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Outline Construction Environmental Management Plan (CEMP)

PRESENTED TO

Marshall Yards Development Company Limited
Proposed Large-scale Residential Development (LRD) at Cartron, Oranmore, Co. Galway

DATE

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Environmental Consultancy Services

DOCUMENT CONTROL SHEET

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1 INTRODUCTION

Enviroguide Consulting was commissioned by Marshall Yards Development Limited (hereafter referred to as the Applicant) to prepare an Outline Construction Environmental Management Plan (CEMP) for a Large-scale Residential Development (LRD) located at Cartron, Oranmore, Co. Galway (hereafter referred to as the Proposed Development).

This CEMP describes the environmental management measures that shall be carried out during the construction phase of the Proposed Development to avoid, manage or minimise potential significant environmental impacts that may arise from the construction phase.

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

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.

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

The primary distribution list for this document includes the following personnel.

- Construction Director;
- Construction Manager;
- Construction Management Team (CMT);
- Environmental Officer;
- Site Supervisors; and
- Other relevant personnel including authors of reports submitted with the planning application.

1.1 Objective and Purpose

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 project and ensure that construction activities do not significantly adversely affect the environment.

The objective of this document is to set out and communicate the procedures, standards, management responsibilities and key environmental obligations that apply to the Main Contractor and sub-contractors to address and prevent environmental effects that may arise from the construction phase of the Proposed Development.

1.2 Scope of CEMP

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

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

This CEMP will provide a framework to:

- Comply with current environmental and waste legislation, codes of good practice and guidelines;
- Provide a management plan for achieving mitigation measures identified in design drawings and documents; and
- Ensure that environmental risks are identified and will be appropriately mitigated to ensure any adverse effects are minimised during construction.

1.3 Live document

The CEMP will be considered a 'live' document and as such will be reviewed, on a regular basis, and updated as necessary throughout the construction phase of the Proposed Development to address changes in environmental management practices and to include further mitigation measures that may be identified as part of detailed design and ongoing reviews.

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

2 PROJECT DESCRIPTION

2.1 Site Location and Description

The site is approx. 5.5 ha in size and located at lands to the north of Coast Road in Cartron, just west of the village of Oranmore, Co. Galway, and *c.* 2.6km south of Galway Airport. The area currently comprises agricultural fields used for grazing cattle, bordered by stone walls, hedgerow, and treelines. A trainline runs parallel to the site adjacent to the northern boundary. The wider surrounding landscape comprises mostly similar agricultural fields.

The site is located along a coastal road, approx. 28m north of three designated sites, namely, Inner Galway Bay Special Protection Area (SPA) (004031) and Galway Bay Complex Special Area of Conservation (SAC) (000268).

The site location is presented in Figure 2-1.

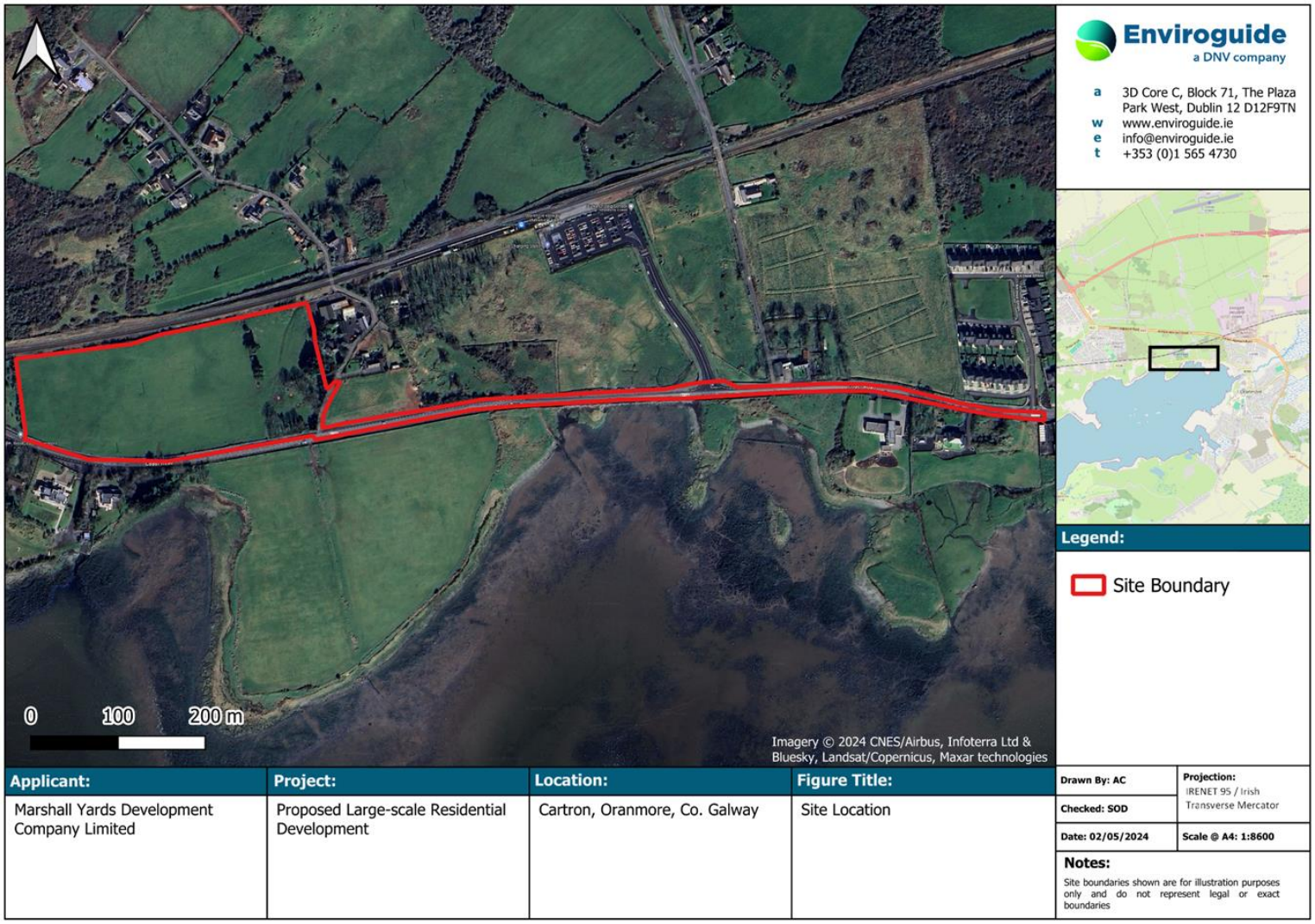

Figure 2-1: Site Location

2.2 Proposed Development

The Proposed Development will consist of the demolition of the existing shed and associated structures on site and the construction of 171 no. residential units; 1 crèche; and all associated development works including the provision of pedestrian/cyclist facilities along the R338 public road to Oranmore rail station; 1 no. ESB substation; 1 no. pumping station, the undergrounding of the existing ESB sites traversing the site, footpaths, lighting, parking, drainage, bicycle and bin stores and landscaping/amenity areas at Cartron (townland), Oranmore, Co. Galway. Access to the site will be via a new entrance L-71051 to the east.

The residential units will be built across a mixture of 2, 3 and 4 bed houses and duplex apartment buildings. Heights for the residential units will range between 1 and 3 storeys.

There will be 269 car parking spaces, and 880 bicycle parking spaces across the site.

The Proposed Site Layout is presented below in Figure 2-2, extracted from drawing ref. CAR-ZZ-LZZ-DR-JFA-AR-P1100 (JFA, 2024).

Figure 2-2: Site Layout Plan Extracted from Drawing Ref. CAR-ZZ-LZZ-DR-JFA-AR-P1100 (JFA, 2024)

3 CONSTRUCTION SCHEDULE AND WORKS MANAGEMENT

3.1 Programme

The programme for the construction phase of the development is approximately 27 months.

Prior to any site works commencing, the Main Contractor will investigate/ identify the exact location of and tag all existing services and utilities around and through the site with the assistance of the relevant technical divisions of Galway County Council and utility companies.

3.2 Working Hours

Normal site working hours (as set out by Galway County Council) for the construction phase of the Proposed Development will be as follows:

- Monday to Friday: 08:00 and 19:00;
- Saturdays: 08:00 to 14:00; and
- Sundays and Bank Holidays: Works normally not permitted.

No works are envisaged to be carried out on Sundays or Bank Holidays.

Should there be a requirement, in exceptional circumstances, for works outside of the normal site working hours a written submission seeking authorisation will be made to Galway County Council.

Works will take account of any restrictions identified in the grant of planning.

3.3 Site Construction Compound

All construction support related activities including office facilities, welfare facilities such as toilets and canteen will be contained within the site compound and the working area will be fenced off to provide a secure site.

All cabins will be brought to site in good condition and will be maintained in good order throughout the Proposed Development. Double stacking of cabins may be required, with safe stairs and walkways provided to the upper levels of offices.

All waste storage areas will be identified by clear legible signage and recorded on a site layout drawing which will be maintained onsite.

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

Figure 3-1: Indicative Site Construction Compound (Orange)

3.4 Traffic

There will be no deliveries to the site or removal of material outside of normal site hours.

In advance of construction works commencing onsite, the appointed Main Contractor will prepare a Construction Traffic Management Plan (CTMP) taking account of the particulars of the grant of planning and in consultation with Galway County Council where necessary in advance of construction works commencing onsite. The plan will detail all information regarding the traffic management required to complete the project works, inclusive of:

- Erection, supervision and removal details;
- Implementation phases of the project; and
- Risk assessment for the works.

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

Adequate work area and access for permanent works and/or construction will be provided. The CTMP will ensure that routes around the proposed works are maintained for pedestrians and vehicles for the duration of the construction works.

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

It is not envisaged that road closures will be required during the construction phase however, if required, applications to Galway County Council where permits and approval for road restrictions will be made.

Materials will be ordered and delivered to site on an “as needed” basis in order to prevent over supply to site. Deliveries will be managed upon arrival at the site and systems will be put in place in order to avoid any queuing of delivery vehicles. Measures will be adopted to avoid damage to the infrastructural services of the adjoining roads over which vehicles

servicing the Proposed Development will traverse. All delivery vehicles will be coordinated by the flagman on duty at the main entrance, as required.

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

Warning signs will illustrate the required personal protection equipment (PPE) and risks associated when entering the construction site.

Security of the site is an important issue with respect to restricting site entry to personnel solely involved in the construction process during working hours and preventing unauthorised access out of hours. Site access for all personnel and visitors will be strictly controlled and all visitors will report to the site offices prior to entering the construction area. Adequate site hoarding will be installed along the site boundary. Regular inspections of the hoarding will be undertaken to ensure that the safety of any vehicles or pedestrians is not compromised.

Safety and ease of access to the site are to be provided for by the Main Contractor when planning the works. Separation of vehicular and heavy plant traffic from pedestrians and operatives will be implemented as far as is practical when considering the layout of the site infrastructure and access points.

The Main Contractor will ensure that the appropriate procedures are in place to ensure that all site traffic will be managed to avoid and minimise nuisance. The Main Contractor will ensure that on-site control measures will be established and maintained at the site to prevent any nuisance and debris associated with the construction works on public roads adjoining the site.

The main consideration will be to combat mud and dust at source so as not to let it adversely affect the surrounding areas. The objective will be to contain any mud or dust within the site, which is large enough for comprehensive control measures.

The Health and Safety Authority's (HSA) Code of Practice for Avoiding Danger from Underground Services will be adhered to during excavation work, and when any other work involving underground services, is carried out. The Code of Practice aims to reduce the incidence of damage to underground services. Electricity cables, gas pipes, water pipes and sewers, if damaged, may pose a direct danger to personnel who are working on the site, and may also pose a pollution risk to the surrounding environment. If an electricity cable, telecommunications cable, gas pipeline or water main suffers any impact or any damage, however slight, the incident must be reported to the network operator without any undue delay (HSA, 2016).

3.6 Communication and Consultation

The Main Contractor will prepare a Project Communications Management Plan and appoint a Project Communications Officer who will undertake any required third-party communication and liaise directly with landowners/ local authorities/ members of the public, and all other stakeholders as required by the project.

3.6.1 Managing Enquiries and Complaints

All complaints and requests for information from members of the public will be handled appropriately, efficiently in compliance with the complaints and corrective action procedures to be developed by the Main Contractor. All follow-up actions on the construction site will be managed by the CMT.

A record will be maintained on site of all complaints detailing 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, dust nuisance).
- Characteristics;
- 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 personnel working on the Proposed Development site will be inducted into the complaints handling procedure and will be aware that complaints are to be directed immediately to the CMT.

All enquiries and complaints received will be investigated by the CMT. 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.

3.6.2 Advance Works Notice

The CMT will be responsible for 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.

3.7 Maintenance of Roads

The Main Contractor will ensure that on-site control measures will be established and maintained at the site to prevent any nuisance and debris associated with the construction works on public roads adjoining the site. The main consideration will be to combat mud and dust at source so as not to let it adversely affect the surrounding areas. The objective will be to contain any mud or dust within the site, which is large enough for comprehensive control measures. This issue will be controlled by the following designated and operational measures:

- Designated hard routes through the site to work front;
- Each departing vehicle will be checked by the banksman;
- Sweeping of public streets adjacent to egress from site, as necessary;
- Provision and facilities to cover lorry contents, as necessary;
- Where applicable, controlled loading of excavated material to minimise risk of spillage of contents;
- Facility to clean local roads if mud or spillage occurs; and
- Ongoing monitoring during working hours.

4 PROJECT ROLES AND RESPONSIBILITIES

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

Role	Responsibilities
Construction Director	• Overall responsibility for the implementation of the CEMP • Ensuring adequate resources are available to ensure the implementation of the CEMP • Management review of the CEMP for suitability, adequateness, and effectiveness • Setting out the focus of environmental policy, objectives, and targets for the Main Contractor
Construction Manager	• Reporting to the Construction Director on the on-going performance of the CEMP • Discharging his/her responsibilities as outlined in the CEMP • Supporting the CMT and the Environmental Officer through the provision of adequate resources and facilities to ensure the implementation of the CEMP • Providing Contractors with precise instructions as to their responsibility to ensure correct working methods where risk of environmental damage exists • Where appropriate, ensuring Contractor's method statements include correct waste disposal methods • Co-ordinating of environmental planning of CMT activities to comply with environmental authorities' requirements and with minimum risk to the environment
Environmental Officer	• Ensuring that the requirements of the CEMP are developed 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 on site • Reporting to the Construction Manager on the environmental performance of Line Management, Supervisory Staff, Employees and Contractors • Advising site management on environmental matters and delegating responsibility to sub-contractors, where necessary • Being aware of any potential environmental risks relating to the Contractors and bring these to the notice of the appropriate management; • Ensuring that all waste is managed accordingly, is recorded, and the materials/waste register is completed • Maintenance of records of all necessary documentation including contractor waste collection permits, waste destination consents, waste transfer documents and waste management facility gate receipts in the waste management file and any environmental related documentation
Project Communications Officer	• Conducting all public liaison associated with the construction phase of the project • Responding to any concerns or complaints raised by the public in relation to the construction phase of the project • Liaising with the Environmental Officer on community concerns relating to the environment • Ensuring the Environmental Officer is informed of any complaints relating to the environment • Keeping the public informed of project progress and any construction activities that may cause inconvenience to the local community

Role	Responsibilities
Site Supervisors	• Implementation of the CEMP • Being knowledgeable of the requirements of the relevant law in environmental matters and take whatever action is necessary to achieve compliance • Ensuring that environmental matters are considered at all times • Being 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 • Ensuring that any plant is environmentally suited to the task in hand
Site Personnel	• Co-operation with the CMT and the Environmental Officer in the implementation 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 • Adhere fully to the requirements of the site environmental rules
Project Environmental Consultant (as required)	An Environmental Consultant may be engaged on an ad-hoc basis if required. The appointed Environmental Consultant will be competent, qualified, and experienced in the field of environmental management; with expertise in the areas of contaminated land, water and waste management and will be responsible for producing all environmental reporting procedures. • Preparation of any 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 • Investigating incidents of significant, potential, or actual environmental damage, ensure corrective actions are carried out and recommend means to prevent recurrence
Project Archaeologist Clerk of Works (as required)	A Project Archaeologist Clerk of Works may be engaged on an ad-hoc basis if required. The appointed Project Archaeologist Clerk of Works will be competent, qualified, and experienced. • Advising on all archaeological monitoring activities, conducting watching briefs and distributing information relevant to monitoring. • Monitoring of all ground disturbance works associated with the construction of the development • Ensuring the appropriate course of action is taken in the event that archaeological material is discovered during the works • Liaison with the CMT throughout the construction phase of the project • Liaison with the Department Applications Unit, National Monuments Service, Department of Arts, Heritage and Gaeltacht and the Local Authority archaeologist as required.
Project Ecological Clerk of Works (EcCOW) (as required)	A Project Ecologist Clerk of Works may be engaged on an ad-hoc basis if required. The appointed Project Archaeologist Clerk of Works will be competent, qualified, and experienced.

Role	Responsibilities
	• Ensuring the protection of sensitive habitats and species encountered during the construction phase of the project. • Provision of specialist input and supervision where necessary of critical construction activities in relation to habitats and species and any specified protection measures • Provision of specialist advice on ecological monitoring and site inspections and surveys as required • Liaison with the National Parks and Wildlife Service (NPWS) and other relevant stakeholders if required.

5 PROJECT ENVIRONMENTAL POLICY

The Applicant recognises and seeks to minimise the impacts of its business on the environment. The appointed contractor will be obliged to:

- Carry out the construction 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, 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 construction environmental performance by setting objectives and targets and implementing them through an environmental programme; and
- Informing all project employees about pollution prevention actions and explain what they are required to do to protect the environment.

This policy will be reviewed periodically, considering current and potential future business issues.

5.1 Site Environmental Awareness

5.1.1 General Site Environmental Rules

- Report any signs of pollution or environmental damage, no matter how small, to the construction manager, environmental officer, or site supervisor;
- Report any spills, incidents or near misses that occur on site immediately to the site supervisor;
- Refuel using bunded mobile bowsers or static bunded tanks in designated, impermeable areas equipped with spill kits;
- Oil or lubricant changes and maintenance work will be carried out offsite;
- All waste must be sent to the designated site waste management areas for interim storage pending compliant removal from site. 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, netting etc. must 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 site; and
- If in doubt, ask the contracted site supervisor and/ or environmental officer for further information.

The CMT will develop Environmental Procedures to control the potential impacts from the construction phase of the development. These procedures together with the site Environmental Policy will be made available in the main offices and in the main EHS information points at the site.

The environmental toolbox briefing of site construction staff is the responsibility of the CMT. All personnel working on site will be trained in pollution incident control response. An environmental training programme will be organised for onsite personnel 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.

Contractors shall 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 Main Contractor to ensure compliance with the compliance measures identified in the CEMP.

5.2 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 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;
- 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 must be investigated by the Environmental Officer and reported to the Construction 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.

6 ENVIRONMENTAL IMPACTS AND CONTROLS

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

6.1 Potential Impacts of the Development

The CEMP will set out control measures relating to:

- Biodiversity;
- Land, Soil and Geology;
- Hydrology and Hydrogeology;
- Air Quality and Climate;
- Noise and Vibration;
- Landscape and Visual;
- Archaeology and Cultural Heritage; and
- Material Assets: Waste, Utilities and Traffic.

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.

6.2 Legal and Other Requirements

Where relevant obligations are identified, these will be adopted into the procedures, forms, plans etc. of the CEMP prepared by the Main Contractor.

For construction sites, any additional requirements of planning consents, statutory authorities and the client are identified and documented in the CEMP.

Where compliance obligations have been assessed and recorded, they will be re-reviewed when personnel become aware of relevant changes that impact directly on operations, or as a minimum quarterly where obligations have changed or where there have been significant changes in work type.

6.2.1 Conditions of Planning Permission

This CEMP will be updated with any conditions of planning once granted.

6.3 Implementation of Control Measures

The Main Contractor 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.

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.

6.3.1 Communication and Training - Construction Personnel

In addition to contractor provided site induction, CMT are obliged to conduct safety meetings / toolbox talks on relevant Environmental Health and Safety EHS topics for all employees in their care on a weekly basis. Details of all safety meetings / toolbox talks, including topics and attendees must be submitted to the CMT.

6.3.2 Keeping of Records

Records pertaining to all aspects of the construction environmental management procedures outlined in this document will be maintained in the onsite Environmental Management File. Information stored in the Environmental Management File 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 on site;
- The details of environmental incidents and near misses including incident investigation and corrective and preventative measures implemented;
- Records of environmental inspections completed during the construction phase to ensure compliance with the CEMP control measures;
- Copies of Safety Data Sheets (SDS);
- Complaints register; and
- Records of the movement and recovery/disposal of all waste generated during the construction phase of the project to include date removed from site, waste type, quantities, waste carrier and off-site destination.

All records will be made available to Client and on request to Galway County Council and the EPA.

6.3.3 Monitoring, Audits, and Inspections

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

The appointed Contractor will undertake inspections to address environmental issues including groundwater, surface water, dust, litter, noise, traffic, waste management and general housekeeping. These will be carried out on both scheduled and random intervals as agreed with the Client.

Monitoring required as a condition of any consent for discharges or water supply will be the responsibility of the appointed Contractor. The appointed Contractor will also be responsible for any additional monitoring that may be required by the Client.

The Client and/or an independent auditing consultants may undertake environmental audits at random intervals to ensure that all procedures, monitoring and recording/ reporting are being undertaken by the appointed Contractor as outlined in the CEMP. The findings of these audits, inspections and monitoring results will also be recorded in the CEMP.

6.3.4 Non-Conformance and Corrective and Preventative Action

Corrective Action Requests (CARs) will be issued by the CMT to those responsible for the implementation of corrective and preventative actions to ensure effective resolution of deviations from the CEMP requirements or to address environmental issues identified.

CARs may be raised as a result of:

- An internal or external communication such as a complaint.
- Internal audit.
- A regulatory audit or inspection.
- A suggestion for improvement; and
- An incident or near miss.

All corrective action requests will be numbered and logged and tracked to ensure completion.

6.4 Operation Controls

6.4.1 Biodiversity

All works will be undertaken in accordance with the procedures outlined in this CEMP to ensure the protection of local ecology or on any designated nature conservation sites associated with the construction phase of the Proposed Development.

The following construction mitigation measures will be implemented in relation to the protection of biodiversity (habitats and sensitive species and other key ecological receptors).

6.4.1.1 Concrete and cement

Concrete and cement are highly toxic to fauna, particularly fish and other aquatic / marine species. On-site pouring and/or mixing of concrete or cement will be required during construction works, so the following measures will be implemented in order to retain all cement-based materials within the boundaries of the site:

- Concrete pouring / mixing will only take place in dry weather conditions. It will be suspended if high-intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24 hour period or high winds);

- If any on-site mixing of concrete is required, it will be carried out at least 20m from the drainage ditch in the west of the site. If any cement-based products will be stored on-site, they will be kept in a sheltered area at least 20m from the drainage ditch in the west of the site, and will be covered (e.g. with a secured plastic membrane) to prevent spread by wind; and
- Any on-site cleaning of tools or concrete-batching plant will take place at least 20m from the drainage ditch in the west of the site. Wash waters will be discharged to a soakaway.

6.4.1.2 Suspended sediments

The term 'suspended sediments' refers to any silt, mud or other fine sediment that becomes dissolved in water. Water can be contaminated by suspended sediments (SS) from open earthworks and excavations (either from rainfall or groundwater seepage), from rainfall on soil/sediment stockpiles, or from the tyres / tracks of construction vehicles. In order to retain all contaminated waters within the boundary of the site, the following measures will be implemented:

- Excavation works will be suspended if high intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24 hour period, or high winds);
- If any excavations need to be dewatered, the SS-contaminated water will be retained and treated within the boundary of the site. It will be collected and pumped into a settlement tank / pond (or similar feature), left undisturbed until sediments have settled, and then discharged via a buffered outflow to a soakaway that is at least 20m from the drainage ditch in the west of the site;
- Stockpiles of mud, sand or other fine sediments will be stored at least 20m from the drainage ditch in the west of the site. Stockpiles will be levelled and compacted, and will be covered with secured plastic membranes in order to limit wind/rainwater erosion; and
- Dust suppression and road cleaning measures will be implemented, as outlined in Section 8 of the Inland Fisheries Ireland guidelines (Guidelines on protection of fisheries during construction works in and adjacent to waters (Inland Fisheries Ireland, 2016)).

6.4.1.3 Hydrocarbons and chemicals

Hydrocarbons (oil, petrol, diesel, etc) and solvents are toxic to fauna. These chemicals can enter surface water or groundwater if they are accidentally spilled (e.g. during re-fuelling of machinery), or from leaking containers. In order to retain such materials within the boundaries of the site, the following measures will be applied throughout the construction works:

- Any fuel, oil or chemical containers will be kept at least 20m from the drainage ditch in the west of the site. These pollutants are hazardous and must be stored in a designated bunded area that has sufficient capacity to retain any spills;
- All machinery will be protected from vandalism and unauthorised interference, and will be turned off and securely locked overnight;
- Any on-site re-fuelling will take place at least 20m from the drainage ditch in the west of the site. Immobile plant will be refuelled over drip-trays;
- While in operation, diesel pumps, generators or other similar equipment will be placed on drip trays to catch any leaks; and

- A spill kit will be kept on-site. If any spills occur, appropriate measures will be taken to intercept hydrocarbons or chemicals before they can leave the site.

6.4.1.4 Biosecurity

In order to avoid the introduction of invasive species to the Proposed Development site during both the construction and operational phases, the following measures will be adhered to:

- The contractor will be aware of biosecurity issues and will inform sub-contractors through the induction process;
- Any vehicles which have been used in the management of invasive species are required to be cleaned before leaving the site of contamination, thereby not introducing the risk of cross contamination to other sites;
- 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
- Personnel working on contaminated sites will be made aware of their responsibilities in cleaning equipment and PPE before visiting site.

It is recommended that a non-invasive species survey be completed in advance of the construction phase (within the optimum survey period) by a suitably qualified specialist. Any mitigation measures/recommendations should be implemented in full.

6.4.1.5 Natura Impact Statement Proposed Mitigation Measures

6.4.1.5.1 Mitigation 1: Disturbance to Special Conservation Interest (SCI) Waterbirds

Waterbirds are particularly susceptible when roosting on mudflats such as those present in Oranmore Bay c. 30m from the site and during construction, there is a combined risk of noise and visual disturbance which can result in an additive disturbance effect and even displacement of birds, wasting energy that would otherwise be used for foraging (Cutts et al., 2013). Mitigation to reduce the effects of noise and visual stimuli posed by the construction works (including human presence, plant, machinery and vehicles) is required at the site to avoid significant adverse effects on the SCI waterbirds of Inner Galway Bay SPA. The following measures have been proposed (Natura Impact Statement, Enviroguide, 2024):

- High disturbance works should be undertaken between April and September to avoid most sensitive time for wintering birds;
- Minimise working time outside of the designated area within the site;
  Acoustic barriers should be installed along the entire length of the southern boundary of the site; and
- Acoustic barriers should be opaque so as to additionally reduce visual disturbance.

Acoustic barriers are readily available online and have the benefit of reducing noise levels by up to 43dB (Acoustic Barriers (Noise Barriers) for Sale or Hire | SafeSite Facilities).

Noise levels at the site in conjunction with SCI birds present in Oranmore Bay will be monitored regularly by a suitably qualified ornithologist to ensure the effectiveness of the acoustic barriers.

Where works are occurring outside of the wintering bird sensitive season (April to September), monitoring is not required. Acoustic barriers should remain in place.

6.4.1.5.2 Mitigation 2: Disturbance to Otter

In order to reduce noise and visual disturbance affecting QI species otter, the following mitigation measures are proposed in relation to lighting and avoidance of breeding holts (natal dens) (Natura Impact Statement, Enviroguide, 2024):

- Minimise working time outside of the designated area within the site;
- A pre-construction otter survey covering areas of Oranmore Bay within 150m of the Proposed Development will be conducted 3-4 months prior to the commencement of works to ensure that there are no active breeding holts present within this distance of the site and allow time for derogation licence application if required;
- Should an active breeding holt be identified, works are not to commence until a derogation license has been obtained from National Parks and Wildlife Service (NPWS) and suitable mitigation for the protection of otters is in place;
- Acoustic barriers as described in the above Section 6.4.1.6.1 will also be suitable to reduce noise disturbance to any otter that may be using the area;
- Otters are a nocturnal species that forage at night and are likely to investigate a construction site (CIEEM, 2019). As such, there will be no lighting of the Proposed Development during construction and works are to be caried out during daylight hours only. If lighting is considered essential to works, the ecologist will be consulted, and directional lighting will be used, in agreement with NPWS; and
- A toolbox talk will be delivered to anyone working on-site prior to the commencement of any works.

6.4.1.5.3 Mitigation 3: Biosecurity

The following good practice site hygiene and biosecurity measures will be in place to avoid the potential introduction of invasive floral species at the site and offsite via movement of materials/staff:

- All soils/materials being introduced to the site will be sourced from a certified invasive flora-free source site, to ensure no introduction of invasive plant materials to the site occurs;
- Personnel working on or between sites will ensure their clothing and footwear are cleaned, ensuring they are visually free from soil and organic debris, in order to prevent inadvertent spread of invasive plant material;
- All vehicles entering or leaving the site will have been suitably checked and pressure-washed to ensure no introduction of invasive flora to and from the site. Measures such as a drive through hygiene bath or footbaths will be considered where appropriate;
- Material/water left after vehicles have been pressure-washed must be contained, collected and disposed of appropriately (these waters must not under any circumstances be discharged to drains or nearby ditches).

6.4.1.5.4 Mitigation 4: Butterfly Bush Removal

The following measures are extracted from TII (2020) for the chemical and physical control of butterfly bush:

Chemical Control

"Foliar application of herbicide is capable of providing control with young plants and small infestations but should be followed up at six-monthly intervals as regrowth is common".

Physical Control

"Removal of the flower heads before seed set (June or even July) is an important control method as it reduces the volume of seeds that are available to spread. Hand-picking of young plants will provide control, but it is very tedious and should be undertaken with care to avoid soil disturbance, which can give rise to a flush of new seedling growth. Digging out plants is only practical with relatively minor infestations, at the initial stage of invasion, or where a site is to be excavated for development or road construction purposes. Mowing of young plants does not provide effective control as they re-sprout with vigour. The physical removal of mature stands is not recommended for the same reason. After uprooting, it is essential to plant the ground in order to prevent a flush of new seedling growth. When Buddleia plants are cut, regrowth from the stump can be very vigorous".

Combined Chemical and Physical Control

"Effective control can be achieved by cutting Buddleia plants to a basal stump during active growth (late spring to early summer) and immediately treating the total cut surface with herbicide concentrate. Monitoring will be required and retreatment, as necessary. Do not leave cut stems and branches on the ground as they will re-root and produce new plants."

Recommended Management: Physical removal and off-site disposal of butterfly bush is recommended where it occurs along the southern boundary wall, due to its limited presence on site (Four plants, between 1-1.5m in height) (Natura Impact Statement, Enviroguide, 2024).

6.4.1.6 Natura Impact Statement Proposed Monitoring Measures

During the construction phase, the following monitoring will be carried out by the Main Contractor, as outlined in the Natura Impact Statement (Enviroguide, 2024), to ensure the implemented mitigation measures are maintained effectively:

- Checks of sound levels emitted from the site during any loud works after installation of acoustic barriers;
- Monitoring for regrowth of invasive species (butterfly bush) after removal;
- Ensuring time spent outside of the site's bounds by workers is kept to a minimum; and
- Should otter be observed within the site, works should cease immediately and the ecologist notified.

6.4.1.7 Ecological Impact Assessment Proposed Mitigation Measures

6.4.1.7.1 Root Protection Zones

An Arborist will oversee works relating to trees, and post-construction tree assessment. The Arborist will demarcate root protection buffer zones around the roots of trees to be retained, prior to the commencement of construction works at the site.

6.4.1.7.2 Vegetation Clearance

Vegetation clearance of the hedgerow, treeline and grassland habitats will need to be cognisant of any potentially present fauna. **Error! Reference source not found.** Table 6-1

provides guidance for when vegetation clearance is permissible in relation to wintering, hibernating and breeding fauna. Information sources include British Hedgehog Preservation Society's *Hedgehogs and Development* and *The Wildlife (Amendment) Act, 2000*.

The preferred period for vegetation clearance is within the months of September and October to avoid the main breeding bird season, as well as mammal hibernation (see Table 6-1); vegetation clearance at the site should be supervised by an ecologist.

During any works at the site, should a breeding bird and/or an active nest be found, the nest will be protected through the demarcation of a 5m buffer zone (or appropriate area) around the nest, and no further works will take place in the vicinity of the nest until the young have fledged. Where continuance of works is critical an ecologist will be instructed to survey the vegetation in question and make recommendations on how best to proceed. The area containing the nest would need to be protected with a suitable buffer to minimise disturbance until the ecologist has confirmed the young have fledged.

Table 6-1: Seasonal restrictions on vegetation removal. Red boxes indicate periods when clearance/works are not permissible

<table>
<tr><th>Ecological Feature</th><th>Jan</th><th>Feb</th><th>March</th><th>April</th><th>May</th><th>June</th><th>July</th><th>Aug</th><th>Sept</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>Breeding Birds</td><td colspan="2">Vegetation clearance permissible</td><td colspan="5"><u>Nesting bird season</u>
No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of nesting birds by an ecologist.</td><td colspan="4">Vegetation clearance permissible</td></tr>
<tr><td>Hibernating mammals (Hedgehog)</td><td colspan="3"><u>Mammal hibernation season</u>
No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of hibernating mammals by an ecologist.</td><td colspan="6">Vegetation clearance permissible</td><td colspan="2"><u>Mammal hibernation season</u>
No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of hibernating mammals by an ecologist.</td></tr>
<tr><td>Common Lizard</td><td colspan="3"><u>Lizard Hibernation Season</u>
No habitat clearance permissible</td><td colspan="6"><u>Active period</u>
Habitat (scrub, tall sward grass) clearance permissible</td><td colspan="2"><u>Lizard Hibernation Season</u>
No habitat clearance permissible</td></tr>
</table>

Bats	**Tree felling to be avoided**	Preferred period for tree felling	**Tree felling to be avoided**

Additionally, all vegetation clearance will be carried out in sections working in a consistent direction to prevent entrapment of protected fauna potentially present (e.g., hedgehog). Logs and branches from this vegetation will be utilised for the creation of hibernacula on site. A phased cutting approach under the supervision of a suitably qualified Ecological Clerks of Works (ECoW) will be used to allow wildlife (e.g. small mammals, reptiles) to move away from any suitable habitat that will be removed:

- Phase 1 – Cutting vegetation to 150-200 mm and removing the arisings;
- Phase 2 – After a minimum of one hour, hand-searching the cut areas (conducted by an ECoW) and removing any sheltering habitat (e.g. logs or debris) then cutting vegetation to ground level and removing the arisings; and
- Phase 3 – Soil scrape.

Similarly to the timing of vegetation clearance, and as the stone wall is suitable to support common lizard, its removal should also be supervised by a suitably qualified ECoW. Should any common lizard be encountered, works will cease until the ECoW has determined the risk of harm to lizard is eliminated.

Should any suitable refugia or day nesting habitats need to be removed, this will be carried out outside the most vulnerable breeding periods for hedgehogs wherever practicable (main hedgehog birthing months June and July) (see Table 6-1) and will be supervised by the ECoW.

Furthermore, given that trees are to be removed to facilitate the Proposed Development, it is recommended that all felled trees are left to lie on the ground after felling for at least 48 hours, prior to sawing or mulching. This precautionary measure of ‘soft felling’ will allow any bats to escape should they be present in on site trees prior to the commencement of works.

6.4.1.7.3 Waste Management

As is good practice, all construction-related rubbish on site e.g., plastic sheeting, netting etc. will be kept in a designated area and kept off ground level so as to prevent small mammals such as hedgehogs from entrapment and death.

Trenches/pits must be either covered at the end of each working day or include a means of escape for any animal falling in e.g., a plank or objects placed in the corner of an excavation (Species such as badgers will continue to use established paths across a site even when construction work has started).

Any temporarily exposed open pipe system will be capped in such a way as to prevent animals gaining access as may happen when contractors are off site.

6.4.1.7.4 Disturbance to Wintering Birds

Waterbirds are particularly susceptible when roosting on mudflats such as those present in Oranmore Bay <5m from the Proposed Development site and during construction, there is a combined risk of noise and visual disturbance which can result in an additive disturbance effect and even displacement of birds, wasting energy that would otherwise be used for foraging (Cutts et al., 2013). The following mitigation is outlined in the EcIA (Enviroguide, 2024) to

reduce the effects of noise and visual stimuli posed by the construction works (including human presence, plant, machinery and vehicles):

- High disturbance works (excluding vegetation removal) should be undertaken between April and September to avoid most sensitive time for wintering birds;
- Minimise working time outside of the designated area within the Proposed Development site;
- Acoustic barriers should be installed along the entire length of the southern boundary of the site; and
- Acoustic barriers should be opaque so as to additionally reduce visual disturbance.

Acoustic barriers are readily available online and have the benefit of reducing noise levels by up to 43dB.

Noise levels at the site in conjunction with wintering waterbirds birds present in Oranmore Bay will be monitored regularly by a suitably qualified ornithologist to ensure the effectiveness of the acoustic barriers.

Where works are occurring outside of the wintering bird sensitive season (April to September), monitoring is not required. Acoustic barriers should remain in place.

6.4.1.7.5 Disturbance to Bats

To minimise potential disturbance to local bats due to lighting during the construction phase, construction works will be carried out during normal daylight working hours as follows:

- Monday to Friday: 08:00 and 19:00; and,
- Saturdays: 08:00 to 14:00
- No Sunday work will generally be permitted.

Where nighttime lighting cannot be avoided due to health and safety concerns, the lighting within the Proposed Development will be designed and installed to minimise the impact on local wildlife and in accordance with the Bat Conservation Trust guidelines on artificial lighting and bats (ILP, 2023), as outlined in the Ecological Impact Assessment (EcIA) (Enviroguide, 2024):

- There will be no light spill to the boundary habitats.
- All luminaires used will lack UV/IR elements to reduce impact.
- LED luminaires will be used due to the fact that they are highly directional, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (<2700 Kelvins will be used to reduce the blue light component of the LED spectrum).
- Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Column heights should be carefully considered to minimise light spill. The shortest column height allowed should be used where possible.

- Only luminaires with an upward light ratio of 0% and with good optical control will be used.
- Luminaires will be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting will be set on motion-sensors and short (1min) timers.
- As a last resort, accessories such as baffles, hoods or louvres will be used to reduce light spill and direct it only to where it is needed.

6.4.1.8 Natura Impact Statement Biodiversity Enhancement Measures

6.4.1.8.1 Enhancement 1: Hedgerow Management

The planted hedgerows at the site and along the northern boundary, will be managed using a low-intervention approach i.e., in a way that maximises the ecological value they provide, with habitat connectivity maintained along the western, northern and eastern margins of the site; connecting it with the wider area.

This connectivity is vital for wildlife such as birds, bats, mammals and insect pollinators in a human landscape such as that which will be provided by the Proposed Development. Additionally, by managing hedgerows and woodland in a more natural way, they will provide more in terms of biodiversity; through increased plant diversity, increased provision of food resources and higher quality shelter to wildlife inhabiting and commuting through the area.

A low-intervention management approach may not be appropriate for internal ornamental hedgerows planted within the main residential area of the Proposed Development, due to aesthetics or logistics, however, it is suited to the external hedgerows present along the margins of the site.

The following measures will be adopted by the Management Company tasked with maintaining the site's landscaping into the future, as outlined in the EcIA (Enviroguide, 2024):

- The hedgerow areas located along the outer boundaries of the site will, as much as is practicable, be allowed to link up with each other. The provision of an almost continuous vegetative margin around the site; through planted native hedgerows and trees, will maintain habitat connectivity with the surrounding environment;
- Hedgerows will be maintained with a minimum **natural meadow strip of 1-2m** at their base wherever possible. Hedges with plenty of naturally occurring flowers and grasses at the base support will provide higher quality habitat for local wildlife using the hedges;
- The 1-2m strip at the base of the hedgerow will be cut on a reduced mowing regime to encourage wildflower growth and maximise the value of the hedgerow for pollinators. A **two-cut management approach** is ideal for suppressing coarse grasses and encouraging wildflowers. Cut the hedgerow basal strip **once during February and March** (this is before most verge plants flower and it will not disturb ground-nesting birds). Cut the verge **once again during September and October** (this slightly later cutting date allows plants that were cut earlier in the year time to grow and set seed).

N.B. Raising the cutter bar on the back cut will lower the risk to small mammals.

- Where hedgerow, scrub or woodland understorey trimming needs to occur, delay trimming as late as possible – until **January and February** as the surviving berry crop will provide valuable food for wildlife. The earlier this is cut; the less food will be available to help birds and other wildlife survive through the winter. Any hedgerow/scrub/woodland trimming will be done outside of the nesting season and due consideration of the Wildlife Act 1976 (as amended) must be taken;
- Where possible, cut these outer boundary hedgerows on a minimum **3-year cycle** (cutting annually stops the hedgerow flowering and fruiting), and cut in rotation rather than all at once - this will ensure some areas of hedgerow will always flower (Blackthorn in March, Hawthorn in May etc.); and
- Where they occur naturally, Bramble and Ivy should be allowed to grow in hedgerows as they provide key nectar and pollen sources in summer and autumn.

Methods to Avoid

Hedgerows and woodland understorey will not be over-managed. Tightly cut hedges and vegetation mean there are fewer flowers and berries, thus reducing available habitats, feeding sources and suitable nesting sites.

Hedgerows will not be cut between March 1st and August 31st inclusive. It is both prohibited (except under certain exemptions) and very damaging for birds as this is the period they will have vulnerable nests containing eggs and young birds.

DO NOT use pesticide/ herbicide sprays or fertilisers at all as they can have an extremely negative effect on the variety of plants and animals they support.

6.4.1.8.2 Enhancement 2: Pollinator Habitat

Pollinator/insect habitat, as depicted in Figure 6-1, will be created on site by:

- Creating an earth bank;
- Scraping back some bare earth;
- Leaving some areas to grow wild; and/or
- By drilling holes 10cm deep in unvarnished wood for solitary bees.

Figure 6-1: Examples of Solitary Bee Habitat, Extracted from How-to-Guide: Creating Wild Pollinator Nesting Habitat (NBDC, 2022)

Large bee or insect hotels will not be installed. Guidance from the All -Ireland Pollinator Plan states "*Don't install a large bee or insect hotel. Large bee hotels are attractive to humans, but not great for pollinators. They can encourage the spread of disease and attract predators. Avoid anything bigger than an average-sized bird box. There are many other ways to provide nesting habitats for pollinators, such as providing wild areas of undisturbed long grass, and scraping back some bare earth. If you want to make a bee hotel, make sure it is small, and position it away from bird feeders so the insects aren't easy targets*." A link to a "How-to-guide Creating wild pollinator nesting habitat" is provided for the development management company to put these habitats in place: https://pollinators.ie/wp-content/uploads/2022/12/Pollinator-Nesting-How-to-Guide-2022-WEB.pdf. An appointed ecologist will oversee the creation of these habitats.

6.4.1.8.3 Enhancement 3: Reptile Hibernacula

It is recommended to enhance the site for reptile use by providing suitable refuge and hibernacula to replace stone walls and boulder clusters removed from the site. It is recommended that two areas of hibernacula are provided at the site in the areas of open space.

Hibernacula for reptiles is relatively easy to create from rubble, wood and soil, all of which can likely be sourced from the site during works. Rubble and wood in various sizes should be piled either in a shallow depression in a disorganised way to create nooks and crevices. Larger tree trunks or rocks should be placed so that they will protrude through the final mound to provide open entrances to the mound. This pile should then be covered in soil to allow the inner crevices to maintain a stable temperature through the winter and allow for hibernation. The top can be planted with for example grass and native wildflowers. See Figure 6-2 for examples of finished hibernacula.

Figure 6-2: Examples of suitable amphibian and reptile hibernacula and refugia.

6.4.1.8.4 Enhancement 4: Hedgehog Highways

By fencing the boundaries of a site, the land becomes fragmented and largely inaccessible to species such as hedgehog, which like to roam each night in search of food (garden pests e.g., slugs). This can easily be fixed by ensuring that the boundaries and barriers within and surrounding the site are permeable for hedgehogs. This will allow hedgehogs to move freely between the site and adjacent sites.

This can be achieved by:

- Providing 13 x 13 cm holes at ground level at various locations along the external mesh fencing (hedgehog holes);
- Leaving a sufficient gap beneath gates; and
- Leaving brick spaces at the base of brick walls.

Examples of hedgehog 'highways' are provided below in Figure 6-3.

Figure 6-3: Examples of Hedgehog Highways that could be incorporated into the Proposed Development

The inclusion of hedgehog highways will be considered as part of the landscape design of the site, specifically the external mesh fencing proposed. A variety of fence suppliers stock specific hedgehog-friendly fencing options, which can be easily incorporated at little or no additional cost. The 13 x 13cm holes can also be cut into mesh fencing on site quite easily. These simple measures will provide habitat connectivity at the site for hedgehogs and reduce the impact of the land-use change on this species.

6.4.1.8.5 Enhancement 5: Swift Boxes

It is proposed to include a minimum of 16 swift bricks as part of the Proposed Development. The bricks should be located in groups, as swifts are a social nesting species. As per best practice, swift bricks will be installed at least 5 metres above the ground, in safe areas where they will not be disturbed, with a clear unobstructed run up to the boxes/bricks. As the bricks tend not to overheat, they can be placed facing in any direction. Care will be taken to ensure no obstacles or plate glass windows are located below the bricks.

Guidelines for the bird box scheme follow the guidelines published by Swift Conservation Ireland, and those published by Birdwatch Ireland entitled "Saving Swifts" (2009/2010). The incorporation of Swift Bricks will help recover the declining swift population, which are now Red Listed in Ireland (Gilbert et al., 2021).

Swifts are a "clean" bird species which remove their own wastes from their nests periodically. As such, Swift bricks do not require any cleaning by the management company.

It is advised to install a **Swift calling system** to attract Swifts and encourage them to take up residence at a new site. A Swift calling system is a small speaker set-up that plays Swift calls during the summer. It should be located close to the brick entrances and has been seen to

greatly increase the chances of Swifts using the Swift boxes/bricks. Solar powered options are possible and advised.

An Ecologist will be instructed to set up the swift calling system once the construction of the Proposed Development is complete.

6.4.1.8.6 Enhancement 6: Bat Boxes

A minimum of four summer bat boxes (e.g., Woodcrete 1FF Schwegler design) will be erected on suitably sized trees on the eastern boundary of the Site, the placement of which will be determined by a bat ecologist. The boxes will be installed as part of the landscaping works, so as to not delay their deployment and potential positive impacts.

Bat boxes will be sited carefully, and this will be undertaken by a bat specialist. The bat ecologist will erect the bat boxes with assistance from the contractor. Some general points that will be followed include:

- Bat boxes will be erected on trees (or telegraph poles) with no crowding branches or other obstructions for at least 1 metre above and below the bat box.
- Diameter of tree should be wide and strong enough to hold the required number of boxes.
- Locate bat boxes in areas where bats are known to forage or adjacent to suitable foraging areas. Locations will be sheltered from prevailing winds.
- Bat boxes will be erected at a height of 4-5 metres to reduce the potential for vandalism and predation of roosting bats.
- The recommended Woodcrete 1FF design is open at the bottom, allowing the droppings to fall out, and so does not need cleaning.

6.4.1.9 Natura Impact Statement Proposed Monitoring Measures

Table 6-2 provides a summary of the required monitoring and pre-works inspections during the construction phase. The monitoring, inspections and surveys will ensure that the identified mitigation measures are implemented and maintained efficiently and have the desired effect of protecting the local ecology from adverse impacts.

Table 6-2: Monitoring and Pre-Works Inspections for the Identified Mitigation Measures During the Construction Phase of the Proposed Development. To be Carried out by a Suitably Qualified Ecologist or Ecological Clerk of Works (Highlighted in Green) or by the Development Contractor (no Highlight) (Ecological Impact Assessment, Enviroguide, 2024).

Measure	Monitoring
CONSTRUCTION PHASE	
Mitigation 1: Root Protection Zones	Ongoing monitoring by Contractor.
Mitigation 2: Removal of Butterfly Bush	No monitoring required.
Mitigation 3: Biosecurity	Ongoing monitoring by Contractor.
Mitigation 4: Vegetation Clearance	Any Site vegetation clearance within the scrub, hedgerows or grassland habitats subject to supervision by an Ecologist and a phased approach.

Mitigation 5: Waste Management	Ongoing monitoring by Contractor.
Mitigation 6: Disturbance to Wintering Waterbirds	Noise levels reaching the bay to be monitored during October-March by the Contractor to ensure acoustic barriers are fit for purpose. Regular monitoring of the bay during this timeframe to be done by Ornithologist. No monitoring is required outside of October-March.
Mitigation 7: Disturbance to Bats	No monitoring required.
Mitigation 8: Disturbance to Otter	Pre-construction survey of the shoreline for breeding holts to be undertaken by an ecologist prior to the commencement of works.
Enhancement 2: Pollinator Habitat	Installation by certified Landscape Architect. Ongoing monitoring by Contractor.
Enhancement 3: Reptile Hibernacula	The placement and construction of these structures should be carried out under supervision of an Ecologist to ensure they are fit for purpose.
Enhancement 4: Hedgehog Highways	No monitoring required.
Enhancement 5: Swift Boxes	The placement of swift boxes and setup of swift-calling system should be carried out under supervision of an Ecologist to ensure they are fit for purpose.
Enhancement 6: Bat Boxes	The placement of bat boxes should be carried out under supervision of an Ecologist to ensure they are fit for purpose.

6.4.2 Land, Soil and Geology

6.4.2.1 Control of Excavated Soil and Contaminated Soil

Any surplus subsoil and rock required to be removed from site should be deposited in approved fill areas or to an approved waste disposal facility. Surplus subsoil should be stockpiled in dedicated areas on site.

In the case of topsoil, careful planning and on-site storage can ensure that this resource is reused on-site as much as possible.

Records of topsoil storage, movements and transfer from site should be maintained by a designated person.

Measures should be implemented throughout the construction phase to prevent contamination of the soil and adjacent watercourses from oil and petrol leakages. Suitable bunded areas will be installed for oil and petrol storage tanks. Designated fuel filling points will be put in place with appropriate oil and petrol interceptors to provide protection from accidental spills. Refuelling will be restricted to these allocated re-fuelling areas.

Silt traps, silt fences and tailing ponds may need to be installed where necessary to prevent silts and soils being washed away by heavy rains during the course of the construction phase. Surface water runoff and water pumped from the excavation works will be discharged via a silt trap / settlement pond to the existing foul drainage network. Straw bales will be used at the outfall to filter surface water to remove contaminants.

Any contaminated soils that are encountered during the works will be excavated and disposed of off-site in accordance with the Waste Management Acts, 1996- 2021, and

associated regulations and guidance provided in Guidelines for the Management of Waste from National Road Construction Projects published by the National Roads Authority in 2008.

6.4.3 Hydrology and Hydrogeology

6.4.3.1 Control of Fuel and Chemical Storage

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

The following appropriate storage facilities should be provided on site:

- Fuel and chemical storage;
- Refuelling area;
- Site compound; and
- Waste storage areas.

Fuel, oils and chemicals will be stored on an impervious base within a bund remote from any surface water drains or water courses.

All tank, container and drum storage areas will be rendered impervious to the materials stored therein. All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the volume contents.

Refuelling of plant during the construction phase will be carried out in accordance with standard good practice. Refuelling will only be carried out at the designated, impermeable refuelling station location onsite with appropriate containment in place. This station will be fully equipped for spill response.

Where possible any oil and lubricant changes and maintenance will take place offsite. Only emergency breakdown maintenance will be carried out on site. 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 on site outlining the spillage response procedures and a contingency plan to contain silt during an incident.

Provided that these requirements are adhered to, and site crew are trained in the appropriate refuelling techniques, it is not expected that there will be any fuel/oil wastage at the site.

6.4.3.2 Control of Emissions to Surface Water and Drainage

Construction works carried out will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990.

Personnel working on the site 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:

- CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors;
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005;

- BPGCS005, Oil Storage Guidelines;
- CIRIA 697, The SUDS Manual, 2007;
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004;
- Construction Industry Research and Information Association CIRIA C648: Control of water pollution from linear construction projects: Technical guidance (Murnane et al. 2006);
- CIRIA C648: Control of water pollution from linear construction projects: Site guide (Murnane et al. 2006); and
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

Silt traps, and silt fences will be provided by the contractor where necessary to prevent silts and soils being washed away by heavy rains during the course of the construction phase. Surface water runoff and water pumped from the excavation works will be discharged via a silt trap / settlement pond to the existing foul drainage network.

In addition, the following general measures will be undertaken:

- Where required, designated impermeable cement washout areas will be provided;
- Run-off from the working site or any areas of exposed soil will be channeled and intercepted at regular intervals for discharge to silt-traps or lagoons with over-flows directed to land rather than to a drain;
- Silty water generated on site will be treated using silt traps/settlement ponds and temporary interceptors and traps will be installed until such time as permanent facilities are constructed;
- Storm drain inlets which could receive stormwater from the project will be protected throughout the construction phase;
- A regular review of weather forecasts of 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 will, as much as possible, be placed on site in their proposed location and double handling will be avoided. Where this is not possible designated temporary material storage areas will be used;
- These temporary storage areas will be surrounded with silt fencing to filter out any suspended solids from surface water arising from these materials;
- All containment and treatment facilities will be regularly inspected and maintained;
- All personnel working on site will be trained in pollution incident control response; and
- If portaloos and/ or containerised toilets and welfare units will be used to provide

facilities for site personnel, all associated waste will be removed from site by a licensed waste disposal contractor.

Under no circumstances will any untreated wastewater generated onsite (eg from equipment washing, road sweeping) be released into nearby drains.

6.4.3.3 Control of Emissions to Soil and Groundwater

The following measures should be put in place:

- No direct untreated point discharge of construction runoff to groundwater will be permitted;
- Where a pollution incident is detected, construction works will be stopped until the source of the construction pollution has been identified and remedied;
- Groundwater may be encountered during the construction works. Where water must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA – C750) and regulatory consents; and
- Any excavated and potentially contaminated stockpiled soils will be constructed/ located/ sheeted in a manner that ensures water is contained within the site boundary.

6.4.3.4 Foul Water Drainage

In order to reduce the risk of defective or leaking foul sewers, the following remedial measures will be implemented:

- All new foul sewers will be tested by means of an approved air test during the construction phase in accordance with Irish Waters Code of Practice and Standard Details;
- All private drainage will be inspected and signed off by the Design Engineer in accordance with the Building Regulations Part H and BCAR requirements.
- Foul sewers will be surveyed by CCTV to identify possible physical defects;
- The connection of the new foul sewers to the public sewer will be carried out under the supervision of Irish Water and will be checked prior to commissioning; and
- Prior to commencement of excavations in public areas, all utilities and public services will be identified and checked, to ensure that adequate protection measures are implemented during the construction phase.

6.4.4 Dust

The objective of dust control at the site is to ensure that no significant nuisance occurs from the Proposed Development. The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design and effective control strategies. The dust minimisation measures shall be reviewed at regular intervals during the construction phase 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.

6.4.4.1 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;
- Record 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
- Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are coordinated 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.

6.4.4.2 Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from offsite receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; and
- Cover stockpiles to prevent wind whipping.

6.4.4.3 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;
- Use enclosed chutes and conveyors and covered skips;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever 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.

6.4.4.4 Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Use Hessian or mulches 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.

6.4.4.5 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.

6.4.4.6 Measures Specific to Trackout

Site roads (particularly unpaved) can be a significant source of fugitive dust from construction sites if control measures are not in place.

- A speed restriction of 15 km/hr will be applied as an effective control measure for dust for on-site vehicles;
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Record all inspections of haul routes and any subsequent action in a site logbook; and
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.

6.4.5 Noise and Vibration

In order to control likely noise impacts caused by the construction activities, construction operations and all comply with Safety, Health and Welfare at work (construction) Regulations 2006 to 2013, Safety Health and Welfare at Work Act 2005, BS 5228:2009: A1:2014 *Parts 1*

& 2 - Code of Practice for noise and vibration control on construction and open sites, Environmental Protection Agency Act 1992 Sections 106-108, and all Galway County Council specific requirements for this specific site.

6.4.5.1 Noise

Enfonic were commissioned to conduct a noise impact assessment for the Proposed Development. To set appropriate construction noise limits for the development site, reference has been made to *BS 5228-1: A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*. This provides basic information on the prediction and measurement of noise from construction sites and operations such as mines and quarries. It also includes a large database of source noise levels for commonly used equipment and activities on construction sites.

The standard provides guidance on the 'threshold of significant effect' in respect of noise impact at dwellings. One suggested method for determining threshold noise levels is known as the 'ABC method'. This involves measuring existing ambient noise levels at noise sensitive locations and categorising them A, B or C accordingly, with the relevant threshold level derived from the category as set out in Table 6-2.

Table 6-3: BS5228 Noise Threshold Categories

Assessment category and threshold value period (L_{Aeq})	**Threshold Value, in Decibels (dB)**		
	Category A(A)	**Category B(B)**	**Category C(C)**
Night-time (23:00-07:00)	45	50	55
Evenings and weekends(D)	55	60	65
Daytime (07:00-19:00) and Saturdays (07:00-13:00)	65	70	75
NOTE 1 A significant effect has been deemed to occur if the total LAeq noise level, including construction, exceeds the threshold level for the Category appropriate to the ambient noise level. NOTE 2 If the ambient noise level exceeds the threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a significant effect is deemed to occur if the total LAeq noise level for the period increases by more than 3 dB due to construction activity. NOTE 3 Applied to residential receptors only.			
(A)	Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.		
(B)	Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.		
(C)	Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.		
(D)	Category D: 19.00–23.00 weekdays, 13.00–23.00 Saturdays and 07.00–23.00 Sundays.		

Following a review of the baseline noise survey results and the criteria detailed in Table 6-2, Enfonic have recommended the noise limits in Table 6-3 as the appropriate noise limits at noise sensitive locations for construction noise.

Table 6-4: Appropriate Construction Noise Limits (Noise Impact Assessment - Enfonic, 2024)

Ambient Noise Level Rounded to Nearest 5dB L_{Aeq}	**BS 5228-1 Category**	**Construction Noise Threshold Value (L_{Aeq})**
65dB	B	70dB

A programme of monitoring will be put in place to monitor site activity and noise levels generated to ensure impacts to nearby residential noise sensitive locations are not significant.

6.4.5.2 Vibration

BS 5228-1: A1:2014 Code of practice for noise and vibration control on construction and open sites – Vibration recommends that, for soundly constructed residential property and similar structures that are generally in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak component particle velocity (in frequency range of predominant pulse) of 15mm/s at 4Hz increasing to 20mm/s at 15Hz and 50mm/s at 40Hz and above.

The standard also notes that below 12.5 mm/s PPV the risk of damage tends to zero. The recommended construction vibration criteria are presented in Table 6-4.

Table 6-5: Vibration Criteria During Construction Phase

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

6.4.5.2.1 Noise and Vibration Monitoring

It is recommended that continuous construction noise and vibration monitoring be provided, to be maintained on an ongoing basis by the contractor for the duration of the project.

noise monitoring equipment shall meet the following minimum specification (or similar approved):

- Logging of hourly noise (L_{Aeq} and L_{AFMax}) and vibration (PPV) samples;
- E-mail alert on threshold exceedance;
- E-mail alert on low battery and low memory; and
- Remote access to measured data.

Data shall be reported on a monthly basis.

6.4.5.2.2 Introducing New Sources onto the Site

It is required that the contractor considers potential noise emissions and associated impacts prior to selecting a new plant item to be used on the site.

Where practicable, preference should always be given to the unit with the lowest noise output. This may necessitate the use of manufacturers' proprietary acoustic enclosures or other forms of noise control.

If there are any concerns in relation to the level of noise emissions from an item of plant already on the site, or if there is doubt over the output from an item that has recently been introduced, this should be investigated by way of in-situ noise level measurements.

6.4.5.2.3 Noise Control Audits

It is required that the contractor conduct regular noise control audits throughout the construction programme. The purpose of the audits will be to ensure that all appropriate sets

are being taken to control construction noise emission. To this end, consideration will be given to issues such as the following:

- Hours of operation being correctly observed;
- Opportunities for noise control “at source”:
- Optimum siting of plant items;
- Plant items being left to run unnecessarily;
- Correct use of proprietary noise control measures;
- Materials handling;
- Poor maintenance; and
- Correct use of screening provided and opportunities for provision of additional screening.

The outcome of noise control audits shall be reported on a monthly basis.

6.4.5.2.4 Best Practice Guidelines for the Control of Construction Noise and Vibration

BS 5228 (2009 +A1 2014) *Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2*, provides guidance on construction site noise mitigation, including the following:

- Liaison with neighbours;
- Noise monitoring;
- Selection of quiet plant;
- Control of noise sources; and
- Screening.

Noise control measures that will be considered include the selection of suitable plant, enclosures and screens around noise sources, limiting the hours of work and ongoing maintenance.

Liaison with the Public

The contractor shall be proactive in engaging with neighbours and notify occupants of the closest noise sensitive locations before the commencement of any works forecast to generate appreciable levels of noise, explaining the nature and duration of the works.

A designated noise liaison should be appointed by the contractor for the duration of the construction works. This person should log any complaints and follow up in a prompt fashion.

Noise and Vibration Monitoring

Noise and vibration monitoring should be conducted throughout the construction period. The monitoring programme should be complemented by regular environmental audits.

Hours of Work

The proposed hours for site operation are Monday to Friday 08:00 to 19:00 and Saturdays 08:00 to 14:00.

Selection of Quiet Plant

Consideration must be given to the noise emission levels of plant items when they are being considered for use on the site.

Control of Noise Source

If the use of low noise plant or replacing a noisy item of plant are not viable or practicable options, consideration shall be given to noise control "at source".

This refers to the modification of an item of plant or the application of improved sound reduction methods, in consultation with the supplier.

BS5228 states that "as far as reasonably practicable sources of significant noise should be enclosed". In applying this guidance, constraints such as mobility, ventilation, access and safety must be taken into account. Items suitable for enclosure include pumps and generators.

Demountable enclosures that could be moved around site as necessary may also be used to screen operatives using hand tools, such as Angle Grinders.

Proposed techniques should also be evaluated with regard to their potential effect on occupational health and safety.

BS5228 makes a number of recommendations in relation to "use and siting of equipment". These recommendations should be fully implemented on the site.

> "*Plant should always be used in accordance with manufacturers' instructions. Care should be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading should also be carried out away from such areas.*
>
> *Machines such as cranes that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. Machines should not be left running unnecessarily, as this can be noisy and waste energy.*
>
> *Plant known to emit noise strongly in one direction should, when possible, be orientated so that the noise is directed away from noise-sensitive areas. Attendant operators of the plant can also benefit from this acoustical phenomenon by sheltering, when possible, in the area with reduced noise levels.*
>
> *Acoustic covers to engines should be kept closed when the engines are in use and idling. The use of compressors that have effective acoustic enclosures and are designed to operate when their access panels are closed is recommended.*
>
> *Materials should be lowered whenever practicable and should not be dropped. The surfaces on to which the materials are being moved could be covered by resilient material*."

All items of plant should be subject to regular maintenance to prevent unnecessary increase in plant noise.

Screening

The use of screens can be effective in reducing noise to a receiver. The effectiveness of an acoustic screen will depend on the height and length of the screen and its position relative to both the source and receiver. To be effective, the height and length of any screen should be such that there is no direct line of sight between the source and the receiver.

BS5228 advises screens should be placed as close as possible to either the source or the receiver. The construction of the screen should be such that there are no gaps or openings at joints in the screen material. In most practical situations the effectiveness of the screen is

limited by the sound transmission over the barrier rather than the transmission through the barrier itself. Screens constructed of materials with a mass greater than 10kg/m^2 typically offer an adequate sound insulation performance.

6.4.6 Archaeology and Cultural heritage

An Archaeological Assessment has been carried out by John Conin and Associates (2024). The Proposed Development has been archaeologically assessed through desk-based research and evaluation, archaeological inspection and geophysical survey. A small number of anomalies of potential archaeological interest have been identified, however, none have been seemed as definitively archaeological in nature. To elucidate the archaeological potential of the geophysical anomalies and the overall greenfield site, it is recommended that a programme of archaeological testing be undertaken prior to the commencement of development works. At a minimum the proposed archaeological testing programme should target the geophysical anomalies of archaeological potential identified in the recent programme of archaeological geophysical survey. Should archaeological deposits be identified during archaeological testing, additional archaeological works, including archaeological excavation and recording will be undertaken prior to site construction to preserve these deposits by record.

Therefore, it is recommended that, in the event of Galway County Council granting planning permission for the proposed development, a condition of planning permission should require that a programme of archaeological testing be undertaken prior to commencement of site development works.

It should be noted that these recommendations are subject to the approval of the National Monuments Service and the Planning Authority (John Cronin and Associates, 2024).

6.4.7 Material Assets: Waste, Utilities and Traffic

6.4.7.1 Control of Traffic

A Construction Traffic Management Plan (CTMP) will be prepared by the Main Contractor, which will outline proposals in relation to construction traffic and associated construction activities that impact the surrounding roads network. The document will be prepared in coordination and agreed with Galway County Council.

Care will be taken to ensure existing pedestrian and cycling routes are suitably maintained or appropriately diverted as necessary during the construction period, and temporary car parking is provided for contractor's vehicles. It is likely that construction will have an imperceptible impact on pedestrian and cycle infrastructure.

Through the implementation of the CEMP and CTMP, it is anticipated that the effect of traffic during the construction phase will have a slight effect on the surrounding road network for a short-term period.

6.4.7.1.1 Monitoring

During the construction phase the following monitoring is advised:

- Construction vehicles routes and parking
- Internal and external road conditions

- Construction activities hours of work

The specific compliance exercises to be undertaken in relation to the range of measures detailed in the final construction management plan will be agreed with the planning authority.

6.4.7.2 Control of Waste and Waste Management

A member of the construction team will be appointed as Construction Waste Manager to ensure commitment, operational efficiency, and accountability during the construction phase of the Proposed Development. The Construction Waste Manager will be trained in how to set up and maintain a record keeping system, how to perform an audit, and how to establish targets for the waste management on site. They will be also trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused on site, and know how to implement the waste section of the CEMP.

Training of the site crew in effective waste management is the responsibility of the Construction Waste Manager. A waste training program will be organised at the commencement of the Proposed Development. A basic awareness briefing will be held for all site crew to outline the CEMP and to detail the segregation of waste materials at source. This may be incorporated into the induction course or the safety-training course. This basic course will describe the materials to be segregated, the storage methods and the location of the waste storage areas. Asubsection on hazardous wastes will be incorporated and the particular dangers of each hazardous waste will be explained.

6.4.7.2.1 Construction Waste Manager Training and Responsibilities.

The nominated Construction Waste Manager will be assigned responsibility and authority to select 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 on site.

The Construction Waste Manager will have overall responsibility to oversee, record, and provide feedback to the client on everyday waste management at the site. Authority will be given to the Construction Waste Manager to delegate responsibility to sub-contractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and salvage.

The Construction Waste Manager will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for waste management on site.

6.4.7.2.2 Proposed Waste Management Options

Waste materials generated will be segregated on site where it is practical. Where the on-site segregation of certain waste types is not practical, off-site segregation will be carried out by the appointed waste management contractor. Skips and other receptacles will be provided to facilitate segregation at source.

The appointed waste contractor will collect the wastes as receptacles are filled. All waste contractors will be licensed under the *Waste Management Acts 1996 - 2008,* the *Waste Management (Collection Permit) Regulations 2007*(*as amended*). All waste arisings requiring

disposal off-site will be transferred to waste facilities which are licensed under the *Waste Management (Facility Permit and Registration) Regulations 2007 (as amended)*.

It will be the responsibility of the Waste Manager to ensure that every Waste Contractor maintains a valid Waste Collection Permit for the duration of the contract and that the waste types being collected from the site are permitted by the permit and all destination sites are also permitted by the permit.

Typical non-hazardous and hazardous waste streams generated by construction and demolition at typical sites are in Table 6-5 along with their accompanying European Waste Code (EWC) Classification.

Table 6-6: Construction and Demolition Waste Materials Categorisation

Category	Description	Code
Non-Hazardous	Metals	17 04
	Wood, glass, plastic	17 02
	Soil, stones, dredged soils	17 05
	Gypsum based materials	17 08
	Cardboard	15 01 01
	Glass	17 02 02
	Bituminous mixtures, coal tar, tar products	17 03
	Concrete, bricks, tiles, ceramics	17 01
Hazardous	Electrical and Electronic Components	16 02
	Liquid Fuels	13 07
	Wood Preservatives	03 02
	Batteries	16 06
	Soil and stones containing dangerous substances	17 05 03
	Waste construction material containing asbestos	17 06 05
	Other construction and demolition wastes containing dangerous substances	17 09 03

The classification of materials as non-hazardous and/or hazardous will be based on the www.hazwasteonine.com web based system as well as classification using Waste Acceptance Criteria in accordance with the European Communities (EC) Council Decision 2003/33/EC, which establishes criteria for the acceptance of waste at landfills.

The management of the main waste streams are detailed as follows:

6.4.7.2.2.1 Soil/Subsoil

Soil will be excavated to facilitate construction of foundations, access roads, the installation of site services and general landscaping. Where possible, excavated topsoil will be reused on site for landscaping. It is anticipated that any additional soil will be removed from the site for reuse, recovery and/or disposal as there are limited suitable onsite re-use options. Records of topsoil and soil storage, movements and transfer from site will be kept by the Waste Manager.

The Waste Management Hierarchy states that the most preferred option for waste management is prevention and minimisation of waste, followed by reuse and recycling/recovery, energy recovery (i.e., incineration) and, least favoured of all, disposal. The

excavations are required to facilitate construction so the preferred option (prevention and minimisation) cannot be accommodated for the bulk excavation phase.

The next option (beneficial reuse) may be possible for some and potentially all of the inert natural material (Category A1). This material could be used as fill material in other construction projects or engineering fill for waste licensed sites. Beneficial reuse of surplus excavation material as engineering fill may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end-use (e.g., in respect of sulphate content, pyrites etc.).

Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site as a by-product (and not as a waste), this will be done in accordance with Article 27 of the *European Communities (Waste Directive) Regulations 2011*. Article 27 requires that certain conditions are met and that by-product decisions are made to the EPA, via their online notification form.

If the material is deemed to be a waste, removal and reuse/recycling/ recovery/disposal of the material will be carried out in accordance with the *Waste Management Acts 1996 - 2008*, the *Waste Management (Collection Permit) Regulations 2007* (*as amended)* the *Waste Management (Facility Permit and Registration) Regulations 2007 (as amended)*. The volume of waste removed will dictate whether a Certificate of Registration (COR), Waste Facility Permit or Waste Licence is required by the receiving facility.

Similarly, if any soils/stones are imported onto the site from another construction site as a by-product, this will also be done in accordance with Article 27.

Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered. The option of disposal of inert natural material to landfill will only be considered once all available reuse options have been explored and where void capacity cannot be secured at appropriately permitted/licensed facilities for recycling or recovery purposes.

Any soil/subsoil that is deemed to be contaminated will be stored separately to the clean and inert soil/subsoil. The material will be appropriately tested and classified as either non-hazardous or hazardous in accordance with the EPA publication '*Waste Classification: List of Waste and Determining if Waste is Hazardous or Non-Hazardous' using the HazWasteOnline application* (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC.*

6.4.7.2.2.2 Concrete, Bricks, Tiles and Ceramics

Any concrete, bricks, tiles and ceramics waste generated as part of the construction works is expected to be clean, inert material and will be recycled, where possible.

6.4.7.2.2.3 Hard Plastic

Hard plastic is a highly recyclable material and the majority of the plastic generated will be from new material off-cuts. All recyclable plastic will be segregated, where suitable, to improve its recovery quality.

6.4.7.2.2.4 Timber

Timber that is uncontaminated, i.e., free from paints, preservatives, glues etc., will be segregated and stored in skips for timber recycling.

6.4.7.2.2.5 Metal

Metals will be segregated into mixed ferrous, cladding, aluminium, high grade stainless steel, low grade stainless steel etc., where practical. Metal is highly recyclable and there are numerous companies that will accept these materials. Metals will be segregated and stored in skips.

6.4.7.2.2.6 Plasterboard

There are currently a number of recycling services for plasterboard (gypsum) in Ireland. Plasterboard from the construction phase will be stored in a separate skip, pending collection for recycling. The site manager and project engineers will ensure that supply of new plasterboard is carefully monitored to minimise waste.

6.4.7.2.2.7 Glass

Glass materials will be segregated for recycling, where possible.

6.4.7.2.2.8 Organic (Food) Waste

Where a site canteen is provided in which food is prepared for the workers, organic waste will be segregated for separate collection. Segregation at source and separate collection of organic waste is required in accordance with the *Waste Management (Food Waste) Regulations 2009* (if food is prepared on the site).

6.4.7.2.2.9 Waste Electrical and Electronic Equipment (WEEE)

Waste Electrical and Electronic Equipment (WEEE) (containing hazardous components), printer toner/cartridges, batteries (Lead, Ni-Cd or Mercury) and/or fluorescent tubes and other mercury containing waste may be generated from temporary site offices. These wastes (if encountered) will be stored in appropriate receptacles in designated areas of the site pending collection by an authorised waste contractor.

6.4.7.2.2.10 Other Recyclables

Where any other recyclable wastes such as cardboard, soft plastic are generated in sufficient quantities, these will be segregated into dedicated skips or other receptacles.

6.4.7.2.2.11 Non-Recyclable Waste

Construction and Demolition (C&D) waste which is not suitable for reuse or recovery will be placed in separate skips or other receptacles. This will include polystyrene, some cardboard, and plastic which are deemed unsuitable for recycling (e.g., if contaminated). Prior to removal from site, the non-recyclable waste skip/receptacle will be examined by a member of the waste team to determine if any recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle and a procedure put in place to avoid a repetition.

6.4.7.2.2.12 Hazardous Wastes

On-site storage of any hazardous wastes produced (i.e., contaminated soil, if encountered and/or waste fuels) will be kept to a minimum, with removal off-site organised on a regular basis. Storage of all hazardous wastes on site will be undertaken so as to minimise exposure to on-site personnel and the public and to also minimise potential for environmental impacts. Hazardous wastes will be recovered wherever possible and, failing this, disposed of appropriately. It will be noted that all liquid wastes are to be stored in bunds.

6.4.7.2.2.13 Asbestos

It is not anticipated that any asbestos will be present on site, however, if discovered, the removal of asbestos will be carried out by a suitably qualified contractor in accordance with S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010. All material will be taken to a suitably licensed or permitted facility.

6.4.7.2.3 Record Keeping

Records will be kept for all waste material which leaves the site, either for reuse on another site, recycling or disposal. A recording system will be put in place to record the construction waste arisings on site.

A copy of the Waste Collection Permits, Certificates of Registration, Waste Facility Permits and IED or Waste Licences will be maintained on site at all times.

The Construction Waste Manager or designate will record the following:

- Waste removed for reuse off-site;
- Waste removed for recycling;
- Waste removed for disposal;
- Recovered waste materials brought on-site for reuse; and
- By-product material brought onto site.

For each movement of waste on or off-site, a signed docket will be obtained by the Construction Waste Manager from the contractor, detailing the weight and type of the material and the source and destination of the material.

This will be carried out for each material type. This system will also be linked with the delivery records. In this way, the percentage of C&D waste generated for each material can be determined.

The system will allow the comparison of these figures with the targets established for the recovery, reuse and recycling of C&D waste and to highlight the successes or failures against these targets.

6.4.7.2.4 Review of Records and Identification of Corrective Actions

A review of all the records for the waste generated and transported on or off-site will be undertaken mid-way through the project. If waste movements are not accounted for, the reasons for this will be established in order to see if and why the record keeping system has not been maintained.

The waste records will be compared with the established recovery/reuse/recycling targets for the site.

Each material type will be examined, in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved.

6.4.7.2.5 Responsibility for Waste Audit

The appointed Construction Waste Manager will be responsible for conducting waste audits at the site during the C&D phase of the development.

6.4.7.2.6 Financial Issues of Waste

An outline of the costs associated with different aspects of waste management will be recorded and measured for the Proposed Development, and will consider handling costs, storage costs, transportation costs, revenue from rebates and disposal costs.

6.4.7.2.6.1 Reuse/Recovery

By reusing materials on site, there will be a reduction in the transport and disposal costs associated with the requirement for a waste contractor to take the material away to landfill. Clean and inert soils, gravel, stones which cannot be reused on site may be used as capping material for landfill sites, or for the reinstatement of quarries etc.

6.4.7.2.6.2 Recycling

Salvageable metals will earn a rebate which can be offset against the cost of collection and transportation of the skips. Clean uncontaminated cardboard and certain hard plastics can be recycled. Waste contractors will charge considerably less to take segregated wastes such as recyclable waste from a site than mixed waste. Timber can be recycled as chipboard.

7 SITE TIDINESS AND HOUSEKEEPING

Further to the measures described in the previous sections, the following measures will be implemented to maintain site tidiness.

- Construction works will be carried out according to a defined schedule agreed with CMT. Any delays or extensions required will be notified at the earliest opportunity to CMT;
- Contractors will ensure that road edges and footpaths are swept on a regular basis; and
- All contractors will be responsible for the clearance of their plant, equipment, and any temporary buildings upon completion of construction.

The site will be left in a safe condition and site security will be managed in accordance with the details specified in the Resource Waste Management Plan and the control measures outlined in Section 6.4 of this CEMP.

8 EMERGENCY PLANNING AND RESPONSE

The purpose of the CEMP is to address the potential emissions from the site, and implementing any necessary mitigation measures 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.

8.1 Environmental Emergency Preparedness and Response

The control measures identified in this CEMP, once correctly implemented, will reduce the likelihood of the occurrence of an environmental incident (emergency).

A procedure for Environmental Emergency Preparedness and Response will be developed prior to the commencement of the construction phase and will be implemented by the CMT.

The Environmental Emergency Preparedness and Response Procedure will ensure that all countermeasures 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.

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

Once an environmental incident has been responded to, the processes identified in the incident investigation, and the non-conformity, corrective, and preventative action procedures will be adhered to with all details pertaining to the incident recorded in the site environmental register.

As an example of emergency response actions required, in the event of a spillage, the following procedure shall 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.
7. Notify the Environmental Officer so that used absorbent material can be disposed of using a licensed waste contractor.
8. An accident investigation should be performed in accordance with procedures and the report sent to the Environmental Officer.

In the event of spillages or other incidents, steps will be taken to prevent environmental pollution. For example, through the protection of drains by use of drain covers or booms, use of absorbent granules following an oil / chemical spill, and turning off equipment or other sources of noise or dust.

Once the situation has been rectified, full details about the incident and remedial actions undertaken will be provided to the local authority and all other relevant authorities and recorded in the site environmental register.

9 ENVIRONMENTAL REGULATORY REQUIREMENTS

This site 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 legal register will be available through the construction manager's office on site.

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

- General environmental legislation;
- Flora and Fauna;
- Emissions to air;
- Emissions to water and groundwater;
- Waste Management; and
- Noise and vibration.

For each piece of legislation, the following information is provided:

- Index number;
- Title of legislation;
- Summary of legislation; and
- Relevance.

All legislation included in the Register can be readily accessed on http://www.irishstatutebook.ie or will be available through the construction manager's office.

The Register of Legislation will be reviewed and updated on a minimum six-monthly basis. This is a controlled document and as such will comply with all the requirements of the Contractor document control procedures.

10 REFERENCES

Archaeological Assessment, John Cronin and Associates, 2024.

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), 2005. Environmental Good Practice on Site (C650).

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).

Ecological Impact Assessment, Enviroguide Consulting, 2024.

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

Environmental Protection Agency (2004) IPC Guidance Note - Guidance Note on Storage and Transfer of Materials for Scheduled Activities.

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

Gilbert G, Stanbury A and Lewis L (2021) Birds of Conservation Concern in Ireland 2020 –2026. Irish Birds 9: 523—544.

Health and Safety Authority (2016) Code of Practice for Avoiding Danger from Underground Services
https://www.hsa.ie/eng/publications_and_forms/publications/construction/cop_avoiding_danger_from_underground_services_.pdf

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

Natura Impact Statement, Enviroguide Consulting, 2024

Noise Impact Assessment, Enfonic, April 2024.

Transport Infrastructure Ireland, 2020, The Management of Invasive Alien Plant Species on National Roads – Standard. GE-ENV-01104.

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