development Description

The Proposed Development will consist of the following:

- Provision of 133 no. residential units in 2 no. development areas with a mix of duplex and house types on a site area of 2.9 ha. The buildings range between 2 no. and 3 no. storeys in height. The development will comprise the following:
  - 51 no. 3-bed townhouses;
  - 6 no. 4-bed townhouses;
  - 1 no. 1-bed duplex apartments;
  - 1 no. 2-bed duplex houses;

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- 37 no. 2-bed ground floor duplex apartments;
- 37 no. 3-bed duplex houses.

- Demolition of existing structures (388 sqm).
- Vehicular access to the Proposed Development from the permitted link road (GCC Planning Reference 24/60370);
- Upgrades to the permitted road (Planning Reference 24/60370 refers);
- Pedestrian and cycle access to the adjacent proposed Kingston Park (ACP Ref: 323873);
- Conversion and upgrade of an existing structure to a cafe (65.6 sqm);
- The provision of public open space;
- The provision of 192 no. bicycle parking spaces;
- The provision of 143 no. car parking spaces;
- Public lighting, bin stores, signage, services, 2 no. ground mounted substation kiosks, site landscaping and all ancillary site development and enabling works.

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Map Legend

Site Location

Ordnance Survey Ireland Licence No. AR 0021821© Ordnance Survey Ireland/Government of Ireland

Drawing Title

Site Location

Project Title

Proposed Large-Scale Residential Development at Knocknacarra, Galway

Drawn By	Checked By
EC	TM
Project No.	**Drawing No.**
251145	Figure 2-1
Scale 1:18,000	**Date** 2026-06-23

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Notes:

- Do not scale from this drawing. Use figured dimensions in all cases.
- Verify dimensions on site and report any discrepancies to the Architect immediately.
- This drawing to be read in conjunction with the Architect 's Specification.
- © This drawing is copyright and may only be reproduced with the Architect 's permission.

Drawing Notes:

Unit Breakdown:

3-Detached Townhouses	0
3-Bedroom Townhouses	51
4-Bedroom Townhouses	6
4-Bedroom Detached Townhouse	0
1-Bedroom Duplex Apts.	1
2-Bedroom Duplex Houses	1
2-Bedroom Ground Floor Duplex Apts.	37
3-Bedroom Duplex Houses	37
Total	**133**

Public Open Space: 0.3664 Ha (13.9%)

Gross Site Area: 2.903 Ha

Local Centre / Café: 334sqm

Net Site Area (excl. main road area): 2.643 Ha

Density: 50.3 DPH

Parking @ 1 space / unit	133 spaces
Accessible Parking spaces	5 spaces
Visitor Parking	5 spaces
Total	**143 spaces**

Resident Bicycle Parking	113 spaces
Visitor Bicycle Parking	79 spaces
Total	**192 spaces**

Issues & Revisions

Rev.	Date	Drwn	Details of Issue / Revision
P3-S-01	22.06.26	HB	PLANNING

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Project Details:
Residential Development @ Knocknacarra District Centre South, Knocknacarra, Galway
Phase 2 LRD West

Drawing Title:
Proposed Site Layout

Job No.	Sheet Size:	Scale @A1:	Status	Purpose of Issue
P23-180D	A1_Portrait	1 : 500	**P3**	**PLANNING**

Issue Date:	Drawn By:	Reviewed By:	Project - System - Spatial Zone - Level - Type - Originator - Role - Number	Revision
22/06/2026	HB	DP	**P23-180D-RAU-00-XX-XX-DR-AR-1003**	**P3-S-01**

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2.4 Construction Management

2.4.1 Introduction

All contractors which will be appointed will have the relevant experience to undertake the works for the construction phase of the Proposed Development. All contractors involved in the construction phase of the Proposed Development will be required to comply with this CEMP and any revisions made to this document. An overview of the anticipated Construction Methodologies is provided below under the following main headings.

2.4.2 Overview of the Proposed Construction Methodology

The proposed anticipated construction methodology is summarised under the following main headings:

- Site Establishment
- Perimeter Fencing
- Demolition Works
- Site Excavation
- Traffic Measures and Junction Upgrade Works
- Proposed Site Roads and Footpaths
- Services and Utilities
- Residential Unit Construction
- Landscaping Works

2.4.2.1 Site Establishment

It is anticipated that construction works will have a duration of 36 months. Prior to the commencement of any construction, entrances to the Proposed Development site will need to be fully established with appropriate security gates. Access to the site during construction will be via Altan Road, which connects to the Western Distributor Road to the north of the site.

A site construction compound inclusive of a parking area for construction workers vehicles will be provided within the confines of the site. There will be no parking permitted for any vehicles associated with the Proposed Development construction phase on the adjacent public roads unless agree with the local authority prior to works inception. A designated section of the site will be fenced off as the construction compound.

2.4.2.2 Perimeter Fencing

Perimeter fencing will be provided around the site, where required. This will be in the form of Heras fencing, hoarding or similar, to provide a barrier against unauthorised access from public areas. A controlled access point in the form of a site entrance will be kept locked outside of normal working hours.

The fencing and hoarding will be maintained and painted or covered with graphics portraying project information. Due to the nature of the works and the construction traffic using the site entrance, appropriate signage will be provided along relevant footpaths and site entrances to alert pedestrians to the traffic exiting/entering the site. Appropriate signage will be installed within and outside the site to alert drivers to pedestrians crossing ahead. The contractor will be required to undertake the following.

- A site-specific Health and Safety Plan will be in place for the proposed site. All site staff will be made aware of and adhere to the Health and Safety Plan,

- Operate a Site Induction Process for all site staff,
- Ensure all site staff will have current Construction Skills Certification Scheme (CSCS) training or 'Safe Pass' cards,
- Site hoarding will include Health and Safety warnings at appropriate intervals,
- Fire extinguishers and first aid supplies to be available in the work area,
- All adjacent roadways will be maintained in clean condition at all times,
- Appropriate Personal Protective Equipment (PPE) to be worn at all times,
- Biometric turnstiles will be used at the site to prevent unauthorised access to the site.

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2.4.2.3 Demolition Works

Demolition works will be carried out on existing derelict buildings and sheds during the construction phase. The total existing floor area set for demolition is 388 sqm.

The sequencing of the demolition works will be decided by the main contractor following detailed site survey of the buildings and surrounding area. Such a survey will provide detail on the:

- The condition of the buildings and demolition methods recommended.
- The location and removal methods for any toxic or hazardous materials.
- The type and location of adjoining and surrounding premises which may be affected by noise, vibration, dust and removal of the structures.

Demolition works at the Proposed Development site will primarily involve the following:

- Disconnection of services, if applicable;
- Soft strip of the buildings to be demolished;
- Complete structural demolition of the buildings;
- Grubbing up of the rising walls, foundations and redundant underground services within the footprint of the demolished structures.

The demolition process will generally follow the sequencing shown in Table 2-3.

Table 2-1 Typical Demolition Sequence

Demolition Sequence	General Description
Removal of equipment	Plant & Equipment
Removal of fixtures	Fixtures & fittings
Removal of timber	Floors, trusses, rafters
Demolition of Structures Shells	Manual or mechanical demolition
Removal of groundworks	Foundation, slabs and redundant drainage infrastructure.
Source segregation of material fractions	C&D waste recovery
Transport of materials to authorised facilities	Authorised Waste Collection Permit holders and Waste Facility or Licence holders

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2.4.2.4 Site Excavation

Soil stripping and temporary stockpiling of soils and other excavated materials will be required around the site as the Proposed Development progresses. While these works occur, the following will apply:

- The area where excavations are planned will be surveyed and all existing services will be identified.
- All relevant bodies (i.e. ESB, Gas Networks Ireland, Eir, GCC, etc.,) will be contacted and all drawings for all existing services sought.
- All plant operators and general operatives will be inducted and informed as to the location of any services and the identification of invasive species.
- A tracked 360-degree excavator will be used to strip the topsoil, and a dumper will be used to move the excavated materials to the temporary stockpile location.
- All excavated spoil will be stockpiled and contained entirely within the confines of the site until reused or removed.
- In all circumstances, excavation depths and volumes will be minimised. No basement structures are proposed.
- Excavated material will be reused for future landscaping works or for backfill of excavations, where possible. Any surplus material that cannot be reused on site will be transported off site to a designated facility for disposal or reuse.
- All temporary stockpiles will be covered in a sheet of polythene, as required, which will prevent the creation of nuisance dust, and will also prevent sediment runoff in times of heavy precipitation.
- Earthworks will only be carried out during periods of dry weather.
- Construction of service trenching, surface water attenuation features and associated drainage infrastructure will generate excess material. All excess material will be sent to an authorised soil and stone or waste recovery facility.

As outlined in the Construction Management Plan which has been prepared by Tobins Consulting Engineers for the Proposed Development, it has been designed to minimize cut and fill throughout the site, in keeping the finish floor levels of the units and the proposed road levels as close to the existing ground levels as possible where design gradients and current ground levels permit.

It is expected that all stripped topsoil will be reused on site. The expectation that all cut material will be suitable for fill is idealistic. Some proportion of cut material is likely to be unsuitable for anything other than general landscaping. The scope for using the entirety of excess cut material remains to be explored, but until actual construction takes place, it is only possible to estimate the proportion of material suitable for re-use. Further optimisation may be possible during construction.

2.4.2.5 Traffic Measures and Junction Upgrade Works

As outlined in the Traffic and Transport Assessment (Appendix 15-1) prepared by Tobins Consulting Engineers, vehicular access to the Proposed Development will be gained via a priority T-junction off the Altán arm of the Western Distributor Road/Bothar Stiofian/ Altán Roundabout, using the link road (GCC Planning Reference 24/60370).

Upgrades will include resurfacing which will have similar methodology to that outlined in Section 2.4.2.6 below.

All internal roads will be designed in accordance with the requirements of Design Manual for Urban Roads and Streets (DMURS) and the Recommendations for Site Development Works for Housing Areas.

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2.4.2.6 Proposed Site Roads and Footpaths

Site Roads and Parking Areas

The construction methodology for the proposed access roads and parking areas is as follows:

- Excavation will take place until a competent stratum is reached.
- The competent stratum will be overlain with up to 500mm of granular fill and compacted.
- A layer of geogrid/geotextile may be required at the surface of the competent stratum.
- A final hard surface layer will be placed over the excavated road to provide a road profile to accommodate construction traffic.
- Prior to completion of the construction works on site, the finished asphalt road surface will be applied.

Footpaths

- Excavation will be required to reach the desired levels,
- Shuttering will be installed along the section where footpaths are to be installed,
- A layer of granular material (clause 804 or similar) will be placed within the shuttered area. This layer will then be compacted.
- Once the layer of aggregate material has been compacted to the desired level, concrete will be poured into the shuttered area. The concrete will be levelled with the appropriate falls and allowed to cure for the appropriate time period.
- Once the concrete has cured, the shuttering will be removed.
- Mitigation measures to control potential concrete runoff are outlined in Section 3.2 below.

2.4.2.7 Services and Utilities

Any underground services encountered during the works will be surveyed for level and where possible will be left in place. If there is a requirement to move the service, then the appropriate body (ESB, Gas Networks Ireland, etc.) will be contacted, and the appropriate procedure put in place. Backfill around any utility services will be with dead sand/pea shingle where appropriate. All works will be in compliance with required specifications.

A 150mm watermain has been permitted by Galway City Council (Planning Reference 24/60370), which will connect to an existing Uisce Éireann (UÉ) 150mm watermain that runs along the western boundary along the southern arm junction of the adjacent Western Distributor Road roundabout and Altan Road. It is proposed to connect the watermain for the Proposed Development to this permitted development.

All wastewater generated from the Proposed Development will outfall, via gravity, to a wastewater network permitted by Galway City Council (Planning Reference 24/60370). From this, the wastewater will discharge to an existing UÉ owned 375mm foul sewer line located west of the Proposed Development along the southern arm junction of the adjacent roundabout and Altan Road.

The proposed foul network is designed using Causeway Flow Drainage modelling software. Outputs from the foul sewer design, and long sections are attached in Appendix A of the Civil Works Design Report (Appendix 4-3 of the EIAR). The proposed foul sewer network is represented on the engineering drainage drawings which accompany this document as part of the planning submission.

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As outlined in the accompanying Civil Works Design Report (Appendix 4-3) the proposed storm water drainage infrastructure incorporates the principals of nature-based Sustainable Drainage Systems (SuDS) to manage surface water runoff quantity and quality.

The installation of services and connections to the residential units will be carried out as follows:

- The area where excavations are planned will be surveyed and all existing services will be identified.
- All relevant bodies (i.e., ESB, Gas Networks Ireland, Eir, GCC etc.) will be contacted and all drawings for all existing services sought.
- A traffic management plan will be produced if required for connection works to the existing service network.
- A road opening licence will be obtained where required for connection to existing services.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- A tracked 360-degree excavator or similar will be used to excavate the trench to the required dimensions.
- All excavated material will be removed to an authorised waste recovery facility or, if suitable, stockpiled and reused for backfilling and landscaping where appropriate.
- Once the trench has been excavated the ducting/pipework will then be placed in the trench as per specification.
- Once the service ducts/pipework has been installed couplers will be fitted as required and capped to prevent any dirt etc. entering the ducts/pipes.
- The as-built location of the ducting/pipework will be surveyed using a total station/GPS.
- Backfill material will be carefully placed so as not to displace the ducting/pipework within the trench.
- The appropriate warning/marker tape will be installed above the ducts/pipes at the appropriate depths.
- The surface will be reinstated as per original specification or to the requirements of the site layout/Local Authority as appropriate.

2.4.2.8 Residential Unit Construction

The residential dwellings along with the upgrade of an existing structure to a cafe will be constructed using the following methodology:

- The area where excavations are foundations are to be installed will be surveyed and all existing services will be identified.
- All relevant bodies (i.e. ESB, Bord Gáis, Eircom, GCC etc.) will be contacted and all drawings for all existing services sought.
- The area of each building will be marked out using ranging rods or wooden posts and the soil and overburden stripped and removed to nearby storage area for later use in landscaping.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- A tracked 360-degree excavator or similar will be used to excavate the area down to a competent stratum as approved by the Design Engineer and appropriately shuttered reinforced concrete will be laid over it.
- Foundations will be shuttered and cast with reinforced concrete as per the Design Engineer's specification.
- The pre-cast elements/block work/brick work walls will be built up from the foundation including a Damp Proof Course (DPC) and the floor slab constructed, having first located any ducts or trenches required by the follow on mechanical and electrical contractors.

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- The block work will then be raised to wall plate level and the gables & internal partition walls formed. Scaffold will be erected around the outside of the buildings for these works.
- Any concrete floor slabs in the apartments or town houses will be lifted into position using an adequately sized mobile crane.
- The timber roof trusses will then be lifted into position using a teleporter or mobile crane depending on site conditions. The roof trusses will then be felted, battened, tiled and sealed against the weather.
- Windows, electrics, plumbing and all other building components and services will be installed in as timely a manner as is possible.
- Each building will be inspected and certified by the project design engineer at the appropriate stages of construction.

2.4.2.9 Landscaping Works

Prior to the completion of works on the Proposed Development site, the landscaping works will be carried out in order to ensure that the development will be an aesthetically pleasing place for residents to live. These works will involve the use of plant and machinery in order to carry out tasks such as earth moving. Materials which have been stockpiled for the task will be used as much as possible, and material will only be imported where it is required. During site preparation works, where topsoil is stripped prior to excavation, this material will be retained on site for use in landscaping.

Cunnane Stratton Reynolds have prepared detailed landscape drawings and a Landscape Design Rationale Report which can be found in Appendix 6-3 of the EIAR.

The Landscape Design Rationale Report and Chapter 6 Biodiversity of the EIAR outlines a number of biodiversity friendly measures which are as follows:

- The use of native species will generally be preferred. However, a complimentary element of non-native species will also be used, where appropriate to achieve particular aims or requirements.
- The planting of predominantly pollinator friendly shrub and herbaceous species will integrate the scheme in line with the 'All Ireland Pollinator Plan'.
- Significant additional native tree planting mitigates necessary removals and ultimately will significantly increase the sites tree and vegetation cover overtime.
- Proposed tree planting includes a selection of native and naturalised trees such as alder, beech, birch, cherry, oak, pine, rowan, sycamore and whitebeam. The use of such trees will provide vertical scale and structure to the landscape over time, as well as ecological benefits.
- The proposed landscape plan aims to create a number of linear green corridors suitable for bat feeding.

2.5 Hours of Working

It is expected that construction works will occur during normal working hours:

- 08:00 and 18:00 from Monday to Friday (inclusive);
- 09:00 to 13:00 on Saturday.
- No works will be undertaken on Sunday; and
- Public holidays will be observed unless otherwise agreed with the local planning authority.
- Deliveries will also be scheduled to avoid peak times, i.e. avoiding rush hours and school drop off/pick up times.

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3. ENVIRONMENTAL MANAGEMENT

3.1 Introduction

This CEMP includes all best practice measures required to construct the Proposed Development. The following sections give an overview of drainage design, dust and noise control measures and a waste management plan for the site.

3.2 Protecting Water Quality

Prior to the commencement of any subsequent construction activities, the necessary mitigation measures will be put in place to ensure that no silt laden water runoff generated at the site will flow to nearby watercourses or drains thus ensuring the protection of surface water during the works. This will involve confirming the location of all existing services and delineating between drainage systems. Surface waters will be managed to ensure the prevention of run off from areas where excavation occur does not result in silt laden water entering the existing storm water network.

Particular emphasis will also be placed on hazardous materials management and prevention of spills or leaks of fuel oils to ensure watercourses and groundwater are not impacted. Section 5 provides an Emergency Response Plan for dealing with spillages which may result in adverse environmental effects.

The site of the Proposed Development does not contain any open watercourses. The Proposed Development site is located within the Galway Bay North hydrological catchment (Catchment 31), and the Knock [Furbo]_SC_010 hydrological sub-catchment. The Knocknacarragh Stream (EPA code 31K16) watercourse, which is a 2nd order watercourse (part of the Knocknacarragh_010 system), and according to the EPA mapper, is located approximately 80 m north of the site. During site walkovers, no evidence of this watercourse was recorded, and it appears to have been culverted previously at this location. No other watercourses with perceptible flow were noted within the site.

The Proposed Development site is underlain by the Spiddal groundwater body. The Water Framework Directive (WFD) status 2016-2021 for the Spiddal groundwater body was deemed “Good”.

Excavation works have the potential to encounter sub-surface waters and ground water. In the event of encountering groundwaters during excavation, the excavation will be de-watered using a pump equipped with a silt bag on the discharge outlet. The pumped water will be discharged to either the existing surface water drainage system or to a suitably vegetated area within the site boundary. Where discharge to a vegetated area is required, the area will be enclosed with silt fencing, as necessary, to prevent sediment-laden runoff and ensure compliance with best practice environmental controls. In order to avoid hydrocarbons encountering groundwaters onsite, Section 5.1.4 below presents mitigation measures to avoid the release of hydrocarbons onsite.

Surface and storm water generated during the operational phase will be captured by the proposed drainage network within the confines of the site boundary as outlined in Section 2.4.2.7 above.

3.2.1 Prevention Pollution Control Measures

The following measures will be put in place to prevent the transportation of silt laden water or pollutants from entering any of the wider environments including watercourses/drains within or near the site:

- There are no watercourses on site and surface water will not be directly discharged into any external waterbodies, surrounding land, or adjacent roadways. Any run-off

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generated on-site will undergo the necessary filtration process as previously outlined in Section 3.1.

- The works will be managed to ensure there will be no silt-laden run-off beyond the site boundary. This will be achieved through the use of appropriate excavation techniques during the initial construction works. Where necessary, silt fencing will be installed downslope of the construction areas, particularly where drains or drainage pathways are present. These measures will serve as a protective measure to contain silt material within the site.
- Any requirement for temporary fills or stockpiles will be damped down or covered with polyethylene sheeting as required to avoid sediment release associated with heavy rainfall.
- Excavations will be carried out using a suitably sized excavator and, in all circumstances, excavation depths and volumes will be minimised where practically possible.
- Excavated spoil will be stockpiled and contained entirely within the confines of the site boundaries. Any stockpile areas will be surrounded with silt fencing, if deemed necessary to prevent runoff.
- The minimum number of soil/subsoils and bedrock material should be removed from site. Soil may be reused for landscaping elsewhere on the site. However, any excess construction material shall be removed from the area and sent to an authorised waste recovery facility for reuse or disposal.
- Works shall not take place at periods of high rainfall and shall be scaled back if or suspended if heavy rain is forecast during excavation works.
- High rainfall' is defined as follows:
- >10 mm/hr (i.e. high intensity local rainfall events);
- >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day);
- In the event of encountering groundwaters during excavation, groundwater will be pumped out of the excavation using a pump equipped with a silt bag on the discharge pipe, if necessary, to capture any silty material prior to subsequent natural percolation to ground. The area surrounding the silt bag will be surrounded by silt fencing if deemed necessary.
- No wastewater will be discharged on-site during the construction phase. Toilet facilities will be provided in a prefabricated sanitary unit which will be placed in the construction compound. This unit will have an enclosed wastewater holding tank which will be fitted with a fill level alarm and will be emptied on an as needed basis by the appropriately licensed contractor.
- Good construction practices will be implemented at the site. This will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provides guidance on the control and management of water pollution from construction sites, as outlined in Control of Water Pollution from Construction Sites, guidance for consultants and contractors (CIRIA, 2001). This guidance will be adhered to throughout the construction phase to ensure that surface water generated on site contains minimum sediment.

Details of control measures which will be implemented at the site, if required, are included in the Plates below.

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Plate 3-1.Silt Bag with water being pumped through.



Plate 3-2. Silt Bag under inspection.

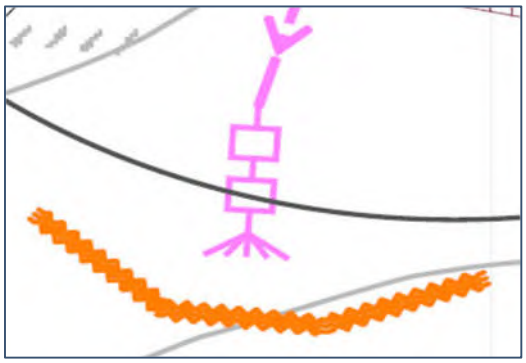


Plate 3-3. Silt Fence (orange) surrounding the discharge from Silt Bag (pink).



Plate 3-4. Embedded Silt Fence

3.2.2 Cement Based Products Control Measures

The complete washing out of concrete trucks will not be permitted at the site. Suppliers will be directed back to their own facility to complete the washout process. However, a washout area for chute cleaning will be provided at various locations in close proximity to the concrete pour locations.

The following measures are proposed to avoid release of cement leachate from the site:

- No batching of wet-cement products will occur on site.
- Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place. Where possible pre-cast elements for culverts and concrete works will be used.
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site.
- Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Use weather forecasting to plan dry days for pouring concrete.
- Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event.

3.2.3 Refuelling, Fuel and Hazardous Materials Storage

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The following measures are proposed to avoid release of hydrocarbons at the site:

- Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Where possible, off-site refuelling will occur at a controlled fuelling station;
- On-site re-fuelling will be undertaken using a double skinned bowser or a refuelling truck with spill kits kept onboard;
- All oils, fuels, paints and other chemicals will be stored in a secure bunded construction hardstand area. Refuelling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any drainage systems. A response procedure will be put in place to deal with any accidental pollution events and spillage kits will be available and construction staff will be familiar with the emergency procedures and use of the equipment;
- A temporary drainage system shall be installed prior to the commencement of the construction works;
- All works shall be undertaken in accordance with the CIRIA document, 'Control of Water Pollution from Construction Sites, guidance for consultants and contractors'
- All plant and machinery will be serviced before being mobilised to site;
- No plant maintenance will be completed on site, any broken-down plant will be removed from site to be fixed;
- Concrete batching will take place off site, wash down and wash out of concrete trucks will take place off site and any excess concrete is not to be disposed of on site. Pumped concrete will be monitored to ensure there is no accidental discharge. Mixer washings are not to be discharged into surface water drains/sewers;
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement tanks/ponds, debris and sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility;
- Foul drainage discharge from the construction compound will be transported off site to a licensed facility until a connection to the public foul drainage network has been established.

3.3 Dust Control

Construction dust can be generated from many on-site activities such as excavation and backfilling. The extent of dust generation will depend on the type of activity undertaken, the location, the nature of the dust, i.e. soil, sand, etc and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or periods of dry weather. Construction traffic movements also have the potential to generate dust as they travel along the approach road. The measures below will also prevent construction debris arising on the public road network.

Proposed measures to control dust include:

- Any site roads with the potential to give rise to dust will be regularly watered, as required, during dry and/or windy conditions.
- The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness and cleaned as necessary.
- Material handling systems and material storage areas will be designed and laid out to minimise exposure to wind.
- Water misting or bowsers will operate on-site as required to mitigate dust in dry weather conditions.
- The transport of soils or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary.

- All vehicles leaving the construction areas of the site will rinse their wheels at a designated wheel wash area prior to entering the local road network.
- All construction related traffic will have speed restrictions on un-surfaced roads to 15 kph.
- Daily inspection of construction sites to examine dust measures and their effectiveness.
- If deemed necessary, sections of the approach road will be swept using a truck mounted vacuum sweeper.

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It is also proposed to carry out dust monitoring at the site during the construction phase. Monitoring will be carried out quarterly using the Bergerhoff method. This monitoring will ensure that the mitigation measures outlined above are functional and being implemented. The locations of dust monitoring gauges are outlined in Figure 3-1 below.



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Map Legend

Site Location

Dust Monitoring Locations

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Drawing Title

Dust Monitoring Locations

Project Title

Proposed Large-Scale Residential Development at Knocknacarra, Galway.

Drawn By	Checked By
EC	TM
Project No.	Drawing No.
251145	Figure 3-1
Scale 1:2,500	Date 2026-06-18

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3.4 Noise Control

The operation of plant and machinery, including construction vehicles, is a source of potential noise impacts. Construction phase noise is typically assessed in light of guidance set out in British Standards Institution (BSI) (2014) BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise , as well as the National Roads Authority (NRA) (now TII) (2014) Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes. Although the NRA document is not directly relevant to the Proposed Works, it has seen increasing application to non-road projects in recent years in the absence of any specific Irish guidance.

All construction plant used on-site will be required to comply with maximum sound power levels set out in Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors, implemented in Ireland by the European Communities (Noise Emission by Equipment For Use Outdoors) Regulations, 2001 (S.I. 632 of 2001) , as amended by the European Communities (Noise Emission by Equipment for Use Outdoors) (Amendment) Regulations, 2006 (S.I. 241 of 2006) .

Proposed measures to control noise include:

- Construction operations will in general be confined to the periods Monday-Friday 0800-1800 h and Saturday 0900-1300 h.
- Hooting will be prohibited onsite. Drivers of plant and vehicles will be instructed to avoiding hooting at all times.
- Plant used onsite during the construction phase will be maintained in a satisfactory condition and in accordance with manufacturer recommendations. In particular, exhaust silencers will be fitted and operating correctly at all times. Defective silencers will be immediately replaced.
- Queuing of trucks on public roads will be prohibited.
- Machinery not in active use will be shut down.
- A site representative will be appointed as a liaison officer with the local community.
- Any complaints of noise received during the construction phase will be logged in a register, and investigated immediately. Details of follow-up action will be included in the register.
- Where it is proposed to import potentially noisy plant to the site, the potential impact of noise emissions will be assessed in advance.
- Guidance set out in BS 5228-1:2009 with respect to noise control will be applied throughout the construction phase.
- Advance notification will be given to residents immediately outside the site boundary when works are proposed within 50 m of their dwellings.

3.5 Vibration Control

Vibration standards can be considered in two varieties: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. For example, vibration is perceptible at around 0.5mm/s in the case of road traffic, however at higher magnitudes, this vibration may become an annoyance. Guidance relevant to the protection of building structures is contained in the following documents:

- British Standards Institution (BSI). (1993) BS 7385-2:1993 Evaluation and Measurement for Vibration in Buildings – Part 2: Guide to Damage Levels from Ground Borne Vibration. London: BSI1.
- British Standards Institution (BSI). (2014) BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration. London: BSI2.

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Vibration can be more difficult to control than noise, and there are few generalisations which can be made about its control. It should be borne in mind that vibration can cause disturbance by causing structures to vibrate and radiate noise in addition to perceptible movement. The following mitigation measures will be implemented at the site during the demolition and construction phases to control vibration levels:

- The hours of working should be planned, and account should be taken of the effects of vibration upon persons in areas surrounding site operations and upon persons working on site, taking into account the nature of land use in the areas concerned and the duration of work.
- Where reasonably practicable, low vibration working methods should be employed. Consideration should be given to use of the most suitable plant, reasonable hours of working for operations which might give rise to perceptible vibrations, and economy and speed of operations.
- Vibration should be controlled at source and the spread of vibration should be limited.
- Where reasonably practicable, plant and/or methods of work causing significant levels of vibration at sensitive premises should be replaced by other less intrusive plant and/or methods of working.
- Vibration from stationary plant (e.g. generators, pumps, compressors) can, in some instances, prove disturbing when located close to sensitive premises or when operating on connected structures. In these instances, equipment should be relocated or isolated using resilient mountings.
- Where processes could potentially give rise to significant levels of vibration, on-site vibration levels should be monitored regularly by a suitably qualified person appointed specifically for the purpose, particularly if changes in machinery or project designs are introduced. A method of vibration measurement should be agreed prior to commencement of site works.
- On those parts of a site where high levels of vibration are likely to be a hazard to persons working on the site, prominent warning notices should be displayed.
- Offsite fabrication - In method statement/risk assessment the contractor will highlight any activity that may cause significant vibration levels and include measures in helping to mitigate these emission levels.
- Equipment is to be task specific.
- Best practice vibration control measures will be employed by the contractor.
- A designated member of staff will be appointed as the point of contact for any queries or complaints from nearby local residents. A complaints log will be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated.

[1] ***British Standards Institution (BSI). (1993)*** BS 7385-2:1993 Evaluation and Measurement for Vibration in Buildings – Part 2: Guide to Damage Levels from Ground Borne Vibration***. London: BSI***
[2] ***British Standards Institution (BSI). (2014)*** BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration***. London: BSI***

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3.6 Ecological Measures

As outlined in Chapter 6 Biodiversity of the EIAR, the following measures will assist in reducing the impact of habitat loss on local bats during construction:

The below mitigation strategy is proposed for works on the two buildings previously identified as bat roosts, to minimise the potential for direct harm to individual bats over the course of the works proposed, and to provide alternative roosting opportunities to local bats, during and post construction:

- Works will not be carried out during the bat activity season (April-September) within buildings where evidence of roosting bats were found (i.e. Stone Shed 1 and Stone Shed 2).
- Alternative new roosting locations will be provided as part of the proposed development site. One no. Rocket Bat Box and two no. pole-mounted woodcrete bat boxes will be erected in suitable locations around the perimeter of the Proposed Development site. The locations of these bat boxes will be cognisant of existing landscape features in the wider vicinity of the Proposed Development site which could be used by commuting and foraging bats and will also avoid areas of artificial lighting. At least two of these will be installed prior to building demolitions commencing.
- Bat boxes will have a southerly orientation and be positioned at least 2m from the ground (ideally 3m), and away from artificial lighting. They will be placed adjacent to existing vegetation features such as treelines and hedgerows, beyond the Proposed Development site boundary, to ensure they are close to existing flight paths and can avoid wide open spaces (Collins, 2023).
- The new bat boxes will be inspected annually under licence to monitor uptake and their condition.

3.7 Traffic Management Proposals

A Traffic Management Plan (TMP) for the construction stage will be developed and agreed with GCC prior to the commencement of works.

The proposed traffic management measures (As listed in Chapter 15 Material Assets of the EIAR and the Construction Traffic Management Plan) to be adopted during the construction works are summarised below. Please note that this is not an exhaustive list, and it will be updated accordingly by the appointed contractor in consultation with the local authority:

- Traffic movements will be limited to 07:00 - 19:00 Monday to Friday and 07:00 – 14:00 Saturday, unless otherwise agreed in writing with Galway City Council. These are outside of the onsite construction hours and outside of peak traffic hours.
- HGV movements will be restricted during peak road network hours (including school hours) from 08:00 – 09:00 and 17:00 – 18:00 Monday to Friday, unless otherwise agreed in writing with Galway City Council.
- Pedestrian and cyclist routes are to be maintained throughout the construction phase to ensure safe pedestrian and cyclist access is available.
- HGV movements for the proposed project shall be directed away from sensitive areas with site deliveries to be scheduled outside of school drop-off or collection times (i.e., schools, urban centres).
- No parking shall be permitted along the access route for unloading or activities that result in blockages of access routes. Such vehicles will be immediately requested to move to avoid impeding the works and traffic on the road network.

- Measures to remove queuing of construction traffic on the adjoining road network, including turning space and queuing of convoy HGVs will be provided within the sites.
- Wheel wash equipment will be used on site to prevent mud and stones from being transferred from the site to the public road network.
- Activities generating dust will be minimised where practical during windy conditions. Loads will be covered on arrival and departure from the site, where required.

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3.8 Archaeological Mitigation Measures

3.8.1 Pre-Construction Investigations

The northern area of the Proposed Development site has been subject to significant modern ground disturbance while the southern end remains as a largely undisturbed area of green field pastureland containing areas of bedrock outcrops and waterlogging. The lands have been assessed by a geophysical specialist (Dr. Ger Dowling) and were considered to be unsuitable for an archaeo-geophysical survey due to the presence of areas of prior ground disturbance, undulating terrain with bedrock outcrops, waterlogged conditions and the presence of overhead electricity cables.

A programme of archaeological test trenching, under licence by the National Monuments Service, will therefore be carried within the Proposed Development site in advance of the construction phase. This archaeological investigation will also include the compilation of a written and photographic record of the existing field boundaries within the Proposed Development site. In the event that any sub-surface archaeological deposits, features or objects are identified during test trenching, their locations will be recorded and securely cordoned off while the National Monuments Service are notified of the discovery and consulted to determine further mitigation measures, which may entail preservation *in situ* by avoidance or preservation by record through a systematic archaeological excavation.

3.8.2 Monitoring of Mitigation Measures

There are a number of obligatory processes to be undertaken as part of applications to the National Monuments Service for licences to carry out archaeological test trench excavations and these will allow for monitoring of the successful implementation of the mitigation measures.

A detailed method statement stating the proposed strategy for the site investigations will accompany the submitted licence application which will clearly detail the extent of the archaeological works and outline the processes to be enacted in the event that any archaeological features are encountered. Reports on the archaeological site investigations will then be submitted to the National Monuments Service, the National Museum of Ireland and the Planning Authority which will clearly describe the results of all archaeological works in written, mapped and photographic formats.

3.9 Invasive Species Management

A multidisciplinary walkover survey was carried out on the 20th of March 2024, and the 24th of April 2024. An updated field survey was undertaken by Deepali Mooloo (B.Sc., M.Sc.) of MKO on the 23rd June 2026.

These field surveys were carried out in line with NRA (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes).

As outlined in the accompanying Invasive Species Management Plan (ISMP) (Appendix 6-2 of the EIAR), two invasive species listed on the Third Schedule of of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) and First Schedule of the European Union

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(Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) were recorded within the Proposed Development site boundary.

Three-cornered leek (*Alium triquetrum*) was recorded in the Proposed Development Site. A small cluster of Three-cornered leek was recorded on the northern boundary of the Proposed Development site.

Sea buckthorn (*Hippophae rhamnoides*) saplings, categorised as minor infestations, were also recorded at the northern extents of the proposed Development site. Overall, the infestation of Sea buckthorn within the site is very small in scale, with only juvenile saplings recorded.

The treatment and control of invasive alien species will follow best practice guidelines, including:

- National Roads Authority (NRA) (2010) Guidelines on the Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads. Revision 1. Dublin: National Roads Authority.
- INNSA (2017) Code of Practice: Managing Japanese Knotweed. Invasive Non-Native Specialists Association.

3.9.1 Treatment and Management Methodologies

3.9.1.1 Preliminary Stages

A dedicated invasives species survey of the Proposed Development site will be carried out three months prior to commencement of works on site to determine if the species have spread further throughout the site. Surveys should be undertaken during the summer months (June - July) when the extent of infestation will be fully visible.

The treatment methodologies have been carefully considered and are proposed to eradicate Sea buckthorn and Three-cornered leek and manage their spread further within the Proposed Development site. These treatment measures are considered as part of the planning application. An ecologist will be on site to supervise the treatment. The infested areas will be marked out with posts and hazard tape prior to any machinery ingress or works within or near this area.

3.9.1.2 Three- Cornered Leek

The following management is proposed in relation to Three-cornered Leek:

- An ecologist will be on site to supervise the treatment.
- The infested area will be marked out with posts and hazard tape prior to any machinery ingress or works within or near this area.
- Three-cornered leek can be controlled through chemical means.
    - Chemical treatment is the chosen treatment method. It is advised to treat the plant in-situ and avoid disturbance and the increased risk for spread and dispersal.
    - This plant can be treated with a Glyphosate based chemical herbicide on an annual basis. It is recommended that a Glyphosate-based herbicide will be applied as a spot treatment to individual plants, or by foliar and stem spray in early spring before the plant flowers which typically happens between April and June. It is best to manually break the leaves prior to applying the chemical to ensure it enters the leaf. Follow-up annual treatments are necessary as large numbers of shoots may re-appear the following year as may new seedlings.
- The timing of the treatment applied is vital for the eradication of three-cornered leek. The control methods must be implemented in March or April when the leaves

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of the three-cornered leek are fully formed. Control methods should not be carried out if plants have finished flowering and produced seed (from the outset of May) as the movement of plants at this stage in the plant's cycle can cause a further spread of the invasive species.

- Three-cornered leek produces vast amounts of seeds annually and these seeds can persist and remain dormant in the soil for years before germinating. Due to this, a monitoring programme will be established to eradicate the invasive plant where the plants currently exist onsite. Therefore, it is key to undertake the control and treatment measures for a consecutive number of years to eradicate the seed bank and bulbs. The developer will appoint a suitably qualified ecologist to carry out post-construction monitoring for invasive species. The area will be surveyed by an ecologist in March/April, May and again in September for the presence of Three-cornered leek for a minimum of 3 years after the treatment to ensure no further spread is taking place.

3.9.1.3 Sea Buckthorn

Mechanical/ physical removal of Sea buckthorn controls the spread of the invasive species by either damaging or removing the plant material via physical action, i.e., uprooting, felling, slashing, mowing, grubbing etc. Juvenile Sea buckthorn saplings were previously recorded in close proximity to the Proposed Development boundary and given its proximity it is proposed to eradicate this species from nearby lands on a precautionary basis. It is anticipated that the construction phase will span 3 years and as such it is likely to mature with time, in the absence of control measures being implemented.

The recommended treatment methodology for Sea buckthorn includes;

- Any juvenile new shoots of Sea buckthorn will be removed by hand pulling or manual removal using hand tools. The plant will be physically cut and dug up from the root either by hand or using an excavator to grub up the plant.
- Larger stumps will be cut and the stumps painted with Glyphosate herbicide.
- Following clearance of woody material, any necessary excavation of the ground will be undertaken. As sea-buckthorn can readily regenerate from root and rhizomatous material present in soil, any soil arising from areas infested with sea-buckthorn must be contained and disposed of appropriately.
- The vegetation material can be disposed of by burning or incineration.
- If for any reason, burning of plant material is not feasible on-site this material and the soil potentially contaminated within root or rhizome fragments must be gathered and disposed of off-site, to a waste disposal facility that has a pollution prevention and control permit or waste management licence. In order to move material potentially contaminated with Third or First Schedule invasive plant species, a licence is required to be obtained from NPWS. The conditions of the permit or licence of the waste disposal facility must allow the disposal of invasive plants at the site. Delivery should be agreed with the waste site in advance to make sure they can accept material containing invasive plants. When transporting invasive plant material and soil potentially contaminated with invasive plant material, any vehicle used must be covered or securely sheeted so that plant material cannot be accidentally dispersed during transportation.

3.9.1.4 Post Treatment Monitoring

Ongoing monitoring will be required within the Proposed Development site for all invasive species listed on the Third and First Schedules with suitable follow-up management implemented, in order to control new growth or re-establishment within the infested areas.

Following the initial removal, treatment and completion of the development, the treated areas will be re-surveyed annually and if necessary, re-treated until no growth of Three-cornered leek or Sea

buckthorn is recorded for two consecutive years. If Three-cornered Leek or Sea buckthorn are found to be re-establishing, they shall be treated as per the measures outlined above and in Section 4 of the ISMP.

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3.9.1.5 Site Hygiene

The following measures will be adhered to throughout the duration of the proposed construction works:

- The Project Ecologist will give a Toolbox Talk to all staff in relation to Three-cornered leek and Sea buckthorn and their management on site.
- A designated bio-secure area/exclusion zone will be set up at the Three-cornered Leek and Sea buckthorn locations to prevent disturbance in these areas.
- Prior to leaving the invasive species exclusion zones, all boots and clothing will be thoroughly brushed down to remove any contaminated material prior to leaving the area.
- The contractor will assign a member of their team as Environmental Officer to ensure the management plan is adhered to throughout the proposed works.
- All works in relation to invasive species will be supervised by the Ecological Clerk of Works (ECoW).
- As a precautionary measure, machinery will be thoroughly cleaned down before entering the site to prevent potential spread of invasive species from elsewhere.
- Clean down will be carried out using brushes and shovels and power washing avoided insofar as possible. This is to prevent potentially contaminated run-off spreading outside the site.
- All measures prescribed in the invasive species management plan will be incorporated into the contractor's respective method statements for works.

To avoid the introduction of invasive species to the site the following best practice measures will be adhered to:

- Any material imported to the site will be screened for invasive species by a suitably qualified ecologist before transportation to the site.
- All machinery will be thoroughly cleaned down prior to arriving on the site to avoid the potential spread of invasive species from elsewhere.

3.10 Resource Waste Management Plan

This section of the CEMP provides a Resource Waste Management Plan (RWMP) which outlines the best practice procedures during the construction phases of the project. This RWMP has been compiled based on the EPA 2021 document, *Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects*[3].

The plan is based on the European waste hierarchy which sets out the most to least preferred options for waste management. Waste prevention and re-use are viewed as the most desirable options for managing wastes with the least desirable option considered being disposal to a licensed landfill.

This plan has key objectives as outlined below:

- To set out management prescriptions that adhere to the waste management hierarchy.

[3] *Environmental Protection Agency (2021) Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projections: https://www.epa.ie/publications/circular-economy/resources/CDWasteGuidelines.pdf*

- To outline the roles and responsibilities of the appointed Waste Manager.

The generation of waste as a result of construction and demolition related activity will provide the majority of on-site wastes which will need to be managed under guidelines as set out in this document.

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3.10.1 Legislation

The Waste Management Acts 1996 (Act) as amended provide measures to improve performance in relation to waste management, recycling and recovery. The Act also provides a regulatory framework for meeting higher environmental standards set out by other national and EU legislation.

The Act requires that any waste related activity has to have all necessary licenses and authorisations. It will be the duty of the Waste Manager on the site of the Proposed Development to ensure that all contractors hired to remove waste from the site have valid Waste Collection Permits. It will then be necessary to ensure that the waste is delivered to a licensed or permitted waste facility. The hired waste contractors and subsequent receiving facilities must adhere to the conditions set out in their respective permits and authorisations.

3.10.2 Guidance

This RWMP – which will incorporate all the measures set out in this document will be finalised subsequent to any permission granted by GCC and will be updated prior to construction to include, inter alia, any additional requirements pursuant to relevant planning conditions imposed – has a number of key objectives as outlined below:

This RWMP is cognisant of Chapter 9 – Environment and Infrastructure Section 9.10 of the Galway City Development Plan 2023-2029 which states that waste management and disposal should be carefully considered as part of the construction process and waste management plans are required for medium to large scale developments. This RWMP also takes into account Chapter 15 Development Management (DM) Standards 39: Construction and Demolition Waste as outlined in the Galway County Development Plan 2022-2028. DM Standard 39 states that Construction and Demolition Waste Management Plans shall be required as part of any planning application in excess of the following thresholds:

- New residential development of 10 houses or more;
- Developments including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250 m^2;
- Demolition/renovation/refurbishment projects generating in excess of 100 m^3 in volume, of Construction and Demolition waste;
- Civil engineering projects producing in excess of 500 m^3 of waste, excluding waste materials used for development works on the site.

3.10.3 Waste Management Hierarchy

The waste management hierarchy sets out the most efficient way of managing waste in the following order:

Prevention and Minimisation

The primary aim of the RWMP will be to prevent and thereby reduce the amount of waste generated at each stage of the project. The prevention and minimisation of waste of this development will be developed by implementing effective on-site materials management in terms of both material acquisition and storage on site.

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Reuse of Waste

Reusing as much of the waste generated on site as possible will reduce the quantities of waste that will have to be transported off site to waste recovery facilities or landfill. Site management will be required to encourage the appropriate reuse of materials where possible as well as identify re-use opportunities to achieve ultimate goal of waste reduction.

Recycling of Waste

There are a number of established markets available for the beneficial use of construction waste such as using waste concrete as fill for new roads. A designated Waste Storage Area (WSA) will be maintained on site which will cater for segregation and recycling of various waste streams.

At all times during the implementation of the RWMP, disposal of waste to landfill will be considered only as a last resort.

3.10.4 Resource Waste Management

3.10.4.1 Design Approach

The client and the design team have integrated the '*Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects*' guidelines into the design workshops, to help review processes, identify and evaluate resource reduction measures and investigate the impact on cost, time, quality, buildability, second life and management post construction. The design team have undertaken the design process in line with the international best practice principles to firstly prevent wastes, reuse where possible and thereafter sustainably reduce and recover materials. The below sections have been the focal point of the design process and material selections and will continue to be analysed and investigated throughout the design process and when selecting material. The approaches presented are based on international principles of optimising resources and reducing waste on construction projects through:

- Prevention;
- Reuse;
- Recycling;
- Green Procurement Principles;
- Off-Site Construction;
- Materials Optimisation; and
- Flexibility and Deconstruction.

The RWMP will be updated prior to construction and regularly revisited throughout the project's lifecycle so that opportunities to maximise waste reduction/efficiencies are exploited throughout, and that data is collected on an ongoing basis so that it is as accurate as possible.

3.10.5 Construction Phase Waste Management

The Proposed Development will involve the excavation of soil and subsoil material. Although a quantity of this material will be used for landscaping, backfilling and general restoration of excavated areas, it is anticipated that the majority of the excavated material will be removed off-site by a licenced haulier to an authorised waste and or soil recovery facility.

Waste generated post excavation on site will be managed in the WSA where the various waste components will be segregated into a number of waste categories in accordance with a general waste segregation policy and placed into individual skips. The categories for segregation will include timber, metal, cardboard and plastics. This material will be removed by authorised waste collection contractors for recycling and recovery at appropriately licensed facilities. The remaining volume of

waste material which cannot be allocated to any of these four waste streams will be disposed of in a general waste skip.

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This waste material will be transferred to an appropriately licensed waste disposal/recovery facility by a fully licensed waste contractor where the waste will be further sorted into individual waste streams for recycling, recovery or disposal. This general waste will be subject to constant monitoring by site management to ensure that potential reusable and recyclable material is not being disposed of therein. The on-site canteen will include waste receptacles for dry recyclables and food waste which will eliminate the potential of any waste produced within the canteen being sent to landfill.

Other waste mitigation measures which will be implemented at the site are as follows;

- All construction phase waste will be collected in skips and the site will be kept tidy and free of debris at all times.
- Waste oils and hydraulic fluids will be collected in leak proof containers and removed from the site for disposal or recycling. It is also essential that all empty oil containers and other hazardous wastes will be disposed of in accordance with the requirements of the Waste Management Act, 1996 as amended.
- All construction waste materials will be stored within the confines of the site, prior to removal from the site to an appropriately licensed waste facility.
- A self-contained port-a-loo with an integrated waste holding tank will be used within the confines of the site. This unit will be maintained by the providing contractor and removed from site upon completion of the construction works.
- No wastewater will be discharged on-site during the construction phase.

The expected wastes arising from the works including individual List of Waste (LoW) codes are outlined in Table 3-1.

Table 3-1 Expected Waste Types Arising during the Construction Phase

Materials type	Example	LoW Code
Cables	Electrical wiring	17 04 11
Concrete	Surfacing, foundations, flooring material	17 01 01
Insulation	Cavity & Floor Insulation	17 06 04
Tiles and ceramics	Wall and floor tiles	17 02 03
Bituminous materials	Tarmacadam	17 03 01
Metals	Rebar, reinforced steel joists, lead	17 04 07
Mixture of inert material	Sand, stones, plaster, rock	17 01 07
Plastic	PVC frames, electrical fittings	17 02 03
Soil & Stones	Overburden, soil, subsoil	17 05 04
Gypsum materials	Roof tiles/slabs	17 08 02
Wood	Frames and doors,	17 02 01
Canteen Waste	Miscellaneous waste from site staff	20 01 08

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3.10.5.1 Waste Arisings and Proposals for Minimisation, Reuse and Recycling of Construction Waste

Construction waste will arise on the project mainly from excavation and unavoidable construction waste including material surpluses and damaged materials and packaging waste.

Appropriate measures will be taken to ensure excess waste is not generated during construction, including;

- Ordering of materials will be on an 'as needed' basis to prevent over supply to site. Co-ordination is required with suppliers enabling them to take/buy back surplus stock.
- Purchase of materials pre-cut to length to avoid excess scrap waste generated on site.
- Request that suppliers use least amount of packaging possible on materials delivered to the site.
- Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal.
- Ensuring correct sequencing of operations.
- Use reclaimed materials in the construction works.

Hazardous waste will be kept separate from all other construction waste to prevent contamination and removed appropriately. In addition to fuel as outlined above, the potentially hazardous wastes that may be generated at the site during the construction include;

- Paints including all associated by products.
- Glues and solvents.
- Asphalt materials from roofing products and external paving finishes.

3.10.5.2 Wastes Arising from Construction Activities

All waste generated on site will be contained in waste skips at the WSA. This WSA will be kept tidy with skips clearly labelled to indicate the allowable material to be disposed of therein.

Packaging waste generated from the delivery of materials will be returned to the suppliers where possible or removed off site for transfer to a Materials Recovery Facility (MRF).

Site personnel will be instructed at induction that no under no circumstances can waste be brought to site for disposal in the on-site waste skip. It will also be made clear that the burning of waste material on site is forbidden.

3.10.5.3 Demolition Waste Management Plan

Prior to the commencement of any demolition works, as described in Section 2.4.2.3 above, a full audit of waste material that will be generated will be carried out. A list of expected waste types that may be generated has been drawn up and the European LoW Codes pertaining to each waste type is included in Table 3-3.

Table 3-2 Expected Waste Types Arising from the Demolition Phase

Materials type	Example	LoW Code
Cables	Electrical wiring	17 04 11
Concrete	Surfacing, flooring material	17 01 01
Metals	Steel supports and cladding, roof and wall coverings, utility piping,	17 04 07
Mixture of inert material	Sand, stones, plaster, brick, rock	17 01 07
Plastic	PVC frames, electrical fittings	17 02 03
Soil & Stones	Overburden, soil, subsoil	17 05 04
Wood	Rafters, frames, doors, MDF	17 02 01

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The majority of the waste generated by the demolition works will consist of stone, concrete rubble, metal cladding and other associated support components (steel beams/wooden rafters). These materials will be segregated from all other waste components and sent by an authorised waste collector to an authorised waste recovery facility. The remaining volume of waste material will not be large enough to warrant any further segregation, therefore, this waste generated during the demolition works will be deposited into a single skip. This waste material will be transferred to a MRF by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. It is unlikely that re-use of materials will be possible at the site. However, clean inert concrete, rubble and stones may have a re-use potential for landscaping and raising levels to formation levels.

3.10.5.4 Reuse

Many construction materials can be reused a number of times before they have to be disposed of:

- Concrete can be reused as aggregate for roads backfilling material.
- Plastic packaging, etc. can be used to cover materials on-site or reused for the delivery of other materials.
- Soils and subsoils will be reused as part of landscaping and site re-instatement.

3.10.5.5 Recycling

If a certain type of construction material cannot be reused on-site, then recycling is the most suitable option.

All waste that is produced during the construction phase including dry recyclables will be sent directly for subsequent segregation at a remote facility. The low volume of such material that is anticipated to be generated at the Proposed Development is the justification for adopting this method of waste management.

3.10.5.6 Wastewater

The removal and disposal of wastewater from site welfare facilities, will be carried out by a fully permitted waste collector holding valid Waste Collection Permits as issued under the *Waste Management (Collection Permit) Regulations* (2007), as amended. Information on the appointed permitted contractor and evidence of a maintenance will be retained on-site and available for inspection on request.

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3.10.6 Implementation

3.10.6.1 Roles and Responsibilities for Waste Management

Prior to the commencement of the Proposed Development a Waste Manager will be appointed by the project team. The role of Waste Manager is likely to be fulfilled by the Site Manager given the scale of the development and will be responsible for the implementation of the objectives of this plan, ensuring that all hired waste contractors have the necessary authorisations and that the waste management hierarchy is adhered to. The person nominated will have sufficient authority so that they can ensure everyone working on the Proposed Development adheres to the management plan. The Waste Manager will also be required to conducted regular waste audits in the WSA and throughout the site to ensure that the waste management plan is operating effectively.

3.10.6.2 Training

The Waste Manager will communicate effectively with colleagues in relation to the aims and objectives of the RWMP. All employees working on-site during the construction phases of the project will be trained in materials management and thereby, will be able to:

- Distinguish reusable materials from those suitable for recycling;
- Ensure maximum segregation at source;
- Co-operate with site manager on the best locations for stockpiling reusable materials;
- Separate materials for recovery; and
- Identify and liaise with waste contractors and waste facility operators.

3.10.6.3 Record Keeping

The implementation of the RWMP will ensure that all arisings, movements and treatments of construction and demolition waste to be recorded. This system will enable records the quantity of waste being generated to be maintained. It will highlight the areas from which most waste occurs and allows the measurement of arisings against performance targets. The RWMP can then be adapted with changes that are seen through record keeping.

The fully licensed waste contractor employed to remove waste from the site will be required to provide documented records for all waste dispatches leaving the site of the Proposed Development. Each record will contain the following:

- Consignment Reference Number
- Material Type(s) and LoW Codes
- Company Name and Address of Site of Origin
- Trade Name and Collection Permit Ref. of Waste Carrier
- Trade Name and Licence Ref. of Destination Facility
- Date and Time of Waste Dispatch
- Registration no. of Waste Carrier vehicle
- Weight of Material
- Signature of Confirmation of Dispatch detail
- Date and Time of Waste Arrival at Destination
- Weight of Material
- Site Address of the Destination Facility.

3.10.7 Resource Waste Management Plan Conclusion

The RWMP will be adhered to by all staff involved in the project which will be outlined within the induction process for all site personnel. The waste hierarchy will always be employed when designing the plan to ensure that the least possible amount of waste is produced during the construction and demolition phases. Reuse of certain types of construction waste will cut down the costs and requirement of raw materials, therefore further minimising waste levels.

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4. ENVIRONMENTAL MANAGEMENT IMPLEMENTATION AND EMERGENCY RESPONSE

4.1 Environmental Manager

The main contractor appointed to carry out the works on site will be required to provide a level of supervision on site in the form of an Environmental Manager who will also fulfil the role of Waste Manager. Due to the scale of activity proposed for the site, this role can be adopted by a Site Manager/Foreman as part of their duties. In general, this Environmental Manager will maintain responsibility for monitoring the works and Contractors/Sub-contractors from an environmental perspective. The Environmental Manager will act as the regulatory interface on environmental matters by reporting directly to the client and liaising with GCC and other statutory bodies as required. The Site Environmental Manager will report to the Site Supervisor/Construction Manager. The duties of the appointed Environmental Manager are summarised as follows:

- Maintain and update as required the Construction Phase CEMP and supporting environmental documentation and review/approval of contractor method statements.
- Undertake inspections and reviews to ensure the works are carried out in compliance with the CEMP.
- Monitor the implementation of the CEMP, particularly all proposed/required Environmental Monitoring.
- Generate environmental reports as required to show environmental data trends and incidents and ensure environmental records are maintained throughout the construction period.
- Advise site management/contractor/sub-contractors on:
    - Prevention of environmental pollution and improvement to existing working methods.
    - Changes in legislation and legal requirements affecting the environment.
    - Suitability and use of plant, equipment and materials to prevent pollution.
    - Environmentally sound methods of working and systems to identify environmental hazards.
- Ensure proper mitigation measures are initiated and adhered to during the construction phase.
- Liaise with Project Team and present the findings of site audits/inspections that are completed.
- Ensure adequate arrangements are in place for site personnel to identify potential environmental incidents.
- Ensure that details of environmental incidents are communicated in a timely manner to the relevant regulatory authorities, initially by phone and followed up as soon as is practicable by email.
- Support the investigation of incidents of significant, potential or actual environmental damage, and ensure corrective actions are carried out, recommend means to prevent recurrence and communicate incident findings to relevant parties.
- Identify environmental training requirements and arrange relevant training for all levels of site-based staff/workers.
- Fulfil the role of Waste Manager and implement the objectives of the Resource Waste Management Plan as set out in Section 3.10 above.

4.2 Environmental Awareness Training

4.2.1 Environmental Induction

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The Environmental Induction will be integrated into the general site induction on a case-by-case basis for each member of staff employed on-site depending on their assigned roles and responsibilities on-site. Where necessary, the Environmental Induction will as a minimum include:

- A discussion of the key environmental risks and constraints.
- An outline of the CEMP structure.
- A discussion of the applicable works Method Statement.
- The roles and responsibilities of staff, including contractors, in relation to environmental management.
- An outline of the Environmental Incident Management Procedure.

5. EMERGENCY RESPONSE PLAN

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5.1.1 Emergency Response

The Emergency Response Plan (ERP) is presented in this section of the CEMP. It provides details of procedures to be adopted in the event of an emergency in terms of site health and safety and environmental protection. The site ERP includes details on the response required and the responsibilities of all personnel in the event of an emergency. The ERP will require updating and submissions from the Site Manager and suppliers as the proposed project progresses. Where sub-contractors that are contracted on site are governed by their own emergency response procedure a bridging arrangement will be adopted to allow for inclusion of the sub-contractor's ERP within this document.

This is a working document that requires updating throughout the various stages of the project.

5.1.2 Roles and Responsibilities

The chain of command during an emergency response sets out who is responsible for coordinating the response. The Site Manager will lead the emergency response which makes him responsible for activating and coordinating the emergency response procedure. The other site personnel who can be identified at this time who will be delegated responsibilities during the emergency response are presented in Figure 5-1. In a situation where the Site Manager/Environmental Manager is unavailable or incapable of coordinating the emergency response, the responsibility will be transferred to the next person in the chain of command outlined in Figure 5-1. This will be updated throughout the various stages of the project.

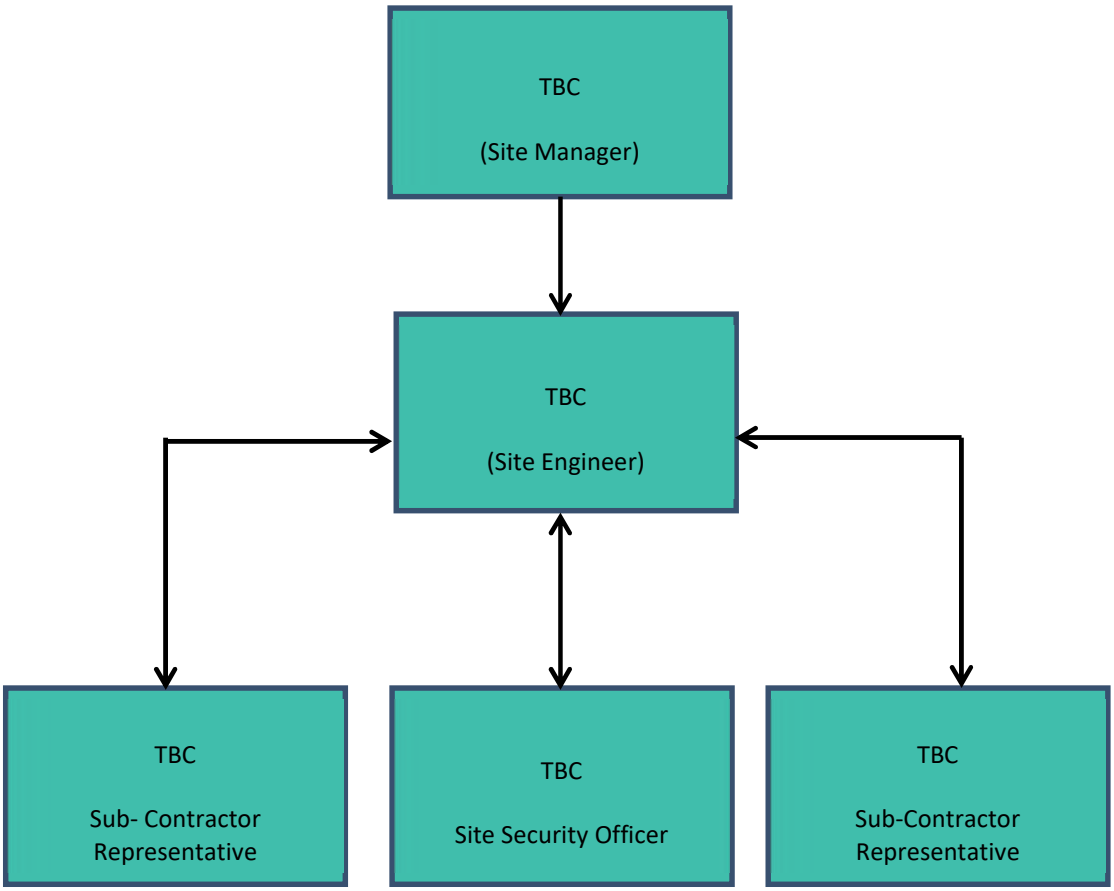


Figure 5-1: Emergency response procedure - chain of command

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5.1.3 Initial Steps

In order to establish the type and scale of potential emergencies that may occur, the following hazards have been identified as being potential situations that may require an emergency response in the event of an occurrence.

Table 5-1 Hazards Associated with potential emergency situations

Hazard	Emergency Situation
Construction Vehicles: Dump trucks, tractors, excavators, cranes etc.	Collision or overturn which has resulted in operator or third-party injury.
Abrasive wheels/Portable Tools.	Entanglement, amputation or electrical shock associated with portable tools.
Contact with services.	Electrical shock or gas leak associated with an accidental breach of underground services.
Fire	Injury to operative through exposure to fire.
Falls from heights including falls from scaffold towers, scissor lifts, ladders and roofs.	Injury to operative after a fall from a height.
Sickness	Illness unrelated to site activities of an operative e.g. heart attack, loss of consciousness, seizure.

In the event of an emergency situation associated with, but not restricted to, the hazards outlined in Table 5-1 above, the Site Manager will carry out the following:

- Establish the scale of the emergency situation and identify the number of personnel, if any, have been injured or are at risk of injury.
- Where necessary, sound the emergency siren/foghorn that activates an emergency evacuation on the site.
- Make safe the area if possible and ensure that there no identifiable risk exists with regard to dealing with the situation e.g. if a machine has turned over, ensure that it is in a safe position so as not to endanger others before assisting the injured.
- Contact the required emergency services or delegate the task to someone if he is unable to do so. If delegating the task, ensure that they follow the procedures for contacting the emergency services as set out in Section 5.2.1.
- Take any further steps that are deemed necessary to make safe or contain the emergency incident e.g. cordon off an area where an incident associated with electrical issues has occurred.
- Contact any regulatory body or service provider as required e.g. ESB Networks the numbers for which as provided in Section 5.2.2.
- Contact the next of kin of any injured personnel where appropriate. The procedure for this is outlined in Section 5.2.1.

All personnel will be made aware of the evacuation procedure during site induction. The Fire Services Acts of 1981 and 2003 require the holding of fire safety evacuation drills at specified intervals and the keeping of records of such drills.

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5.1.4 Environmental Emergency Response Procedure

5.1.4.1 Spill Control Measures

It is not proposed to store any large volumes of oils/fuels for the purpose of refuelling on the site. A bunded fuel tank will be stored at the temporary construction compound which will be used for smaller plant and equipment i.e. site dumpers and teleporters. This will be stored on an impermeable surface and will be equipped with a spill kit. Onsite plant (excavator) will be refuelled by an external contractor who will call to site as required. Road vehicles will not be refuelled at the site.

Every effort will be made to prevent an environmental incident during the construction and operational phase of the proposed project. Oil/Fuel spillages are one of the main environmental risks that will exist on the proposed site which will require an emergency response procedure. The importance of a swift and effective response in the event of such an incident occurring cannot be over emphasised. The following steps provide the procedure to be followed in the event of such an incident.

- Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.
- If applicable, eliminate any sources of ignition in the immediate vicinity of the incident
- Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill.
- If possible, cover or bund off any vulnerable areas where appropriate such as drains or sensitive habitats.
- If possible, clean up as much as possible using the spill control materials.
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited.
- Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action.
- The Environmental Manager will inspect the site and will assist by providing any advice possible to ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring.
- The Construction Manager will notify the appropriate regulatory body such as GCC and EPA etc. if deemed necessary.

5.1.5 Contacting the Emergency Services

All staff members will know the address and location of the site as it may be necessary to liaise with the emergency services on the ground in terms of locating the site. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services.

5.1.5.1 Emergency Communication Procedure

In the event of requiring the assistance of the emergency services the following steps should be taken:

- Stay calm. It is important to take a deep breath and not get excited. Any situation that requires 999/112 is, by definition, an emergency. The dispatcher or call-taker knows that and will try to move things along quickly, but under control.
- Know the location of the emergency and the number you are calling from. This may be asked and answered a couple of times but do not get frustrated. Even though many emergencies call centres have enhanced capabilities meaning they are able to see your location on the computer screen they are still required to confirm the

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information. If for some reason you are disconnected, at least emergency crews will know where to go and how to call you back.
- Wait for the call-taker to ask questions, then answer clearly and calmly. If you are in danger of assault, the dispatcher or call-taker will still need you to answer quietly, mostly "yes" and "no" questions.
- If you reach a recording, listen to what it says. If the recording says your call cannot be completed, hang up and try again. If the recording says all call takers are busy, WAIT. When the next call-taker or dispatcher is available to take the call, it will transfer you.
- Let the call-taker guide the conversation. He or she is typing the information into a computer and may seem to be taking forever. There is a good chance, however, that emergency services are already being sent while you are still on the line.
- Follow all directions. In some cases, the call-taker will give you directions. Listen carefully, follow each step exactly, and ask for clarification if you do not understand.
- Keep your eyes open. You may be asked to describe victims, suspects, vehicles, or other parts of the scene.
- Do not hang up the call until directed to do so by the call taker.

All staff members will know the address and location of the site as it may be necessary to liaise with the emergency services on the ground in terms of locating the site. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services.

5.1.5.2 Contact Details

A list of emergency contacts is presented in Table 5-2.

Table 5-2 Emergency Contacts

Contact	Telephone no.
Emergency Services – Ambulance, Fire, Gardaí	999/112
Doctor – Knocknacarra Medical Centre	091 862 220
Hospital –Galway University Hospital	091 524 222
ESB Emergency Services	1850 372 999
Gas Networks Ireland	1850 20 50 50
Gardaí – Mill Street Garda Station	091 538 00
Health and Safety Coordinator - Health & Safety Services	TBC
Health and Safety Authority	1890 289 389
Project Supervisor Construction Stage (PSCS): TBC	TBC
Project Supervisor Design Stage (PSDS): TBC	TBC
Client –Kingston Stables Ltd	TBC

5.1.6 Procedure for Personnel Tracking

All operatives on site without any exception will have to undergo a site induction where they will be required to provide personal contact details which will include contact information for the next of kin.

In the event of a site operative becoming involved in an emergency situation where serious injury has occurred, and hospitalisation has taken place, it will be the responsibility of the Site Manager or next in command if unavailable to contact the next of kin to inform them of the situation that exists

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5.1.6.1 Induction Checklist

Table 5-3 provides a list of items highlighted in this ERP which must be included or obtained during the mandatory site induction of all personnel that will work on the site. This will be updated throughout the various stages of the project.

Table 5-3 Emergency Response Plan Items Applicable to the Site Induction Process

ERP Items to be included in Site Induction	Status
All personnel will be made aware of the evacuation procedure during site induction.	
Due to the location of the site it may be necessary to liaise with and assist the emergency services on the ground in terms of locating the site. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services. This should form part of the site induction to make new personnel and sub-contractors aware of any such arrangement or requirement if applicable.	
All operatives on site without any exception will have to undergo a site induction where they will be required to provide personal contact details which will include contact information for the next of kin.	

6. MITIGATION PROPOSALS

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The Mitigation Measures which will be implemented during the construction phase of the Proposed Development are presented in this section of the CEMP and set out in various sections of the EIAR and NIS prepared as part of the planning application to GCC. The CEMP will be finalised subsequent to any permission granted by GCC and will be updated prior to construction to include, inter alia, any additional requirements pursuant to relevant planning conditions imposed.

By presenting the mitigation proposals in the below format, it is intended to provide an easy to audit list that can be reviewed and reported on during the future phases of the project.

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Table 6-1 Mitigation Measures

Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
	Pre-Commencement Phase			
MM1	CEMP Section 1	All measures identified in the EIAR, Natura Impact Statement (NIS) and this Construction Environmental Management Plan, which will be finalised subsequent to any permission granted and updated prior to construction will include all mitigation measures identified to be adhered to during the pre-commencement and construction phases of the proposed development.		
MM2	CEMP Section 4.1	The main contractor will be required to engage a Construction Manager that will also fulfil the role of Environmental Manager (EM), and to monitor all site works and to ensure that methodologies and mitigation are followed throughout construction to avoid negatively impacting on the receiving environment.		
MM3	CEMP Section 2 EIAR Section 4	Prior to the commencement of any construction, entrances to the Proposed Development site will need to be fully established with appropriate security gates. Access to the site will be via a road which connects to the Western Distributor Road to the north A site construction compound inclusive of a parking area for construction worker's vehicles will be provided within the confines of the site. There will be no parking permitted for any vehicles associated with the Proposed Developments construction phase unless agreed with the local authority prior to works inception. A designated section of the site will be fenced off as the construction compound.		
MM4	CEMP Section 2 EIAR Section 5	The contractor will be required to undertake the following. › A site-specific Health and Safety Plan will be in place for the proposed site. All site staff will be made aware of and adhere to the Health and Safety Plan, › Operate a Site Induction Process for all site staff,		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		› Ensure all site staff will have current Construction Skills Certification Scheme (CSCS) training or 'Safe Pass' cards, › Site hoarding will include Health and Safety warnings at appropriate intervals, › Fire extinguishers and first aid supplies to be available in the work area, › All adjacent roadways will be maintained in clean condition at all times, › Appropriate Personal Protective Equipment (PPE) to be worn at all times, › Biometric turnstiles will be used at the site to prevent unauthorised access to the site.		
MM5	CEMP Section 3 EIAR Section 15	A Traffic Management Plan (TMP) for the construction stage will be developed and agreed with GCC prior to the commencement of works.		
MM6	CEMP Section 3 EIAR Section 6	The below mitigation strategy is proposed for works on the two buildings previously identified as bat roosts, to minimise the potential for direct harm to individual bats over the course of the works proposed, and to provide alternative roosting opportunities to local bats, during and post construction: › Works will not be carried out during the bat activity season (April-September) within buildings where evidence of roosting bats were found (i.e. Stone Shed 1 and Stone Shed 2). › Alternative new roosting locations will be provided as part of the proposed development site. One no. Rocket Bat Box and two no. pole-mounted woodcrete bat boxes will be erected in suitable locations around the perimeter of the Proposed Development site. The locations of these bat boxes will be cognisant of existing landscape features in the wider vicinity of the Proposed Development site which could be used by commuting and foraging bats and will also avoid areas of artificial		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		lighting. At least two of these will be installed prior to building demolitions commencing. › Bat boxes will have a southerly orientation and be positioned at least 2m from the ground (ideally 3m), and away from artificial lighting. They will be placed adjacent to existing vegetation features such as treelines and hedgerows, beyond the Proposed Development site boundary, to ensure they are close to existing flight paths and can avoid wide open spaces (Collins, 2023). › The new bat boxes will be inspected annually under licence to monitor uptake and their condition.		
	Construction Phase			
		Fuel and Oil Control		
MM7	CEMP Section 3 NIS Section 6.2 EIAR Section 4, 7 & 8	› Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Where possible, off-site refuelling will occur at a controlled fuelling station; › On-site re-fuelling will be undertaken using a double skinned bowser or a refuelling truck with spill kits kept onboard; › All oils, fuels, paints and other chemicals will be stored in a secure bunded construction hardstand area. Refuelling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any drainage systems. A response procedure will be put in place to deal with any accidental pollution events and spillage kits will be available and construction staff will be familiar with the emergency procedures and use of the equipment; › A temporary drainage system shall be installed prior to the commencement of the construction works;		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		› All works shall be undertaken in accordance with the CIRIA document, 'Control of Water Pollution from Construction Sites, guidance for consultants and contractors' › All plant and machinery will be serviced before being mobilised to site; › No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed; › Concrete batching will take place off site, wash down and wash out of concrete trucks will take place off site and any excess concrete is not to be disposed of on site. Pumped concrete will be monitored to ensure there is no accidental discharge. Mixer washings are not to be discharged into surface water drains/sewers; › Discharge from any vehicle wheel wash areas is to be directed to on-site settlement tanks/ponds, debris and sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility; › Foul drainage discharge from the construction compound will be transported off site to a licensed facility until a connection to the public foul drainage network has been established.		
MM8	CEMP Section 4 NIS Section 6.2 EIAR Section 7 & 8	› Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers. › If applicable, eliminate any sources of ignition in the immediate vicinity of the incident › Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill. › If possible, cover or bund off any vulnerable areas where appropriate such as drains or sensitive habitats. › If possible, clean up as much as possible using the spill control materials. › Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited.		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		› Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action. › The Environmental Manager will inspect the site and will assist by providing any advice possible to ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring. › The Construction Manager will notify the appropriate regulatory body such as GCC and EPA etc. if deemed necessary.		
		Prevention Pollution Control Measures		
MM9	CEMP Section 3 NIS Section 6.2 EIAR Section 4, 7 & 8	› There are no watercourses on site and surface water will not be directly discharged into any external water bodies, surrounding land, or adjacent roadways. Any run-off generated on-site will undergo the necessary filtration process as previously outlined in Section 3-1. › The works will be managed to ensure there will be no silt-laden run-off beyond the site boundary. This will be achieved through the use of appropriate excavation techniques during the initial construction works. Where necessary, silt fencing will be installed downslope of the construction areas, particularly where drains or drainage pathways are present. These measures will serve as a protective measure to contain silt material within the site. › Any requirement for temporary fills or stockpiles will be damped down or covered with polyethylene sheeting as required to avoid sediment release associated with heavy rainfall. › Excavations will be carried out using a suitably sized excavator and, in all circumstances, excavation depths and volumes will be minimised where practically possible.		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		› Excavated spoil will be stockpiled and contained entirely within the confines of the site boundaries. Any stockpile areas will be surrounded with silt fencing, if deemed necessary to prevent runoff. › The minimum number of soil/subsoils and bedrock material should be removed from site. Soil may be reused for landscaping elsewhere on the site. However, any excess construction material shall be removed from the area and sent to an authorized waste recovery facility. › Works shall not take place at periods of high rainfall and shall be scaled back if or suspended if heavy rain is forecast during excavation works. › High rainfall' is defined as follows: › >10 mm/hr (i.e. high intensity local rainfall events); › >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); › In the event of encountering groundwaters during excavation, groundwater will be pumped out of the excavation using a pump equipped with a silt bag on the discharge pipe, if necessary, to capture any silty material prior to subsequent natural percolation to ground. The area surrounding the silt bag will be surrounded by silt fencing if deemed necessary. › No wastewater will be discharged on-site during the construction phase. Toilet facilities will be provided in a prefabricated sanitary unit which will be placed in the construction compound. This unit will have an enclosed wastewater holding tank which will be fitted with a fill level alarm and will be emptied on an as needed basis by the appropriately licensed contractor. › Good construction practices will be implemented at the site. This will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provides guidance on the control and management of water pollution from construction sites, as outlined in Control of Water Pollution from Construction Sites, guidance for consultants and contractors (CIRIA, 2001). This guidance will be adhered to throughout		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		the construction phase to ensure that surface water generated on site contains minimum sediment. › Adjacent drainage systems/groundwater need to be protected from sedimentation and erosion due to direct surface water runoff generated onsite during the construction phase. To prevent this from occurring surface water discharge from site will be managed and controlled within the site boundary for the duration of the construction works until the permanent surface water drainage system of the proposed site is complete. There will be no temporary construction phase uncontrolled discharges to surface water from the site. › A temporary drainage system shall be installed, comprising sump areas which will allow existing runoff regimes to be maintained, prior to the commencement of the construction works to collect surface water runoff from the site during construction. › As construction advances there may be a requirement to collect and treat surface water within the site. This will be completed using perimeter swales at low points around the construction areas, and if required water will be pumped from the swales into sediment bags prior to overland discharge allowing water to percolate naturally to ground. › Any proposed discharge area will avoid potential surface water ponding areas, and will only be located where suitable subsoils are present; › All works shall be undertaken in accordance with the CIRIA document, 'Control of Water Pollution from Construction Sites, guidance for consultants and contractors. › All stockpiles will be damped down or covered in a sheet of polythene, as required, which will prevent the creation of nuisance dust, and will also prevent sediment runoff in times of heavy precipitation. Silt fencing will be installed around these stockpiles, if required. › Material stockpiles will be kept at least 10m from any manholes. › Preventative measures during construction have been incorporated into the Construction and Environmental Management Plan (CEMP), which		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		will be updated upon grant of permission and to provide any additional measures required pursuant to planning conditions and agreements with the planning authority. › Self-contained port-a-loo toilets within portacabins with an integrated waste holding tank will be used at the site compounds, maintained by the providing contractor, and removed from site on completion of the construction works; and, › No wastewater will be discharged on-site during either the construction or operational phase.		
		Air Quality and Dust Control		
MM10	CEMP 3 NIS Section 6.2 EIAR Section 4 & 9	› Any site roads with the potential to give rise to dust will be regularly watered, as required, during dry and/or windy conditions › The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness, and cleaned as necessary › Material handling systems and material storage areas will be designed and laid out to minimise exposure to wind › Water misting or bowsers will operate on-site as required to mitigate dust in dry weather conditions › The transport of soils or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary › All vehicles leaving the construction areas of the site will rinse their wheels at a designated wheel wash area prior to entering the local road network. › All construction related traffic will have speed restrictions on un-surfaced roads to 15 kph		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		› Daily inspection of construction sites to examine dust measures and their effectiveness. › If deemed necessary, sections of the approach road will be swept using a truck mounted vacuum sweeper. › All vehicles to switch off engines when not in use; › No idling vehicles; › On-road vehicles to comply to set emission standards; › All non-road mobile machinery (NRMM) to be fitted with appropriate exhaust system and to be regularly serviced; › Haul routes to be hard surfaced and cleaned and appropriate speed limits applied around the site; › The methods of working will comply with all relevant legislation and best practice guidelines in reducing the environmental effects of the works.		
		Noise		
MM11	CEMP 3 EIAR Section 4 & 11	› Construction operations will in general be confined to the periods Monday-Friday 0800-1800 h and Saturday 0900-1300 h. › Hooting will be prohibited onsite. Drivers of plant and vehicles will be instructed to avoiding hooting at all times. › Plant used onsite during the construction phase will be maintained in a satisfactory condition and in accordance with manufacturer recommendations. In particular, exhaust silencers will be fitted and operating correctly at all times. Defective silencers will be immediately replaced. › Queuing of trucks on public roads will be prohibited. › Machinery not in active use will be shut down. › A site representative will be appointed as a liaison officer with the local community.		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		› Any complaints of noise received during the construction phase will be logged in a register, and investigated immediately. Details of follow-up action will be included in the register. › Where it is proposed to import potentially noisy plant to the site, the potential impact of noise emissions will be assessed in advance. › Guidance set out in BS 5228-1:2009 with respect to noise control will be applied throughout the construction phase. › Advance notification will be given to residents immediately outside the site boundary when works are proposed within 50 m of their dwellings.		
		Traffic Management		
MM12	CEMP Section 3 EIAR Section 4 & 15	› Traffic movements will be limited to 07:00 - 19:00 Monday to Friday and 07:00 –14:00 Saturday, unless otherwise agreed in writing with Galway City Council. These are outside of the onsite construction hours and outside of peak traffic hours. › HGV movements will be restricted during peak road network hours (including school hours) from 08:00 – 09:00 and 17:00 – 18:00 Monday to Friday, unless otherwise agreed in writing with Galway City Council. › Pedestrian and cyclist routes are to be maintained throughout the construction phase to ensure safe pedestrian and cyclist access is available. › HGV movements for the proposed project shall be directed away from sensitive areas with site deliveries to be scheduled outside of school drop-off or collection times (i.e., schools, urban centres). › No parking shall be permitted along the access route for unloading or activities that result in blockages of access routes. Such vehicles will be immediately requested to move to avoid impeding the works and traffic on the road network.		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		› Measures to remove queuing of construction traffic on the adjoining road network, including turning space and queuing of convoy HGVs will be provided within the sites. › Wheel wash equipment will be used on site to prevent mud and stones from being transferred from the site to the public road network.		
		Waste Management		
MM13	CEMP Section 3.10 EIAR Section 4	Construction waste will arise on the project mainly from excavation and unavoidable construction waste including material surpluses and damaged materials and packaging waste. Appropriate measures will be taken to ensure excess waste is not generated during construction, including; › Ordering of materials will be on an 'as needed' basis to prevent over supply to site. › Purchase of materials pre-cut to length to avoid excess scrap waste generated on-site. › Require suppliers to use least amount of packaging possible on materials delivered to the site. › Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal. › Ensuring correct sequencing of operations. › Use reclaimed materials in the construction works. Hazardous waste will be kept separate from all other construction waste to prevent contamination and removed appropriately. In addition to fuel as outlined above, the potentially hazardous wastes that may be generated at the site during the construction include;		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		▸ Paints including all associated by products. ▸ Glues and solvents. ▸ Asphalt materials from roofing products and external paving finishes		
		Invasive Species Management		

MM14	CEMP Section 3.9
	
	NIS Appendix 4
	
	EIAR Section 6
		Three Cornered Leek
		
		The following management is proposed in relation to Three-cornered Leek:
		
		▸ An ecologist will be on site to supervise the treatment.
		▸ The infested area will be marked out with posts and hazard tape prior to any machinery ingress or works within or near this area.
		▸ Three-cornered leek can be controlled through chemical means.
		  ▸ Chemical treatment is the chosen treatment method. It is advised to treat the plant *in-situ* and avoid disturbance and the increased risk for spread and dispersal.
		  ▸ This plant can be treated with a Glyphosate based chemical herbicide on an annual basis. It is recommended that a Glyphosate-based herbicide will be applied as a spot treatment to individual plants, or by foliar and stem spray in early spring before the plant flowers which typically happens between April and June. It is best to manually break the leaves prior to applying the chemical to ensure it enters the leaf. Follow-up annual treatments are necessary as large numbers of shoots may re-appear the following year as may new seedlings.
		▸ The timing of the treatment applied is vital for the eradication of three-cornered leek. The control methods must be implemented in March or April when the		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		leaves of the three-cornered leek are fully formed. Control methods should not be carried out if plants have finished flowering and produced seed (from the outset of May) as the movement of plants at this stage in the plant's cycle can cause a further spread of the invasive species. › Three-cornered leek produces vast amounts of seeds annually and these seeds can persist and remain dormant in the soil for years before germinating. Due to this, a monitoring programme will be established to eradicate the invasive plant where the plants currently exist onsite. Therefore, it is key to undertake the control and treatment measures for a consecutive number of years to eradicate the seed bank and bulbs. The developer will appoint a suitably qualified ecologist to carry out post-construction monitoring for invasive species. The area will be surveyed by an ecologist in March/April, May and again in September for the presence of Three-cornered leek for a minimum of 3 years after the treatment to ensure no further spread is taking place. **Sea Buckthorn** Mechanical/ physical removal of Sea buckthorn controls the spread of the invasive species by either damaging or removing the plant material via physical action, i.e., uprooting, felling, slashing, mowing, grubbing etc. Juvenile Sea buckthorn saplings were previously recorded in close proximity to the Proposed Development boundary and given its proximity it is proposed to eradicate this species from nearby lands on a precautionary basis. It is anticipated that the construction phase will span 3 years and as such it is likely to mature with time, in the absence of control measures being implemented. The recommended treatment methodology for Sea buckthorn includes;		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		› Any juvenile new shoots of Sea buckthorn will be removed by hand pulling or manual removal using hand tools. The plant will be physically cut and dug up from the root either by hand or using an excavator to grub up the plant. › Larger stumps will be cut and the stumps painted with Glyphosate herbicide. › Following clearance of woody material, any necessary excavation of the ground will be undertaken. As sea-buckthorn can readily regenerate from root and rhizomatous material present in soil, any soil arising from areas infested with sea-buckthorn must be contained and disposed of appropriately. › The vegetation material can be disposed of by burning or incineration. › If for any reason, burning of plant material is not feasible on-site this material and the soil potentially contaminated within root or rhizome fragments must be gathered and disposed of off-site, to a waste disposal facility that has a pollution prevention and control permit or waste management licence. In order to move material potentially contaminated with Third or First Schedule invasive plant species, a licence is required to be obtained from NPWS. The conditions of the permit or licence of the waste disposal facility must allow the disposal of invasive plants at the site. Delivery should be agreed with the waste site in advance to make sure they can accept material containing invasive plants. When transporting invasive plant material and soil potentially contaminated with invasive plant material, any vehicle used must be covered or securely sheeted so that plant material cannot be accidentally dispersed during transportation.		
MM15	CEMP Section 2 EIAR Section 6 Landscape Design Report	The Landscape Design Report and Chapter 6 of the EIAR outlines a number of biodiversity friendly measures which are as follows: › The use of native species will generally be preferred. However, a complimentary element of non-native species will also be used, where appropriate to achieve particular aims or requirements.		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		› The planting of predominantly pollinator friendly shrub and herbaceous species will integrate the scheme in line with the 'All Ireland Pollinator Plan'. › Significant additional native tree planting mitigates necessary removals and ultimately will significantly increase the sites tree and vegetation cover overtime. › Proposed tree planting includes a selection of native and naturalised trees such as alder, beech, birch, cherry, oak, pine, rowan, sycamore and whitebeam. The use of such trees will provide vertical scale and structure to the landscape over time, as well as ecological benefits. › The proposed landscape plan aims to create a number of linear green corridors suitable for bat feeding.		
Operational Phase				
MM16	EIAR Section 4 EIAR Section 6 CEMP Section 2	Any underground services encountered during the works will be surveyed for level and where possible will be left in place. If there is a requirement to move the service, then the appropriate body (ESB, Gas Networks Ireland, etc.) will be contacted, and the appropriate procedure put in place. Back fill around any utility services will be with dead sand/pea shingle where appropriate. All works will be in compliance with required specifications. The installation of services and connections to the residential units will be carried out as follows: › The area where excavations are planned will be surveyed and all existing services will be identified. › All relevant bodies (i.e., ESB, Gas Networks Ireland, Eir, GCC etc.) will be contacted and all drawings for all existing services sought. › A traffic management plan will be produced if required for connection works to the existing service network.		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		› A road opening licence will be obtained where required for connection to existing services. › All plant operators and general operatives will be inducted and informed as to the location of any services. › A tracked 360-degree excavator or similar will be used to excavate the trench to the required dimensions. › All excavated material will be removed to an authorised waste recovery facility or, if suitable, stockpiled and reused for backfilling and landscaping where appropriate. › Once the trench has been excavated the ducting/pipework will then be placed in the trench as per specification. › Once the service ducts/pipework has been installed couplers will be fitted as required and capped to prevent any dirt etc. entering the ducts/pipes. › The as built location of the ducting/pipework will be surveyed using a total station/GPS. › Backfill material will be carefully placed so as not to displace the ducting/pipework within the trench. › The appropriate warning/marker tape will be installed above the ducts/pipes at the appropriate depths. › The surface will be reinstated as per original specification or to the requirements of the site layout/Local Authority as appropriate.		

All monitoring proposals relating to the construction phases of the Proposed Development are set out in various sections of the EIAR and NIS prepared as part of the planning application to GCC.

This section of the Construction and Environment Management Plan groups together all of the monitoring proposals presented in the EIAR. The monitoring proposals are presented in the following pages. The monitoring proposals are also outlined within Chapter 17: Schedule of Mitigation and Monitoring Measures.

By presenting the monitoring proposals in the below format, it is intended to provide an easy to audit list that can be reviewed and reported on during the future phases of the Proposed Development. The tabular format in which the below information is presented, can be further expanded upon during the course of future project phases to provide a reporting template for site compliance audits

7. MONITORING PROPOSALS

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All monitoring proposals relating to the construction phases of the Proposed Development are set out in various sections of the EIAR and NIS prepared as part of the planning application to GCC.

This section of the Construction and Environment Management Plan groups together all of the monitoring proposals presented in the EIAR. The monitoring proposals are presented in the following pages. The monitoring proposals are also outlined within Chapter 17: Schedule of Mitigation and Monitoring Measures.

By presenting the monitoring proposals in the below format, it is intended to provide an easy to audit list that can be reviewed and reported on during the future phases of the Proposed Development. The tabular format in which the below information is presented, can be further expanded upon during the course of future project phases to provide a reporting template for site compliance audits.

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Table 7-1 Monitoring Proposals

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
Pre-Construction Phase						
MX1	General Construction Measures	EIAR Section 4 CEMP Section 4	The main contractor appointed to carry out the works on site will be required to provide a level of supervision on site in the form of an Environmental Manager. Responsibilities will include: › Undertake inspections and reviews to ensure the works are carried out in compliance with the CEMP. › Monitor the implementation of the CEMP, particularly all proposed/required Environmental Monitoring. › Identify environmental training requirements and arrange relevant training for all levels of site-based staff/workers.	On going	Monthly	Site Contractor/Environmental Manager
MX2	Biodiversity	EIAR Section 6 CEMP Section 3	**Monitoring** Evidence should be provided of how the mitigation measures will be monitored, and, should mitigation failure be identified, how that failure will be rectified. The applicant should not use any proposed post construction monitoring as mitigation to supplement inadequate information in the assessment. The new bat boxes will be inspected annually under licence to monitor uptake and their condition.	Once	As required	Environmental Manager
MX3	Archaeological Monitoring	EIAR Section 12 CEMP Section 3.8	There are a number of obligatory processes to be undertaken as part of applications to the National Monuments Service for licences to carry out archaeological test trench excavations and these will allow for monitoring of the successful implementation of the mitigation measures.	Once	As Required	Project Archaeologist

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Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			A detailed method statement stating the proposed strategy for the site investigations will accompany the submitted licence application which will clearly detail the extent of the archaeological works and outline the processes to be enacted in the event that any archaeological features are encountered. Reports on the archaeological site investigations will then be submitted to the National Monuments Service, the National Museum of Ireland and the Planning Authority which will clearly describe the results of all archaeological works in written, mapped and photographic formats.			
Construction Phase						
MX4	Air Quality and Dust Control	CEMP Section 3 EIAR Section 4 & 8	It is also proposed to carry out dust monitoring at the site during the construction phase. Monitoring will be carried out quarterly using the Bergerhoff method. This monitoring will ensure that the mitigation measures outlined above are functional and being implemented. A complaints log will be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated.	Quarterly	As Necessary	Environmental Manager
MX5	Plant and Equipment Inspections	CEMP Section 4 EIAR Section 4	All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. Fuel and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage.	As Required	Monthly	Environmental Manager
MX6	Traffic and Transport	CEMP Section 3	The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness and cleaned as necessary.	Daily	Monthly	Environmental Manager

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Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
		EIAR Section 4				

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8. PROGRAMME OF WORKS

8.1 Construction Phase

The construction of the Proposed Development will take approximately 36 months to complete. Each stage is typically broken down into several phases. An example of the programme of works is outlined in Table 8-1 below. The construction programme will be finalised on appointment of a contractor before commencement of the development.

Table 8-1 Phasing Scope of Works

Phase No.	Description	Scope of works
Phase 1	Site Setup	This occurs in month 1 to 6 and includes laying the matting or gravel for the site setup and machinery mobilisation.
Phase 2	Foundations	This occurs from months 6-12. It includes digging laying foundations and other preparatory works.
Phase 3	Building Structures	This occurs from months 12-24. It includes building the main structures within the site.
Phase 4	Internal Fit Out and Underground Cabling	This occurs from months 24-30. It includes the fitting out of the buildings and civils connections.
Phase 5	Close Out	This occurs in the last months of construction (months 30 to 36) and includes landscaping followed by machinery demobilisation and site disassembly.

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9. COMPLIANCE AND REVIEW

9.1 Site Inspections and Environmental Audits

Routine inspections of activities will be carried out on a daily and weekly basis by the Site Environmental Manager/Construction Manager as appointed by the applicant to ensure all controls to prevent environmental impact, relevant to the construction activities taking place at the time, are in place.

Environmental inspections will ensure that the works are undertaken in compliance with this CEMP. Environmental site inspections will be carried out by suitably trained staff.

9.2 Environmental Compliance

The following definitions shall apply in relation to the classification of Environmental Occurrences during the infilling works:

Environmental Near Miss

An occurrence which if not controlled or due to its nature could lead to an Environmental Incident.

Environmental Incident

Any occurrence which has potential, due to its scale and nature, to migrate from source and have an environmental impact beyond the site boundary.

Environmental Non-Compliance

Non-fulfilment of a requirement and includes any deviations from established procedures, programs and other arrangements related to the CEMP.

9.3 Corrective Action Procedure

A corrective action is implemented to rectify an environmental issue on-site. Corrective actions will be implemented by the Construction Manager, as advised by the Site Environmental manager. Corrective actions may be required as a result of the following:

- Environmental Audits
- Environmental Inspections and Reviews
- Environmental Incidents
- Environmental Complaints

A Corrective Action Notice will be used to communicate the details of the action required to the main contractor. A Corrective Action Notice is a form that describes the cause and effect of an environmental problem on site and the recommended corrective action that is required. The Corrective Action Notice, when completed, will include details of close out and follow up actions.

If an environmental problem occurs on site that requires immediate attention direct communications between the Construction Manager and the Site Environmental manager will be conducted. This in turn will be passed down to the site staff involved. A Corrective Action Notice will be completed at a later date.

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APPENDIX 7

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Kingston Stables Ltd.

Residential Development at Kingston, Knocknacarra, Galway.

Civil Works Design Report
LRD West

BUILT ON KNOWLEDGE

Document Control Sheet	
Document Reference	Civil Works Design Report
Client:	Kingston Stables Ltd.
Project Reference	11893

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Rev	Description	Author	Date	Reviewer	Date	Approval	Date
D01	First Issue	MN	18/03/2026	RB	19/03/2026	RB	19/03/2026
P01	Planning Issue	MN	10/06/2026	RB	12/06/2026	RB	12/06/2026
P02	Updated Development Description	MN	02/07/2026	RB	02/07/2026	RB	02/07/2026

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1. INTRODUCTION

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TOBIN were appointed by Kingston Stables Ltd. to provide engineering consultancy services for a proposed Large Residential Development (LRD) at Kingston, Knocknacarra, Galway, off the Western Distributor Road in Knocknacarra. The site development description is as follows:

Planning permission is sought by Kingston Stables Limited for development of a Large-Scale Residential Development (LRD) for a 10-year planning permission, on a site which extends to 2.9 ha on lands located at Rahoon, Knocknacarra, Galway.

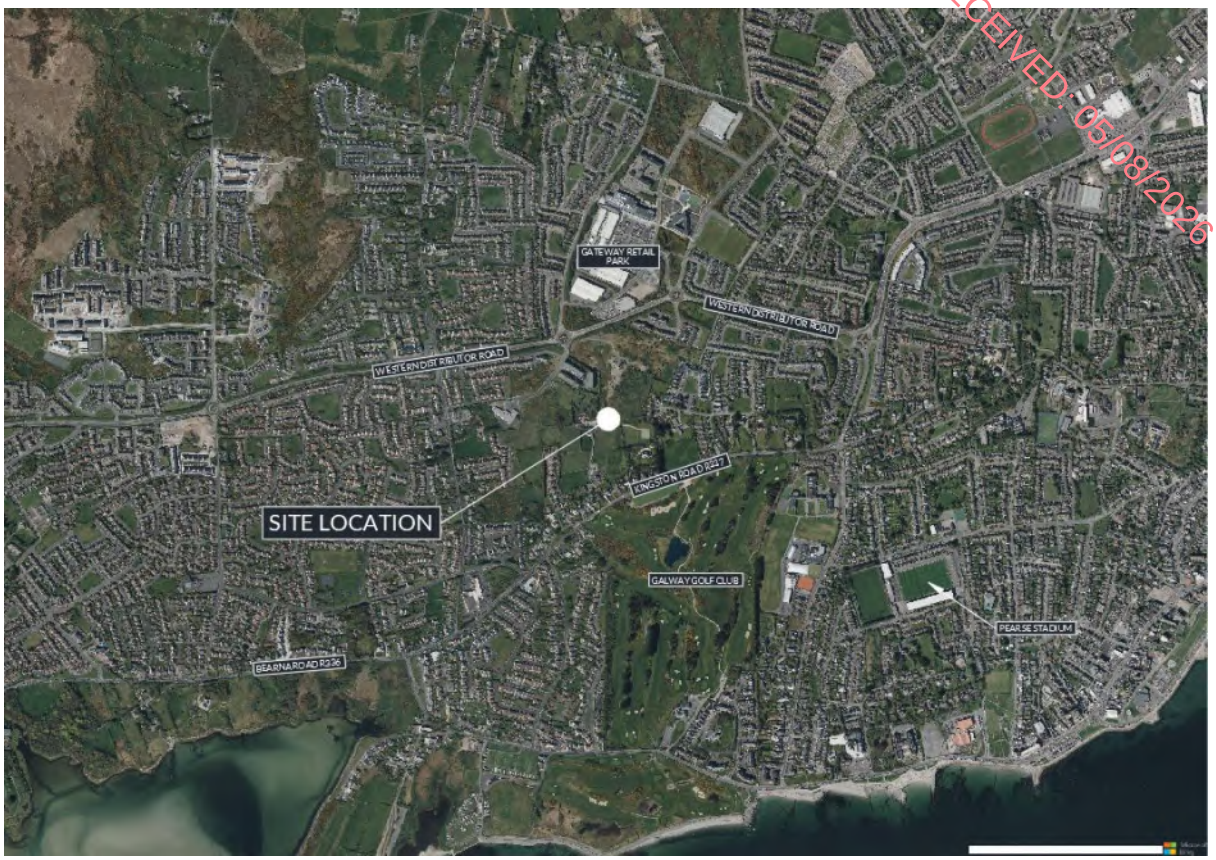
The proposed development will consist of the following:

1. Provision of 133 no. residential units in 2 no. development areas with a mix of duplex and house types on a site area of 2.9 ha. The buildings range between 2 no. and 3 no. storeys in height. The development will comprise the following:
    - 51 no. 3-bed townhouses;
    - 6 no. 4-bed townhouses;
    - 1 no. 1-bed duplex apartments;
    - 1 no. 2-bed duplex houses;
    - 37 no. 2-bed ground floor duplex apartments;
    - 37 no. 3-bed duplex houses.
2. Demolition of existing structures (388 sqm);
3. Vehicular access to the proposed development from a permitted road (Planning Reference 24/60370 refers);
4. Upgrades to the permitted road (Planning Reference 24/60370 refers);
5. Pedestrian and cycle access to the adjacent proposed Kingston Park (ACP Ref: 323873);
6. Conversion and upgrade of an existing structure to a cafe (65.8 sqm);
7. The provision of public open space;
8. The provision of 192 no. bicycle parking spaces;
9. The provision of 143 no. car parking spaces;
10. Public lighting, bin stores, signage, services, 2 no. ground mounted substation kiosks, site landscaping and all ancillary site development and enabling works.

This report outlines the civil works planning submission for the proposed development, detailing the wastewater drainage, proposed surface water drainage, watermain design and connection details, roads design, and SuDS measures. The site location is presented in Figure 1 below, and the site layout is shown graphically in the design team drawings accompanying this application. This report should be read in conjunction with the foul and storm drainage, watermain, roads, and SuDS design drawings submitted as part of the planning application. It is to be noted that this planning application forms part of a wider strategic 'Masterplan' for the comprehensive development of the area. All aspects of the proposed development—including water supply, wastewater infrastructure, and surface water management—have been fully integrated with and informed by the overarching Masterplan for the area. Further details regarding the design intent, phasing, and integration with surrounding lands are provided in the Architect's Design Statement, submitted separately as part of this application.

Figure 1 – Site Location (Microsoft Bing)

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1.1 WASTEWATER DRAINAGE OVERVIEW

Wastewater generated from the proposed development will outfall via gravity to an existing Uisce Eireann (UE) owned 375mm foul sewer line located west of the development along the southern arm junction of the adjacent roundabout and Altan Road.

The foul sewer network is designed using Causeway Flow drainage modelling software. Outputs from the foul sewer design, and long sections are attached in **Appendix A** of this document. The proposed foul sewer network is presented graphically on engineering design drawings that accompany this report as separate documents.

A pre-connection application was submitted to Uisce Eireann for the wastewater demand for the proposed development. A Confirmation of Feasibility (CoF) letter was received from Uisce Eireann and is provided in **Appendix E** of this report.

The full wastewater drainage design was fully vetted by Uisce Eireann to receive a Statement of Design Acceptance prior for the submission of this planning application also appended in **Appendix E** . Upon grant of planning all foul sewer designs will be fully vetted by Uisce Eireann prior to receiving a connection offer agreement.

1.2 SURFACE WATER DRAINAGE OVERVIEW

The stormwater drainage infrastructure incorporates the principles of nature-based Sustainable Drainage Systems (SuDS) to manage surface water runoff quantity and quality, in accordance with the Galway City Development Plan 2023–2029 (Policy 9.5). However, in line

with CIRIA SuDS guidance, exceedance measures will also be provided to account for the potential seasonal underperformance or failure of surface SuDS features. In such cases, the system will revert to a conventional drainage network design, with exceedance flows directed into the piped network where any or all SuDS features become overwhelmed.

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The stormwater drainage network is designed using Causeway Flow drainage modelling software. Outputs from the stormwater drainage design, and long sections are attached in **Appendix B** of this document. The proposed stormwater drainage network is presented graphically on engineering design drawings that accompany this report as separate documents.

Infiltration testing has been conducted on site to establish infiltration rates at various strategic locations for possible reduction of attenuation units and inclusion of soakaways and other proposed SuDS measures, Refer to **Appendix F** for Soakaway testing locations and results.

The proposed storm water drainage system is designed to cater for all surface water runoff from all hard surfaces in the proposed development including roadways, roofs, parking areas etc. All stormwater generated on site from roadways and roofs will discharge via an Oil/Petrol Interceptor to soakaways/attenuation units to remove possible hydrocarbons. The soakaway/attenuation units will be strategically situated within the site.

The maximum and minimum pipe sizes being between 450mm and 225mm respectively. All velocities fall within the limits of 0.75m/sec and 3m/sec as set out in 'Recommendations for Site Development Works' as published by the Department of Environment.

Where there is adequate infiltration storm water will discharge to ground via nature-based SuDS solutions and proposed soakaways, or otherwise at a controlled Greenfield runoff rate to the existing 450mm storm sewer network located west of the development along the southern arm junction of the adjacent roundabout and Altan Road. It is stressed that the current design will not rely fully on infiltration to ground (in anticipation of extensive bedrock across the site). However, a conservative use of infiltration will be adopted into the design where applicable.

It is proposed to install by-pass separators prior to discharging to the proposed soakaways/attenuation units and existing storm sewer. The separators will be sized to cater for the impermeable areas, i.e., roads, car parking and footpath areas of the site to which they have been allocated.

The entire stormwater network will be designed to handle a 100-year storm event plus an additional 20% capacity to account for climate change.

1.3 WATERMAIN OVERVIEW

The watermain layout will be designed in accordance with Uisce Eireann Code of Practice for Watermain Infrastructure IW-CDS-5020-03. It is proposed to connect the watermain for the development off the watermain to be constructed as part of the permitted works which form part of the overall masterplan for the area. This watermain is a 150mm watermain permitted by Galway City Council (Planning Reference 24/60370), which in turn connects to an Uisce Eireann owned 150mm watermain that runs along the western boundary along the southern arm junction of the adjacent Western Distributor Road roundabout and Altan Road.

An arterial 150mm main will be brought into the development with 100mm watermain branches serving the clusters of houses and cul-de-sacs. The watermain for this development will also tie

into the proposed residential development, located east of this site, which is currently under review by Galway City Council for planning having been submitted as a separate application (LRD 02/26 Kingston Stables - Phase 2).

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In accordance with Local authority/Uisce Eireann standards, a water meter and Logging Device (Larson Type) are proposed at the entrance of the connection into the proposed site. A sluice valve, strainer and 150mm diameter by-pass arrangement are also proposed to allow for possible disconnection of water meters by the Local Authority/ Uisce Eireann.

A pre-connection application was submitted to Uisce Eireann for the wastewater demand for the proposed development. A Confirmation of Feasibility (CoF) letter was received from Uisce Eireann and is provided in **Appendix E** of this report.

The full watermain design was fully vetted by Uisce Eireann to receive a Statement of Design Acceptance prior for the submission of this planning application also appended in **Appendix E** . Upon grant of planning all watermain designs will be fully vetted by Uisce Eireann prior to receiving a connection offer agreement.

1.4 ROADS OVERVIEW

Vehicular access is proposed from an existing roundabout on the Western Distributor Road, off the southern arm junction. Due to the large scale of the Masterplan development, upgrade works to the southern arm junction have been permitted by Galway City Council (Planning Reference 24/60370). Currently the junction services Altan, an existing residential development, and Knocknacarra National School. The permitted road layout, (Planning Reference 24/60370), amends the alignment of this road to have the access to the proposed development as the major road, with the school access being the minor road. Discussions have been held with Galway City Council to include arrangements to tie in with the Active Travel Scheme proposed for the overall masterplan of the area.

In accordance with the Cycle Design Manual's guidance for low-speed, low-trafficked environments, cyclists are accommodated within the carriageway, of this proposed development, as part of a shared-use arrangement with vehicles. This approach is deemed appropriate given the anticipated traffic volumes and speeds, while also supporting a legible, low-stress cycling environment throughout the development lands. The proposed layout enables seamless integration with the wider Active Travel scheme identified in the overall masterplan, ensuring continuous and coherent connectivity for cyclists and pedestrians. In particular, the design provides a strategic tie-in point to the adjacent Galway City Council (GCC) lands and proposed rugby pitch area, thereby enhancing permeability and supporting sustainable travel patterns across the broader area.

Additional pedestrian and cyclist connections are proposed throughout the development to enhance permeability and promote sustainable modes of transport. Notably, Millers Lane will be extended at the northeast corner of the site, as per the permitted road layout, (Planning Reference 24/60370), introducing a 4-metre-wide shared pedestrian and cycleway. This route will traverse from Millers Lane southwards and tie into the proposed segregated pedestrian footpath and cycle lanes, ensuring connectivity to all key areas.

The proposed maximum speed limit within the development is to be 30km/h, with appropriate traffic control measures where suitable.

Proposed road widths throughout the development will vary from 4.8m for 'Homezone' areas, to 5.5m where footpaths are separated from the vehicle carriageway for pedestrian mobility. All internal roads have been designed in accordance with the requirements of DMURS and the Recommendations for Site Development Works for Housing Areas.

Autotrack vehicle swept path analysis have been completed for the proposed site layout for a Large Car, a Refuse Truck and a Fire Tender to ensure the vehicles can safely manoeuvre around the site.

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2. WASTEWATER DRAINAGE NETWORK DESIGN

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2.1 INTRODUCTION

All wastewater generated from the proposed development will outfall, via gravity, to a wastewater network permitted by Galway City Council (Planning Reference 24/60370). From this the wastewater will discharge to an existing Uisce Eireann (UE) owned 375mm foul sewer line located west of the development along the southern arm junction of the adjacent roundabout and Altan Road.

The proposed foul network is designed using Causeway Flow Drainage modelling software. Outputs from the foul sewer design, and long sections are attached in **Appendix A** of this document. The proposed foul sewer network is graphically represented on the engineering drainage drawings which accompany this document as part of the planning submission.

The pipework for the wastewater drainage system will be designed to provide six times the dry weather flow in accordance with the Uisce Eireann Code of practice and standard details- Appendix B – Gravity Sewer Design Requirements, section 2.2.5 Domestic Wastewater Peaking Factors.

2.2 LOADING RATES

An average rate of 2.7 P.E. per dwelling has been used for the development to account for the varying unit occupancies. The sewer network is designed to cater for six times the dry weather flow rate. The occupancy per dwelling figures have been obtained from the Uisce Eireann Codes of Practice as per Wastewater Code of Practice, Appendix B – Gravity Sewer Design Requirements, section 2.2.1 Housing Density & Occupancy.

A flow of 150 litres per head per day plus an additional 10% allowance to account for infiltration within a new development have been considered in the foul sewer design as per Uisce Eireann Code of Practice for Wastewater Infrastructure - Section 3.6 Hydraulic Design for Gravity Sewers.

2.3 WASTEWATER NETWORK DESIGN

The foul sewer drainage services will be designed to take account of the requirements of the Civil Engineering Specification for the Water Industry (CESWI), subject to the requirements applied to it by Uisce Eireann, as outlined in the Uisce Eireann Code of Practice for Wastewater Infrastructure. Other design guidelines adhered to include the Department of Environment 'Recommendations for Site Development Works for Housing Areas", 1998, and "Sewers for Adoption' published by WRC, UK.

It is proposed that all pipes will be thermoplastic structured wall pipes with the maximum and minimum pipe sizes being between 300mm and 150mm respectively. The maximum and minimum pipe gradients shall fall between 1/30 and 1/200. All velocities at said gradients will fall within the limits of 0.75m/sec and 3m/sec as set out in Uisce Eireann Code of Practice for Wastewater Infrastructure and 'Recommendations for Site Development Works' as published by the Department of Environment.

The pipework for the drainage system will be designed to provide for six times the dry weather flow in accordance with the Recommendations for Site Development Works as published by the

Department of the Environment and Local Government and to Uisce Eireann Code of Practice and Standard Details.

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3. SURFACE WATER DRAINAGE NETWORK DESIGN

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3.1 INTRODUCTION

The stormwater drainage design has been undertaken using Causeway Flow modelling software. The analysis considered the 30-year and 100-year return period plus an additional 10% and 20% respectively to account for the effects of climate change. The design inputs, results and outputs from the Causeway Flow analysis are appended to this document in **Appendix B**.

The proposed storm water networks are presented graphically on the engineering drainage and SuDS layout drawings that accompany this report as separate documents. The design will also consider the wider site of the Masterplan for the area, ensuring that any potential future development can be accommodated within the surface water management strategy.

There is an existing Galway City Council 450mm surface water network located west of the proposed development. All surface water within development has been designed to flow via gravity and attenuate within the site boundaries. Strategically placed SuDS measures and attenuation/soakaway units will attenuate the surface water prior to any outfall to the existing network at a controlled Greenfield run-off rate using hydrobrake flow control manholes. High-level outfalls will be set at such levels below the lowest ground level on the network should the attenuation storage reach its full capacity to eliminate the risk of flooding in extreme weather events.

The amount of water discharged from the final hydro brake manhole before entering the existing stormwater network has been determined by using the calculated allowable Greenfield Runoff rate for the developable area of the site. The greenfield runoff rate was calculated for the developable area using the site location and the HR Wallingford Greenfield Runoff Tool online. Refer to **Appendix C** for the Greenfield Runoff estimation report for the site.

The surface water entering the network will include run-off from the roadways and parking areas throughout the site and therefore may require the removal of hydrocarbons. Prior to discharge to the existing network the surface water will flow through an oil/petrol interceptor, sized to cater for the catchment area it services, which will remove these hydrocarbons.

Where appropriate, storage units will be lined with a permeable geotextile membrane to facilitate surface water infiltration through the perimeter into the surrounding medium, thereby leveraging any infiltration capacity identified in the surrounding soils. Infiltration testing has been undertaken as part of the site assessment and the results are attached in **Appendix F**. While infiltration is not relied upon for all attenuation units, it will be applied selectively where ground conditions have been confirmed to be suitable.

A range of nature-based Sustainable Drainage Systems (SuDS) measures—including tree pits, infiltration trenches and rain gardens—will be strategically located across the development to manage surface water and achieve greenfield runoff rates. These features have been carefully coordinated with the landscape architect throughout the planning and design process to ensure integration with the overall site layout and landscape strategy. Where ground conditions permit, surface water will infiltrate naturally. To ensure resilience and safeguard against exceedance events, each SuDS element will incorporate a high-level outfall connected to the surface water drainage network. This approach aligns with best practice in sustainable urban

drainage and supports compliance with planning policy objectives for climate adaptation and water management.

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Precast concrete gullies, including lockable cast iron grating and frame, and drainage kerbs will be provided where needed to collect run-off from road and parking areas to mitigate any flooding. The proposed surface water pipe diameters are between 225mm and 450mm and will be laid at gradients to ensure self-cleansing and to prevent scour. All velocities fall within the limits of 0.75 and 3m/sec as set out in 'Recommendations for Site Development Works' as published by the Department for the Environment.

The following parameters will form the basis of the design for all networks:

- A design return period of 1 year has been adopted for the sewer network in accordance with good design practice.
- The rainfall intensity is based on rainfall data received from Met Eireann at the coordinates of the site in question.
- Minimum self-cleansing velocity of 0.75m/s
- M5-60 = 15.400mm
- Ratio R = 0.254

In accordance with the requirements of Galway City Council, a Stormwater Management Audit has been carried out on the proposed design for the planning application submission. The audit report will accompany this document for the planning submission as a separate document.

3.2 SUSTAINABLE URBAN DRAINAGE SYSTEMS

The existing site is currently a greenfield site with no existing surface water drainage or SuDS measures in place. To limit surface water runoff from the site, the surface water drainage for the proposed development has been designed in accordance with the principles of Sustainable Urban Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and align with the Galway City Development Plan 2023-2029, Policy 9.5. These address the issue of sustainability by requiring designs to comply with a set of drainage criteria which aim to minimise the impact of urbanisation by replicating the runoff characteristics of the partly brownfield site.

The requirements of SuDS are typically addressed by provision of the following components:

- ✓ Interception storage
- ✓ Treatment storage (not required if interception storage is provided)
- ✓ Attenuation storage
- ✓ Long term storage (if this is not required growth rates should not be applied to Q_{bar})

For the subject site, interception storage will be achieved through the implementation of SuDS measures and infiltration/attenuation storage units. Growth factors will be applied to the allowable discharge for the 100-year event. Consequently, treatment storage and long-term storage—neither of which are considered practical for this site—are not required.

Treatment storage is not required as interception storage is incorporated within the SuDS strategy, capturing and treating runoff from frequent rainfall events at source. This provides an appropriate level of water quality treatment in accordance with SuDS principles, and, given

the site constraints, the provision of additional treatment storage would not be practical or necessary.

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All SuDS measures will be designed in accordance with the recommendation set out in the EPA document '*Guidance on Authorisation of Discharges to Groundwater 2011*'.

SuDS measures proposed are a combination of water butts, (not reflected on the SuDS layout), tree pits, rain gardens, permeable paving (in-curtilage parking only) and drainage kerbs with infiltration trenches. These measures would seek to achieve interception storage as a minimum. Attenuation storage capacity has been calculated and provided as though no interception storage were provided. Thereby is mitigated any seasonal performance of interception storage measures.

SuDS objectives relate to:

1. **Water Quality** – managing runoff rates and volumes to reduce flood risk
2. **Water Quantity** – improving the quality of runoff through treatment and pollution control
3. **Amenity** – enhancing the visual and recreational value of the site
4. **Biodiversity** – promoting habitat creation and ecological diversity

3.2.1 Water Quality

Water quality will be managed through the provision of petrol interceptors in combination with nature-based SuDS measures. Drainage kerbs directing runoff to infiltration trenches, swales, or rain gardens will facilitate the interception and treatment of hydrocarbons within adjacent green corridors, where appropriate. Hydrocarbon-tolerant planting species will be incorporated within SuDS features located alongside roadways to enhance treatment performance in areas requiring water quality management.

3.2.2 Water Quantity

Water quantity will be managed through the extensive use of SuDS measures, as outlined above, in combination with supplementary attenuation structures across the development. The drainage system will be designed to meet the required discharge thresholds under normal and exceedance conditions, including localised SuDS exceedance or seasonal reductions in infiltration capacity. This approach ensures that runoff is effectively controlled within the site and that greenfield runoff rates are maintained.

3.2.3 Amenity

A number of SuDS measures, including proposed rain gardens and tree pits identified within the landscape plan, will contribute to meeting this requirement. There is also scope for the incorporation of additional small-scale SuDS features during the detailed design stage to further enhance public amenity, which will be explored as part of the ongoing landscape design.

3.2.4 Biodiversity

The landscape design will be further developed at the detailed design stage to incorporate additional SuDS measures that maximise opportunities for biodiversity enhancement. Nevertheless, the SuDS measures currently proposed are aligned with, and will support, the landscape strategy in achieving the development's biodiversity objectives.

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3.3 Soakaway/Attenuation Design

The attenuation units are designed to function as 'offline' storage for surface water during extreme storm events, particularly when the network may surcharge. These storage areas will be constructed using cellular units in locations with spatial constraints and therefore require higher void ratios. Storage requirements have been calculated using Causeway Flow. Infiltration testing has been undertaken across the site and, where infiltration capacity has been confirmed, it will be incorporated into the relevant storage areas to help reduce their footprint. Infiltration will not be relied upon universally but will be applied selectively where ground conditions permit.

The proposed cellular units will be constructed providing a minimum 95% porosity. They will be constructed on a clean stone base which will provide additional capacity. This additional capacity has not been considered in the design of the units. Any proposed stone attenuation beds will provide a minimum of 43% porosity and will be wrapped in a permeable or impermeable geotextile membrane, as is appropriate to their location.

Hydrobrake manholes are provided at strategic locations to control surface water flows, allowing soakaway and attenuation features to fill to their design capacity while reducing unnecessary loading on the downstream drainage network.

All storage areas will be sized to attenuate the water generated for the largest storage required over a 48-hour storm period with rainfall depths taken for the 100-year return period + 20% for climate change for sliding durations obtained from Met Eireann.

Outputs, including the storage area information, from Causeway Flow modelling software form part of the appendices of this report as mentioned previously. The proposed storage locations are shown in the engineering drainage and SuDS layout drawings.

3.4 Oil/Petrol Interceptors

It is proposed to install separators prior to the outfall to the existing surface water network and immediately downstream of any hydrobrake manholes. The surface water will include run-off from the roadways and parking areas therefore may contain hydrocarbons. The installation of the separators will allow for the removal of these pollutants and prevent them for being discharged to the environment. The locations of the separators are shown graphically on the engineering drainage and SuDS layout drawings.

An example of a Separator Product Brochure is presented in **Appendix D**. The separators are selected by capacity based of the catchment area for which they are catering. These separators will also trap sand and silt in surface water runoff prior to outfall allowing for easy removal of the debris. Debris build-up can cause reduction in the available void space and storage capacity of an attenuation unit. Therefore, a regular maintenance regime is necessary to maintain the efficiency of these separators.

3.5 Surface Water Maintenance

To ensure the long-term effectiveness of the surface water management strategy, all drainage infrastructure—including road gullies, silt traps, flow control devices, and attenuation systems—shall be subject to a routine inspection and maintenance programme. This programme will be

carried out in accordance with the manufacturer's specifications and industry best practices. Regular maintenance will help prevent blockages, ensure optimal hydraulic performance, and reduce the risk of localised flooding. Records of inspections and maintenance activities should be kept and reviewed periodically to inform future asset management and ensure compliance with planning and environmental requirements.

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4. WATERMAIN NETWORK DESIGN

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The proposed watermain layout is presented in the engineering watermain layout drawings. The watermain layout has been designed in accordance with Uisce Eireann Code of Practice for Watermain Infrastructure IW-CDS-5020-03.

Hydrants, sluice valves, air valves and washout hydrants have been positioned within the site as shown on the layout drawings. All watermains are to be commissioned and pressure tested to Uisce Eireann standards on grant of planning and following receipt of a connection agreement. The typical construction details and the meter details are outlined in the engineering standard watermain details drawing.

4.1 GENERAL WATERMAIN LAYOUT

It is proposed to connect the watermain for the development off the watermain to be constructed as part of the permitted works which form part of the overall masterplan for the area. This watermain is a 150mm watermain permitted by Galway City Council (Planning Reference 24/60370), which in turn connects to an Uisce Eireann owned 150mm watermain that runs along the western boundary along the southern arm junction of the adjacent Western Distributor Road roundabout and Altan Road.

An arterial 150mm main will be brought into the development and a 100mm watermain will branch off this arterial watermain to service the housing blocks and cul-de-sacs. The watermain for the development will also tie into the proposed residential development, located east of this site, which is currently under review by Galway City Council for planning having been submitted as a separate application (LRD 02/26 Kingston Stables - Phase 2).

In accordance with Local authority/Uisce Eireann standards, a water meter and Logging Device (Larson Type) are proposed at the entrance of the connection into the proposed site. A sluice valve, strainer and 150mm diameter by-pass arrangement are also proposed to allow for possible disconnection of water meters by the Local Authority/ Uisce Eireann.

4.2 FIRE FIGHTING FLOWS

To meet required fire flow requirements, it is proposed to install a static storage capacity within the site. This is being provided as Uisce Eireann will not guarantee available fire flow within the hydrants located on site. It is proposed to provide an underground storage tank capable of supplying a minimum of 8l/s of flow for a 1-hour period. This equates to a minimum volume required for the site of 28,800 litres (28m^3 of storage).

The flow range of 8l/s is derived from the 'National Guidance Document on the provisions of water for Firefighting – Water UK 3rd Edition'. The tank shall be located within a grassed area and easily accessible by fire tenders and tankers should they need access. A top up supply from the proposed watermain network will be provided.

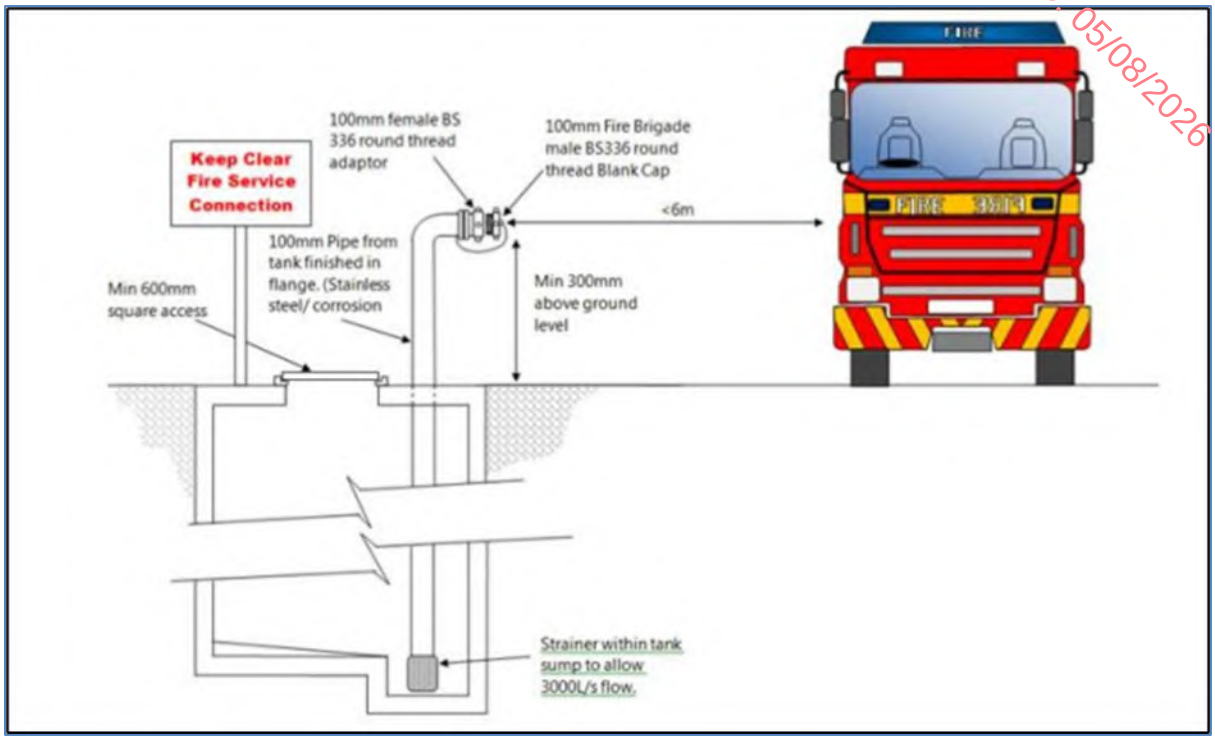
It is noted that in addition to the static storage tank, a significant volume of water will still be available from hydrants located throughout the development. Any specific requirements as requested by the local fire authority will be incorporated at the detail design stage.

The above is subject to Uisce Eireann network performance testing. Should Uisce Eireann confirm that 8l/s can be achieved within the network then the above tank maybe omitted at the

discretion of the local Fire Dept allowing the development to be serviced by the hydrants solely. Any such omissions will be agreed with the Fire Officer of at construction stage.

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Figure 2 Typical detail of a below ground static storage tank for firefighting.



5. ROADS LAYOUT

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All internal roads will be designed in accordance with the Design Manual for Urban Roads and Streets (DMURS), May 2019 and the Recommendations for Site Development Works for Housing Areas, 1998. Auto track vehicle swept path analysis have been completed for the proposed site layout for a Large Car, a Refuse Truck, and a Fire Tender to ensure the vehicles can safely manoeuvre around the site. The swept paths are shown on the engineering Auto tracking drawings that accompany this report as separate documents.

Vehicular access is proposed from an existing roundabout on the Western Distributor Road, off the southern arm junction. Due to the large scale of the Masterplan development, upgrade works to the southern arm junction have been permitted by Galway City Council (Planning Reference 24/60370). Currently the junction services Altan, an existing residential development, and Knocknacarra National School. The permitted road layout, (Planning Reference 24/60370), amends the alignment of this road to have the access to the proposed development as the major road, with the school access being the minor road. Discussions have been held with Galway City Council to include arrangements to tie in with the Active Travel Scheme proposed for the area.

Discussions have been held with Galway City Council regarding the proposed southern arm junction upgrade works and to include arrangements to tie in with the Active Travel Scheme proposed for the area. There are additional pedestrian and cyclist linkages proposed around the development which encourages permeability and promotes sustainable modes of transport.

Additional pedestrian and cyclist connections are proposed throughout the development to enhance permeability and promote sustainable modes of transport. Notably, Millers Lane will be extended at the northeast corner of the site, as per the permitted road layout, (Planning Reference 24/60370), introducing a 4-metre-wide shared pedestrian and cycleway. This route will traverse from Millers Lane southwards and tie into the proposed segregated pedestrian footpath and cycle lanes, ensuring connectivity to all key areas.

The proposed maximum speed limit within the development is to be 30km/h, with appropriate traffic control measures where required. Road widths within the development are generally 5.5m wide and 4.8m wide where 'Homezone' areas are proposed. Footpaths are 2m wide in general and are delineated where they are needed in the 'Homezone' areas. Pedestrian paths will be provided throughout the site adjacent to the roads, behind parking where feasible and throughout the green open spaces.

Road levels for the site have been derived taking cognisance of the existing topography and ground conditions. Road build-up shall be in accordance with Galway City Council Taking In-Charge requirements and as per the engineering Typical Site Works Details drawing. The use of raised junctions/crossings and pedestrian crossing points along with strategically positioned drop kerbs and tactile paving will allow for full linkage for visually impaired and less-able pedestrians. Refer to the DMURS 2019 Statement of Consistency report, which accompanies this document, for further details on the road's layout. The 'Homezone' areas, shall be finished in a distinct surface material to differentiate them from vehicle priority roads. Roads will include a 1:40 camber from the centre of the road or a 1:40 crossfall from one side to the other and longitudinal gradients of road sections lie between 1:21 and 1:200 to ensure adequate surface water drainage is achieved.

Lockable gullies are to be located, at a minimum, every 200m^2 with local low points allowing for double gullies as per Recommendations for Site Development Works for Housing Areas to ensure surface water drainage will not be blocked.

A Traffic and Transport Assessment, (TTA), has also been conducted on the proposed development and accompanies this report as a separate document. An independent Road Safety Audit will be carried out on the site and the Auditor's report will be included in the final stage of the planning submission for this proposed development as a separate document. The Auditor's report is included as an appendix of the TTA Report. The items raised by the Road Safety Audit have been addressed in detail within a section of the TTA.

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6. RETAINING AND SUBSURFACE STRUCTURES

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Proposed road and finished floor levels have been designed to keep any retaining structures at an absolute minimum, whether they are retaining the proposed development or the neighbouring ground. However, due to the large scale of the development and constraints such as road-tie in points, allowable road gradients and surrounding sites, some retaining is required. All required retained heights have been kept to a minimum.

The construction of subsurface structures such as attenuation tanks and structural elements such as building foundations are necessary for the proposed development. It is envisaged that buildings will be founded upon either raft or strip foundations. The possibility of piling also remains. The type of foundation to be employed will be confirmed through detailed design considering the ground conditions.

All structures will be required to be founded upon firm subgrade or bedrock to be confirmed by onsite testing prior to the construction of any structure or foundation.

7. CONCLUSION

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The report should be read in conjunction with the associated drawings, layouts, and specifications. We trust that adequate detail has been provided for the wastewater drainage layout and the surface water drainage layout, watermain design layout, SuDS design layout and road layouts. Should any further detail be required, we will be happy to meet and supply same, as may be deemed appropriate.

8. REFERENCES

RECEIVED: 05/08/2026

Uisce Éireann Code of Practice for Wastewater Infrastructure IW-CDS-5030-03, Revision 3, August 2025

Uisce Éireann Code of Practice for Water Infrastructure IW-CDS-5020-03, Revision 3, August 2025

Design Manual for Urban Roads and Streets, Department of Transport, Tourism and Sport / Department of Housing, Planning and Local Government

National Guidance Document on the Provision of Water for Fire Fighting, 3rd Edition, January 2007, Local Government Association / Water UK

Recommendations for Site Development Works for Housing Areas, October 1998, Government of Ireland

Public Health and Plumbing Engineering CIBSE Guide G: 2014, Chartered Institute of Building Services Engineers

Traffic Signs Manual, August 2019, Department of Transport, Tourism and Sport

The SuDS Manual C753, 2015, CIRIA

BRE Digest 365, Building Research Establishment

HR Wallingford, www.uksuds.com

Galway City Development Plan 2023–2029, Galway City Council, adopted 13 June 2023. Available at: www.galwaycity.ie/development-plan

Appendix A Foul Network Design

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Appendix B Storm Network Design

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Appendix C HR Wallingford Greenfield Runoff Rate Report

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Appendix D Kingspan Klargester Bypass Separator

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Appendix E Uisce Eireann Correspondence

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Appendix F Soakaway Testing Locations and Results

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