GALWAY PORT LRD

Construction Environmental Management Plan (CEMP)

The Land Development Agency

Rev. 03

Date: 11/09/2025

Project name:	Galway Port LRD	DNV
Report title:	Construction Environmental Management Plan (CEMP)	Biodiversity and Environmental Services
Customer:	The Land Development Agency	3D, Core C, Block 71, The Plaza,
Date of issue:	11/09/2025	Park West, Dublin 12, D12F9TN, Ireland
		Tel: +353 1 565 4730

Applicable contract(s) governing the provision of this Report:

Objective: Construction Environmental Management Plan

Prepared by:	Verified by:	Approved by:
Leah Moloney Sustainability Consultant	Aoife Gillen Prinical Sustainability Consultant	Aoife Gillen Prinical Sustainability Consultant

Rev. no.	Date	Reason for issue	Prepared by	Verified by	Approved by
01	08/07/2025	First issue	Leah Moloney	Aoife Gillen	Aoife Gillen
02	13/08/2025	Legal Review	Leah Moloney	Aoife Gillen	Aoife Gillen
03	11/09/2025	Final issue	Leah Moloney	Aoife Gillen	Aoife Gillen

DISCLAIMER

Independence, impartiality, and advisory limitations

This document contains content provided by DNV. Please note the following:

Ethical safeguards

To maintain integrity and impartiality essential to its third-party roles, DNV performs initial conflict-of-interest assessments before engaging in advisory services.

Priority of roles

This report is generated by DNV in its advisory capacity, subsequent to conflict-of-interest assessments. It is separate from DNV's responsibilities as a third-party assurance provider. Where overlap exists, assurance activities conducted by DNV will be independent and take precedence over the advisory services rendered.

Future assurance limitation

The content in this document will not obligate or influence DNV's independent and impartial judgment in any future third party assurance activities with DNV.

Compliance review

DNV's compliance with ethical and industry standards in the separation of DNV's roles is subject to periodic external reviews.

Report Limitations

Synergy Environmental Limited T/A DNV (hereafter referred to as "DNV") has prepared this report for the sole use of *The Land Development Agency (LDA)* in accordance with the Agreement under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by DNV.

The information contained in this Report is based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by DNV has not been independently verified by DNV, unless otherwise stated in the Report.

The methodology adopted and the sources of information used by DNV in providing its services are outlined in this Report.

The work described in this Report is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances.

All work carried out in preparing this report has used, and is based upon, DNV's professional knowledge and understanding of the current relevant national legislation. Future changes in applicable legislation may cause the opinion, advice, recommendations or conclusions set out in this report to become inappropriate or incorrect. However, in giving its opinions, advice, recommendations and conclusions, DNV has considered pending changes to environmental legislation and regulations of which it is currently aware. Following delivery of this report, DNV will have no obligation to advise the client of any such changes, or of their repercussions.

DNV disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to DNV's attention after the date of the Report.

Certain statements made in the Report that are not historical facts may constitute estimates, projections or other forward-looking statements and even though they are based on reasonable assumptions as of the date of the Report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual

results to differ materially from the results predicted. DNV specifically does not guarantee or warrant any estimate or projections contained in this Report.

Unless otherwise stated in this Report, the assessments made assume that the site and facilities will continue to be used for their current or stated proposed purpose without significant changes.

The content of this report represents the professional opinion of experienced environmental consultants. DNV does not provide legal advice or an accounting interpretation of liabilities, contingent liabilities or provisions.

If the scope of work includes subsurface investigation such as boreholes, trial pits and laboratory testing of samples collected from the subsurface or other areas of the site, and environmental or engineering interpretation of such information, attention is drawn to the fact that special risks occur whenever engineering, environmental and related disciplines are applied to identify subsurface conditions. Even a comprehensive sampling and testing programme implemented in accordance with best practice and a professional standard of care may fail to detect certain conditions. Laboratory testing results are not independently verified by DNV and have been assumed to be accurate. The environmental, ecological, geological, geotechnical, geochemical and hydrogeological conditions that DNV interprets to exist between sampling points may differ from those that actually exist. Passage of time, natural occurrences and activities on and/or near the site may substantially alter encountered conditions.

Table of contents

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

DNV was retained by The Land Development Agency (hereafter referred to as The LDA) to prepare this Construction and Environmental Management Plan (CEMP) for the construction phase of the Proposed Development at site of 1.621 Ha in Galway Port at Dock Road and Lough Atalia Road, Galway City (referred to hereafter as the Proposed Development / site).

A description of the Proposed Development is provided in Section 2 of this report.

The CEMP is an integral part of the Project's Health, Safety, Environmental and Quality Management System (HSEQMS). The CEMP is subject to the requirements of the Site Quality Management System (QMS) with respect to documentation control, records control, and other relevant measures.

1.1. Objective and Purpose

The CEMP defines the measures that will be implemented during the works to manage, minimise, or mitigate potential environmental impacts that may arise from the construction phase of the Proposed Development.

The objective of this CEMP is to set out and communicate the procedures, standards, management responsibilities and key environmental obligations that apply to the Main Contractor (once appointed), their sub-contractors and employees, in order to address and prevent environmental effects that may arise throughout the construction phase of the Proposed Development.

The purpose of this CEMP is to provide effective, site-specific procedures and mitigation measures to monitor and control environmental impacts throughout the construction phase of the Proposed Development and ensure that construction activities, so far as is practical do not adversely impact the environment. Furthermore, this CEMP provides the information necessary to ensure that the management of all activities associated with construction phase of the Proposed Development are carried out in accordance with all statutory requirements.

The CEMP will be updated by the Main Contractor (once appointed) in advance of construction works commencing onsite. All measures contained in this document will be implemented and contained in the final CEMP.

1.2. Scope of CEMP

This CEMP defines the approach to environmental management during implementation and roll-out of the construction phase of the Proposed Development.

Compliance with the CEMP, procedures, work practices and controls is mandatory and must be adhered to by all personnel and contractors employed during the construction phase of the Proposed Development. This CEMP seeks to promote best environmental practices on-site for the duration of the construction phase.

This CEMP will provide a framework to:

- Comply with current environmental legislation, codes of best practice and guidelines (refer to Section 3.0).
- Comply with all relevant conditions attached to the Grant of Planning from Galway City Council (GCC) (once issued) (refer to Section 3.2).
- Provide a plan for achieving and implementing construction related mitigation measures including those identified in the particulars submitted with the planning application (refer to Section 3.3).
- Identify the roles and responsibilities of contractor organisations, their sub-contractors and employees to the roles specific to environmental management.
- Ensure that environmental risks are identified and will be appropriately mitigated to ensure any adverse effects are minimised during the construction phase of the Proposed Development.
- Promote best environmental on-site practices for the duration of the construction phase of the Proposed Development; and
- Outline the procedures for reporting and communicating on environmental aspects of the construction phase of the Proposed Development.

1.3. 'Live document'

The CEMP is considered a 'live' document and as such will be reviewed on a regular basis.

This CEMP will be updated by the Main Contractor (once appointed) in advance of construction works commencing onsite.

Updates to the CEMP may also be necessary to address changes in environmental management practices and to include further mitigation measures that may be identified as part of ongoing reviews.

The procedures described in this CEMP will be audited throughout the construction phase of the Proposed Development to ensure compliance. All documentation required by this CEMP such as plans, programmes and operating procedures will be appended to this document and reviewed and updated as part of the overall CEMP for the construction phase of the Proposed Development.

All relevant details and measures will be contained within the CEMP and any future updates must be made in accordance with the CEMP.

2 Description of The Proposed Development

2.1 Site Location and Description

The site of the Proposed Development is located at Galway Port in County Galway. The site is located in Galway City Centre, approximately 400m southeast of Eyre Square, and immediately adjacent to Lough Atalia, and falls into the jurisdiction of Galway City Council. The site is approximately 1.621ha in area and is predominantly surrounded by urban land to the north and west, and water to the east and south.

The Corrib Estuary Transitional Waterbody lies adjacent to the southern and eastern boundaries of the site. It ultimately discharges into the Inner Galway Bay North Coastal Waterbody, located approximately 2.2 km south of the site. The River Corrib is located approximately 580 m west of the site, where it discharges into the Corrib Estuary and The Terryland River is located approximately 1.2 km north of the site.

Lough Atalia is a transitional waterbody hydrologically linked to the Corrib Estuary. Its inlet/outlet channel is part of the estuarine system and may be influenced by tidal and groundwater interactions. The Terryland River is potentially connected to Galway Bay or Lough Atalia via underground conduits.

Demolition of existing structures and the construction of a mixed-use development principally comprising 356 No. residential apartments (172 No. 1-bed, 169 No. 2-bed and 15 No. 3-bed); crèche (255.9 sq m); 2 No. café/restaurant units (totalling 428.4 sq m); and 1 No. retail unit (156.0 sq m).

The site location is presented in Figure 2-1.

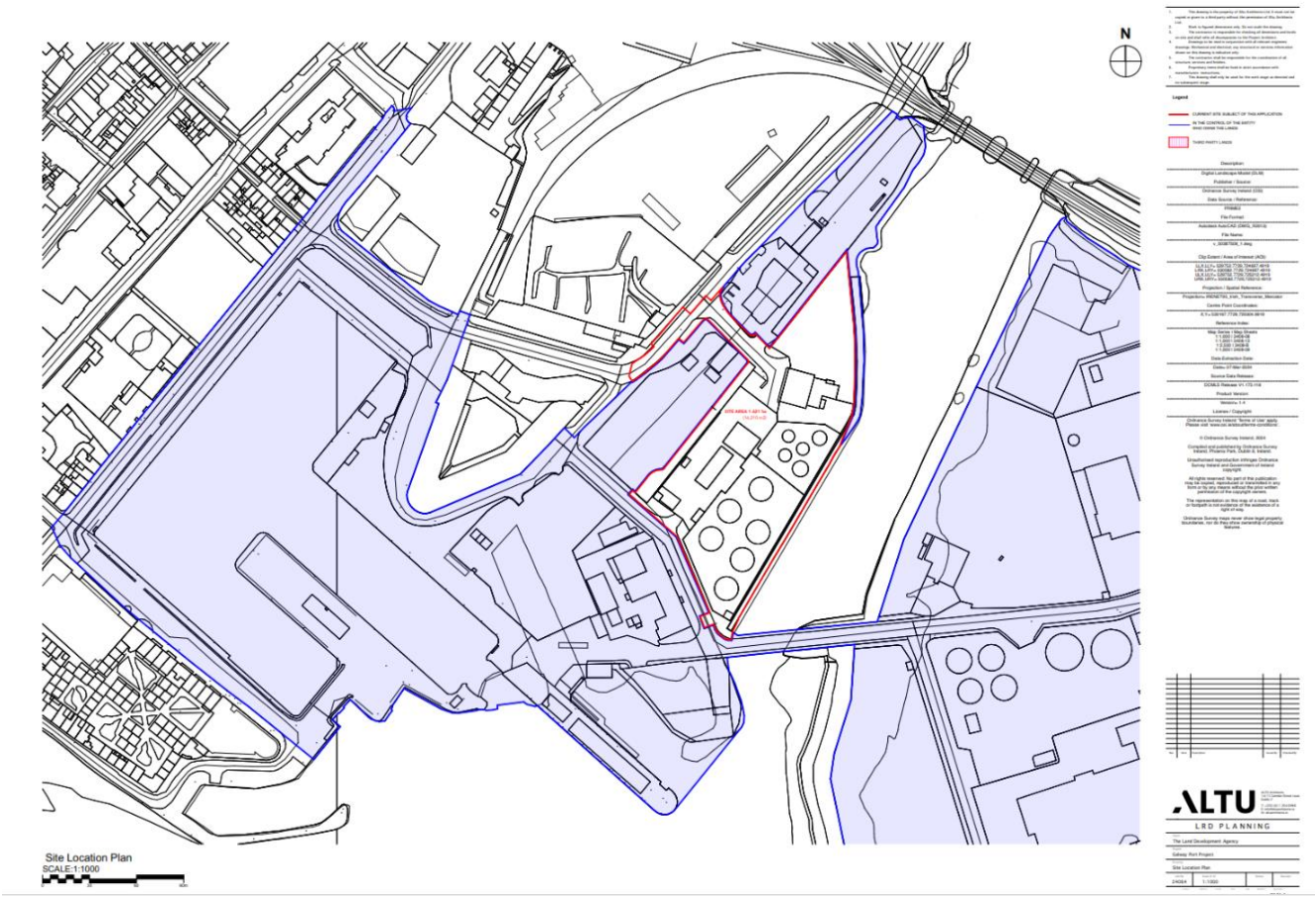


Figure 2-1. Site Location

2.2 Proposed Development

The LDA intends to apply to GCC for permission for a Large-Scale Residential Development of 1.621 hectares in Galway Port at Dock Road and Lough Atalia Road, Galway City, and extending to include parts of both roads.

The Proposed Development principally consists of:

- The demolition of the existing office / bus depot building (370.2 sq m) and ancillary building (26.0 sq m);
- The partial demolition of the existing ESB sub-station and ancillary building (67.4 sq m);
- The demolition of existing boundary walls at the south-west and north-west; and
- The construction of a mixed-use development.

The proposed mixed-use development primarily comprises:

- 356 No. residential apartments (172 No. 1-bed, 169 No. 2-bed and 15 No. 3-bed);
- Crèche (255.9 sq m);
- 2 No. café/restaurant units (totaling 428.4 sq m) and 1 No. retail unit (156.0 sq m).

The development has a total floor area of 32,096.0 sq m and is primarily proposed in 4 No. blocks (identified as A–D) that generally range in height from 6 No. to 13 No. storeys: Block A ranges from 6 No. to 9 No. storeys; Block B ranges from 6 No. to 11 No. storeys; Block C is 6 No. storeys; and Block D ranges from 6 No. to 13 No. storeys.

The Proposed Development also includes:

- New internal street and pedestrian network, including a one-way vehicular route at the north-western side of the site and new junctions with Dock Road at the south-west and with the access road from Lough Atalia at the north-west;
- Upgrades to Lough Atalia Road and the access road from it at the north-west of the site, including the provision of a new toucan pedestrian/cycle crossing at Lough Atalia Road; upgrades to the footpath and road interface with Dock Road to the south-west;
- 37 No. car parking spaces;
- 1 No. set-down/delivery bay;
- 741 No. cycle parking spaces;
- Hard and soft landscaping, including as public open spaces and communal amenity spaces;
- Private amenity spaces as balconies and terraces facing all directions; boundary treatments;
- Public lighting;
- Bin stores;
- Double sub-station;
- Plant rooms; green roofs;
- Rooftop lift overruns and plant;
- Rooftop telecommunications, plant and enclosure at Block C;
- Recladding of the existing sub-station and pumping station; and
- All associated works above and below ground.

The Proposed Development site layout is presented in Figure 2-2.

Figure 2-2. Proposed Development Site Layout (Altu Architects, 2025)

3 ENVIRONMENTAL REGULATORY AND OTHER REQUIREMENTS

The CEMP provides a framework for compliance with current environmental and other regulatory obligations for the construction phase of the Proposed Development.

This CEMP will be updated as required throughout the construction phase of the Proposed Development should there be any amendments to any of the following:

- Project specific construction requirements; and
- Legislative requirements.

Where compliance obligations have been assessed and recorded, they will be reviewed on an ongoing basis, when personnel become aware of relevant changes that impact directly on operations, where obligations have changed or where there have been significant changes in work type. All contractors involved in the construction phase of the Proposed Development must comply with these documents and specific requirements of the CEMP.

3.1 Environmental Legal Register

The environmental legal register will record regulatory and legal requirements and summarise applicable environmental legislation, (as well as other requirements) that the project must adhere to. The environmental legal register will be maintained onsite and will be made available through the Construction Environmental Site Manager's (refer to Section 4.1) office onsite. The environmental legal register will be prepared post-planning/pre-construction by the main contractor (once appointed). It will be a controlled document and will be updated and reviewed on an ongoing basis.

A typical register of environmental legislation is divided into a number of categories, which include:

- General Environmental Legislation;
- Biodiversity;
- Emissions to Air;
- Emissions to Water & Groundwater;
- Waste Management; and
- Noise & Vibration.

For each piece of legislation, the following information should be provided:

- Index Number;
- Title of Legislation;
- Summary of Legislation; and
- Relevance.

All legislation included in the environmental legal register can be readily accessed on http://www.irishstatutebook.ie and will be made available onsite by the Main Contractor (once appointed).

3.2 Conditions of Planning Permission

The Main Contractor (once appointed) will ensure that the implementation of all required environmental conditions, and the control measures set out in the Grant of Planning from GCC (once issued) will be strictly adhered to for the duration of the construction phase of the Proposed Development once these planning conditions are known.

3.3 Environmental Assessments and Reports

All environmental and ecological control and mitigation measures identified in the CEMP and the documents outlined below will be implemented for the duration of construction phase of the Proposed Development.

- DNV, 2025. Appropriate Assessment Screening Report for Proposed Large Scale Residential Development at Galway Port (hereafter referred to as the AA Screening Report);
- DNV, 2025. Natura Impact Statement (NIS) for Proposed Large Scale Residential Development at Galway Port, Co. Galway.
- DNV, 2025. Environmental Impact Assessment Report (EIAR) for Proposed Large Scale Residential Development at Galway Port, Co. Galway; and
- AWN, 2025. Resource & Waste Management Plan for a Proposed Mixed-Use Development, Galway Port LRD.

4 CONSTRUCTION ENVIRONMENTAL MANAGEMENT TEAM

4.1 Project Roles and Responsibilities

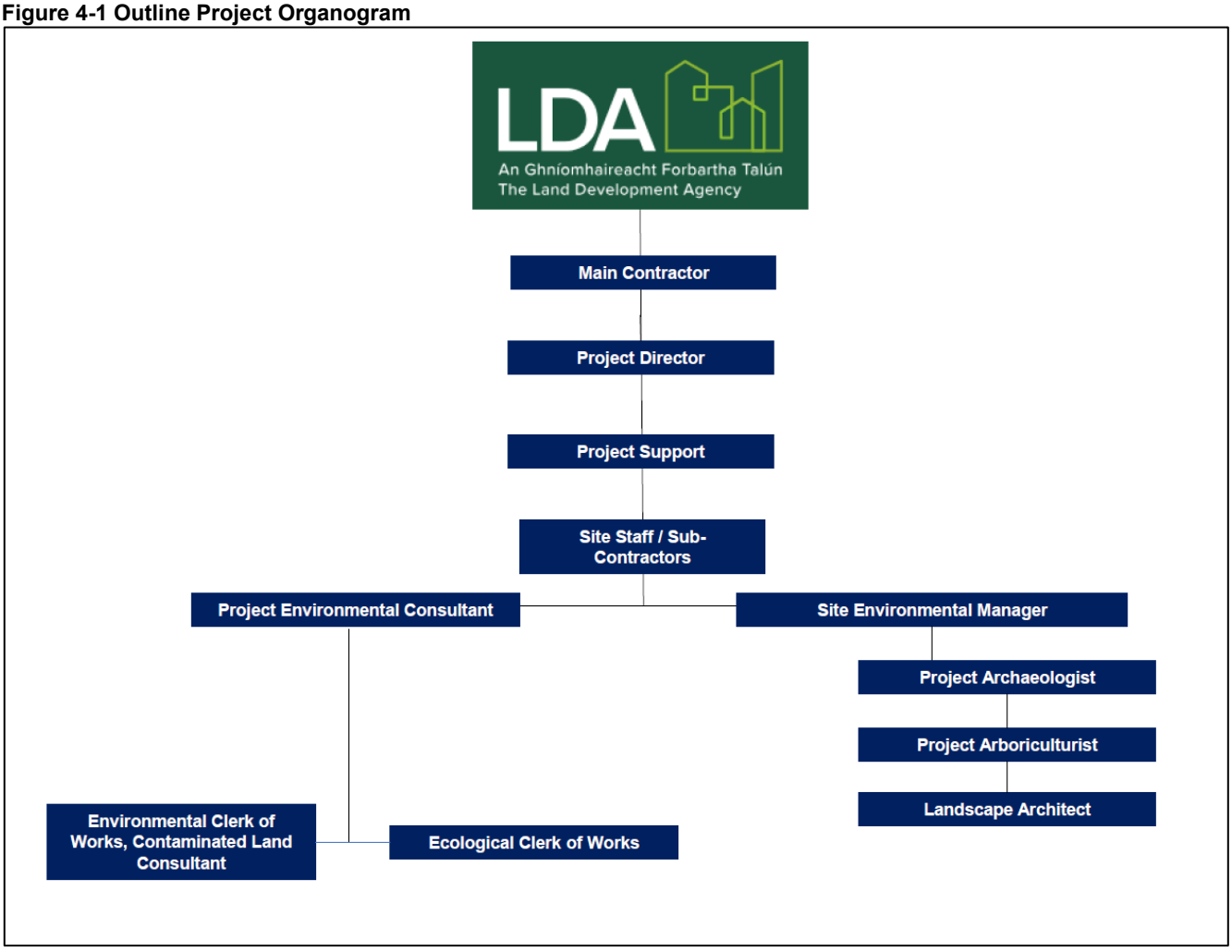
The roles and responsibilities of personnel and the lines of communication specific to Environmental Management are outlined in the following sections.

The Main Contractor (once appointed) will have overall responsibility for the implementation of the CEMP and appointing the following roles and responsibilities within the Construction Management Team (CMT).

The roles and responsibilities are indicative and may be amended over the course of the project.

An outline project organogram has been created for this report (Figure 4-1) and may be updated by the Main Contractor (once appointed). A copy of the project organogram will be included in the live CEMP. It is noted that the project organogram may also be updated throughout the construction phase of the Proposed Development.

Figure 4-1 Outline Project Organogram



The key responsibilities are set out in Table 4-1.

Table 4-1. Construction Environmental Management Team – Key Responsibilities

Responsible Party	Responsibility
The Developer	Appointment of competent Main Contractor
	Responsibility of environmental and waste management including documentation of same
Main Contractor	Implementation of the CEMP
	Appoint competent and authorised waste management contractor(s)
	Appoint trained, competent Project Manager and Construction Environmental Manager.
Construction Director	Overall responsibility for the implementation of the CEMP;
	Allocating the correct resources in order to ensure the successful implementation of the CEMP; and
	Assist in the management review of the CEMP for suitability and effectiveness.
Project Manager	To report to the Construction Director on the on-going performance and development of the CEMP;
	To discharge his/her responsibilities as per the CEMP; and
	To support and augment the Construction Management Team (CMT) through the provision of adequate resources and facilities for the duration of the implementation of the CEMP.
	Read, understand, and implement the CEMP.
	Have knowledge of the requirements of the relevant law in environmental matters and take whatever action is necessary to achieve compliance. Where necessary seek the advice of the contracted Environmental Officer.
	Ensure that environmental matters are considered at all times.
	Be aware of any potential environmental risks relating to the site, plant, or materials to be used on the premises and bring these to the notice of the appropriate management; and
Construction Environmental Site Manager	Ensuring that the requirements of the CEMP are reviewed and environmental system elements (including procedures, method statements and work instructions) are implemented and adhered to with respect to environmental requirements;
	Reviewing the environmental responsibilities of all sub-contractors in scoping their work and during their contract tenure;
	Ensuring that advice, guidance, and instruction on all CEMP matters is provided to all managers, employees, construction contractors and visitors onsite;
	Reporting to the Project Manager / Construction Director on the environmental performance of Line Management, Supervisory Staff, Employees and Contractors;
	Advising site management on environmental matters;
	Be aware of any potential environmental risks relating to the Contractors and bring these to the notice of the appropriate management;
	Ensure materials/waste register is completed; and
	Maintenance of all environmental related documentation.
	Training of all site staff in the requirements of the CEMP including environmental controls, waste management and the approved process for communications/complaints handling.
Environmental Operative	Assisting with the implementation, monitoring and record keeping requirements of the detailed CEMP with respect to environmental, and material and waste management requirements
	Ensuring commitment, operational efficiency and accountability during the construction phase of the Proposed Development in line with the CEMP.
	Selecting a waste team if required, i.e., members of the site crew that will aid them in the organisation, operation and recording of the waste management system implemented onsite.
	Overseeing, recording and providing feedback to the Construction Director everyday waste management at the site.
	Delegating responsibility to sub-contractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and material salvage.
	Conducting waste audits, maintaining a record system, and establishing targets for waste management at the site during the construction phase of the Proposed Development.

Responsible Party	Responsibility
Project Communications Officer	Responding to any concerns or complaints raised by the public in relation to the construction phase of the Proposed Development.
	To liaise with the Construction Environmental Site Manager on community concerns relating to the environment.
	Ensure the Environmental Officer is informed of any complaints relating to the environment.
	Keep the public informed of project progress and any construction activities that may cause inconvenience to the local community.
Site Personnel	To co-operate fully with the CMT and the Environmental Officer in the implementation and development of the CEMP at the site.
	To conduct all their activities in a manner consistent with regulatory and best environmental practice.
	To participate fully in the environmental training programme and provide management with any necessary feedback to ensure effective environmental management at the site; and
	Adhere fully to the requirements of the site environmental rules.
Sub-contractors	Comply with CEMP where relevant
Project Environmental Consultant(s)	If required, the Main Contractor will engage with a Project Environmental Consultant(s) to provide specialist environmental inputs and act in the roles of Environmental Clerk of Works (including Contaminated Land Consultant) (ECoW), and Ecological Clerk of Works (EcCoW) as required. The key responsibilities of the Project Environmental Consultant are summarised as follows:
	Updating of the CEMP and advising the Main Contractor in the updating of the CEMP, environmental control plans and supporting procedures.
	Advising the site management on environmental matters as appropriate.
	Carrying out environmental surveys (data logging (noise, water, dust, etc.)) as required.
	Generating reports when required to show environmental data trends and incidents.
	Advising on the production of written method statements and site environmental rules and on the arrangements to bring these to the attention of the workforce as required; and
	Investigating incidents of significant, potential, or actual environmental damage, ensure corrective actions are carried out and recommend means to prevent recurrence.
	Provision of specialist input and supervision where necessary, of construction activities in relation to habitats and species and any specified protection measures in accordance with the conditions of the Grant of Planning and those identified in the particulars submitted with the planning application for the construction phase of the Proposed Development
Project Archaeologist (as required)	Undertaking archaeological assessments (and impact assessments) of the Proposed Development, including all temporary and enabling works, geotechnical investigations (e.g., boreholes, engineering test pits, etc.).
	Making appropriate recommendations for mitigation including watching briefs and detailed surveys as necessary.
	Undertaking archaeological monitoring, and if necessary archaeological excavation and/or the preservation in situ of archaeological remains, which may negate the facilitation of all, or part of any basement.
	Supervision of all sub-surface works;
	Liaising with GCC and other relevant bodies including the National Monuments Services Section of the Department of Culture, Heritage and the Gaeltacht as required.
	Submission of reports containing the results of archaeological investigations and assessment, where required.
Arboriculturist	The Arboriculturist will advise and supervise all works associated or in proximity to the existing trees to ensure their retention and condition.
	Making appropriate recommendations for mitigation, where necessary, including protection fence beyond the branch spread, with no construction work or storage carried out within the protective barrier.
	Preparation of Arboricultural Impact Assessment and Method Statements report,
	Advising the site management on the implementation of the landscape scheme.

Responsible Party	Responsibility
Landscape Architect	Making appropriate recommendations, where necessary, for boundary treatments either proposed, retained or enhanced.
	Preparation of Landscape Completion Report.

4.2 Training Provisions

The Main Contractor will document and maintain all training records, safety meetings and toolbox talks, including topics and attendees, in the Project HSEQMS (Health, Safety and Environmental Quality Management System) records.

4.2.1 Construction Environmental Site Manager

The Construction Environmental Site Manager will keep up to date with environmental legislation, codes of practice and other policies and regulations.

The Construction Environmental Site Manager will be responsible for:

- Ensuring that Environmental Induction Training is carried out for all the Contractor's site personnel. The induction training may be carried out in conjunction with Safety Induction Training;
- Providing toolbox talks on Environmental Control Measures associated with site-specific Method Statements to those who will undertake the work;
- Communicating changes to process, identify potential areas of concern and inform staff of corrective and preventative actions implemented; and
- Setting up and maintaining record keeping systems and to assist with audits.

The Construction Environmental Site Manager will also assist with the environmental management training requirements, and subsequent training for all levels of employees on the project.

4.2.2 Environmental Operative

The Environmental Operative will be trained in how to set up and maintain a record keeping system and to assist with audits.

4.2.3 Site Personnel Training

A basic awareness briefing will be held for all site crew to outline the environmental management practices for the site. This will be incorporated with other site training needs such as general site induction, health and safety awareness and manual handling.

This basic briefing will describe the describe specific environmental requirements, procedures for the segregation of materials, waste storage methods and the location of the designated storage areas. Where required, a sub-section on any hazardous wastes onsite will be incorporated into the briefing and the particular dangers of each hazardous waste will be explained.

The sub-contractors will be instructed to comply with the CEMP and will be audited by the Construction Environmental Site Manager as required to ensure compliance with the CEMP.

5 CONSTRUCTION SCHEDULE AND WORKS MANAGEMENT

5.1 Programme and Phasing

The project duration and proposed sequence of construction will be developed by the Main Contractor (once appointed) in advance of construction works commencing onsite and will be agreed with The LDA. The project programme, which may be amended over the course of the project, will be included in the live CEMP.

During the demolition stage as outlined in the RWMP prepared by AWN Consulting (2025), a documented procedure will be prepared prior to demolition works, including a pre-demolition audit to identify opportunities for resource recovery through deconstruction and disassembly where feasible. The potential for reuse and recycling of components and materials—both from the existing site and other projects—will be assessed in line with functionality, regulatory, and performance requirements, and carried out in compliance with relevant by-product, end-of-waste, and waste data reporting obligations. A specific audit for hazardous materials such as asbestos, PCBs, and POPs will also be undertaken, with procedures documented for their safe removal prior to commencement of main demolition activities.

Buildings and structures to be demolished will be checked for any likely hazards. All hazardous materials will be removed first. All components from within the buildings that can be salvaged will be removed next. Steel roof supports, beams, etc., will be dismantled and taken away for recycling / salvage. Services will be removed from the ground and the breakdown of walls will be carried out once all salvageable or reusable materials have been taken from the buildings. Finally, any existing foundations and hard standing areas that require excavation will be excavated.

The duration of the demolition phase will be approximately 3 months and will proceed as follows:

- Demolition of the existing office / bus depot building (370.2 sq m) and ancillary building (26.0 sq m);
- Partial demolition of the existing ESB sub-station and ancillary building (67.4 sq m); and
- Demolition of existing boundary walls at the south-west and north-west of the site.

The construction duration is estimated at 27 months. The sequencing of the two phases of the Proposed Development is intended to proceed as follows:

Construction Phase 1 (Approximately 15 months):

- Construction of Blocks A and B (186 no. units);
- Road works along Dock Road;
- New internal street and parking court;
- Upgrade of road adjacent to petrol filling station;
- Installation of toucan crossing and associated footpath; and
- Landscaping around public square, courtyard and Lough Atalia Walk.
- Phase 2 (approximately 12 months): construction of Blocks C and D (170 no. residential units), landscaping and Lough Atalia Walk.

Construction Phase 2 (Approximately 12 months):

- Construction of Blocks C and D (170 no. residential units); and
- Completion of landscaping, including the remainder of Lough Atalia Walk.

The proposed Phase 1 and Phase 2 are outlined in Figure 5-1.

5.2 Working Hours

Site working hours will be undertaken in accordance with the requirements of the Grant of Planning from GCC (once issued). However, it is anticipated that normal site working hours will apply to the construction phase of the Proposed Development (07:00 to 19:00 Monday to Friday (excluding bank holidays) and 09:00 to 13:00 Saturdays)

No works are envisaged to be carried out on Sundays or Bank Holidays. However, should there be a need to work on Sundays, Bank Holidays or outside the specified normal working hours, a written submission, with compelling reasons for the proposed deviation, seeking authorisation will be made by the Main Contractor (once appointed) to GCC. The Main Contractor (once appointed) must give the times and dates of the proposed work, and the mitigation measures that are to be used to minimise noise/disturbance.

Any such approval from GCC may be subject to conditions pertaining to the particular circumstances being set by GCC. It is noted that any breaches of Proposed working hours or proposed extended working hours or developers or subcontractors not carrying out their requirements under this protocol may lead to enforcement action and may also result in the withdrawal of any extension of hours of works for a period that will be at the discretion of GCC.

5.3 Site Construction Compound

The Main Contractor (once appointed) will be required to set up a designated site compound area. All construction supports related activities including office facilities; welfare facilities such as toilets and canteen and car parking facilities will be contained within the designated site compound area (refer to Figure 5-1). It is proposed to have a designated site construction compound for Phase 1 and Phase 2 of construction; see Figure 5-1.

The layout of the site compound area will be developed by the Main Contractor (once appointed) and included in the live CEMP. It is noted that amendments to the layout of the designated site compound / designated storage areas may be required as works progress and will be maintained in the onsite live CEMP files.

Materials handling and plant storage including waste shall be contained within the site boundary.

Designated storage areas will be maintained within the boundary of the site for materials handling, waste segregation and temporary storage of soils (e.g., of skips or stockpiled material until a viable load is available or if pending waste classification). The designated storage areas will house all bins and skips for the storage of segregated construction waste generated. All designated storage areas will be identified by clear legible signage and recorded on the site layout drawings which will be maintained onsite. All containers will be marked with clear signage which will identify which waste types are to be placed into each container.

The compound area will be secured from the construction site by means of surrounding Heras fencing. Information notices located at the site entry, site compound and appropriate locations throughout the site will identify the site- personal protective equipment (PPE) requirements and the potential risks associated with entering a live construction environment.

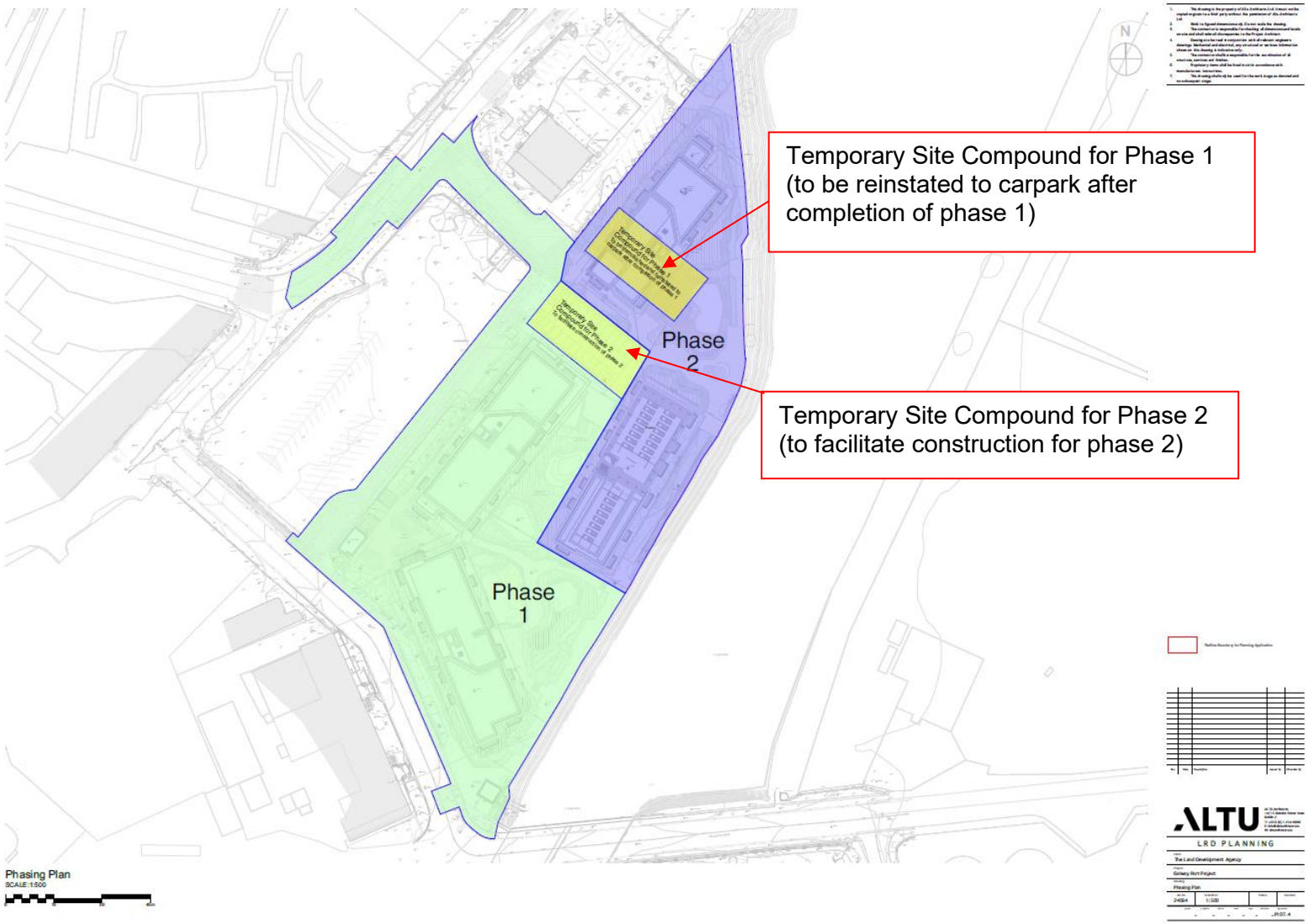


Figure 3. Site Construction Compound Layout (Altu Architects, 2025)

5.4 Traffic

The site fronts directly onto an access road located approximately 50 metres from Lough Atalia Road, a wide single carriageway two-way road. Construction access to the site will be from Lough Atalia Road, with the detailed design and layout of the site access to be agreed between Galway City Council (GCC) and the appointed contractor prior to the commencement of any construction works. Advance warning signage will be installed at 75m and 50m from the site entrance on both approaches to alert road users to construction activity.

It is estimated by NRB that approximately 5,000 cubic metres of excavated material will be transported to and from the site over the course of the project. Based on an average Heavy Goods Vehicle (HGV) load of 12 cubic metres, this equates to approximately 417 HGV trips during the earthworks stage. If these works are carried out over an 8-week period, this would result in an average of 10 HGVs per day, or approximately 2–3 Passenger Car Units (PCUs) per hour. If the preliminary earthworks take place over 8 weeks, that equates to a total of 10 no. HGVs per day. 10HGVs per day equates to 20PCUs = say 2-3PCU max per hour. Even with construction staff traffic, which will typically arrive and depart outside the commuter network peak periods, the number of trips during the construction phase, will be far less than the number of trips during the operational phase. Therefore, the traffic assessment undertaken for the operational phase is the worst-case traffic impact scenario and represents the most onerous case.

Traffic management for the site works will be implemented in line with the following principles and shall adhere at all times to the requirements of:

- Department of Transport Traffic Signs Manual 2010 – Chapter 8: Temporary Traffic Measures and Signs for Roadworks
- Department of Transport Guidance for the Control and Management of Traffic at Road Works (2010)
- Any additional provisions set out within the Design Manual for Urban Roads & Streets (DMURS)

NRB Consulting Engineers have prepared a Construction Traffic Management Plan (CTMP), which will be included in the live CEMP. The CTMP outlines comprehensive details pertaining to traffic management essential for project delivery, including traffic management plans, project implementation phases, and risk assessments associated with the works. The CTMP will be further refined by the appointed main contractor and agreed with GCC prior to commencement. It will be a live document, updated as required to reflect any changes in site operations or regulatory requirements. As per the CTMP and this CEMP, the following measures will be implemented:

Materials will be ordered and delivered to site on an “as needed” basis in order to prevent over supply to site and to keep carbon emissions to a minimum. Deliveries to site will be scheduled with consideration for peak traffic times, aiming to reduce disruption and minimise traffic impact. There will be no deliveries to the site or removal of materials outside of normal site hours (refer to Section 5.2). Delivery and construction vehicles will be discouraged from leaving engines idling even for short periods of time.

All construction materials (incoming and outgoing) will arrive and depart to/from Lough Atalia Road. During demolition/site clearance and for the duration of construction, all traffic will enter and leave via the Lough Atalia Road. There will be no deliveries to the site or removal of materials outside of normal site hours.

Excavated and demolished materials will be removed from the site by licensed hauliers for recovery at authorised facilities, in accordance with the waste hierarchy and relevant waste legislation. It is anticipated that there will be minimal, if any, discernible impact on local road infrastructure during these operations.

All traffic management measures will be implemented, maintained, and removed by competent personnel holding CSCS (Construction Skills Certification Scheme) Signing, Lighting and Guarding certification.

It is not envisaged that road closures will be required during the construction phase of the Proposed Development. However, where required, applications will be made to GCC for permits and approval for road restrictions, including relevant road opening licenses and abnormal load licenses. Where necessary, the Main Contractor will update the CTMP to identify the potential impacts and procedures for traffic management during construction work on, across, or along public roads. A gate attendant with appropriate training and qualifications will be appointed to control manoeuvres and traffic flows at the site entrance.

A gate attendant with appropriate training and qualifications will be appointed to control manoeuvres and traffic flows at the site.

During the construction phase, sustainable travel options such as carpooling, public transport, and electric vehicles will be promoted where feasible, with the aim of reducing traffic impact and carbon emissions. Parking of cars by persons associated with the construction phase of the Proposed Development will not be permitted on the surrounding public roads.

The determination of haul routes associated with the Proposed Development will be undertaken by the Main Contractor (once appointed) and discussed with GCC. Construction-related vehicular movements are proposed to utilise Lough Atalia Road and approach the site from the west, thereby avoiding the City Centre as far as practicable. All construction traffic will be required to operate via primary roads in the vicinity of the site to minimise disruption to local traffic networks. Throughout the duration of the construction phase, two-way traffic flow will be maintained to ensure continued accessibility and operational efficiency. The designated construction vehicle routes will be subject to a traffic management plan, to be approved by both GCC and TII prior to commencement of site activities.

The route of HGVs will be contingent upon the origin of construction materials and the destination of excavated materials that are not intended for reuse on site. The identification of concrete batching plant locations and appropriate waste recovery or disposal facilities will be finalised following the appointment of the Contractor and once further detail regarding material handling requirements becomes available. Although the use of oversized construction vehicles is not currently anticipated, any such vehicle movements, if required, will be subject to prior agreement with the Local Authority and the Traffic Department. These arrangements will be formalised before the commencement of any site works.

A thorough risk assessment process underpins the management of construction activities at Galway Port, with a particular focus on traffic and transport-related risks. The Stage 1 Road Safety Audit, conducted independently and included in the planning documentation recommends specific mitigation measures, such as the provision of traffic calming features, clear priority at junctions, and the design of turning areas to prevent unsafe manoeuvres by large vehicles. The CTMP incorporates these recommendations, ensuring that risks are systematically identified, assessed, and addressed throughout the construction period. The risk assessment process is dynamic, with regular reviews and updates as the project progresses and as new information becomes available. The Contractor (once appointed) will be required to maintain detailed records of risk assessments and mitigation actions, and to liaise closely with Galway City Council and other relevant authorities to ensure compliance with all safety and environmental requirements.

5.5 Site Security, Public Health and Safety and Site Access and Egress

A temporary site compound and car parking facility will be established by the Main Contractor (once appointed) prior to the commencement of construction work onsite.

Prevention of unauthorised access to the site is a very high priority and will be vigorously managed throughout the construction period. The main contractor (once appointed) will ensure that the site entrances and boundaries are appropriately secured with lockable gates and supplemental hoarding/fencing which will be erected as required to ensure the security of the Proposed Development site. Regular inspections of the gates/fencing/hoarding will be undertaken to ensure the integrity of the site security and safety measures.

Site access for all personnel and visitors will be controlled, and all visitors will report to the site offices prior to entering the construction area.

All visitors will sign into the Site Visitor Logbook and will be accompanied by an authorised person who has been fully inducted and aware of the current site conditions.

Information notices located at the site entry, site compound and appropriate locations throughout the site will identify the site-specific PPE requirements and the potential risks associated with entering a live construction environment.

5.6 Communication and Consultation

All project related communications will be undertaken in accordance with the Project Communications Management Plan developed as part of health and safety documentation. The Construction Environmental Site Manager / Project Communications Officer (refer to Section 4.1) will undertake any required third-party communication and liaise directly with local authorities, members of the public, as required throughout the construction phase of the Proposed Development. A copy of this plan will be provided to GCC Planning Department upon request.

5.6.1 Advance Works Notice

The Communications Management Plan will specify any requirements in relation to regular consultation and public communications activities required during the construction works and will include all contact details for relevant project personnel, public bodies and emergency services.

5.6.2 Managing Enquiries and Complaints

All complaints and requests for information from members of the public will be handled appropriately and efficiently and in line with Project Communications Management Plan. All follow up actions on the construction site will be managed by the Environmental Officer / Project Communications Officer and supported by the Construction Management Team (CMT).

All enquiries and complaints will be recorded on the Communications Log / Complaints Register which will be included in the live CEMP and maintained onsite in the Construction Site Manager's office. The Communications Log will be made available to GCC upon request. The Communications Log will detail the following as a minimum:

- Name and address of complainant (if provided);
- Time and date the complaint was made;
- Date, time, and duration of incident;
- Nature of the complaint (e.g., noise nuisance, odour nuisance, dust nuisance, traffic or any other environmental nuisance);
- Characteristics, such as rumble, clatters, intermittent;
- Likely cause or source of incident;
- Weather conditions, such as wind speed and direction;
- Investigative and follow-up actions; and
- Root cause analysis and preventive actions (i.e., measures taken to address the complaint and prevent repetition of the complaint).

All personnel working on the site will be inducted into the complaints handling procedure and mitigation requirements and will be aware that complaints are to be directed immediately to the Environmental Officer / Project Communications Officer.

All enquiries and complaints received will be investigated by the Environmental Officer / Project Communications Officer with support from the CMT. A reply will be issued to the complainant within three (3No.) hours of receipt of the complaint.

Where appropriate corrective and preventative actions will be implemented as required to ensure that the complaint is effectively dealt with and to prevent a recurrence of the incident which led to the complaint being received. Staff will be informed by toolbox talk of corrective and preventative actions implemented as relevant to their role or overall operations.

5.7 Site Contact Details

The Main Contractor (once appointed) will ensure that the contact details for the Project Manager / Construction Environmental Site Manager / Project Communications Officer and the Environmental Officer will be displayed on the Site hoarding at appropriate locations across the site and will be included in in the live CEMP.

The contact details of the Project Manager / Construction Environmental Site Manager / Project Communications Officer and the Environmental Officer will also be displayed to the public at the site entrance, together with the Proposed operating hours, including any special permissions given for out of hours work.

5.8 Consultation With Relevant Bodies

5.8.1 Local Authority

The local authority, GCC will be consulted as required throughout the construction phase of the Proposed Development.

6 PROJECT ENVIRONMENTAL POLICY

The LDA recognises and seeks to minimise the impacts of its business on the environment. The Main Contractor (once appointed) will be obliged to:

- Carry out the project in full compliance with all applicable environmental regulations and to other requirements to which we subscribe;
- Implement good environmental practice as part of designs (e.g., carry out design reviews, risk assessments, etc.) on all relevant projects;
- Prevent pollution from activities through a system of operational controls that include written instructions and staff training appropriate to the environmental requirements of their work;
- Continually improve project environmental performance by setting objectives and targets and implementing them through an environmental programme;
- Informing all project employees about Environmental Policy and explaining what they are required to do to protect the environment;
- Actively work to reduce greenhouse gas emissions by optimising energy efficiency, minimising water use, using low-carbon materials, and promoting sustainable construction practices;
- Where possible, we will incorporate renewable energy sources and low-carbon

technologies into site operations;
- Climate resilience measures will be integrated into this construction project to address the risks posed by extreme weather events and changing environmental conditions;
- Construction activities will be planned to avoid disruption to local ecosystems and biodiversity, with habitat restoration measures implemented where necessary; and
- Implement this Policy through the successful operation of the CEMP.

This policy will be reviewed on an ongoing basis, considering current and potential future business issues.

6.1 Site Environmental Awareness

The following general site environmental rules will apply for the duration of the construction phase of the Proposed Development. These general rules will be communicated to all site personnel via the site induction training, and they will be posted across the site at strategic locations, such as the site entrance, canteen and construction compound.

- Report any signs of pollution or environmental damage to the construction manager, environmental officer, or site supervisor no matter how small;
- Report any spills, incidents or near misses that occur onsite immediately to the site supervisor;
- Refuel using bunded mobile bowsers or static bunded tanks in designated, impermeable areas equipped with spill kits;
- Where possible carry out any oil or lubricant changes and maintenance offsite;
- All waste must be sent to the designated waste management area within the site construction compound (refer to Section 5.3) for segregation and interim storage pending compliant removal offsite;
- Do not dispose of anything into a drain, watercourse or onto land;
- Do not throw litter, all waste must be sent to site waste management contractor;
- As best-practice, all construction-related waste on site (e.g., plastic sheeting, packaging) should be kept in a designated area on site and kept off ground level to protect fauna from entrapment and death;
- Do not drive plant or machinery outside the authorised working boundaries of the Proposed Development site; and
- IF IN DOUBT, ASK THE CONTRACTED SITE SUPERVISOR AND/OR CONSTRUCTION ENVIRONMENTAL SITE MANAGER FOR FURTHER INFORMATION.

The Main Contractor (once appointed) and CMT will develop Environmental Procedures to control the potential impacts from the construction phase of the Proposed Development. These procedures together with the site Environmental Policy are to be made available in the main offices and in the main EHS information points at the site.

The training of site construction staff is the responsibility of the Environmental Officer. All personnel working on site will be trained in pollution incident control response. An environmental training programme will be organised for onsite personal to outline the CEMP and to detail the site environmental policy.

A summary of the main points of this CEMP will be incorporated into the site induction course.

All contractors will verify the competency of all plant and equipment operators including those employed by sub-contractors.

An environmental audit and inspection programme will be developed by the contractor to ensure compliance with the compliance measures identified in the CEMP (refer to Section 8).

7 ENVIRONMENTAL MANAGEMENT CONTROLS

The environmental control measures that will be implemented during the construction phase of the Proposed Development are detailed in the following sections.

7.1 Potential Impacts of the Development

The CEMP is designed to implement mitigation measures to control impacts relating to:

- Fuel and Oil Storage;
- Water;
- Soil and Geology;
- Noise and vibration;
- Air;
- Waste and Waste Management;

- Biodiversity;
- Climate Change; and
- Archaeology.

This CEMP is to be read in conjunction with the relevant design drawings and reports relating to the Proposed Development.

The CEMP outlines the measures that will be implemented to prevent and mitigate any potential environmental issues that may arise during the construction phase of the Proposed Development. These measures will be updated by the Main Contractor (once appointed) to take account of the Grant of Planning from GCC (once issued), and the construction related mitigation measures identified in the particulars submitted with the planning application (refer to Section 3.3).

7.2 Implementation of Control Measures

The Construction Environmental Site Manager / CMT will be responsible for the implementation of control measures as identified in Section 7.3. The Main Contractor (once appointed) and all sub-contractors will comply with the requirements of the CEMP to document and seek approval for Method Statements, Permits and other site-generated documentation as requested.

This CEMP will form part of contract documentation for each works contract. Requirements and responsibilities will be reviewed with each contractor at inception meetings and at weekly progress update meetings.

The Main Contractor (once appointed) will ensure that all appointed sub-contractors are supplied with a copy of the CEMP, receive sufficient environmental training and are aware of the environmental obligations of the project.

Environmental requirements will be controlled as follows:

- Procedures and control measures as set out in this CEMP;
- Approved Method Statements and Risk Assessments from Contractors which shall address all potential environmental impacts for the specific task;
- Detailed contractor plans for specific environmental aspects;
- Emergency response plans; and
- Specific induction training before commencing work.

In summary, it is expected that all contractors will follow good environmental practice throughout all activities.

7.3 Operation Controls

7.3.1 Control of Fuel and Chemical Storage and Use

The storage and use of fuel and oils will be kept to a minimum at the site.

The storage of fuels and refuelling of plant and machinery onsite will be undertaken at the site in strict accordance with procedures outlined below. Records shall be maintained for fuel consumption, fuel cost and fuel type.

Small quantities of fuel, oils and chemicals will be strictly controlled in accordance with procedures outlined in the CEMP and will be stored on an impervious base within a bund remote from any surface water drains. All tank, container and drum storage areas will be rendered impervious to the materials stored therein and will be rooved to exclude rainwater. Bunds will be designed having regard to the EPA guidelines on the 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2013) and Enterprise Ireland Best Practice Guidelines (BPGCS005). All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the greater of the following:

- 110% of the capacity of the largest tank or drum within the bunded area; or
- 25% of the total volume of substance that could be stored within the bunded area.

Any fuels retained on drip trays, mobile bunds, etc., will be emptied into a secure bunded waste oil drum to await appropriate disposal offsite in accordance with all relevant waste management legislation.

Refuelling of plant during the construction phase will be carried out in accordance with standard best practice. Onsite refuelling will not be undertaken within 50m of any open drains in the vicinity of the site which will be protected / temporary diversion put in place (i.e., sandbags) in order to prevent contamination of nearby waterbodies such as the Corrib Estuary which is adjacent to the site and the River Corrib which is located approximately 230 meters to the west of the site. Onsite refuelling will only be carried out at the out at the designated, impermeable refuelling station location onsite with appropriate containment in place.

The refuelling station will be fully equipped for spill response and a specially trained and dedicated Environmental and Emergency Spill Response Team will be appointed before the commencement of works at the Proposed Development site.

Daily checks of machinery will be carried out to ensure it is in good working order. Where possible any oil and lubricant changes and maintenance will take place offsite. Only emergency breakdown maintenance will be carried out onsite. Drip trays and spill kits will be available on site to ensure that any spills from vehicles are contained and removed offsite.

All personnel working onsite will be trained in pollution incident control response. Emergency silt control and spillage response procedures contained within the CEMP will ensure that appropriate information will be available onsite outlining the spillage response procedures and a contingency plan to contain silt during an incident.

7.3.2 Control and Management of Water

As part of the overall construction methodology, sediment and water pollution control risks arising from construction-related surface water discharges will be considered.

Personnel working at the site of the Proposed Development will be trained in the implementation of environmental control and emergency procedures. The CEMP and the relevant documents produced will be formulated in consideration of standard best international practice including but not limited to:

- Construction Industry Research and Information Association (CIRIA), 2001. Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors;
- Construction Industry Research and Information Association (CIRIA), 2006. Control of Water Pollution from Linear Construction Projects: Technical Guidance (C648);
- Construction Industry Research and Information Association (CIRIA), 2015. Environmental Good Practice onsite Guide. 4th edition (C741);
- Environmental Protection Agency, 2013. Storage and Transfer of Materials for Scheduled Activities;
- Enterprise Ireland BPGCS005, Oil Storage Guidelines;
- UK Environment Agency, 2004. UK Pollution Prevention Guidelines (PPG); and
- Inland Fisheries Ireland, 2016. Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

The following operational measures will protect the receiving surface water and groundwater environment during the construction phase of the Proposed Development:

- Where water must be pumped from the excavations, water will be managed through robust dewatering methodologies in accordance with industry best practice standards (i.e., CIRIA – C750) that will be designed by the contractor to minimise the potential impact on the local groundwater flow regime.
- Dewatering will be carried out in cells or localised work areas and larger scale dewatering of the entire site will be avoided to prevent an extensive groundwater drawdown across the site and potential mobilisation of contaminants present in localised areas beneath the site and / or outside of the site boundary.
- The current groundwater flow regime shall not be altered to ensure any risk of increasing the distribution of contaminants within the groundwater beneath the site.
- Monitoring of groundwater levels and contaminant concentrations around the periphery of the works area will be required as part of the groundwater management.
- There will be no authorised discharge of water to ground during the construction phase. Where dewatering of shallow groundwater is required or where surface water runoff must be pumped from the excavations, water will be discharged by the contractor to sewer in accordance with the necessary discharge licences issued by UE under Section 16 of the Local Government (Water Pollution) Acts and Regulations for any water discharges to sewer or from GCC under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990 for discharges to surface water.
- To facilitate this, a temporary water treatment facility, including holding tanks and other necessary apparatus (such as activated carbon filtration and silt busters), will be constructed onsite. This facility will ensure compliance with the conditions of the temporary discharge consent.
- Water will be treated and pumped to a holding area, where it will be sampled and tested by the contractor before discharge. Upon receiving analysis results and screening against required consent limits, the contractor will arrange for appropriate disposal. Groundwater will be treated and discharged to sewer in accordance with the temporary discharge consent.
- Under no circumstances will any untreated wastewater generated onsite (from equipment washing, road sweeping etc.) be released offsite. Where required, all public sewers will be protected to ensure that any untreated wastewater generated onsite does not enter the public sewers.

- There will be no direct discharge to open watercourses (i.e., Corrib Estuary, River Corrib, Terryland River, or Lough Atalia) or drainage channels during construction.
- The appointed Contractor will be responsible for implementing appropriate measures to protect the local foul drainage / surface water drainage gullies / nearby water courses from run-off from the working site area or temporary diversion put in place (i.e., sandbags or temporary bunds).
- A general operational set-back of 10m will be maintained from any open water course (i.e., Corrib Estuary, River Corrib, Terryland River, or Lough Atalia) or drainage channels.
- All works carried out will follow the guidelines published by IFI Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters (IFI, 2016).
- In-situ soil validation samples will be collected to ensure that residual contamination in soil has been removed offsite. The removal of the residual soil source will be undertaken under supervision of the Project Environmental Consultant and validated in accordance with relevant guidelines including EPA 'Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites' (EPA, 2013a) and guidance and standards current at the time of construction works to ensure that a 'clean edge' is reached in the area of excavation.
- The appointed Contractor will ensure that any run-off from the site or any areas of exposed soil will be managed as required with temporary pumping and following appropriate treatment (e.g., settlement or hydrocarbon interceptor).
- All containment and treatment facilities will be regularly inspected and maintained.
- Pumping of concrete will be monitored to ensure that there is no accidental discharge. All work will be carried out in the dry and effectively isolated from any drains and nearby water courses. A suitable risk assessment for wet concreting will be completed prior to works being carried out.
- There will be no mixer washings or excess concrete discharged onsite. All excess concrete is to be removed from site and all washout of concrete chutes to be captured in a tank which shall be removed offsite for disposal at an authorised waste facility.
- A regular review of weather forecasts of extreme weather (i.e., heavy rainfall) will be conducted, and a contingency plan will be prepared for before and after such events to minimise any potential nuisances. As the risk of the break-out of silt laden run-off is higher during these weather conditions, no work will be carried out during such periods where possible.
- Any imported materials (i.e., aggregate materials) will be placed on-site in designated locations and double handling will be avoided. Where this is not possible, designated temporary material storage areas will be used.
- Temporary stockpiled materials will be managed in accordance with the procedures outlined in Section 7.3.3.1 in order to prevent runoff generation and wind-whipping of dust and placement of stockpiles on impermeable areas.
- Refuelling of plant and machinery onsite will take place in accordance with the with the refuelling procedures outlined in Section 7.3.1.
- Emergency procedures will be developed by the appointed Contractor in advance of works commencing and spillage kits will be available onsite including in vehicles operating onsite. Remedial action will be immediately implemented to address any potential effects in accordance with industry standards and legislative requirements, which will ensure minimal risk to the receiving hydrological and hydrogeological environment associated with the construction phase of the Proposed Development. The following mitigation measures will be adhered to as follows:
    - Any required emergency vehicle or equipment maintenance work will take place in a designated impermeable area within the Proposed Development site;
    - Emergency response procedures and contingency plans will be put in place, in the unlikely event of emergency accidents (i.e., spillages of fuels or lubricants);
    - Spill kits, including oil absorbent material, will be provided and available onsite, so that any spillage of fuels, lubricants or hydraulic oils will be immediately contained;
    - In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the Proposed Development site and compliantly disposed offsite in accordance with the RWMP (AWN, 2025) and all relevant waste management regulations. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures, standards and EPA guidelines;
    - All site staff (i.e., construction staff) will be briefed as part of site inductions/toolbox talks and will be familiar with the emergency procedures in the event of accidental fuel spillages; and
    - All construction works staff onsite will be fully trained on the use of equipment.
- This procedure will be undertaken in accordance with industry best practice procedures and standards. These measures will ensure that there is minimal risk to the receiving land, soil and geology associated with the construction stage of the Proposed Development.
- Foul drainage from temporary welfare facilities during the demolition and construction phase of the Proposed Development will be discharged to temporary holding tank(s) the contents of which will periodically be tankered off site to a licensed facility. All waste from welfare facilities will be managed in accordance with the relevant statutory obligations by tankering of waste offsite by an appropriately authorised contractor. Any connection to the public foul

drainage network during the construction phase of the Proposed Development will be undertaken in accordance with the necessary temporary discharge licences issued by Uisce Éireann.

- Given the presence of contamination (i.e., hydrocarbons, PAHs, heavy metals, cyanide) in soil and groundwater beneath the site, a piling risk assessment will be completed by the appointed Contractor at detailed design stage and in advance of construction works commencing onsite.
- The proposed piling methodology will refer to the Environment Agency's (EA) guidance on 'Piling into Contaminated Sites' (EA, 2002) and 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention' (EA, 2001), (or similar best practice) in order to minimise the potential for the introduction of any temporary conduit between any potential sources of contamination at the ground surface, made ground and underlying groundwater.
- The piling method will also include procedures to ensure any potential impact to water quality is prevented including preventing surface runoff or other piling/drilling fluids from entering the pile bores and surrounding formation. Where there is a requirement to use lubricants, drilling fluids or additives the contractor will use water-based, biodegradable, and non-hazardous compounds under controlled conditions.
- Existing groundwater monitoring wells at the site that are no longer required will be decommissioned in advance of construction works commencing. Prior to commencing the demolition works, all wells will be inspected.
- Monitoring wells within the site to be retained during the construction phase of the Proposed Development will be protected to ensure that the well head is not damaged during works.
- Any wells to be retained will be appropriately protected from damage during construction works using precast concrete rings, steel road plates or permanent metal bollards to protect them from damage throughout the works. Clear legible signage will be maintained, and daily inspection of the integrity of wells and protection measures completed.
- The use of wheel wash and water treatment facilities will be used as required onsite. The correct use and management of these will be undertaken by the appointed contractor to ensure that there is no harm to the receiving water environment.

7.3.3 Control and Management of Soil (including Contaminated) and Other Materials

It is estimated that the construction phase of the Proposed Development will involve the excavation of 5000m^3 of soil, stones, clay and made ground for the construction of building foundations, drainage and other infrastructure. It is anticipated that all surplus soil arising from groundworks will require off-site removal and recovery. There is no potential for soil reuse on site as this is a brownfield site. It is of the recommendation of Ground Investigation Ireland Ltd following a ground investigation report carried out in September 2024 that any waste material to be removed off site should be disposed of to a suitably licenced landfill.

In the unlikely event soil becomes contaminated, by for example a fuel spill onsite or a burst / leaking hydraulic hose, the Main Contractor will ensure that the management of contaminated material is undertaken in accordance with the procedures outlined in Section 9.

Where required, the Main Contractor will instruct the Project Environmental Consultant to attend the site and complete an environmental site assessment in accordance with BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites – Code of Practice and the requirements set out in Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous, (EPA, 2018).The removal of contaminated materials onsite, if encountered, will be undertaken under supervision of the Project Environmental Consultant.

Any imported materials will, as much as possible, be placed on site in their proposed location and double handling will be avoided. Where this is not possible, the procedures outlined in Section 7.3.3.1 will be implemented.

The excavation of Made Ground soils impacted with anthropogenic contamination and permanent removal off-site is a design requirement of the Proposed Development. As part of incorporated design measures for the Proposed Development in-situ soil validation samples will be collected to ensure that residual contamination in soil has been removed offsite.
In accordance with current UKWIR16 guidance, the design for the proposed development will include the use of barrier pipes for water supply in certain areas of the site to prevent potential permeation of contaminants into drinking water supplies.

The design and specification of the concrete will be undertaken by a suitably qualified engineer during the detailed design stage.

7.3.3.1 Control of Stockpiles

The Main Contractor (once appointed) will ensure that the stockpiling of excavated materials, other C&D waste materials generated at the site or construction materials (e.g., imported aggregates, pipework etc.) will be kept to a minimum. However, in the event that the stockpiling of materials at the site is necessary (i.e., pending the results of waste classification), the Main Contractor (once appointed) will ensure that stockpiles are managed as follows:

- A suitable temporary storage area will be identified and designated;
- All stockpiles will be assigned a stockpile number;
- Stockpiled materials will be protected from exposure to wind by storing the material in sheltered regions of the site.
- Soil waste categories will be individually segregated and all segregation, storage and stockpiling locations will be clearly delineated on the site drawing;
- Temporary storage areas will be located at least 10m away from any watercourses (i.e., the Corrib Estuary and the River Corrib) and open drainage channels which will be protected for the duration of the works (i.e., surrounded with silt fencing) or temporary diversion put in place;
- Any waste to be temporarily stockpiled will be stockpiled only on hard-standing or high-grade polythene sheeting to prevent cross-contamination of the soil below; and
- Soil stockpiles will be sealed / covered polythene sheeting with to prevent run-off of rainwater and silt from the stockpiled material generation and/or the generation of dust.
- To help shed rainwater and prevent ponding and infiltration, the sides and top of the stockpiles will be regraded to form a smooth gradient with compacted sides reducing infiltration and silt runoff.
- Where required, silt fences will be erected at the toe of stockpiles to prevent runoff. The silt fences will be monitored daily by the appointed contractor and silt will be removed as required.

7.3.4 Control and Management of Materials and Waste

7.3.4.1 Waste Classification

The waste classification of inert construction and demolition (C&D) materials generated throughout the construction phase of the Proposed Development including structural concrete, metal, timber, cladding, plastics, cardboard, and tiles will also be based on visual observations by the Construction Environmental Site Manager or appointed delegate (i.e., Environmental and Waste Officer). The estimated construction waste taken from the Resource Waste Management Plan (RWMP) prepared by AWN Consulting is outlined in Table 7-1.

Waste Type	Tonnes	Reuse		Recycle / Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	630.2	10	63.0	80	504.2	10	63.0
Timber	534.7	40	213.9	55	294.1	5	26.7
Plasterboard	191.0	30	57.3	60	114.6	10	19.1
Metals	152.8	5	7.6	90	137.5	5	7.6
Concrete	114.6	30	34.4	65	74.5	5	5.7
Other	286.5	20	57.3	60	171.9	20	57.3
Total	**1909.7**		**433.5**		**1296.7**		**179.5**

Table 7-1. Predicted on and off-site reuse, recycle and disposal rates for construction waste (AWN Consulting, 2025).

The design for construction of the Proposed Development will require excavation and off-site removal of up to 5000m^3 of soil, stones, clay and made ground for recovery in accordance with appropriate statutory consents and approvals.

Where applicable, the offsite re-use of soil including under an Article 27 By-product Notification in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No 126 of 2011) will be prioritised. Material will only be removed under an Article 27 By-product notification when it can be robustly demonstrated that all tests for Article 27 By-product are met.

In the event that soil is deemed to be unsuitable for re-use or does not meet the requirements of Article 27 By-product Notification, the removal of surplus soils and materials off-site for disposal will be undertaken in accordance with the Waste Management Act 1996 and as amended, S.I. No. 820/2007 - Waste Management (Collection Permit) Regulations 2007 and as amended and S.I. No. 821/2007 - Waste Management (Facility Permit and Registration) Regulations 2007 and as amended.

Where sampling and assessment of soil and materials is required to ensure that the materials are managed and removed offsite in accordance with waste management legislation or where the material is not suitable for re-use and considered a waste, the waste classification of sample results will be based on the following method:

- Soil sample collection and analysis in accordance with relevant industry standards including but not limited to:
    - EPA guidance document 'List of Waste & Determining if Waste is Hazardous or Non-hazardous and Waste Classification' (EPA, 2018);
    - BS 10175:2011 Investigation of potentially contaminated sites - Code of practice (BSI, 2011).
- Assessment of results to determine if the sample is a hazardous or non-hazardous waste and assigning a List of Waste (LoW) Code to the sampled material in accordance with EPA guidance 'Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous' (EPA, 2018); and
- The material will also be assessed to determine if the material meets the waste acceptance criteria for authorised landfills and soil recovery facilities as follows:
    - Screening the sample analytical results against the waste acceptance criteria (Landfill WAC) set out in the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002); and
    - Screening the sample analytical results against the Maximum Concentrations and/or Soil Trigger Levels set out in the Environmental Protection Agency (2020) "Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities" (SRF WAC).

7.3.4.2 Segregation of Waste

Surplus materials / waste will be segregated on-site for the appropriate waste stream and disposal destination. The Construction Environmental Site Manager or appointed delegate will ensure waste streams are adequately identified. The segregation and management of materials / waste storage and stockpiling will be routinely inspected and audited by the Environmental Officer and audit findings recorded in the waste management records.

7.3.4.3 Storage of Materials and Waste Policy

Materials / waste storage, fuel storage and stockpiling and movement are to be undertaken with a view to protecting the underlying soils and groundwater. Materials / waste will be stored onsite, including non-hazardous soil and stone and inert C&D materials, in such a manner as to:

- Prevent environmental pollution (bunded and/or covered storage, minimise noise generation and implement dust/odour control measures, as may be required);
- Maximise material / waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling, and recovery; and
- Prevent hazards to site workers and the public during construction phase (largely noise, vibration and dust.

7.3.4.4 Materials and Waste Management

All surplus materials and waste will be documented prior to leaving the site. Surplus materials and waste will be weighed or logged by the contractor, either by weighing mechanism on the truck or at the receiving facility. These material / waste records will be maintained onsite by the Construction Environmental Site Manager.

Prior to any removal of surplus materials / waste from the site, written confirmation should be obtained from the receiving waste facility, that acceptance of the waste will be in accordance with all statutory legislation and the conditions of the receiving waste facility licence or permit.

If the material / waste is being transported to another site, a copy of the Local Authority waste Certificate of Registration (COR) or permit, or EPA Licence for that site will be provided to the Construction Environmental Site Manager.

If any soil is to be removed from the site under an Article 27 By-product notification of the European Communities (Waste Directive) Regulations 2011 (as amended), a separate assessment will be required to verify that all statutory requirements of the Article 27 By-product notification are met to the satisfaction of the EPA.

If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) notification document will be obtained from the National Transfrontier Shipment of Waste Office (NTFSO) (as the relevant authority on behalf of all local authorities in Ireland) and kept onsite along with details of the final destination. A receipt from the final destination facility of the material will

be kept as part of the onsite waste management records. The Construction Waste Manager will undertake regular audits of waste paperwork to ensure traceability of all loads offsite to the final authorised destination facility.

Records should be maintained for the mode of transport being used for transporting of materials to/from the construction site and the total distance travelled to determine the embodied carbon miles.

All surplus materials and waste that will require transport offsite for further treatment or disposal will be undertaken in compliance with all statutory legislation and all materials / waste will only be transferred to appropriately permitted or licensed waste management facilities. Details of the nominated waste facilities proposed for each specified waste type will be provided to GCC once appointed by the Main Contractor in advance of construction works commencing onsite.

Only carriers/hauliers with a valid National Waste Collection Permit Office (NWCPO) issued Waste Collection Permit which authorises the transport of the applicable List of Waste (LoW) Code and delivery to the receiving facility will be appointed to transport the surplus materials and waste from the site. Details of the nominated carriers/hauliers proposed for each specified waste type will be provided to GCC once appointed by the Main Contractor in advance of construction works commencing onsite.

The Construction Environmental Site Manager will be required to maintain a detailed register of the nominated waste facilities (i.e., facility location, waste facility permit / licence number and expiry / renewal date) and waste haulage contractors (i.e., haulage contractor name, address, waste collection permit / skip operator licence number and expiry date) proposed for each specified waste type and to obtain a copy of all waste facility licences/permits which will be retained within the waste management file.

The expiry dates on all licences and permits will be reviewed routinely as part of the waste audits. The Construction Environmental Site Manager will ensure that only haulage contractors with a valid permit will be retained for offsite removal of waste.

The use of precast/prefabricated materials will be used where possible.

7.3.4.5 Importation of Materials

Where required, the importation of aggregates will be subject to control procedures which will include off-site assessment for suitability for use prior to acceptance for use at the site. Contract and procurement procedures will be in place to ensure that all aggregates and fill material that may be required for the Proposed Development are sourced from reputable suppliers operating in a sustainable manner and in accordance with industry conformity/compliance standards and statutory obligations. Any unsuitable material identified prior to unloading / placement on-site will be rejected and removed off-site.

7.3.5 Controls to Protect Biodiversity

The Main Contractor will engage with the Project Environmental Consultant and the Project Ecological Clerk of Works (ECoW), as required throughout the construction phase of the Proposed Development, to ensure all relevant legislation is adhered and to ensure that all relevant conditions of the Grant of Planning (once issued) and all the recommended control measures identified in the particulars submitted with the planning application (refer to Section 3.3) are complied with.

The following construction mitigation measures will be implemented in relation to the protection of biodiversity (habitats and sensitive species and other key ecological receptors), where the predicted impact of dust deposition, noise, and emissions to ground or surface water and soils can be further reduced by mitigation implementation.

Surface water

Control measures outlined in Section 7.3.1 and Section 7.3.2 will be strictly implemented to protect the receiving surface water and groundwater environment during the construction phase of the Proposed Development.

Noise

Control measures as outlined in Section 7.3.6 will be adhered to, in order to protect potential noise sensitive receptors during the construction phase of the Proposed Development.

Dust

Control measures as outlined in Section 7.3.7 will be adhered to, in order to minimise emissions during the construction phase of the Proposed Development.

Bats

A preliminary bat roost and habitat suitability assessment was carried out on 2nd May 2024. The on-site building and a disused bus depot, was assessed as having negligible potential to support roosting bats due to its sealed, modern construction and lack of suitable features such as crevices or voids. The wider site also lacks key ecological features such as tree lines,

hedgerows, or watercourses that typically support commuting or foraging bats. Vegetation on-site is sparse and species-poor, offering limited insect prey and further reducing its suitability for bats. However, due to the site's proximity to Galway Bay and Lough Atalia, a precautionary 'Low' suitability rating was applied.

A follow-up bat transect survey on 4 June 2025 recorded no bat activity. This absence is attributed to the site's limited habitat value, urban isolation, and high levels of artificial lighting and disturbance. While the site itself is unlikely to support significant bat activity or function as a commuting corridor, its location near designated habitats contributes to its classification as being of Local Importance (Higher Value) for bats.

To protect bats from lighting associated with the construction phase of the Proposed Development, the following measures—based on the most recent Bat Conservation Trust Lighting Guidelines (BCT, 2023)—have been considered in the selection of luminaires and are incorporated into the lighting design where appropriate:

- All luminaires will lack UV and IR elements to reduce ecological impact;
- LED luminaires will be used due to their high directionality, lower intensity, good colour rendition, and dimming capability;
- A warm white spectrum (<2700 Kelvins) will be used to minimise the blue light component of the LED spectrum;
- Luminaires will feature peak wavelengths above 550 nm to avoid the spectral range most disturbing to bats;
- Only luminaires with an upward light ratio of 0% and good optical control will be used;
- All luminaires will be mounted horizontally, with no upward tilt;
- Any external security lighting will be fitted with motion sensors and short (1-minute) timers to limit duration;
- Accessories such as baffles, hoods, or louvres will be used to reduce light spill and direct illumination only where needed; and
- All luminaires will have a Luminous Intensity Classification between G4 and G6 in accordance with IS EN 13201-2:2003(E)/BS 5489-1:2013 and will follow the recommendations of the Institution of Lighting Professionals and Bat Conservation Trust 'Bats and Lighting in the UK' guidance, as well as Bat Conservation Ireland's Guidance Notes for Planners, Engineers, Architects and Developers (2010).

Any external lighting used during the construction phase will strictly adhere to the above measures.

The proposed external lighting scheme will use LED fittings with high-performance optics to ensure visual comfort while minimising light pollution. The design will respond sensitively to the surrounding landscape and ensure that all luminaires emit zero direct upward light (i.e., all output will be at or below 90° to the horizontal) to prevent sky glow. All fittings will be classified as 'Exempt Group' under EN 62471:2008, indicating no photobiological risk from blue light, infrared, or ultraviolet radiation.

In addition to lighting controls, site-specific mitigation measures include the installation of a minimum of four summer bat boxes (e.g., Woodcrete 1FF Schwegler design) on suitably sized trees or structures, placed at heights of 4–5 metres and in sheltered locations, as determined by a qualified bat ecologist. A post-construction lighting assessment will also be undertaken by a bat ecologist during the active bat season to evaluate lux levels, light spill, and bat activity, with remedial actions implemented if necessary. These measures, combined with the proposed landscaping and ecological enhancements, aim to ensure that the development does not adversely affect local bat populations and contributes positively to biodiversity in the area.

Birds

A bird scoping survey was conducted on 2 May 2024 to assess the potential of the site to support breeding and non-breeding birds. The site was found to have limited habitat value for birds due to its urbanised nature and lack of diverse vegetation; however, its proximity to Galway Bay and Lough Atalia, both of which support significant waterbird populations, means that birds may still use the surrounding area for foraging and commuting. To mitigate potential impacts on birds during the construction phase the following measures will be implemented:

- High-noise activities such as demolition and heavy drilling will be scheduled between April and September to avoid the most sensitive period for wintering birds;
- Acoustic barriers will be installed along the entire eastern boundary of the site to reduce both noise and visual disturbance, with opaque materials used to minimise stimuli; and
- Additional measures include minimising working hours outside designated areas, selecting low-noise machinery, avoiding unnecessary engine revving, and maintaining internal routes to reduce vibration.

In addition to the measures outlined above, any clearance of vegetation will be carried out outside the main breeding season (i.e., 1st March to 31st August), in compliance with the Wildlife Act 2000 and in consultation with the Project EcCoW. Where this seasonal restriction cannot be, a check for active nests will be carried out by the Project EcCoW immediately prior to any site clearance and if identified, a derogation licence will be required from the NPWS. Similarly, a derogation licence will be required for the removal of nests if found during the pre-clearance survey. This would note the section of habitat that is a nest site, the precise location within the hedgerow/trees, the species of bird present; and also elaborate the means by which the birds would be protected prior to nest removal. If eggs have been laid, the nest will be protected until the young have fledged after which time the nest could be destroyed (under licence from the NPWS only). This would also require further compensatory measures including nesting sites for birds if practicable.

Light

The Main Contractor (once appointed) will comply with the working hours set out in Section 5.2 to ensure that no excess night-time light emissions will be generated during construction works at the site, thereby causing no nuisances to sensitive receptors in the vicinity. No lighting shall be left illuminated overnight except that which is necessary to ensure the security of the site.

Trees/Hedgerows

An Arboricultural Impact Assessment was undertaken in November 2024 to assess the condition and value of trees and hedgerows within and adjacent to the site. The survey identified a total of eight trees and one hedge, all categorised as Category C under British Standard 5837:2012 - Trees in relation to design, demolition and construction, indicating low quality and value. The only vegetation to be removed is a Leylandii Cypress hedge, which is non-native and of limited amenity or ecological value. Its removal is necessary to facilitate site access. All other trees, primarily early mature sycamores located along the river's edge, are in good condition and will be retained.

To protect these trees during construction, robust protective fencing will be installed in accordance with BS 5837:2012, and no materials or equipment will be brought on site until fencing is in place. All new service runs will be located outside the root protection areas (RPAs) of retained trees; where this is not possible, works will be carried out under arboricultural supervision.

The site compound will be located outside tree protection zones, and landscape operations near retained trees will be carried out using hand tools only. To compensate for the loss of the hedge and enhance biodiversity, supplementary native planting is proposed along the northern and western boundaries, including species such as oak, birch, alder, hazel, and cherry.

Invasive Species

A site walkover/survey has been undertaken by the project ecologists from DNV (formerly Enviroguide) in May 2024. The walkover/survey encompassed the entire site, and around part of the outside perimeter to search for any schedule 3 invasive species which were not found. Any invasive plant species identified during the construction of the development will be managed in accordance with statutory obligations and guidance including TII (formerly NRA) Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (2010), with consideration given to the prevention of spread of these plants. In addition, the following will be adhered to, to avoid the introduction of invasive species to the site of the Proposed Development:

- Any material required on the site will be sourced from a stock that has been screened for the presence of any invasive species by a suitably qualified ecologist and where it is confirmed that none are present; and
- All machinery will be thoroughly cleaned and disinfected prior to arrival onsite and before leaving the site to prevent the spread of invasive species.

Embedded Mitigation Measures for the protection of biodiversity

The Proposed Development incorporates several embedded design features to avoid ecological impacts, particularly on protected sites and bird species in the Galway Bay area:

- Bird Collision Risk Reduction:
    - Façade Design: Building facades avoid large reflective glass surfaces, using varied materials to enhance visibility and reduce bird collision risk.
    - Building Height: Structures range from 6–13 storeys, below typical migratory flight paths. Combined with visible materials, this ensures birds can detect and avoid buildings easily.

These features are part of the overall design and not standalone mitigation measures, but they contribute significantly to reducing ecological impacts.

7.3.6 Control of Noise and Vibration

To minimise the potential effect of noise and vibration from the construction phase of the Proposed Development, the Main Contractor will comply with the conditions of the Grant of Planning (once issued) and best practice control measures for control of noise and vibration from construction sites as documented in the following:

- British Standard, 2014. Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2 (BS 5228: 2009 +A1 2014);
- National Roads Authority, 2004. Guidelines for the Treatment of Noise & Vibration in National Road Schemes (NRA, 2004); and
- British Standard, 1993.Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground Borne Vibration (BS 7385: 1993).

7.3.6.1 Control of Noise

Short-term increases in disturbance levels as a direct result of human activity and through increased generation of noise during the construction phase of the Proposed Development can have a range of impacts depending upon the sensitivity of the receptor including residential receptors, ecological receptors, the nature and duration of the disturbance and its timing.

To mitigate any potential disturbances to residential and ecological receptors, considering the nature, duration, and timing of the disturbance, the following measures will be implemented:

- Establish channels of communication between the Main Contactor (once appointed), GCC and other stakeholders where appropriate.
- Briefing of all staff on noise mitigation measures and the application of best practicable means to be employed to control noise.
- Erection of good quality site hoarding (2.4m high) to maximise the reduction in noise levels where noise thresholds are likely to exceed 55-65db. The barrier must be solid and not contain gaps at the bottom or between adjacent panels.
- Local screening is required around hand tools in addition to hoarding.
- On this project 8 Noise Sensitive Locations (NSLs) have been identified it is recommended that a noise monitor should be placed on the boundary of the nearest noise sensitive locations closest to the works i.e. NSL1 and NSL8/NSL9 during phase 2 in this case. (See Chapter 10 of the EIAR.)
- An absorptive lining shall be considered for screening around hand tools and will need to have an absorptive lining to avoid reflections increasing noise at other receivers.
- Limiting the hours during which Site activities are likely to create high levels of noise are proposed (refer Section 5.2).
- Keep internal routes well maintained and avoid steep gradients.
- Material and plant loading and unloading will only take place during normal working hours (refer to Section 5.2) unless the requirement for extended hours is for traffic management (i.e., road closure) or health and reasons.
- Identification of dedicated delivery areas.
- Minimise drop heights for materials or ensure a resilient material underlies.
- Use rubber linings in chutes, dumpers and hoppers to reduce impact noise.
- Minimise opening and shutting of gates through good coordination of deliveries and vehicle movements.
- Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC (SI No 632 of 2001);
- Assessment of any item of plant to generate noise will be assessed prior to the item being brought onto the site with regard to the following:
    - Consideration of Alternatives.

- Information to be submitted by the Main Contractor; and
- In-situ Noise Measurement.

- All plant to be used on site will be selected and operated to prevent any ongoing public nuisance arising from noise:
  - The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by onsite operations.
  - Selection of plant with low inherent potential for generating noise.
  - Fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer.
  - Where possible, employ the use of rubber/neoprene or similar non-metal lining material matting to line the inside of material transportation vehicles to avoid first drop high noise levels.
  - Where possible, power all plant by mains electricity where possible rather than generators.
  - Where noise originates from resonating body panels and cover plates, additional stiffening ribs or materials should be safely applied where appropriate.
  - Use all plant and equipment only for the tasks for which it has been designed;
  - Avoid of unnecessary revving of engines. Shut down all plant and equipment in intermittent use in the intervening periods between work or throttle down to a minimum;
  - Siting of plant as far away from sensitive receptors as proposed by site constraints;
- Ensure all vehicle movements (onsite) occur within normal working hours (refer to Section 5.2) (other than where extension of work requiring such movements has been granted in cases of required road closures or for health and safety reasons);
- Plan deliveries and vehicle movements so that vehicles are not waiting or queuing on the public roads. If unavoidable engines should be turned off.
- Plan the site layout to ensure that reversing is kept to a minimum. Where reversing is required use broadband reverse sirens or where it is safe to do so disengage all sirens and use banksmen.
- During any demolition works, the Main Contractor will employ the following to prevent any ongoing public nuisance:
- Employ the use of acoustic screening as required. This can include planning the demolition sequence to utilise screening afforded by buildings to be demolished;
  - If working out of hours for Health and Safety reasons (following approval by GCC) limit demolition activities to low level noise activity unless absolutely unavoidable);
  - Use low impact demolition methods such as non-percussive plant where practicable; and
  - Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings.
- To minimize potential effects of construction-related noise and vibration on nearby SPA and SACs the following mitigation will be adhered to:
  - Exercise additional caution during construction works in the nesting season (March 1st to August 31st);
  - Implement a key-turn policy to ensure machinery is not left idling when not in use;
  - Use low-noise equipment wherever possible;
  - Schedule works outside of dawn and dusk, which are peak activity times for birds;
  - Appoint an Ecological Clerk of Works to monitor and advise on ornithological sensitivities;

- Install noise and vibration monitoring equipment along the SPA/SAC boundary to track construction impacts in real time. Monitoring systems should include hard thresholds and alert mechanisms to pause work if exceedances occur until a solution is identified;
- Use acoustic barriers along the works boundary to screen construction noise as effectively as possible; and
- Avoid construction works near known otter holts during the breeding season (typically May to August) and implement buffer zones of at least 150 metres from active holts to minimise disturbance.

- The following noise levels will be strictly adhered to for the duration of the Construction Phase of the Proposed Development (refer to Table 7-1). Where noise levels exceed the thresholds identified in Table 7-1, the Main Contractor will undertake steps to review the works and implement additional mitigation measures where applicable.

Table 7-1. Maximum Permissible Noise Levels During Construction as outlined in Chapter 10 of the EIAR.

Assessment category and threshold value period	Threshold value, in decibels (dB) (L_{Aeq})		
	Category A [1]	Category B [2]	Category C [3]
Daytime (07:00 – 19:00) and Saturdays (07:00 – 14:00)	65	70	75
Evenings and weekends [4]	55	60	65
Night-time (23:00 – 07:00)	45	50	55

7.3.6.2 Control of Vibration

All construction works will be required to comply with the vibration mitigation measures defined in the CEMP and the recommendations of BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001.

Allowable Vibration levels are outlined in Table 7-2 below.

The following measures will be taken to ensure that no significant vibration levels occur, and that all appropriate steps are taken to assist in effective vibration level management:

- Equipment is to be task-specific;
- Vehicle engines shall be switched off when not in use;
- Machines will be fitted with suitable and properly operating silencers;
- If appropriate, acoustic screens will be deployed;
- Siting of plant as far away from sensitive receptors as permitted by site constraints;
- Best practice vibration control measures will be employed by the Main Contractor and screening provided to adjoining properties where required; and
- In the method statement/risk assessment, the Main Contractor (once appointed) will highlight any activity that may cause significant vibration levels (e.g., demolition, piling, rock breaking etc.) and include measures in helping to mitigate these emission levels. Such measures will include:
    - Use low impact demolition methods such as non-percussive plant where practicable;
    - Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings;
    - Consider the removal of larger sections by lifting them out and breaking them down either in an area away from sensitive receptors or off site.
    - If rock is encountered and needs to be broken, "chemical fracturing" will be used. This involves drilling holes in the rock and inserting chemicals that expand to fracture it, producing minimal noise or vibration aside from the initial drilling, which is not a significant noise concern.

Table 7-2 Allowable Vibrations

Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of:			
Building Type	**Less than 15Hz**	**15 to 40Hz**	**40Hz and above**
Light framed structures/ residential buildings	15 mm/s	20 mm/s	50 mm/s

7.3.6.3 Liaison with the Public

The contact details of the Project Manager, the Construction Environmental Site Manager / Project Communications Officer and the Environmental and Waste Officer will be displayed to the public at the site entrance, together with the Proposed operating hours, including any special permissions given for out of hours work.

The Construction Environmental Site Manager / Project Communications Officer will act as the designated noise liaison officer and liaison will be carried out in accordance with the Communication Management Plan (refer to Section 5.6). Any noise complaints will be managed in accordance with the complaint's procedure, reported to the designated sub-contractor as applicable, and followed up in a prompt fashion.

7.3.6.4 Noise and Vibration Control Inspections

Noise and vibration control inspections and audits will be conducted daily through the Demolition Phase and construction phase of the Proposed Development.

The purpose of the inspections will be to ensure that all appropriate steps are being taken to control construction noise emissions and vibration. To this end, consideration will be given to issues such as the following:

- Hours of operation being correctly observed;
- Opportunities for noise and vibration control 'at source';
- Number and type of plant;
- Optimum siting of plant items;
- Plant items being left to run unnecessarily;
- Presence of mitigation measures;
- Correct use of proprietary noise and vibration control measures;
- Correct use of screening provided and opportunities for provision of additional screening;
- Construction methods;
- Materials handling; and
- Poor maintenance.

Noise and vibration control inspections and audits will be recorded in in the live CEMP.

7.3.6.5 Monitoring for Noise and Vibration

Where required, noise and vibration monitoring will be carried out during critical activities and times of potential increased noise generating activities and during critical periods and at sensitive locations (e.g., demolition works, piling, rock breaking etc.). Monitoring will be carried out by a specialist sub-contractor engaged by the Main Contractor (once appointed) to monitor, collate and report on noise and vibration results.

Where required, the monitoring systems will be combined with a real-time alarm system to ensure that the action level thresholds are strictly adhered to for the duration of the works. Where noise levels exceed the action level thresholds, the Main Contractor will undertake steps to review the works and implement additional mitigation measures where applicable.

Noise and vibration monitoring will be implemented during the construction phase of the Proposed Development, particularly during the substructure works when piling operations are likely to occur. Given the proximity of multiple NSLs to the site, monitoring equipment shall be installed at NSL 1 during phase 1 and NSL8 and NSL9 during phase 2, as these locations are closest to the anticipated construction activities. In addition, monitoring shall also be conducted to protect the surrounding SPA and SCA conservation areas.

7.3.7 Control of Air Quality and Dust

In order to sufficiently mitigate any likely air quality impact, a schedule of air control measures has been formulated for the duration of the construction phase of the Proposed Development as set out in the following sections.

The Main Contractor (once appointed) will implement a Dust Management Plan (DMP) for the duration of the construction phase in order to sufficiently prevent fugitive emissions affecting those occupying neighbouring properties or pathways. The DMP outlined below sets out a schedule of practical air control measures and monitoring requirements to control fugitive dust for the duration of the construction phase of the Proposed Development.

7.3.7.1 Dust Control Measures - General

The aim is to ensure good site management by avoiding dust becoming airborne at source.

During the construction phase of the Proposed Development, the siting of construction activities and temporary stockpiling of materials will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to extreme weather conditions (e.g., drought, wind and temperature extremes) by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs:

- No demolition works take place in conditions exceeding Beaufort Wind Force 4 (11-16 kt; 13-18 mph; 20-28 km/h);
- During working hours, technical staff shall be on site and available to implement dust control methods as appropriate.
- Complaint registers will be maintained on site detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out;
- The Main Contractor will demonstrate full compliance with the dust control conditions at all times. Regular Toolbox Talks / briefings will be given to construction staff, sub-contractors, and operatives to raise awareness of the need to minimise dust. The implementation of dust suppression will be monitored, reviewed and any actions required addressed on an ongoing basis; and
- At all times, the procedures put in place will be strictly monitored and assessed.

The dust minimisation measures will be reviewed at regular intervals during the construction phase of the Proposed Development to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practise and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and satisfactory procedures implemented to rectify the problem. Specific dust control measures to be employed are highlighted below.

7.3.7.2 Dust Control – Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Where required, adequate dust/debris screening will be in place at the site boundary to contain and minimise the amount of windblown dust. This will be maintained in good condition at all times. Where required, this may include:
    - Erection of solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiled materials on site.
    - Full enclosure of specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Dust suppression equipment must be used when point source emissions are likely. The site will be dampened down as necessary to minimise windblown dust when necessary or during periods of dry weather. Where dust is likely to be a persistent problem a water spray system (e.g., IBC tanks fitted with hoses, bowsers fitted with spray nozzles) will be put in place from the commencement of the works where required. Hard to reach areas will be kept wet by the use of water cannons fitted to the rear of the bowsers;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- Netting of scaffolding where required;
- Covering skips; and
- Remove materials that have a potential to produce dust from site as soon as possible.

7.3.7.3 Dust Control – Site Roads and Track Out

Site roads (particularly unpaved) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25 to 80%.

- A speed restriction of 20km/hr will be applied as an effective control measure for dust for on-site vehicles, in particular at site access/egress locations;
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use;
- Avoid dry sweeping of large areas;

- Vehicles entering and leaving sites will be covered to prevent escape of materials during transport;
- On-site haul routes will be regularly inspected by the Construction Environmental Site Manager or appointed delegate for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- Dust suppression equipment must be used when point source emissions are likely;
- Where required, hard surfaced haul routes will be regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned; and
- Bowsers will be available during periods of dry weather throughout the construction period. Research has found that the effect of watering is to reduce dust emissions by 50%. The bowser will be used during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use; and any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.

7.3.7.4 Dust Control – Public Roads

Spillage and blow-off of debris, aggregates and fine material onto public roads should be reduced to a minimum by employing the following measures:

- All consignments containing material with the potential to cause air pollution being transported by skips, lorries, trucks or tippers must be covered (e.g., tarpaulin or similar) during transit onsite and offsite to restrict the escape of dust;
- Public roads outside the site will be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. Where required, a road sweeper will be deployed to ensure that public roads are kept free of debris; and
- Where required, wheel washing of vehicles will be implemented prior to exiting the site so that traffic leaving the site compound will not generate dust or cause the build-up of aggregates and fine material in the public domain.

7.3.7.5 Dust Control – Operating Vehicles / Machinery

- Ensure all vehicles switch off engines when stationary – no idling vehicles;
- Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable;
- Regular servicing of machinery (including trucks, excavators, diesel generators or other plant equipment) to ensure exhaust emissions from vehicles are minimised; and
- Impose and signpost a maximum-speed-limit of 20 kph haul roads and work areas.

7.3.7.6 Dust Control – Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate; and
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

7.3.7.7 Dust Control – Waste Management

- Bonfires and burning of waste materials are prohibited onsite; and
- All loads of C&D waste leaving the site will be covered.

7.3.7.8 Dust Control – Measures Specific to Construction

- Avoid scabbling (roughening of concrete surfaces) if possible;
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place;
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

7.3.7.9 Dust Control – Measures Specific to Earthworks / Groundworks

Groundworks / earthworks during periods of extreme weather conditions (e.g., drought, wind and temperature extremes) can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will be used to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust;
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once; and
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

7.3.7.10 Dust Control – Site Management

- Regular inspections of the site and boundary will be carried out to monitor dust, records and notes on these inspections should be logged;
- Records will be kept of all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints log available to the local authority when asked;
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook; and
- Regular liaison meetings will be held with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

7.3.7.11 Dust Control – Stockpiles

Stockpiling of excavated soils (pending reuse onsite) and imported materials (e.g., quarry stone, sand) will be avoided where possible. However, should stockpiling of materials be required onsite during the construction phase of the Proposed Development, the location and moisture content of stockpiles are important factors which determine their potential for dust emissions. The following dust control measures will be employed as best practice where stockpiling of materials is required:

- Where possible, storage stockpiles will be located down wind of sensitive receptors;
- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the site; and
- Where materials are required to be stockpiled for longer periods of time during the development, regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust. The regular watering of stockpiles has been found to have an 80% control efficiency.

7.3.7.12 Dust Control – Site Management

- Regular inspections of the site and site boundary will be carried out to monitor dust, records and notes on these inspections should be logged and recorded. This will include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of the site boundary, with cleaning to be provided if necessary;
- Records will be kept of all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- The Main Contractor (once appointed) will make the complaints log, included in the live CEMP, available to the GCC upon request; and
- Where necessary, regular liaison meetings will be held with other high risk construction sites within the vicinity of the site, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

7.3.7.13 Dust Monitoring

Dust monitoring will be carried out, if deemed required, during critical activities. Dust monitoring will be carried out by a specialist sub-contractor engaged by the Main Contractor (once appointed) to monitor, collate and report on dust monitoring results. All personnel undertaking monitoring will be sufficiently competent and will be experienced in managing construction dust and particulates (PM_{10} and $PM_{2.5}$).

Where required, dust monitoring will be conducted using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. Dust emissions at the site boundaries will not exceed 350 mg/(m^2*day) during the monitoring

period (approximately one month - 28-32 days). All laboratory analysis must be undertaken at an accredited laboratory with appropriate accreditation for each analytical method.

Where action level thresholds are exceeded, the Main Contractor (once appointed) will undertake steps to review the works and implement additional mitigation measures where applicable.

7.3.7.14 Dust Management Summary

The proactive control of fugitive dust it is necessary to ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the achievement of no dust nuisance occurring during the construction phase of the Proposed Development. The key features with respect to control of dust emissions and nuisance dust will be:

- The specification of a site policy on dust and the identification of the site management responsibilities for dust issues;
- The development of a documented system for managing site practices with regard to dust control;
- The development of a means by which the performance of the dust management can be monitored and assessed; and
- The specification of the measures to be taken to control dust emissions before it occurs and effective measures to deal with any complaints received.

7.3.8 Control of Archaeology

Archaeological monitoring will be carried out during all ground reduction works within the Proposed Development site boundaries during the construction phase. The archaeological monitoring will be undertaken by a suitably qualified archaeologist under licence from the National Monument Service (NMS) within the Department for Housing, Local Government and Heritage, in accordance with an archaeological method statement, submitted to and agreed with the NMS. The archaeological monitoring will result in the compilation of associated reports detailing the findings of the archaeological monitoring programme and this will be disseminated to the NMS and the local authority.

Should archaeological material be uncovered during the archaeological monitoring programme, the NMS will be informed and consulted to establish suitable measures to record and recover the archaeological material. This may include the preservation of archaeological deposits *in situ*, where possible, archaeological excavation (preservation by record) of archaeological deposits and/or the retrieval of artefacts of archaeological consequence, whether found in and archaeological context or out of context within moder fill materials. The discovery of archaeological material will lead to a post-excavation phase of works, involving analysis and further reporting for dissemination to the relevant authorities. The level of the post-excavation analysis and reporting will be commensurate with the level of archaeology discovered.

The Contractor will employ an archaeologist to undertake these investigations under licence from the NMS. The Developer will employ a Project Archaeologist to oversee the archaeological works being undertaken by the contractor's archaeologist. The Proposed Development will result in no predicted effects on any architectural or other cultural heritage constraints and, therefore, no mitigation measures for these elements of the cultural heritage resource are required.

7.4 Control of Greenhouse Gas (GHG) Emissions

In order to mitigate any likely climate change impact, a schedule of control measures have been established for the duration of the construction phase of the Proposed Development. The following measures will be implemented to mitigate the impacts in respect of climate change in addition to mitigations from the EIAR which accompanies this planning application:

- **Energy-Efficient Equipment:** Use energy-efficient machinery and equipment on-site. Regular maintenance and proper operation can also help reduce fuel consumption and emissions;
- **Renewable Energy:** Incorporate renewable energy sources, such as solar panels, to power construction activities. This can significantly reduce reliance on fossil fuels;
- **Reduce Idling**: Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods;
- **Sustainability Awareness**: Ensure that sustainability and carbon specifically is incorporated into site team talks, construction and reporting targets. Integrate training clauses for contractors and sub-contractors to upskill their onsite personnel including sub-contractors in low energy construction skills. Appoint sustainability champions to ensure that the project continues to perform in a sustainable manner;
- **Sustainable Transportation**: Encourage carpooling, use of public transportation, or electric vehicles for workers commuting to the site;

- **Monitoring and Reporting:** Regularly monitor and report GHG emissions from the construction site. This helps in identifying areas for improvement and ensuring compliance with environmental standards Sustainability spot checks should be added to ongoing site inspections and feedback shared with all onsite to ensure measures are being adopted;
- **Maintenance**: Ensure all plant and machinery are well maintained and inspected regularly;
- **Waste Management:** Implement a robust waste management plan to reduce, reuse, and recycle construction waste. Proper waste management can significantly cut down on emissions Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. Application of the waste hierarchy to all waste material generated;
- **Sustainable Procurement:** Sourcing low carbon materials locally where possible to reduce transport related CO_2 emissions; and
- Demolished materials with high embodied carbon potential such as brickwork, concrete, steel and glazing materials will be reused on site or sent to a suitably licensed waste facility for re-use on other sites. A list of potential demolished materials that are specific to this development is outlined in Table 7-1 of this CEMP.

7.5 Control of Climate Impacts

During the construction stage specific climate resilience measures should focus on ensuring durability, water management, and energy efficiency while mitigating risks associated with extreme weather. Regarding the development's resilience to climate change, the Contractor will be required to mitigate the effects of extreme weather, such as heavy rainfall, flooding, windstorms, and temperature fluctuations, through site risk assessments and method statements.

The following measures will be implemented to mitigate climate impacts:

Foundation and Site Preparation

- Flood Resilient Foundations: Use pile foundations for the proposed structures at the site given the presence of made ground across the site. The site is located in the proximity to Galway Bay and the River Corrib, which is estuarine in nature, suggesting a heightened risk of coastal flooding. As documented in Stage 2 FRA (TOBIN, 2025), in order to protect the site against the 1 in 1000-year (0.1% AEP) MRFS flood event, which is required for critical infrastructure, the FFL (floor level) at the site is required to be at a minimum 5.05mOD to account for climate change and a freeboard of 300mm.
- Sustainable Drainage Installation: Implement permeable surfaces, drainage channels, and attenuation tanks early in construction; and
- Soil Stabilisation: To prevent erosion the excavations will remain stable, for a limited time only and will require to be appropriately battered or the sides supported if the excavation is below 1.25mbgl.

Water and Moisture Management

- Damp-Proofing Measures: Use high-quality damp-proof membranes (DPM) and damp-proof courses (DPC) in walls and floors;
- Proper Drainage on Site: Ensure proper temporary drainage solutions (e.g., trenches, sumps) to manage rainwater during construction; and
- Weatherproofing Structures: Apply breathable but water-resistant membranes on external walls before cladding installation.

Material Handling

- Storage and Protection of Materials: Keep materials covered and off the ground to prevent water damage or degradation; and

Energy Efficiency and Passive Design Implementation

- High-Performance Insulation Installation: Ensure proper fitting to avoid thermal bridging and moisture ingress;
- Airtightness Testing During Construction: Conduct interim blower door tests before final finishes to confirm air sealing effectiveness; and

- Green Roof Base Layers: Install waterproofing and root barriers early if a green roof is part of the design.

On-Site Climate Adaptation Measures

- Construction Scheduling Considerations: Plan for extreme weather events, avoiding major excavation or external works in heavy rain seasons;
- Cold/Hot Weather Plan: Strategies such as planned road gritting, thermal protection, chemical accelerants, temporary enclosures, and alternative heating/cooling solutions enable builders to overcome these obstacles and achieve successful project outcomes;
- Temporary Wind and Rain Barriers: Use tarpaulins, scaffolding covers, and temporary roofing to protect partially built structures; and
- Emergency Power Supply: Have generators or battery backups on site to maintain critical construction processes.

7.6 Maintenance of Roads

The Main Contractor (once appointed) will ensure that the appropriate procedures are in place to ensure that all site traffic will be managed in accordance with the CTMP which will be developed by the Main Contractor (once appointed) in advance of construction works commencing onsite and included in the live CEMP. The Main Contractor (once appointed) will ensure that measures are in place to prevent any nuisance and debris on public roads adjoining the site associated with the construction works. The Main Contractor (once appointed) will ensure that the following control measure are implemented as required throughout the construction phase of the Proposed Development:

- Where required, wheel washing of vehicles will be implemented prior to exiting the site so that traffic leaving the site compound will not generate dust or cause the build-up of aggregates and fine material in the public domain. Where necessary, additional measures (e.g., hardcore/stone surfaces along haul routes to prevent dirt and debris on wheels) will also be provided for site vehicles;
- A road sweeper (vacuum type) will be available for use throughout the construction phase of the Proposed Development to ensure that internal roads and public roads are kept clear of mud and debris;
- Dust suppression equipment must be used when point source emissions are likely. The site will be dampened down as necessary to minimise windblown dust when necessary or during periods of dry weather. Where dust is likely to be a persistent problem a water spray system (e.g., IBC tanks fitted with hoses, bowsers fitted with spray nozzles) will be put in place from the commencement of the works where required. Hard to reach areas will be kept wet by the use of water cannons fitted to the rear of the bowsers;
- Road gullies/drains/sewers along public roads in the vicinity of the site will be protected and maintained throughout construction phase of the Proposed Development; and
- All works will be carried out in such a manner as to ensure that the adjoining street(s) are kept clear of debris, soil and other material.
- It is proposed that a pre and post commencement condition survey and photographic record of the roads and footpaths will be undertaken in consultation between the appointed contractor and Local Authority.
- Scaffolding will have debris netting attached to prevent materials and equipment being scattered by the wind
- In the event of unintentional damage to road markings or road signage, these will be remediated to the satisfaction of the Local Authority.

Any public road works require the Main Contractor (once appointed) to apply for a Road Opening Licence from the Local Authority, including a detailed Traffic Management Plan.

7.7 Site House Keeping

The Main Contractor (once appointed) will operate onsite using good housekeeping practices. Work areas will be left in a clean state by construction personnel. The site induction will communicate the requirement for site housekeeping and tidiness.

Further to measures described in the relevant sections below, the following measures will be implemented to maintain site tidiness:

- Construction works will be carried out with regard to a defined schedule and with regard to the hours of work outlined in the CEMP (refer to Section 5.2);
- The Main Contractor will ensure that road edges and footpaths are swept on a regular basis;

- The Main Contractor and appointed sub-contractors will be responsible for the clearance of their plant, equipment and any temporary buildings upon completion of construction; and
- Upon completion of the construction phase of the Proposed Development, the site will be left in a safe condition.

8 RECORD KEEPING, AUDITS, INSPECTIONS AND REPORTING

8.1 Record Keeping

Records pertaining to all aspects of the construction environmental management procedures outlined in this document will be maintained in the onsite live CEMP files and will include:

- Records of induction training for operatives, drivers, workers, and visitors;
- Attendance by site personnel and visitor logs;
- The location of waste storage areas onsite;
- The details of environmental incidents and near misses including incident investigation and corrective and preventative measures implemented;
- Records of environmental inspections completed during the demolition and construction phase to ensure compliance with the CEMP control measures;
- Records of continuous noise, vibration and dust monitoring;
- Copies of Safety Data Sheets (SDS);
- Complaints register; and
- All corrective action requests will be numbered and logged and tracked to ensure completion in accordance with the HSEQMS.

In addition, detailed records of waste classification reports and all materials and waste removed from the site will be maintained by the Main Contractor verifying the compliant management and removal off-site of all materials and waste in accordance with all relevant waste management legislation. Similar records will be maintained onsite and available for inspection detailing all materials exported under any EPA Article 27 notifications.

A copy of the receiving waste facility permits and licences and NWCPO waste collection permits will be retained onsite.

All records will be made available to GCC upon request.

8.2 Monitoring, Audits and Inspection

Regular inspection and monitoring of construction activities to ensure that the recommended mitigation measures are being correctly implemented will support environmental protection by identifying potential environmental issues at an early stage will reduce the likelihood of significant effects on human health or the environment.

Inspections by the Construction Environmental Site Manager will address environmental issues including groundwater, surface water, dust, litter, traffic, waste management, GHG emissions and general housekeeping. These will be carried out on both scheduled and random intervals. The findings of these inspections will be logged and recorded on the routine site inspection log included in the live CEMP.

Noise and vibration control inspections and audits by the Construction Environmental Site Manager will also be recorded in the live CEMP and made available to GCC upon request.

The specific environmental monitoring requirements relating to the control of potential impacts are detailed in Section 7.3.

Monitoring required as a condition of any consent for discharges or water supply will be undertaken by the Main Contractor (once appointed). The monitoring results will be compiled in the live CEMP and will be made available to GCC and other regulatory bodies as required.

It is advisable that the Transport Infrastructure Ireland (TII) Carbon Tool be utilised for monitoring and reporting of construction phase GHG emissions. See TII Carbon Tool for Road, Greenway and Light Rail Projects: User Guidance Document GE-ENV-01106 February 2024.

The Construction Environmental Site Manager or delegate will be responsible for conducting waste inspections at the site during the construction phase of the Proposed Development to ensure the compliance with waste management procedures as outlined above to ensure that all procedures are strictly adhered to.

Regular site inspections will also be carried out by the by the Construction Environmental Site Manager to ensure materials are segregated onsite for the appropriate waste stream and disposal destination and to check for housekeeping, litter, and correct segregation. Where poor segregation practices are observed, littering is apparent or housekeeping falls below standard, a non-conformance will be raised with the Construction Environmental Site Manager for corrective action.

8.3 Reporting

8.3.1 Environmental Monitoring Reports

Where groundwater, surface water, noise, vibration and/or dust monitoring is undertaken, the results will be recorded and made available GCC upon request.

It is advisable that the TII Carbon Tool be utilised for monitoring and reporting of construction phase GHG emissions.

8.3.2 Soil Sampling and Waste Classification Reports

Where additional soil sampling and classification of soil waste is undertaken, the Project Contaminated Land Consultant will prepare a comprehensive waste classification assessment report(s) incorporating all support documentation and drawing. The waste classification reports will be included in the live CEMP.

In the event that hazardous wastes, previously deposited wastes or previously unidentified contaminated soil are discovered onsite, that material will be segregated and stored appropriately for sampling and classification as per Section 7.3.3. A hazardous waste/soil management plan will be designed and implemented by the Project Environmental Consultant detailing the estimated volumes, mitigation measures, destinations for the authorised disposal/ treatment and the designated authorised contractors for the movement of the material. The soil management plan(s) will also be included in the live CEMP.

8.4 Non-Conformance and Corrective and Preventative Action

Non-conformances may be raised through site inspection or audit, or by any site personnel by reporting a non-conformance to the Main Contractor. Non-conformances will be recorded and investigated by the Main Contractor to determine the root cause, and Corrective Action Requests (CARs) will be issued to ensure that prompt action is agreed and committed to, with a view to the effective resolution of any deviations from the CEMP requirements or any environmental issues.

CARs may be raised as a result of:

- An internal or external communication;
- An internal audit;
- A regulatory audit or inspection;
- A suggestion for improvement;
- A complaint; or
- An incident or potential incident.

All CARS will be numbered and logged, tracked and recorded in the CEMP to ensure completion. CARs will only be closed out on sign off by the Main Contractor that the required corrective actions have been completed.

9 EMERGENCY PLANNING AND RESPONSE

The purpose of the CEMP is to address the potential emissions from the site, implementing any necessary mitigation measures as discussed in Section 7.3 to ensure that there will be no negative impact on the receiving environment. The Main Contractor will ensure that all works are carried out consistent with existing emergency response plans and procedures.

9.1 Emergency Response

The accident and emergency procedures, that will be outlined in the Health and Safety documentation, will ensure that emergencies such as fires, explosions, accidents, leaks, sabotage or emergencies caused by force majeure occur as little as possible; if they do, however, occur, the Emergency Response Procedure ensures that all counter-measures proceed in a controlled manner so that greater damages are avoided and the possible effects upon persons, the environment and property are avoided or limited. Related procedures are as follows:

- Emergency preparedness and response procedure;
- Incident investigation procedure;
- Nonconformity, Corrective Action and Preventative Action;
- Spillage Containment Procedure; and
- Pollution Prevention Programme.

An environmental emergency at the site may include:

- Discovery of a fire within the site boundary;
- Uncontained spillage / leakage / loss of containment action; and
- Discharge concentration of potential pollutants in excess of environmental trigger levels.

The general required emergency response actions will be posted at strategic locations, such as the site entrance, canteen and near the entrances to buildings.

All environmental incidents (including emergency situations and accidents that can have an impact on the environment) are to be managed in accordance with the following procedure. In the event of an incident, the Main Contractor will:

- Carry out an investigation to identify the nature, source and cause of the incident and any emission arising there from;
- Isolate the source of any such emission;
- Evaluate the environmental pollution, if any, caused by the incident;
- Identify and execute measures to minimise the emissions/malfunction and the effects thereof;
- Identify the date, time and place of the incident; and
- Notify all relevant authorities.

In the event of a spillage, the following procedure will be followed:

1. IF SAFE (USE PPE), stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers;
2. IF SAFE (USE PPE), contain the spill using the absorbent spills material provided. Do not spread or flush away the spill;
3. Cover or bund off any vulnerable areas where appropriate;
4. If possible, clean up as much as possible using the absorbent spills materials;
5. Do not hose the spillage down or use any detergents;
6. Contain any used absorbent material so that further contamination is limited; and
7. Notify the Construction Environmental Site Manager so that used absorbent material can be disposed of using a licensed waste contractor.

An accident investigation should be performed in accordance with procedures and the report sent to the Project Manager and the Main Contractor.

9.2 Managing Environmental Incidents

All environmental incidents and complaints from members of the public / third parties will be handled appropriately, efficiently in compliance with the incidents and corrective action procedures to be developed by the Main Contractor. All follow up actions on the construction site will be managed by the Construction Environmental Site Manager / CMT.

An environmental incident may include but is not limited to the following:

- Spillage of chemical, fuel or oil;
- Fire;
- Release of any contaminant to surface water, groundwater, air or soil;
- Exceedance of noise limits; and
- Exceedance of dust limits.

A record will be maintained on site of all incidents detailing the following as a minimum:

- Date, time, and duration of incident;
- Nature of the complaint/ incident (e.g., noise nuisance, dust nuisance);
- Characteristics of the incident;
- Likely cause or source of incident;
- Weather conditions, such as wind speed and direction;
- Investigative and follow-up actions; and
- Root cause analysis and preventive actions.

All incidents will be investigated by the Construction Environmental Site Manager / CMT and reported to the Project Manager. Corrective and preventative actions will be implemented as required to ensure that the incident is effectively dealt with and to prevent a recurrence of the incident. Staff will be informed by toolbox talk of corrective and preventative actions implemented as relevant to their role or overall operations.

9.3 Emergency Contacts

The relevant emergency contact details for essential environmental and H&S services (refer to Table 9-1) will be displayed on the site hoarding and included within the live register of documents. These emergency contact details will be kept up to date by the Main Contractor.

Table 9-1. Emergency Contacts

Emergency Service Contact Numbers	Contact
Ambulance	999 or 112
Fire Brigade	999 or 112
Galway City Council Environment & Transportation Department	091 536400
EPA - Headquarters County Wexford	(053) 9160600
HSE – North Great George's Street	(01) 814 6197
Inland Fisheries Ireland	(01) 884 2693
ESB Emergency	1850 372 999
Gas Emergency	1850 20 50 50
First Aid Officer	Main Contractor (once appointed)
National Monuments Service, Department of the Arts, Heritage and the Gaeltacht	(01) 888 2000
National Parks & Wildlife Service–Southern Region	01 888 2000
Health and Safety Authority	1890 289 389

10 REFERENCES

AWN, 2025. Resource & Waste Management Plan For a Proposed Mixed-Use Development, Galway Port LRD.

Bat Conservation Trust & Institution of Lighting Professionals (2023). Bats and Artificial Lighting at Night: Guidance Note GN08/23.

British Standard, BS 5228-1 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites. Noise.

British Standard, 1993. BS 7385: 1993: Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground Borne Vibration.

British Standard, 2014. BS 5228: 2009+A1 2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration.

British Standards Institution and International Organization for Standardization, 2010. BS ISO 4866:2010: Mechanical Vibration and Shock – Vibration of Fixed Structures – Guidelines for the Measurement of Vibrations and Evaluation of their Effects on Structures.

British Standard, 2012. BS5837:2012. Trees in Relation to Design, Demolition and Construction. Recommendations

Construction Industry Research and Information Association (CIRIA), 2001. Control of Water Pollution from Construction Sites - Guidance for Consultants and Contractors.

Construction Industry Research and Information Association (CIRIA), 2015. Environmental Good Practice on Site.

Construction Industry Research and Information Association (CIRIA), 2006. Control of water pollution from linear construction projects: Technical guidance (Murnane et al. 2006) (C648).

Construction Industry Research and Information Association (CIRIA), 2007. The SUDS Manual (C697).

DNV, Environmental Impact Assessment Report, 2025.

Environmental Protection Agency, 2021. Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects.

Enterprise Ireland - Best Practice Guidelines (BPG CS005). Oil Storage Guidelines.

Environment Agency, 2004. UK Pollution Prevention Guidelines (PPG) UK.

European Communities (Waste Directive) Regulations 2011 (SI 126 of 2011) as amended 2011 (S.I. No. 323 of 2011) and 2016 (S.I 315 of 2016).

European Union (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014).

European Union (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended 2014 (S.I. No. 349 of 2014) and 2015 (S.I. No. 347 of 2015).

Environmental Protection Agency, 2020. Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities.

Environment Agency, 2021. Technical Guidance WM3: Guidance on the classification and assessment of waste (1st Edition v1.1 GB).

Environmental Protection Agency, 2018. List of Waste & Determining if Waste is Hazardous or Non-hazardous. Waste Classification.

EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002).

European Communities (Transfrontier Shipment of Waste) Regulations 1994 (S.I. No. 121 of 1994)

Environmental Protection Act 1992 (S.I. No. 7 of 1992) as amended by the Protection of the Environment Act 2003, as amended.

Environmental Protection Agency, 2013. Guidance Note on Storage and Transfer of Materials for Scheduled Activities.

Forum for the Construction Industry – Recycling of Construction and Demolition Waste.

Ground Investigation Ireland Ltd, 2024. Ground Investigation Report on behalf of The Land Development Agency.

Institute of Air Quality Management (IAQM), 2018. Air Quality Monitoring in the Vicinity of Demolition and Construction Sites 2018.

Institute of Air Quality Management (IAQM), 2024. Guidance on the Assessment of Dust from Demolition and Construction.

International Organization for Standardization, 2016. ISO 1996-1:2016. Acoustics — Description, measurement and assessment of environmental noise — Part 1: Basic quantities and assessment procedures.

International Organization for Standardization, 2017. ISO 1996-2:2017. Acoustics — Description, measurement and assessment of environmental noise — Part 2: Determination of sound pressure levels.

Inland Fisheries Ireland, 2016. Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters

Litter Pollution Act 1997 (S.I. No. 12 of 1997).

National Roads Authority, 2004. Guidelines for the Treatment of Noise and Vibration in National Road Schemes

NRB Consulting Engineers, 2025. Traffic And Transport Assessment Report for Proposed Large Scale Residential Development at Galway Port, Galway City.

One Touch Data Limited, 2019. HazWasteOnline™ Application http://www.hazwasteonline.com

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Waste Management Act 1996 (No. 10 of 1996) as amended 2001 (No. 36 of 2001), 2003 (No 27 of 2003) and 2011 (No. 20 of 2011).

Waste Management (Collection Permit) Regulations (S.I No. 820 of 2007) as amended 2008 (S.I No 87 of 2008), 2015 (S.I. No. 197 of 2015) and 2016 (S.I. No. 24 and 346 of 2016).

Waste Management (Facility Permit and Registration) Regulations 2007,(S.I No. 821 of 2007) as amended 2008 (S.I No. 86 of 2008) as amended 2014 (S.I No. 320 and No. 546 of 2014) and as amended 2015 (S.I. No. 198 of 2015).

Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) as amended 2010 (S.I. No. 350 of 2010).

Waste Management (Packaging) Regulations 2014 (S.I. 282 of 2014) as amended 2015 (S.I No 542 of 2015).

Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997).

Waste Management (Landfill Levy) (Amendment) Regulations 2019 (S.I. No. 182 of 2019) .

Waste Management (Food Waste) Regulations 2009 (S.I. 508 of 2009), as amended 2015 (S.I. 190 of 2015) and European

Union (Household Food Waste and Bio-waste) Regulation 2015 (S.I. No. 191 of 2015).

Waste Management (Hazardous Waste) Regulations, 1998 (S.I. No. 163 of 1998) as amended 2000 (S.I. No. 73 of 2000).

Waste Management (Shipments of Waste) Regulations, 2007 (S.I. No. 419 of 2007) as amended by European Communities (shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S.I No. 324 of 2011).

Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998).

S.I. 38 of 200. Wildlife (Amendment) Act, 2000.

S.I. 1 of 1977. Local Government (Water Pollution) Act, 1977.

S.I. 21 of 1990. Local Government (Water Pollution) (Amendment) Act, 1990.

TII (formerly NRA) Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (2010).

Transport Infrastructure Ireland Carbon Tool for Road, Greenway and Light Rail Projects: User Guidance Document GE-ENV-01106 February 2024.

About DNV

DNV is the independent expert in risk management and assurance, operating in more than 100 countries. Through its broad experience and deep expertise DNV advances safety and sustainable performance, sets industry benchmarks, and inspires and invents solutions.

Whether assessing a new ship design, optimizing the performance of a wind farm, analyzing sensor data from a gas pipeline or certifying a food company's supply chain, DNV enables its customers and their stakeholders to make critical decisions with confidence.

Driven by its purpose, to safeguard life, property, and the environment, DNV helps tackle the challenges and global transformations facing its customers and the world today and is a trusted voice for many of the world's most successful and forward-thinking companies.