Planning and Environmental Consultants

Construction and Environmental Management Plan

Proposed Amenity Area Upgrade at Long Point, Loughrea, Co. Galway

DOCUMENT DETAILS

Client:	**Galway County Council**
Project Title:	**Proposed Amenity Area Upgrade at Long Point, Loughrea, Co. Galway**
Project Number:	**220727-a**
Document Title:	**Construction and Environmental Management Plan**
Document File Name:	**Long Point CEMP F1 - 2025.07.11 - 220727-a**
Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

Planning and Environmental Consultants

Rev	Status	Date	Author(s)	Approved By
01	D1	30/08/2024	EC	TM
02	D2	11/09/2024	EC	EOS
03	F	24/09/2024	EC	TM
04	F1	11/07/2025	EC	TM

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1. INTRODUCTION

This Construction & Environmental Management Plan (CEMP) has been prepared by MKO on behalf of Galway County Council (GCC) for the construction of an outdoor amenity area at Long Point, Loughrea, Co. Galway. The Proposed Development will include repair works, provision of new changing rooms, bathrooms and lifeguard station building and upgrades to the existing car park.

Furthermore, this CEMP has been updated in order to address a Request for Further Information (RFI) (Case Number ABP-320946-24) which was issued by An Coimisiún Pleanála (formerly An Bord Pleanalá) on the 20th November 2024.

The CEMP provides the environmental management framework to be adhered to during the pre-commencement and construction phases of the proposed works and it incorporates the mitigating principles to ensure that the work is carried out in a way that minimises the potential for any environmental impacts to occur. The CEMP has been informed by and takes account of the accompanying documents and drawings which have been prepared for the Proposed Development.

All measures identified in this CEMP, which will be finalised subsequent to any permission granted and updated prior to construction will include all mitigation measures identified to be adhered to during the pre-commencement and construction phases of the proposed works.

The CEMP to be prepared by the appointed contractor will be a single, amalgamated document that can be used during the construction phase of the project, as a single consolidated point of reference relating to all construction, environmental and drainage requirements for the developer, and contractors alike. The CEMP may evolve over further iterations as the construction works progress, but at all times must meet or exceed the standards and requirements set out in this document. It will be the contractor's current version of the CEMP, which at any point in time, will guide the construction activities on site and the implementation of which will be audited during construction.

1.1 Potential Amendment Scenarios

This CEMP may require further updating and final agreement with the various stakeholders should the Proposed Development receive planning permission, in alignment with all the conditions which apply and in order to identify, assess and satisfy the contract performance criteria. The final CEMP will also require updating by the selected contractor. Therefore, this is a working document and will be developed further prior to construction commencing.

Triggers for amendments to the CEMP will include:

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

1.2 Scope of the Construction and Environmental Management Plan

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

The report is divided into seven sections, as outlined below.

- Section 1 provides a brief introduction as to the scope of the report detailing the targets and objectives of this plan.
- Section 2 outlines the site and project details and an overview of construction methodologies that will be adopted throughout the proposed project.
- Section 3 sets out details of the environmental controls on site which looks at noise and dust controls. Site drainage measures and a waste management plan are also included in this section.
- Section 4 sets out a fully detailed implementation plan for the environmental management of the proposed project outlining the roles and responsibilities of the project team. Also included in this section is the Emergency Response Procedure to be adopted in the event of an emergency in terms of site health and safety and environmental protection.
- Section 5 consists of a summary table of all mitigation proposals to be adhered to during the implementation of the project.
- Section 6 sets out a programme for the timing of the works.
- Section 7 outlines the proposals for reviewing compliance with the provisions of this report.

1.3 Targets and Objectives

The construction phase works are designed to approved standards, which include specified materials, standards, specifications, and codes of practice. The design of the project has considered environmental issues, and this is enhanced by the works proposals.

The key site targets are as follows;

- Adopt a sustainable approach to construction and, ensure sustainable sources for materials supply where possible.
- Correct fuel storage and refuelling procedures to be followed.
- Construction Methods and designs will be altered where it is found there is an adverse effect on the environment.
- Good waste management and housekeeping to be implemented.
- Using recycled materials, if possible, e.g., excavated stone, soil, and subsoil material.
- Avoidance of vandalism.
- Air and noise pollution prevention to be implemented.
- Monitoring of the works and any adverse effects that it may have on the environment and,
- Provide adequate environmental training and awareness for all project personnel.

The key site objectives are as follows.

- Keep impact of construction to a minimum on the local environment and wildlife.
- Ensure construction works and activities are completed in accordance with any planning conditions for the development.

- Ensure construction works and activities have minimal impact/disturbance to local landowners and the local community.
- Ensure construction works and activities have minimal impact on the Natural Environment.
- Keep impact of construction to a minimum on the local environment, watercourses, and wildlife.
- Correct fuel storage and refuelling procedures to be followed.
- Good waste management and housekeeping to be implemented.
- Air and noise pollution prevention to be implemented, and
- Monitoring of the works and any adverse effects that it may have on the environment.
- Construction Methods and designs will be altered where it is found there is an adverse effect on the environment.
- Comply with all relevant water quality legislation.

2. SITE AND PROJECT DETAILS

2.1 Site Location

The Proposed Development is located at Long Point, Loughrea, County Galway, Ireland (Irish Transverse Mercator (ITM) Grid Ref of approximate centre: X 562370 Y715177) on the shore of Lough Rea beside Lake Road (R351 Regional Road) approximately 1.4km south east of Loughrea Town Centre in the townland of Knockanima. The Proposed Development focuses on public realm upgrade works to Long Point to enhance the area and create an inclusive and accessible amenity space. A site location map is shown in Figure 2-1. A layout of the Proposed Development is shown in Figure 2-2 below.

2.2 Description of the Proposed Development Site

2.2.1 Land Use

The current subject site comprises an amenity area on the eastern shore of Lough Rea, which is currently made up of carparks, walkways, amenity grassland, and parkland. The Proposed Development is zoned as 'OS – Open Space/Recreation and Amenity' in the Loughrea Local Area Plan 2024-2023.

2.2.2 Cultural Heritage

There are no protected structures or recorded monuments located within the boundary of the Proposed Development. However, there is one structure, a crannog (GA105-226—), designated on the Sites and Monuments Record approximately 116m north of the Proposed Development site. There is another designated crannog (GA105-227—) 219m south of the Proposed Development site.

As part of the RFI an Underwater Archaeological Impact Assessment was prepared. A number of measures are outlined in relation to archaeology in Section 3.4 below.

2.2.3 Hydrology

Lough Rea is located immediately adjacent to the proposed sites western boundary. The Proposed Development site boundary encompasses a small area of Lough Rea. It should be noted that the section Lough Rea that is encompassed within the Proposed Development site boundary is a designated European Site (SAC) [000304] and Lough Rea Special Protection Area (SPA) [004134] The Kilcogan stream drains Lough Rea to the north which drains into Galway Bay Complex SAC [000268] and Inner Galway Bay SPA.[004031]downstream.

The proximity of the Proposed Development to Lough Rea indicates the sensitive nature of the site which requires the implementation of mitigation measures, which are outlined below in Section 3.1 and the accompanying Natura Impact Statement (NIS).

2.2.4 Designated Areas

The following European Designated Sites are located in proximity to the subject site:

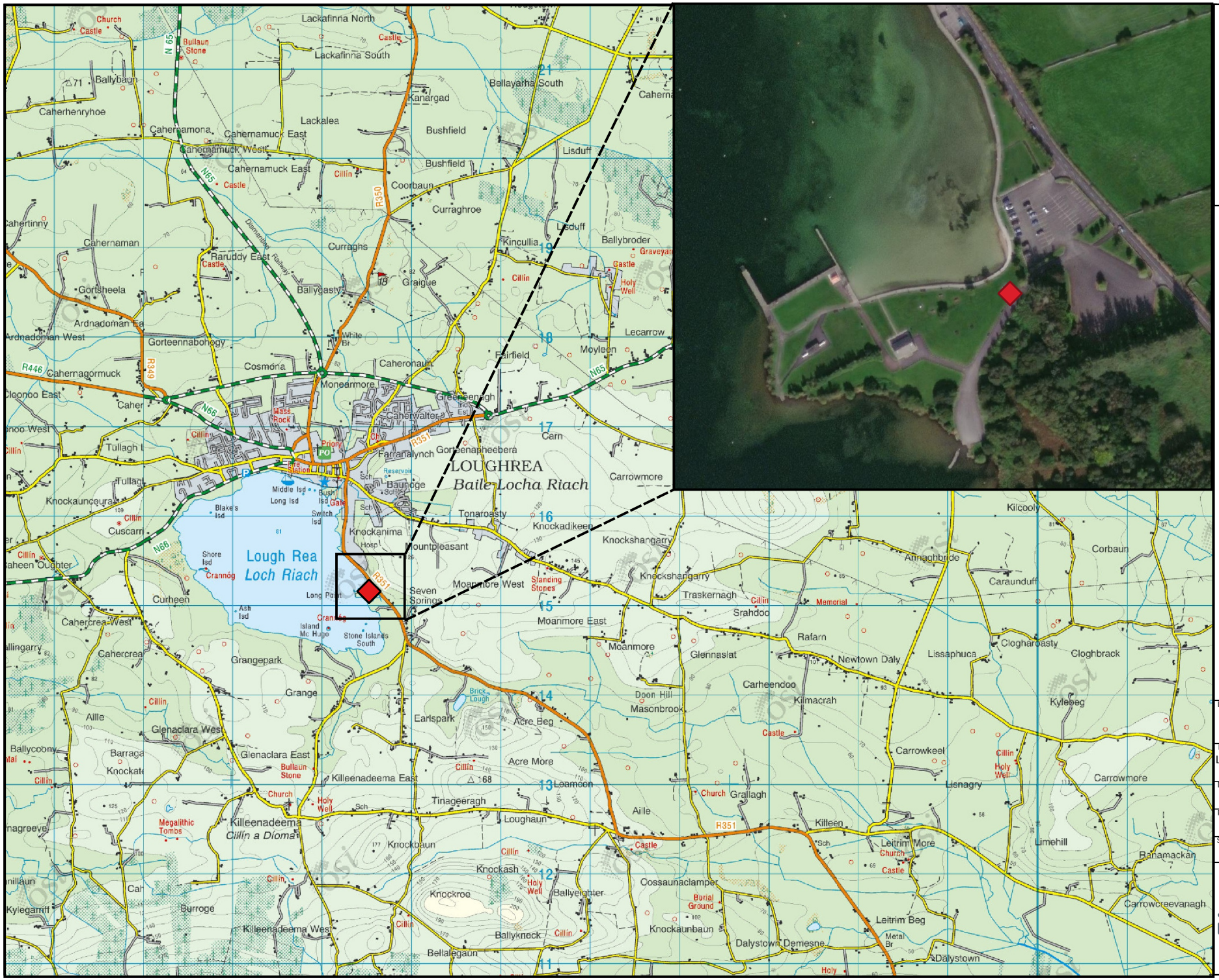
- Lough Rea Special Area of Conservation (SAC) [000304](partial overlap with the Proposed Development site boundary).
- Lough Rea (SPA) [0041134] (partial overlap within the Proposed Development site boundary).

- Slieve Aught Mountains SPA [004168] (2.41km southwest of Proposed Development site boundary).
- Sonnagh Bog SAC [001913] (7.6km southwest of Proposed Development site boundary).
- Rahasane Turlough SAC [000322] (12.79km northwest of Proposed Development site boundary).
- Galway Bay Complex SAC [000268] (20.73km southwest of Proposed Development site boundary).
- Inner Galway Bay SPA [004031] (21km southwest of Proposed Development site boundary).

2.3 Proposed Development Description

The Proposed Development will comprise of the following elements:

- Repair works comprising:
  - Repair of the existing pier surfaces.
  - Repair of the existing slipway to provide safe launching point for kayaks and stand-up paddle boards.
- Demolition of an existing changing shelter to facilitate passive surveillance and views of Lough Rea.
- Alteration to existing toilet and shower building to provide storage, plant, and a changing places toilet (accessible toilet, shower and changing facility) (93 m^2).
- Provision of new changing, toilet and shower facilities in a single storey building (86 m^2) including sheltered outdoor shower changing area.
- Provision of a lifeguard station building (16 m^2).
- Provision of a circular viewing deck to the south of the existing pier.
- Provision of a totem sign extending to c. 4 metres in height.
- Alteration to existing beach area and provision of a deck, steps and ramp to water's edge and beach area for access for all to the water.
- Provision of a shared active travel route along the sites eastern boundary adjacent to the Lake Road (R351) and the provision of designated bicycle parking spaces.
- Removal of 2 no. existing vehicular access points and alterations and junction upgrade works to the existing central access point, and provision of internal pedestrian crossings.
- Reconfiguration of and upgrades to the existing car parking areas to provide increased parking provision and to accommodate age friendly and set down spaces and trading bays, and the provision of 1 no. new car parking area which includes electric vehicle (EV) charging and accessible parking spaces.
- Provision of hard and soft site landscaping works, sustainable drainage systems (SuDS) measures, pumping and water stations, all connections, public lighting, PV panels at roof level and site services.
- All ancillary services and associated site development works.



Map Legend

- Study Area Location
- WFD_RiverWaterbodies
- WFD catchments

Drawing Title

Site Location

Project Title: Long Point Amenity Area Enhancemnt Constriants Study	
Drawn By: PD	Checked By: SM
Project No.: 220727	Drawing No.: Figure 1
Scale: 1:55000	Date: 16/02/2023

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KEY TO SURFACE FINISHES

- AMENITY GRASS, MAINTAINED GRASS / LAWN
- WILDFLOWER / BIO-DIVERSE PLANTING
- SWALE
- EXISTING WOODLAND
- PERMEABLE RESIN BOUND GRAVEL FOOTPATHS: 18 mm RESIN BOUND FINISH ON POROUS ASPHALT BINDER COURSE ON SUB-BASE
- SELECTED PERMEABLE PAVING, SUITABLE FOR VEHICLES TO FACILITATE EMERGENCY ACCESS
- NATURAL STONE PLANTING BEDS - POLLINATOR FRIENDLY PERENNIAL & GRASS PLANTING
- COMPOSITE / RECONSTITUTED DECKING
- SAND
- EXISTING NATURAL BEACH AREA
- PEDESTRIAN / CYCLE SHARED SURFACE
- COURTESY CROSSING SUITABLE FOR PERMANENT VEHICULAR TRAFFIC
- BLISTERED TACTILE PAVING - BUFF COLOURED
- BLISTERED TACTILE PAVING - RED COLOURED
- TARMACADAM ROAD FINISH
- PICNIC BENCH / TABLE - WITH AGE FRIENDLY SEATING
- PICNIC BENCH TABLE - WITH AGE FRIENDLY SEATING AND WHEELCHAIR ACCESSIBLE SPACE
- BENCH - WITH AGE FRIENDLY SEATING
- CUSTOM BENCH
- WASTE BIN
- METAL SPHERICAL BOLLARD
- CONTACTLESS WATER STATION
- EXISTING LEVELS
- PROPOSED LEVELS
- PARKING SPACE
- AGE FRIENDLY PARKING SPACE
- ACCESSIBLE PARKING SPACE
- ELECTRIC VEHICLE CHARGING PARKING SPACE
- BICYCLE STANDS
- NATIVE TREE CLUSTERS
- AVENUE TREE PLANTING
- PROPOSED LIGHTING

01 SITE LAYOUT PLAN - PROPOSED
SCALE 1:500 @ A1

DRAWING NOTES

EXTENT OF SITE OUTLINED IN RED

SITE AREA: 2.26 HA

AREA OF EXISTING LIFEGUARD STATION TO BE DEMOLISHED: 9 SQ.M

AREA OF EXISTING CHANGING SHELTER TO BE DEMOLISHED 28 SQ.M

AREA OF EXISTING STORAGE/ PLAN TO BE ALTERED: 92.5 SQ.M

AREA OF PROPOSED CHANGING/WCs: 86 SQ.M

AREA OF PROPOSED LIFEGUARD STATION: 16.2 SQ.M

151 NO. PARKING SPACES:
STANDARD: 130 NO.
ACCESSIBLE: 8 NO.
AGE FRIENDLY: 7 NO.
EV: 6 NO.

REFER TO CIVIL ENGINEERS DRAWINGS AND SW REPORT FOR DETAILS OF PROPOSED DRAINAGE AND SEWAGE DETAILS.

REFER TO TRAFFIC AND TRANSPORT ASSESSMENT AND ROAD SAFETY AUDIT FOR DETAILS OF PROPOSED UPGRADES TO EXISTING VEHICULAR ACCESS AND PROPOSED NEW VEHICULAR, CYCLE AND PEDESTRIAN AMENITIES.

REFER TO SOFT LANDSCAPING DESIGN REPORT FOR DETAILS OF SOFT LANDSCAPING PROPOSALS.

REFER TO SITE LIGHTING LAYOUT AND SITE LIGHTING OVERVIEW FOR DETAILS OF PROPOSED EXTERNAL LIGHTING.

Rev	Date	Description	Drawn By	Checked By
0	2024.09.24	ISSUED FOR PLANNING		

PROJECT	LONG POINT OUTDOOR AMENITY ENHANCEMENT PROJECT
CLIENT	GALWAY COUNTY COUNCIL
DRAWING TITLE	PROPOSED SITE LAYOUT PLAN
DWG. NO.	P(01)03
REV.	0

PROJECT NO.	DATE	SCALE	DRAWN BY	CHECKED BY	RELEASED
9901.4	JULY 2024	1:500 @ A1	BS		

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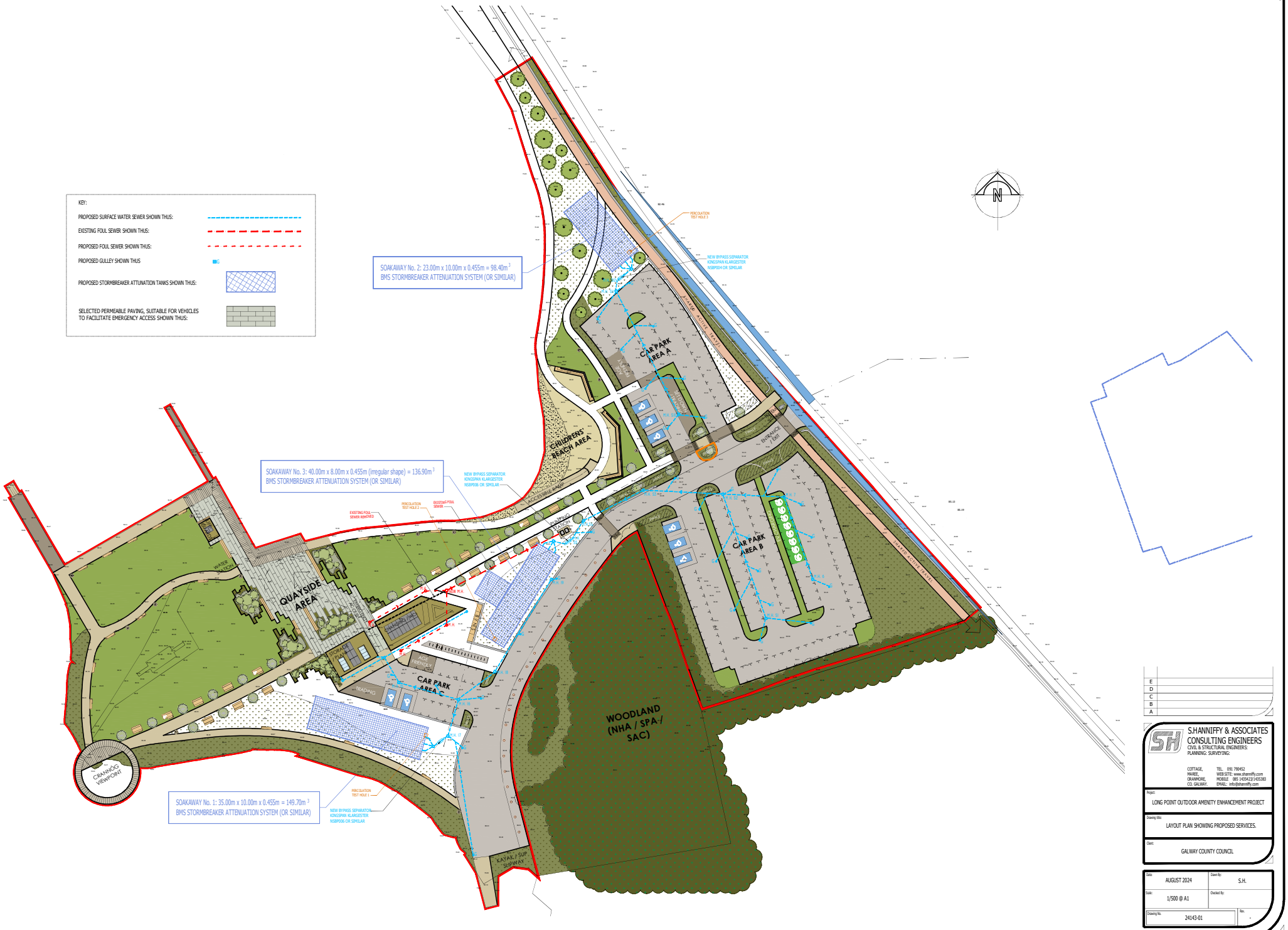

E	
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Project:
LONG POINT OUTDOOR AMENITY ENHANCEMENT PROJECT

Drawing title:
LAYOUT PLAN SHOWING PROPOSED SERVICES.

Client:
GALWAY COUNTY COUNCIL

Date: AUGUST 2024	Drawn By: S.H.
Scale: 1/500 @ A1	Checked By:
Drawing No. 24143-01	Rev. -

2.4 Construction Management

2.4.1 Introduction

The appointed contractor for the construction of the Proposed Development will be required to comply with this CEMP and any revisions made to this document throughout the construction phase. An overview of the anticipated Construction Methodologies is provided below.

2.4.2 Overview of Proposed Construction Methodology

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

- Site Establishment/Set-up;
- Construction Compound;
- Demolition Works;
- Site Excavation;
- Services and Utilities;
- Drainage Works;
- Changing Area, Bathrooms and Lifeguard Station Building;
- Circular Viewing Deck;
- Deck/Steps & Ramp;
- Site Entrance;
- Repair Works;
- Landscaping Works.

2.4.3 Site Establishment/Set-up

The subject site will be accessed from the existing site entrance via the R351 Lake Road. Prior to the commencement of any construction, the working area will be fenced off using heras panels or appropriate fencing. In addition, the junction at the site entrance will be upgraded. Methodology for the proposed junction upgrade works in section 2.4.12. below.

It should be noted that all works will be undertaken within the confines of the site. A controlled access point in the form of the site entrance will be kept locked outside of normal working hours. Due to the nature of the works, appropriate signage will be provided at the site to alert pedestrians to the construction activities and related traffic at the site. The contractor will be required to undertake the following.

- Operate a Site Induction Process for all site staff.
- Ensure all site staff shall have current 'Safe Pass' cards.
- Maintain Site Security staff at all times.
- Install access security in the form of gates for staff.

The existing car park areas will be utilised by construction workers within the site during the construction phase. There will be no parking permitted for any vehicles associated with the project on the public road during the construction phase of the development unless agreed with Galway County Council.

2.4.4 Construction Compound

A construction compound will be established within the site boundary. The exact location of the site compound will be established by the contractor and will be located a minimum of 50m from any watercourses or waterbodies. A layer of well graded granular material will be spread and lightly

compacted to provide a hardstanding area. Portable cabin structures will be used to provide temporary site offices. Power will be provided using a diesel or petrol driven generator. The construction compound will also be used as a storage and lay down area for the various construction materials as required.

The compound will typically be constructed as follows:

- The area to be used as the compound will be marked out at the corners using ranging rods or timber posts;
- A layer of well graded granular material will be spread and lightly compacted to provide a hard area for site offices and storage containers;
- Areas within the compound will be constructed as site track and used as vehicle hardstandings during deliveries and for parking;
- If necessary, the compound will be temporarily fenced and secured with locked gates, although fencing would only be utilised where significant risk of danger to third parties or vandalism is envisaged;
- During the construction phase, a self-contained port-a-loo with an integrated waste holding tank will be used on site for toilet facilities. This will be maintained by the providing contractor on a regular basis and will be removed from the site on completion of the construction phase;
- A dedicated waste storage area will be located within the temporary construction compound.

2.4.5 Demolition Works

The works entail the demolition of the existing changing area. The demolition/decommissioning works which will be carried out at the existing changing area will be carried out using the following methodology:

- Pre-check of the site for any hazards or existing services. These checks will be carried out by a competent person(s).
- An inventory of the waste types that will be generated by the demolition works will be carried out.
- Demolition will be completed by trained personnel using appropriate equipment and tools and a mechanical excavator if required.
- The majority of the waste generated during the demolition and decommissioning will be segregated and sent by an authorised waste collector to an authorised waste recovery facility.

2.4.6 Site Excavation

Excavations will be required around the site as the Proposed Development progresses, particularly where it is proposed to construct the lifeguard station building and changing rooms. In addition, minor excavations will also be required for the shared active travel route, junction upgrade works, car parking areas and site services. While these works occur, the following will apply:

- The area where excavations are planned will be surveyed and all existing services will be identified.
- All relevant bodies i.e., ESB, Gas Networks Ireland, Eir, Galway County Council etc. will be contacted and all drawings for all existing services sought.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- A tracked 360-degree excavator will be used for initial excavations, and a dumper will be used to move the excavated materials to the temporary stockpile location within the site.

- Excavated material will be removed from the site for appropriate reuse or disposal elsewhere. Some excavated material will be reused on the site for backfill of excavations.
- Stockpiling of soil during construction, should it be required, will take place in designated areas within the site boundary as far away from any watercourses or waterbodies as is practically possible.
- If ground water is encountered during excavations, waters will be pumped from excavation and discharged through a pipe with a silt bag attached on to an area of overland vegetation within the site boundary. Discharge to ground will be via a silt bag which will filter any remaining sediment from the pumped water.
- When practically possible, excavation depths and volumes will be kept to a minimum.

2.4.7 Services and Utilities

The proposed storm water drainage system has been designed to cater for all surface water runoff from all hard surfaces within the Proposed Development. As part of the Proposed Development, there will be an increase in impermeable surfaces (permeable paving), and therefore, increased surface water drainage. The proposed drainage system for runoff includes Stormbreaker Water Attenuation, Infiltration and soakaway systems which will collect the stormwater from the proposed buildings, carparks and roads.

Foul effluent for the Proposed Development is detailed below in section 2.4.8.3.

2.4.8 Drainage Works

2.4.8.1 Storm/Surface Water Drainage

A design of the Storm/surface Water Drainage network has been prepared for the Proposed Development by S. Hanniffy & Associates Consulting Engineers. The below information is based on their findings and is provided here for context.

Currently, a SuDS has been designed in order to deal with the storm/surface water from the existing/Proposed Development.

It is proposed to install 3 No. Stormbreaker Water Attenuation, Infiltration and Soakaway systems to deal with the stormwater from the proposed buildings, carparks and roads as shown on Drawing No. 24143-01 prepared by S.Hanniffy & Associates Consulting Engineers. The storm/surface water from the 2 No, proposed buildings, Carpark C and the road will discharge to soakaway No. 1 which has a capacity of149m^3. The stormwater from Carpark A will discharge to Soakaway No. 2 which has a capacity of 98.4m^3. The stormwater from Carpark B will discharge to Soakaway No. 3 which has a capacity of 136.90m^3.

The surface water sewers and the Stormbreaker Soakaways were designed to be as shallow as possible to negate the effect of flooding within the area. Due to these shallow depths, some of the storm water sewers will be surrounded with concrete, as shown on Drawing No. 24143-02 prepared by S.Hanniffy & Associates Consulting Engineers.

It is proposed to use permeable paving to deal with stormwater in the proposed quayside area, as shown on drawing No. 24143-01 prepared by S.Hanniffy & Associates Consulting Engineers. The use of Permeable Paving is a SuDs based permeable system which is designed to cater for the stormwater runoff from the quayside area and discharge it into the sub-base and ground below this area. There is no requirement for a bypass separator in this area, as it is primarily for pedestrian use. The paths within the development will be finished with permeable resin bound gravel, which is self-draining.

2.4.8.2 Bypass Interceptor & Silt Trap

The impervious areas of the proposed roofs, carpark and roadway will be discharged through 3 No. Kingspan Klargester Bypass Separators with silt traps prior to final discharge to the 3 No. Stormbreaker Soakaway systems. It is proposed to install a Kingspan Klargester Bypass interceptor model NSBP004 (or similar) on the storm water sewer prior to final discharge to the Stormbreaker Soakaway 2 as shown on drawing No. 24143-01 prepared by S.Hanniffy & Associates Consulting Engineers. The Kingspan Klargester Bypass Separators have been designed to cater for the stormwater discharge from the entire development.

2.4.8.3 Foul Water Treatment

The existing foul water system for the current changing facilities is discharged to a foul sewer adjacent to the changing rooms and is pumped to an existing public sewer within the public road to the north of the site. It is proposed to install a new foul sewer system around the new storage/plant building and changing room/WC which will discharge to the existing pump station and then to the existing public sewer to the north of the site.

2.4.9 Changing Area, Bathrooms and Lifeguard Station Building

The proposed changing area, bathrooms and lifeguard station building (16m^2)are anticipated to be constructed by the following methodology:

- The area where excavations and foundations are to be installed will be surveyed and all existing services will be identified.
- The area in which the changing area will be constructed will be marked out using ranging rods or wooden posts and the overburden stripped and removed to nearby storage area for later use in landscaping.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- A tracked 360-degree excavator or similar will be used to excavate the area down to a competent stratum as approved by the Design Engineer.
- Foundations will be shuttered and cast with reinforced concrete as per the Design Engineer's specification.
- The precast elements, block-/brick-work walls will be built up from the foundation including a Damp Proof Course (DPC).
- The block-/brick-work will then be raised to wall plate level and internal partition walls formed. Scaffold will be erected around the outside of the buildings for these works.
- New windows and doors, electrics, plumbing (as applicable) and all other building components and services will be installed in as timely a manner as is possible.
- The buildings will be inspected and certified by the project design engineer at the appropriate stages of construction.
- It is also anticipated that solar PV panels will be installed on the roof of the changing area/bathrooms in the future.

2.4.10 Works within Lough Rea

As part of the Proposed Development there is a requirement to undertake works within Lough Rea itself. Each element of the Proposed Development within Lough Rea is discussed below with specific measures prescribed for each. Timing for all in-lake works should be carried out during the period of July 1st to September 30th to minimise potential adverse impacts to fisheries, in line with Inland Fisheries Ireland (2016) Guidelines on Protection of Fisheries During Construction Works in and Adjacent to

Waters. It should also be noted that all works within Lough Rea and on the fringes of the lake will be supervised by an ecological clerk of works (EcOW).

2.4.10.1 Proposed Upgraded Kayak Slip

- Works will be carried out in the dry to avoid siltation of the Lough Rea and downstream watercourses.
- The work area will be temporarily dammed (coffer dam) with sandbags and will completely surround the work area for the kayak ramp.
- A submersible pump will be used to pump water out of the works area, creating a dry working area, and will be pumped to a discharge point, a minimum of 30m from any waterbody and within the main construction site. It will pass through a silt bag before discharge to ground.
- Prior to pumping, electrofishing will be carried out within the works area under licence from the NPWS by a qualified ecologist to remove any fish and move them into Lough Rea.
- Once a dry working area has been established and approved by the onsite EcOW, the existing broken slip will be removed from the work area if required. This will be undertaken using power tools such as jack hammers and drills. Hand tools may also be used if required. No machinery will enter the works area.
- The new/upgraded slip will require some wet works as part of its installation. All wet work will be allowed to fully cure before the working area is re-wetted. All wet pouring will be supervised by the EcOW.
- Once works within the work area are complete, the sandbags will be removed to allow water from the lake back into the area.
- All works within the working area will be undertaken in line with the IFI, 2016: Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters and under supervision of an EcOW.

2.4.10.2 Proposed Access Ramp

- Works will be carried out in the dry to avoid siltation of the Lough Rea and downstream watercourses.
- The work area will be temporarily dammed (coffer dam) with sandbags and will completely surround the work area for the kayak ramp.
- A submersible pump will be used to pump water out of the works area, creating a dry working area, and will be pumped to a discharge point, a minimum of 30m from any waterbody and within the main construction site. It will pass through a silt bag before discharge to ground.
- Prior to pumping, electrofishing will be carried out within the works area under licence from the NPWS by a qualified ecologist to remove any fish and move them into Lough Rea.
- Once a dry working area has been established and approved by the onsite EcOW, the access ramp will be installed. Works in this area will comprise some levelling/grading works and wet concrete works. No machinery will enter the works area. Concrete wet works will be supervised by the EcOW.
- All wet work will be allowed to fully cure before the working area is re-wetted.
- Once works within the work area are complete, the sandbags will be removed to allow water from the lake back into the area.
- All works within the working area will be undertaken in line with the IFI, 2016: Guidelines on Protection Of Fisheries During Construction Works in and Adjacent to Waters and under supervision of an EcOW.

2.4.10.3 Proposed Crannóg Circular Viewing Deck

The final element of the Proposed Development which requires work within Lough Rea is the proposed circular viewing deck/Crannóg viewpoint on the western shore of the site. This will be constructed on an in-situ concrete frame. If practically possible, the concrete frame will be comprised of pre-cast elements. However, given the uneven ground and gradient, there may be requirement for some concrete pouring in this area. As outlined above, any concrete wet works will be supervised by the designated EcOW. Concrete wet works will only be permitted to be carried out when a dry working area has been established. See methodology below. Once the frame has been installed the remaining components of the viewing deck will be installed by appropriately qualified personnel.

As per Section 7.4.1 of Inland Fisheries Guidance (*IFI, 2016: Guidelines On Protection Of Fisheries During Construction Works in and Adjacent to Waters*), where wet work is required, all work must be complete in the dry and effectively isolated from any flowing water. Works will be carried out in the dry to avoid siltation of the Lough Rea and downstream watercourses.

The following mitigations will be applied:

- Works will be carried out in the dry to avoid siltation of the Lough Rea and downstream watercourses.
- The work area will be temporarily dammed (coffer dam) with sandbags and will completely surround the work area.
- A submersible pump will be used to pump water out of the works area, creating a dry working area, and will be pumped to a discharge point, a minimum of 30m from any waterbody and within the main construction site. It will pass through a silt bag before discharge to ground.
- Prior to pumping, electrofishing will be carried out within the works area under licence from the NPWS by a qualified ecologist to remove any fisheries and move them into Lough Rea.
- Once a dry working area has been established and approved by the onsite EcOW, shuttering will be established and concrete will be carefully poured, ensuing no spillage.
- All wet work will be allowed to fully cure before the working area is re-wetted.
- All works within the working area will be undertaken in line with the *IFI, 2016: Guidelines On Protection Of Fisheries During Construction Works in and Adjacent to Waters* and under supervision of an EcOW.

2.4.11 Solar Photovoltaic Panels Installation

Photovoltaic (PV) panels will be installed on the roof of the proposed changing area/bathrooms. The preference for the mounting system will be via a non-penetrative means where possible. The panels will then be fixed at the same pitch as the existing roof.

2.4.12 Site Entrance

2.4.12.1 Upgrade to Existing Parking Areas, Pedestrian Crossing, Junction Upgrade Works & Totem sign

The existing car parking areas will be upgraded to accommodate age friendly and set down spaces alongside the provision of 1 no, new car parking areas inclusive of EV charging and accessible parking spaces and designated bicycle parking spaces. Junction upgrade works are also proposed for the site. At present the site is accessed by three access junctions. It is proposed to decommission two of these access junctions and propose one single access junction. Additionally, internal pedestrian crossings are also proposed for this development site alongside a totem sign (c. 4m in height).

The proposed car parking areas and other areas of tarmac hardstanding are anticipated to be constructed using the following methodology:

- The area where excavations and areas of hardstanding are to be installed will be surveyed.
- The area of the car parking and other hardstanding areas will be marked out and the soil and overburden stripped and removed to a nearby storage area for layer use in landscaping.
- A tracked 360-degree excavator or similar will be used to excavate the area down to a competent stratum as approved by the Design Engineer.
- A layer of permeable aggregate in the form of clause 804 gravel or crushed concrete will then be installed. This layer will be compacted and checked for correct levels.
- At this stage the tarmac will be applied. The tarmac will also be compacted.

2.4.12.2 Shared Active Travel Route

The shared active travel route is anticipated to be constructed as follows:

- All plant operators and general operatives will be inducted and informed as to the location of any services.
- The excavation will take place to locate any existing services by use of a small excavator.
- Following this, the resurfacing/removal of the excavated materials will be loaded and transported to an appropriately licensed waste facility.
- A tracked 360-degree excavator or similar will be used to excavate the area down to the appropriate depth.
- A wrapped geotextile will be laid down. This will help suppress weed growth, minimise sinking, strengthen the base and prevent the escape of fines.
- A layer of aggregate material and tarmac will be installed to provide a base for the shared active travel route.

2.4.13 Repair Works

The existing pier surfaces will be repaired according to the engineers specifications. Much of the existing pier surfaces are cracked and will require repointing and jointing with very small amounts of wet concrete or mortar. As outlined in Section 2.4.10 above, any areas where wet concrete works are required will be supervised by an ECoW.

2.4.14 Landscaping Works

Prior to the completion of works on the site, landscaping works will be carried out. These works will involve the use of plant and machinery in order to carry out tasks such as earth moving. Material will only be imported where it is required.

A Landscape Soft Works Report has been prepared by Cooney McDowall Design Studio Ltd. The proposed landscape works will involve the following:

- Native Wildflower Zones/reduced Mowing Areas;
- Pollinator Friendly Perennial and Grass planting (Natural Stone Planting Beds);
- Woodland Tree Clusters;
- Avenue Tree planting;
- Swale Planting;
- Amenity Grass.

Each of these categories are described in further detail below with an outline plant specification for the plant material where applicable. Please see the Landscape Soft Works document for further detail. While these plant proposals largely represent the species proposed for the scheme, additional plant

species may be introduced to supplement and support the planting arrangement as the design develops post planning.

Managed Native Wildflower Zones/reduced Mowing Areas

This will include the establishment of mixed native species meadow grasses and wildflower zones which are generally highlighted on the site layout plan as wildflower/biodiverse planting areas. These may be established by 1) planting new diverse meadow mixes into prepared seedbeds and 2) by managing undisturbed existing grass areas and woodland edge areas as reduced mowing areas to improve local biodiversity and rely on the the existing seedbank present to establish the vegetation. These measures will enhance wildlife, boost pollinators and generally reduce maintenance costs. The reduced mowing frequency will also reduce fossil fuel consumption. Exact mix location to be determined at detailed design stage with the aid of soil samples.

Pollinator Friendly Perennial & Grass planting

These will include ornamental perennials, bulbs and ornamental grass species to high amenity areas such as the Quayside areas and will also include multistem shrubs/small trees. This plant selection, while not fully native, will be in line with the 'All Ireland Pollinator Plan 2021-2025. The planting has been selected to ensure resilient planting establishment which offers variety throughout the seasons. A select number of native species which are already present in the hedgerows on site have been included within the planting mix.

Native Tree Clusters

Developing new woodland clusters at key locations will enhance the connection between existing woodland areas in the adjacent NHA/SPA to other fragmented woodland areas to the north of the proposed site. This will generally enhance habitat creation especially for bat and bird species. It is proposed that these woodland clusters would consist primarily of native species. It is proposed that all new tree planting shall be standard with 1.8m clear stem to maintain visibility across open spaces and views to the lake.

Avenue Tree Planting

Avenue Trees are generally selected as a single species to define axes or major routes of circulation. Species selection often considers upright growth habit to maintain uniformity in appearance. It is proposed to line the new central spine pathway with a row of single species standard trees (Clear Stem). There will be some opportunity also to add these trees into landscaped areas between carpark areas.

Swale Planting

Mixture by Design By Nature. Devils Bit Scabious, Common Sorrel, Cowslip, Fleabane, Greater Trefoil, Hemp Agrimony, Lesser Knapweed, Marsh Cinquefoil, Marsh Marigold, Meadow Buttercup, Meadowsweet, Meadow Rue, Oxeye Daisy, Purple Loosestrife, Ragged Robin, Red Clover, Red Rattle,, Ribwort Plantain, Selfheal, Sneezewort*, Tufted Vetch, Water Avens*, Wild Angelica, Wild Valerian, Yarrow, Yellow Flag Iris, Yellow Rattle, Red Rattle

Amenity Grass

Mowed Amenity Grass Mix for all areas specified as maintained grass. The germination capacity of each constituent of the mixture should be not less than 80%, and the purity of the mixture not less than 90%. The seed is to be thoroughly re-mixed before sowing to avoid patchiness on the ground. On min depth of 250mm topsoil. Above free draining de-compacted subsoil

3. ENVIRONMENTAL MANAGEMENT

3.1 Protecting Water Quality

Lough Rea is located immediately adjacent to the proposed sites western boundary. The Proposed Development site boundary encompasses a small area of Lough Rea. It should be noted that the section of Lough Rea that is encompassed within the Proposed Development site boundary is a designated European Site, Lough Rea (SAC) [000304] and Lough Rea Special Protection Area (SPA) [004134] The Kilcogan stream drains Lough Rea to the north which drains into Galway Bay Complex SAC [000268] and Inner Galway Bay SPA.[004031]downstream.

3.1.1 Construction Phase

Prior to the commencement of any demolition or construction activities, the necessary mitigation measures will be put in place to ensure that no silt laden water runoff generated at the site will flow to nearby watercourses or drains thus ensuring the protection of surface water during the works. This will involve confirming the location of all existing services and delineating between drainage systems. Surface waters will be managed to ensure the prevention of runoff from the site work areas. Stockpiling of soil during construction, should it be required, will take place in designated areas within the site boundary away from any watercourses or waterbodies.

The Proposed Development site encompasses a small area of Lough Rea, which is a designated European Site (see above in section 3.1). The construction of the Proposed Development will involve excavations and earth moving which has the potential to cause the generation of suspended solids and potentially for spillage of fuels associated with the refuelling of excavation machinery. Additionally, the Proposed Development will require some in-lake works. The proximity of the Proposed Development to Lough Rea indicates the sensitive nature of the site which requires the implementation of mitigation measures, which are outlined in this section, Table 6-1 and in the accompanying NIS and EcIA.

Particular emphasis will also be placed on hazardous materials entering the surface water management system as well as spill or leaks of fuel oils. Section 4 provides an Emergency Response Plan for dealing with spillages which may result in adverse environmental effects.

Excavation works have the potential to encounter groundwater. If groundwater is encountered during excavations, waters will be pumped from excavation and discharged through a pipe with a silt bag attached on to an area of overland vegetation within the site boundary. Discharge to ground will be via a silt bag which will filter any remaining sediment from the pumped water.

3.1.2 Prevention Pollution Control Measures

The Proposed Development site boundary encompasses a small area of Lough Rea. It should be noted that the section of Lough Rea that is encompassed within the Proposed Development site boundary is a designated European Site (SAC) [000304] and Lough Rea Special Protection Area (SPA). Some in-lake works are required as part of the Proposed Development. The following measures will be put in place to prevent the transportation of silt laden water or pollutants from entering the wider environments including nearby waterbodies:

- Prior to the commencement of earthworks, silt fencing will be erected around the boundary of the Proposed Development site, between the works area and along the shore of Lough Rea. This will be embedded into the ground adjacent to the perimeter boundary. Locations of silt fencing are outlined in Figure 3-1 below.

- The silt fence will comprise wooden posts with geotextile membrane buried approximately 250mm below ground level. This fence will be kept in good repair and will be routinely inspected
- The silt fences will be left in place throughout construction phase and until all exposed soil has revegetated.
- A site compound will be established within the site boundary. The exact location of the site compound will be established by the contractor and will be located a minimum of 50m from any watercourses or waterbodies. The compound will be used for storage of material, machinery, fuel, and workers facilities.
- A self-contained port-a-loo with an integrated waste holding tank will be used at the site compound, maintained by the providing contractor, and removed from site on completion of the construction works; No foul water will be discharged on-site during the construction.
- The appointed contactor will be fully briefed by an ecologist as to the sensitive nature of the site (i.e. proximity to Lough Rea) and the required mitigation measures.
- The contractor will assign a member of the site staff as the environmental officer with the responsibility for ensuring the environmental measures prescribed in this document are adhered to. Any environmental incidents or non-compliance issues will immediately be reported to the project team.
- In addition, a suitably qualified ecologist will be appointed to fulfil the role of Ecological Clerk of Works (ECoW) to supervise the works undertaken during constriction, particularly where works within the lake are required.
- Excavated spoil (if any) will be stockpiled and contained entirely within the confines of the site boundaries.
- During earthwork activities, the following mitigations will be adhered to:
    - Excavation depths will be kept to a minimum.
    - Material that is not re-used will be transported off site to an appropriately licensed waste recovery/disposal facility.
    - Suitable stone material will be imported to the site to be used as backfill.
    - Stockpiling of soil during construction, should it be required, will take place in designated areas within the site boundary away from any watercourses or waterbodies.
    - A silt fence will be erected around any stockpiling of material to prevent any sediment-laden run-off occurring.
- All diesel or petrol pumps required onsite will be operated within bunded units.
- Exposed surfaces will be re-vegetated as soon as possible following construction.
- The minimum number of soil/subsoils and bedrock material will be removed from site. Soil may be reused for landscaping elsewhere on the site.
- Earthworks will not be carried out during periods of heavy rainfall.
- As construction advances there may be a requirement to collect and treat surface water within the site. This will be completed using perimeter swales at low points around the construction areas, and if required will be tankered off site for appropriate treatment.
- It should be noted that if swales are required then these will be installed a minimum of 50 metres from the lake shore. Construction swales will not be installed in the vicinity of any watercourse or waterbody.
- If ground water is encountered during excavations, waters will be pumped from excavation and discharged through a pipe with a silt bag attached on to an area of overland vegetation within the site boundary.
- Discharge to ground will be via a silt bag which will filter any remaining sediment from the pumped water.
- Daily monitoring and inspections of site drainage during construction will be completed by the appointed environmental officer.
- An Ecological Clerk of Works (ECoW) will be present at the site to ensure all appropriate mitigations as outlined in Section 3 and in Table 6-1 are implemented. The ECoW will supervise all works within the confines of the lake (installation of

coffer dams, dewatering etc) as well as supervising works on the fringe of the lakes (pier repairs etc).

- Good construction practices such wheel washers and dust suppression on site roads, and regular plant maintenance will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites, guidance for consultants and contractors', CIRlA, 2010), which provides information on these potential issues. This will ensure that surface water arising during the course of construction activities will contain minimum sediment.

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

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

Plate 3-2 Silt Bag under inspection

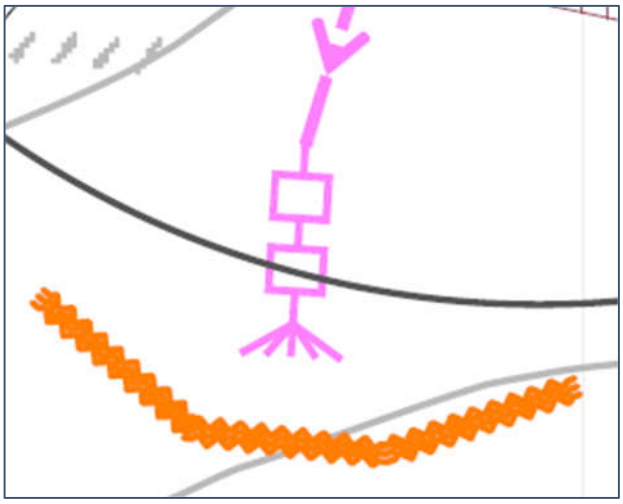

Plate 3-3 Indictive Silt Fence surrounding the discharge from a Silt Bag.

Plate 3-4 Embedded Silt Fence

Map Legend

- Site Boundary
- Proposed Silt Fencing
- Proposed Dry Works Area

Drawing Title
Ecological & Environmental Constraints

Project Title
Long Point Loughrea

Drawn By	Checked By
EC/PD	TM
Project No.	Drawing No.
220727-a	Figure 1-3
Scale	Date
1:1000	19.06.25

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3.1.3 Cement Based Products Control Measures

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

- No batching of wet-cement products will occur on site.
- Wet cement, where required will be brought to the site in ready-mix trucks.
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site.
- No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Use weather forecasting to plan dry days for pouring concrete.
- Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event.
- ECoW to supervise all concrete wet works in the dry working areas and adjacent to the lakeshore.

3.1.4 Refuelling, Fuel and Hazardous Materials Storage

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

- Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Off-site refuelling will occur at a controlled fuelling station.
- On-site refuelling, if required will take place by direct refuelling from the delivery truck or from fuel stored within a bunded fuel tank. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations.
- Vehicles will never be left unattended during refuelling. Only dedicated trained and competent personnel will carry out refuelling operations and plant refuelling procedures shall be detailed in the contractor's method statements.
- Storage/refuelling will be located in and carried out in a designated area of the proposed site, located a suitable distance from excavation works. Bunded tanks will be used, and these will be inspected for leaks regularly. Spill kits will be available on site and staff will be trained in their use and in spill control. All spills shall be diverted for collection.
- Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or recycling.
- Storage bunds/trays, if required will be constructed of an impermeable membrane (HDPE Plastic) and will have the adequate capacity to contain the volume of the liquids contained therein, if a leak/spillage does occur from one of the storage vessels.
- The storage area will contain a small bund lined with an impermeable membrane in order to prevent any contamination of the surrounding soils and vegetation.
- All site plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed. All major repair and maintenance operations will take place off site.

3.2 Biosecurity

- Prior to entering the works area, all machinery and personnel will be thoroughly disinfected to ensure that no inadvertent spread of invasive species into Lough Rea occurs.
- All works within this area will be subject to strict biosecurity protocols to prevent the spread of the crayfish plague which is caused by the fungal-like organism, Aphanomyces astaci.
- Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Rhododendron, Japanese Knotweed, Giant Rhubarb etc.) by thoroughly washing vehicles prior to entering the site.
- Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.

3.3 Dust Control

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

- The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness and cleaned as necessary.
- Material handling systems and material storage areas, if required will be designed and laid out to minimise exposure to wind.
- Water misting will be utilised on-site as required to mitigate dust in dry weather conditions, if required.
- The transport of soils, demolition material, aggregates or other material, which has the potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary.
- Daily inspection of construction sites to examine dust measures and their effectiveness.
- All construction related traffic will have speed restrictions on un-surfaced areas within the site to 60kph.

3.4 Noise and Vibration Control

The operation of plant and machinery, including construction vehicles, is a source of potential noise impacts. Noise levels shall be kept below those levels specified in the National Roads Authority – *"Guidelines for the Treatment of Noise and Vibration in National Roads Schemes"* or such further limits as imposed by Galway County Council. The Proposed Development shall comply with BS 5228 *"Noise Control on Construction and open sites Part 1: Code of practice for basic information and procedures for noise control."* During the works, any plant introduced to the site will not be excessively noisy. Exhaust and silencer systems on plant will be maintained in a satisfactory condition and operating correctly at all times. Defective silencers will be immediately replaced.

Proposed measures to control noise include:

- Construction equipment for use outdoors shall comply with the European Communities Regulations– Noise Emission by Equipment for Use Outdoors – SI 241 - 2006.
- If utilised, diesel generators will be enclosed in sound proofed containers to minimise the potential for noise impacts.
- Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected. All construction plant and equipment to be used on-site will be modern equipment and will comply with the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations.
- Plant with the potential of generating noise or vibration will be placed as far away from sensitive properties as permitted by site constraints.
- Regular maintenance of plant will be carried out in order to minimise noise emissions. Particular attention will be paid to the lubrication of bearings and the integrity of silencers.
- All plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the works.
- If compressors are required, they will be of the "sound reduced" models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machines, which are used intermittently, will be shut down during those periods when they are not in use.
- Training will be provided by the Site Management to drivers to ensure smooth machinery operation/driving, and to minimise unnecessary noise generation.
- Where necessary, further measures for the reduction of construction noise and vibration levels will be defined by Galway County Council and adhered to by the Main Contractor.

It is recommended that drivers of heavy goods vehicles (HGVs) associated with the development extend due care and courtesy to other road users. Excessive engine revving will be avoided at all times. The proposed construction working hours will be 08:00-18:00 Monday to Saturday. Construction will not take place at the site on Sundays or Public Holidays.

Deviation from these times will only be allowed in exceptional circumstances where written approval has been received from the planning authority and when other relevant third parties i.e., nearby homeowners and property owners have been notified and have agreed to works taking place during such time periods.

3.5 Archaeological Mitigations

An Underwater Archaeological Impact Assessment was prepared by Mizen Archaeology as part of the Request for Further Information. This report makes the recommendation that all lakebed disturbance be subject to licensed archaeological monitoring by a suitably qualified underwater archaeologist. The terrestrial elements of the Proposed Development should also be subject to archaeological monitoring, in accordance with the recommendations of the Development Applications Unit (under Section 177AE).

3.6 Traffic Management Proposals

The proposed traffic management measures to be adopted during the construction works are summarised below. Please note that this is not an exhaustive list, and it will be updated accordingly by the appointed contractor in consultation with the local authority.

- Warning signs / Advanced warning signs will be installed at appropriate locations in advance of the construction site access locations.
- A site specific Construction Traffic and Transport Statement will be agreed upon with the Galway County Council prior to works starting.
- Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; and movement of construction vehicles will be restricted to these designated routes.
- Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on HGVs carrying dust producing material.
- Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds.
- Parking of site vehicles will be managed and will not be permitted on public road, unless proposed within a designated area that is subject to traffic management measures and agreed with Galway County Council.
- Deliveries of construction materials will be planned to ensure that the materials are delivered only as they are required and will avoid peak hours when possible.
- Works that require the use of multiple vehicles, such as concrete pours, will be planned to ensure there will be no queuing on the public roadways surrounding the site.
- A road sweeper will be employed, if necessary, to clean the public roads of any residual debris that may be deposited on the public roads leading away from the construction works.
- On site wheel washing will be undertaken for construction vehicles to remove any debris prior to leaving the site.
- All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. All scheduled maintenance will not be carried out on the public highway.
- Safe and secure pedestrian facilities are to be provided where construction works obscure any existing pedestrian footways. Alternative pedestrian facilities will be provided in these instances, supported by physical barriers to segregate traffic and pedestrian movements, and to be identified by appropriate signage. Pedestrian facilities will cater for vulnerable users including mobility impaired persons.

The site is accessed via the R351 south of Loughrea town. The site will not be open to members of the public. When vehicles are entering the site, or leaving the site, these movements will be supervised by designated members of staff who will act as road marshals. The construction site gates will be kept closed when not in use and monitored by security. Traffic cones and set-back signage will be put in place to warn and safely direct cyclists around obstructions, if required.

3.7 Arboricultural Works Management

An updated Arboricultural Report has been prepared by Veon for the Proposed Development. The report outlines how a total of 50 trees within the redline are proposed to be removed to facilitate the Proposed Development, most of which are low-quality (Category C) semi mature trees, therefore these trees are more easily replaced through replacement planting. A number of mitigation and control measures are outlined in the Arboricultural Report to safeguard and protect all remaining trees. A full suite of mitigations are outlined in the Arboricultural Report and some of these mitigations are as follows:

3.7.1 Pre-Construction

- The project arboriculturist will collaborate with the project team to minimise tree impacts where possible and ensure trees have minimal impact on the proposed development. The project team will adjust the layout where practicable to reduce these impacts.

- Any issues in relation to the trees on site will be discussed with the project arboriculturist and local authority prior to works being carried out.

Tree Works

- All tree works will likely be carried out prior to construction activity on site, though this would be subject to appropriate seasonal timing (i.e. bird nesting season).
- A qualified, insured tree surgery contractor will carry out works according to BS:39982010
- Tree removal will be conducted carefully to avoid damage to surrounding trees.
- If stump grinding is necessary, protective measures (e.g., ground guards, plywood sheets) will safeguard trees' Root Protection Areas (RPAs).

Tree Protective Fencing

Installation

- Once tree works are completed, protective fencing will be erected in the position indicated by a solid pink line on TPR-LP-01 in the Arboricultural Report
- The fenced-off area, known as the Construction Exclusion Zone (CEZ), protects trees, their RPAs, and supplementary planting areas. Please see Arboricultural Report for fence specifications
- All weather “Keep Out” signs will be secured to the fences.
- Where fencing is impractical, Protective boxes and ground protection will be used. Please see Section 8.6 of the Arboricultural Report

Site Access and Parking

- These areas will be a minimum of 10 metres away from trees and slopes.
- Clearly signposted storage areas will prevent unauthorised material placement.
- Materials will be stored in containers/on pallets with plastic coverings to avoid soil compaction or contamination

Ground Protection

Where traffic is expected within in a CEZ, approved ground protection will be used to dissipate vertical loads and prevent soil contamination.

- Prepare Ground: Remove loose organic matter; level surface with non-compacted,no-fines stone.
- Lay Geotextile: Place non-woven geotextile fleece with 300 mm overlapping dry joints
- Edge Containment: Install treated timber/railway sleepers along edges.
- Deploy Cellular System: Place Cell Web (150-200 mm) over geotextile, pin/anchor open
- Fill and Compact: Gradually fill with 20-40 mm clean sharp stone using a roll-out method
- Final Surcharge: Add 25mm of 40-20 mm clean angular stone

3.7.2 Construction Phase

- The project arboriculturist will be informed of any planned works in a CEZ

- Tree monitoring will be conducted, with health and safety recommendations made as needed

Tree Fencing Maintenance

- Fencing must remain upright, rigid, and intact throughout construction
- The main contractor is responsible for daily inspections and repairs
- No materials or equipment shall be stored behind protective fencing

Working within a Construction Exclusion Zone

- Any work in the CEZ requires project arboriculturist consultation
- Ground protection (e.g., ground guards, heavy-duty plywood over woodchip) will be used for temporary access
- Tree protective fencing, if removed temporarily, will be securely stored and reinstated post-works
- Work will be manual-only—no heavy machinery allowed
- Existing hard surfacing within a RPA should be utilised for ground protection. If its removal is necessary, it must be done in a "working back-the-way" manner to maintain continuous ground protection
- Removal of structures and materials within the (CEZ) will be carried out manually using appropriate hand tools, such as a mattock, pneumatic breaker, shovel, and wheelbarrow. If encountered, roots under 25 mm in diameter may be pruned; larger roots require approval from an arboriculturist. Any exposed roots left overnight will be protected with soil or moist hessian
- Where permanent surfaces are to be installed within a CEZ, No-Dig methods will be implemented. Finished surfaces will be porous to allow gas and water movement

Use of Cranes

- If the use of cranes is expected to interfere with trees, then working space will be provided by facilitation pruning or temporary branch tying. A specification for which will be prepared by the project arboriculturist
- The smallest practicable crane will be used to prevent potential damage to trees and soil compaction. If there is a large crane on site, then it may be more prudent to move materials around trees from a far, as this will prevent soil compaction around trees.
- A banksman will direct lifting to prevent tree damage

Excavations

- Excavations within RPAs is avoided where possible.
- If unavoidable, solutions such as piles or pads with above-ground beams will be used.
- Trial holes (600 mm deep) will be dug using Air-Spade/hand tools
- Roots under 25 mm may be pruned; larger roots require arboriculturist approval.
- Roots left exposed overnight will be covered with soil or moist hessian.
- Piling near trees will use smallest practicable diam piles
- Sleeved bored pile/screw piles will be used to protect the soil and roots from toxic effects of uncured concrete.

Services

- Services will be routed outside RPAs where possible

- If unavoidable, trenchless insertion methods will be used, with entry/exit pits outside RPAs (Table 3). To avoid damage to roots when using trenchless insertion methods, the depth of the pit will be 750 mm.
- If the service route must pass through the RPA, it will be routed under the centre of the tree, where there are less roots.
- External lubrication of equipment with materials other than water or vegetable oil (e.g. mineral oil, bentonite, etc.) will not be used when working within the RPA.
- Shallow service runs may be excavated manually, avoiding roots and moving pliable ones
- Roots under 25 mm may be pruned; larger roots require arboriculturist approval.
- Roots left exposed overnight will be covered with soil or moist hessian.
- No heavy machinery excavation within RPAs

Finished Ground Levels and Landscaping

- Existing RPA ground levels will remain unchanged and incorporated into the finished development. If the new ground level outside of the RPA is higher, then a retaining structure will be used to prevent water pooling around the tree.
- No heavy machinery within RPAs. Landscaping will be done manually
- Herbicide use near retained trees will be minimised, with only direct, systemic applications allowed if necessary

3.8 Invasive Species Management

During the multidisciplinary survey a search for Invasive Alien Species (IAS), with a focus on those listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) was conducted by a suitably qualified ecologist. No third schedule invasive species were found on site as part of site investigations and walkovers. Should invasive species be encountered on site during the construction phase, an invasive species management plan will be prepared. The treatment and control of invasive alien species will follow guidelines issued by the National Roads Authority – The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA 2010) and the Environment Agency– The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites (Version 3, amended in 2013). To prevent the introduction of any invasive species to the site best practice control methods are summarised in the following sections.

3.8.1 Site Management

There were no invasive species recorded onsite however, in the event that an invasive species are encountered, an invasive species management plan will be prepared, and the following measures will be adopted. Careful preparation of the site and planning of the works is crucial to successful prevention of introduction of invasive species. The following list of guidelines, which is not exhaustive, shall be followed by all on-site personnel. Only those who have been inducted into biosecurity measures on-site may enter the contaminated zones within the works areas.

3.8.2 Establishing Good Site Hygiene

- Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Rhododendron, Japanese Knotweed, Giant Rhubarb etc.) by thoroughly washing vehicles prior to entering the site.
- A risk assessment and method statement must be provided by the Contractor prior to commencing works.

- Fences will be erected around areas of infestation, as confirmed by test pits, and warning signs shall be erected.
- A designated wash-down area will be created, where power-washed material from machinery can be contained, collected, and disposed of with other contaminated material. This area will contain a washable membrane or hard surface.
- Stockpile areas will be chosen to minimise movement of contaminated soil.
- Stockpiles will be marked and isolated.
- Contaminated areas which will not be excavated will be protected by a root barrier membrane if they are likely to be disturbed by machinery. Root barrier membranes will be protected by a layer of sand above and below and topped with a layer of hardcore.
- The use of vehicles with caterpillar tracks within contaminated areas will be avoided to minimise the risk of spreading contaminated material.
- Any material that is imported onto any site will be verified by a suitably qualified ecologist to be free from any invasive species listed on the 'Third Schedule' of Regulations 49 & 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I 477 of 2011). This will be carried out by searching for rhizomes and plant material.
- Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.
- Any soils or subsoils contaminated with invasive species will be sent for disposal to an authorized waste facility.
- A suitably qualified ecologist will be on site to monitor and oversee the implementation of invasive species remedial works.

Plant and equipment which is operated within an area for the management of materials in contaminated areas will be decontaminated prior to relocating to a different works area. The decontamination procedures will take account of the following:

- Personnel may only clean down if they are familiar with the plant and rhizome material and can readily identify it.
- Decontamination will only occur within designated wash-down areas.
- Vehicles will be cleaned using stiff-haired brush and pressure washers, paying special attention to any areas that might retain rhizomes e.g., wheel treads and arches.
- All run-off will be isolated and treated as contaminated material. This will be disposed of in already contaminated areas.

3.9 Resource Waste Management Plan

The generation of waste as a result of construction related activity will provide the majority of on-site wastes which will need to be managed under guidelines set out in this document. This section of the CEMP provides a Waste Management Plan (WMP) which outlines the best practice procedures during the construction phases of the project. This plan has been compiled based on The Department of the Environment document entitled, *'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects' (2021).*

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

This plan has a number of key objectives as outlined below:

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

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

3.9.1 Legislation

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

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

3.9.2 Waste Management Hierarchy

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

Prevention and Minimisation

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

Reuse of Waste

Reusing as much material generated on-site as possible will reduce the quantities of waste that will have to be disposed of off-site to recovery or waste facilities. Site management will be required to encourage the appropriate reuse of materials where possible as well as identify re-use opportunities to achieve ultimate goal of waste reduction. Construction waste will arise on the project mainly from excavation and unavoidable construction waste including excess materials and packaging waste.

Appropriate measures should be implemented to ensure that minimal waste is generated during construction. These are as follows:

- All waste will be collected in skips and the site will be kept tidy and free of debris at all times.
- All construction waste materials will be stored within the confines of the site, prior to removal from the site to a permitted waste facility.
- Ordering of materials should be on an ‘as needed’ basis to prevent over supply to site. Co-ordination is required with suppliers enabling them to take/buy back surplus stock.
- Request that suppliers use least amount of packaging possible on materials delivered to the site.
- Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal.
- Ensuring correct sequencing of operations.
- Use reclaimed materials in the construction works.
- Hazardous waste will be kept separate from all other construction waste to prevent contamination and removed appropriately.

- Concrete can be reused as aggregate for roads cable trench backfilling materials
- Plastic packaging etc. can be used to cover materials on site or reused for the delivery of other materials.

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

Recycling of Waste

There are a number of established markets available for the beneficial use of construction waste such as using waste concrete as fill for new roads. If some of the construction materials cannot be reused on site, then recycling is the favoured option.

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

3.9.3 Resource Waste Management Plan (RWMP)

3.9.3.1 Design Approach

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

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

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

3.9.4 Construction Waste Management

The first significant quantity of waste to be generated during the construction phase of the project will be as a result of demolition and site clearance works.

The majority of the waste generated by the demolition works will consist of concrete rubble, metal cladding, the existing wall structures (internal and external), and other associated support components (steel beams/bracing). Additionally, excavation works will generate soil and subsoil materials. Although a quantity of this material will be used for landscaping, backfilling and general restoration of excavated

areas, it is anticipated that a small quantity of this material will be disposed of off-site by a licenced haulier to an authorised waste recovery facility. The demolition works materials will be segregated from all other waste components and sent by an authorised waste collector to an authorised waste recovery facility. The remaining volume of waste material will not be large enough to warrant any further segregation, therefore, this waste generated during the demolition of the building will be deposited into a single skip. This waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal.

Waste generated post excavation on site will be managed in the waste storage area where the various waste components will be segregated into a number of waste categories in accordance with a general waste segregation policy and placed into individual skips. The categories for segregation will include timber, metal, cardboard and plastics. This material will be removed by authorised waste collection contractors for recycling and recovery at various licensed facilities. The remaining volume of waste material which cannot be allocated to any of these four waste streams will be disposed of in a general waste skip. This general waste will be subject to constant monitoring by site management to ensure that potential reusable and recyclable material is not being disposed of therein. Other waste mitigation measures which will be implemented at the site are as follows;

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

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

Table 3-1 Expected waste types arising from the Construction Phase

Materials type	Example	LoW Code
Cables	Electrical wiring	17 04 11
Concrete	Surfacing, flooring material	17 01 01
Metals	Steel supports and cladding, roof and wall coverings, utility piping,	17 04 07
Mixture of inert material	Sand, stones, plaster, brick, rock	17 01 07
Plastic	PVC frames, electrical fittings	17 02 03
Soil & Stones	Overburden, soil, subsoil	17 05 04
Wood	Rafters, frames, doors	17 02 01
Gypsum Materials	Roof tiles/slate	17 08 02

Glass	Windows	20 01 02

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

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

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

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

3.9.4.2 Wastes Arising from Construction Activities

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

The waste generated from the development will be limited to the associated protective covers which are generally reusable or recyclable. Any other packaging waste generated from the delivery of materials will be deposited into the on-site skips and subsequently transferred to the MRF.

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

Implementation

3.9.4.3 Roles and Responsibilities for Waste Management

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

3.9.4.4 Training

It is important for the Waste Manager to communicate effectively with colleagues in relation to the aims and objectives of the waste management plan. All employees working on site during the construction phase of the project will be trained in materials management and thereby, should be able to:

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

3.9.4.5 Record Keeping

The WMP will provide systems that will enable all arisings, movements, and treatments of waste to be recorded. This system will enable the contractor to measure and record the quantity of waste being generated. It will highlight the areas from which most waste occurs and allows the measurement of arisings against performance targets. The WMP can then be adapted with changes that are seen through record keeping.

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

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

3.9.5 Waste Management Plan Conclusion

The WMP will be correctly implemented and adhered to by all staff involved in the project which will be outlined within the induction process for all site personnel. The waste hierarchy will always be employed to ensure that the least possible amount of waste is produced during the construction phase. Reuse of certain types of construction wastes will cut down on the cost and requirement of raw materials therefore further minimising waste levels.

4. ENVIRONMENTAL MANAGEMENT IMPLEMENTATION AND EMERGENCY RESPONSE

4.1 Environmental Manager

Due to the scale of the activity at the site the Construction Manager will also act as the Environmental Manager (EM) and will be required to monitor all site works and to ensure that prescribed methodologies and environmental measures are followed throughout construction to avoid negatively impacting on the receiving environment.

The responsibilities and duties of the EM will include the following:

- Maintain and update as required the CEMP and supporting environmental documentation and review/approval of contractor method statements;
- Undertake inspections and reviews to ensure the works are carried out in compliance with the CEMP;
- The appointed contactor will be fully briefed by an ecologist as to the sensitive nature of the site and the required mitigation measures;
- The contractor will assign a member of the site staff as the environmental officer with the responsibility for ensuring the environmental measures prescribed in this document are adhered to. Any environmental incidents or non-compliance issues will immediately be reported to the project team;
- In addition, a suitably qualified ecologist will be appointed to supervise the works undertaken during constriction, particularly where works within the lake are required;
- Generate environmental reports as required to show environmental data trends and incidents and ensure environmental records are maintained throughout the construction period;
- Advise site management/contractor/sub-contractors on:
    - Prevention of environmental pollution and improvement to existing working methods.
    - Changes in legislation and legal requirements affecting the environment.
    - Suitability and use of plant, equipment and materials to prevent pollution
    - Environmentally sound methods of working and systems to identify environmental hazards.
- Ensure proper mitigation measures are initiated and adhered to during the construction phase;
- Liaise with Project Team and present the findings of site audits/inspections that are completed;
- Ensure adequate arrangements are in place for site personnel to identify potential environmental incidents;
- Ensure that details of environmental incidents are communicated in a timely manner to the relevant regulatory authorities, initially by phone and followed up as soon as is practicable by email;
- Support the investigation of incidents of significant, potential, or actual environmental damage, and ensure corrective actions are carried out, recommend means to prevent recurrence and communicate incident findings to relevant parties;
- Identify environmental training requirements and arrange relevant training for all levels of site-based staff/workers; and
- The level, detail and frequency of reporting expected from the EM for the developer's project manager, and local authorities or other agencies, will be agreed

by all parties prior to commencement of construction, and may be further adjusted as required during the course of the project.

4.2 Project Ecologist/ Ecological Clerk of Works

The ecologist/ECoW shall monitor all site investigation and construction works for the Proposed Development and shall ensure that all works are carried out in accordance with mitigation measures outlined in the CEMP and NIS.

The ECoW will supervise in particular any wet concrete works within the dry working areas and also along the fringes of the lake. If it is suspected that construction works are having a negative impact on the lake then works will be ceased until investigation and rectification have been carried out.

On completion of the development, a final report setting out all the ecological monitoring, findings and measures carried out shall be submitted to the Planning Authority.

4.3 Emergency Response Plan

4.3.1 Emergency Response

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

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

4.3.2 Roles and Responsibilities

The chain of command during an emergency response sets out who is responsible for coordinating the response. The Site Manager will lead the emergency response which makes him responsible for activating and coordinating the emergency response procedure. The other site personnel who can be identified at this time who will be delegated responsibilities during the emergency response are presented in Figure 4-1. In a situation where the Site Manager is unavailable or incapable of coordinating the emergency response, the responsibility will be transferred to the next person in the chain of command outlined in Figure 4-1. This will be updated throughout the various stages of the project.

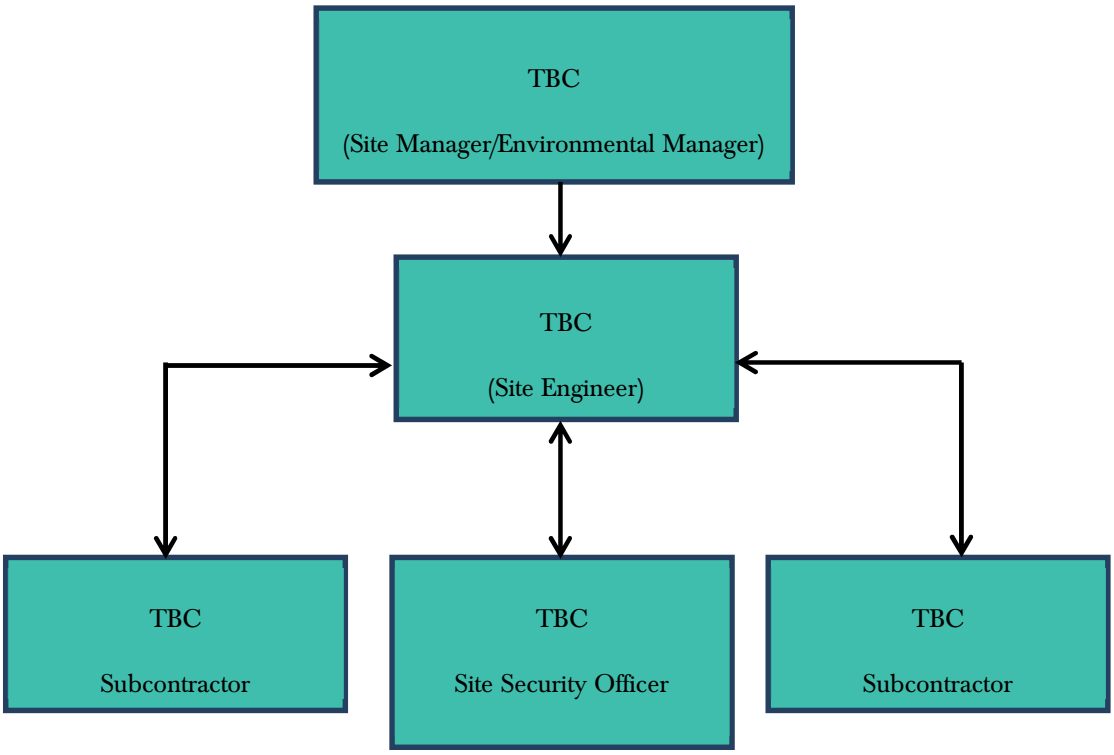

Figure 4-1 Emergency Response Procedure Chain of Command

4.3.3 Initial Steps

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

Table 4-1 Hazards Associated with Potential Emergency Situations

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

In the event of an emergency situation associated with, but not restricted to, the hazards outlined in Table 4-1 the Site Manager will carry out the following:

- Establish the scale of the emergency situation and identify the number of personnel, if any, have been injured or are at risk of injury.
- Where necessary, sound the emergency siren/foghorn that activates an emergency evacuation on the site.
- Make safe the area if possible and ensure that there no identifiable risk exists with regard to dealing with the situation e.g., if a machine has turned over, ensure that it is in a safe position so as not to endanger others before assisting the injured.
- Contact the required emergency services or delegate the task to someone if he is unable to do so. If delegating the task, ensure that they follow the procedures for contacting the emergency services as set out in Section 4.4.7
- Take any further steps that are deemed necessary to make safe or contain the emergency incident e.g., cordon off an area where an incident associated with electrical issues has occurred.
- Contact any regulatory body or service provider as required e.g., ESB Networks the numbers for which as provided in Section 4.4.7
- Contact the next of kin of any injured personnel where appropriate. The procedure for this is outlined in Section 4.4.7.

4.3.4 Site Evacuation/Fire Drill

A site evacuation/fire drill procedure will provide basis for carrying out the immediate evacuation of all site personnel in the event of an emergency. The following steps will be taken:

- Notification of the emergency situation. Provision of a siren or foghorn to notify all personnel of an emergency situation.
- An assembly point will be designated in the construction compound area and will be marked with a sign. All site personnel will assemble at this point.
- A roll call will be carried out by the Site Security Officer to account for all personnel on site.
- The Site Security Officer will inform the Site Manager when all personnel have been accounted for. At this time the Site Manager will decide the next course of action which will be determined by the situation that exists at that time. The Site Manager will advise all personnel accordingly.

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

4.3.5 Environmental Emergency Response Procedure

4.3.5.1 Spill Control Measures

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

- Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.

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

Environmental incidents are not limited to just fuel spillages. Therefore, any environmental incident must be investigated in accordance with the following steps.

- The Environmental Manager must be immediately notified.
- If necessary, the Environmental Manager will inform the appropriate regulatory authority. The appropriate regulatory authority will depend on the nature of the incident.
- The details of the incident will be recorded on an Environmental Incident Form which will provide information such as the cause, extent, actions and remedial measures that were used following the incident. The form will also include any recommendations made to avoid reoccurrence of the incident.
- If the incident has impacted on an ecologically sensitive receptor, such as a sensitive habitat, protected species or designated conservation site, (pSPA or cSAC), the Environmental Manager will liaise with the Project Ecologist.
- If the incident has impacted on a sensitive receptor such as an archaeological feature the Environmental Manager will liaise with an suitably qualified Archaeologist.
- A record of all environmental incidents will be kept on file by the Environmental Manager and the Main Contractor. These records will be made available to the relevant authorities such as Galway County Council and the EPA if required.

The Environmental Manager will be responsible for any corrective actions required as a result of the incident e.g., an investigative report, formulation of alternative construction methods or environmental sampling, and will advise the Main Contractor as appropriate.

4.3.6 Contacting the Emergency Services

4.3.6.1 Emergency Communication Procedure

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

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

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

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

4.3.6.2 Contact Details

A list of emergency contacts is presented in Table 4-2.

Table 4-2 Emergency Contacts Emergency Contacts

Hazard	Emergency Situation
Emergency Services – Ambulance, Fire, Gardaí	999/112
Doctor – Main Street Clinic Loughrea	091-842 144
Hospital –Bon Secours Hospital	091-381 900
ESB Emergency Services	1850 372 999
Bórd Gais Emergency	1850 20 50 50
Gardaí – Loughrea Garda Station	091-842-870
Health and Safety Coordinator - Health & Safety Services	TBC
Health and Safety Authority	1890 289 389
Project Supervisor Construction Stage (PSCS): TBC	TBC
Project Supervisor Design Stage (PSDS): TBC	TBC
Client – Galway County Council	1-617-361-6700 ext. 101

4.3.6.3 Procedure for Personnel Tracking

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

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

4.3.6.4 Induction Checklist

Table 4-3 provides a list of items highlighted in this ERP which must be included or obtained during the mandatory site induction of all personnel that will work on the site. This will be updated throughout the various stages of the project.

Table 4-3 Emergency Response Plan Items Applicable to the Site Induction Process

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

5. MITIGATION PROPOSALS

The Mitigation Measures which will be implemented are presented in this section of the CEMP. The CEMP will be finalised subsequent to any permission granted and will be updated prior to construction to include, inter alia, any additional requirements pursuant to relevant planning conditions imposed.

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

Table 5-1 Mitigation measures for the Pre-commencement and Construction Phases

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
Pre-Commencement Phase				
1	CEMP Section 1	All measures identified in this CEMP, which will be finalised subsequent to any permission granted and updated prior to construction will include all mitigation measures identified to be adhered to during the pre-commencement and construction phases of the proposed works. Any subsequent amendments to this CEMP post consent will be reviewed by relevant appropriate parties such as NPWS, Inland Fisheries Ireland or the National Monument Service.		
2	CEMP Section 3.1.2 & NIS Section 6	The Proposed Development site boundary encompasses a small area of Lough Rea. It should be noted that the section of Lough Rea that is encompassed within the Proposed Development site boundary is a designated European Site (SAC) [000304] and Lough Rea Special Protection Area (SPA). Some in-lake works are required as part of the Proposed Development. The following measures will be put in place to prevent the transportation of silt laden water or pollutants from entering the wider environments including nearby waterbodies: › Prior to the commencement of earthworks, silt fencing will be erected around the boundary of the Proposed Development site, between the works area and along the shore of Lough Rea. This will be embedded into the ground adjacent to the perimeter boundary. Locations of silt fencing are outlined in Figure 3-1 below. › The silt fence will comprise wooden posts with geotextile membrane buried approximately 250mm below ground level. This fence will be kept in good repair and will be routinely inspected		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		➢ The silt fences will be left in place throughout construction phase and until all exposed soil has revegetated. ➢ A site compound will be established within the site boundary. The exact location of the site compound will be established by the contractor and will be located a minimum of 50m from any watercourses or waterbodies. The compound will be used for storage of material, machinery, fuel, and workers facilities. ➢ A self-contained port-a-loo with an integrated waste holding tank will be used at the site compound, maintained by the providing contractor, and removed from site on completion of the construction works; No foul water will be discharged on-site during the construction. ➢ The appointed contactor will be fully briefed by an ecologist as to the sensitive nature of the site (i.e. proximity to Lough Rea) and the required mitigation measures. ➢ The contractor will assign a member of the site staff as the environmental officer with the responsibility for ensuring the environmental measures prescribed in this document are adhered to. Any environmental incidents or non-compliance issues will immediately be reported to the project team. ➢ In addition, a suitably qualified ecologist will be appointed to fulfil the role of Ecological Clerk of Works (ECoW) to supervise the works undertaken during constriction, particularly where works within the lake are required. ➢ Excavated spoil (if any) will be stockpiled and contained entirely within the confines of the site boundaries. ➢ During earthwork activities, the following mitigations will be adhered to: ○ Excavation depths will be kept to a minimum.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		○ Material that is not re-used will be transported off site to an appropriately licensed waste recovery/disposal facility. ○ Suitable stone material will be imported to the site to be used as backfill. ○ Stockpiling of soil during construction, should it be required, will take place in designated areas within the site boundary away from any watercourses or waterbodies. ○ A silt fence will be erected around any stockpiling of material to prevent any sediment-laden run-off occurring. › All diesel or petrol pumps required onsite will be operated within bunded units. › Exposed surfaces will be re-vegetated as soon as possible following construction. › The minimum number of soil/subsoils and bedrock material will be removed from site. Soil may be reused for landscaping elsewhere on the site. › Earthworks will not be carried out during periods of heavy rainfall. › As construction advances there may be a requirement to collect and treat surface water within the site. This will be completed using perimeter swales at low points around the construction areas, and if required will be tankered off site for appropriate treatment. › It should be noted that if swales are required then these will be installed a minimum of 50 metres from the lake shore. Construction swales will not be installed in the vicinity of any watercourse or waterbody.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		▸ If ground water is encountered during excavations, waters will be pumped from excavation and discharged through a pipe with a silt bag attached on to an area of overland vegetation within the site boundary. ▸ Discharge to ground will be via a silt bag which will filter any remaining sediment from the pumped water. ▸ Daily monitoring and inspections of site drainage during construction will be completed by the appointed environmental officer. ▸ An Ecological Clerk of Works (ECoW) will be present at the site to ensure all appropriate mitigations as outlined in Section 3 and in Table 6-1 are implemented. The ECoW will supervise all works within the confines of the lake (installation of coffer dams, dewatering etc) as well as supervising works on the fringe of the lakes (pier repairs etc). ▸ Good construction practices such wheel washers and dust suppression on site roads, and regular plant maintenance will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites, guidance for consultants and contractors', CIRIA, 2010), which provides information on these potential issues. This will ensure that surface water arising during the course of construction activities will contain minimum sediment.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
Construction Phase				
Surface Water Mitigation				
3	CEMP Section 2.4.4 & NIS Section 6	A construction compound will be established within the site boundary. The exact location of the site compound will be established by the contractor and will be located a minimum of 50m from any watercourses or waterbodies.		
4	CEMP Section 2.4.10.1 & NIS Section 6	› Works will be carried out in the dry to avoid siltation of the Lough Rea and downstream watercourses. › The work area will be temporarily dammed (coffer dam) with sandbags and will completely surround the work area for the kayak ramp. › A submersible pump will be used to pump water out of the works area, creating a dry working area, and will be pumped to a discharge point, a minimum of 30m from any waterbody and within the main construction site. It will pass through a silt bag before discharge to ground. › Prior to pumping, electrofishing will be carried out within the works area under licence from the NPWS by a qualified ecologist to remove any fish and move them into Lough Rea. › Once a dry working area has been established and approved by the onsite EcOW, the existing broken slip will be removed from the work area if required. This will be undertaken using power tools such as jack hammers and drills. Hand tools may also be used if required. No machinery will enter the works area. › The new/upgraded slip will require some wet works as part of its installation. All wet work will be allowed to fully cure before the		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		working area is re-wetted. All wet pouring will be supervised by the EcOW. › Once works within the work area are complete, the sandbags will be removed to allow water from the lake back into the area. › All works within the working area will be undertaken in line with the IFI, 2016: Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters and under supervision of an EcOW.		
5	CEMP Section 2.4.10.2 & NIS Section 6	› Works will be carried out in the dry to avoid siltation of the Lough Rea and downstream watercourses. › The work area will be temporarily dammed (coffer dam) with sandbags and will completely surround the work area for the kayak ramp. › A submersible pump will be used to pump water out of the works area, creating a dry working area, and will be pumped to a discharge point, a minimum of 30m from any waterbody and within the main construction site. It will pass through a silt bag before discharge to ground. › Prior to pumping, electrofishing will be carried out within the works area under licence from the NPWS by a qualified ecologist to remove any fish and move them into Lough Rea. › Once a dry working area has been established and approved by the onsite EcOW, the access ramp will be installed. Works in this area will comprise some levelling/grading works and wet concrete works. No machinery will enter the works area. Concrete wet works will be supervised by the EcOW. › All wet work will be allowed to fully cure before the working area is re-wetted.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		◦ Once works within the work area are complete, the sandbags will be removed to allow water from the lake back into the area. › All works within the working area will be undertaken in line with the IFI, 2016: Guidelines on Protection Of Fisheries During Construction Works in and Adjacent to Waters and under supervision of an EcOW.		
6	CEMP Section 2.4.10.3 & NIS Section 6	The final element of the Proposed Development which requires work within Lough Rea is the proposed circular viewing deck/Crannóg viewpoint on the western shore of the site. This will be constructed on an in-situ concrete frame. If practically possible, the concrete frame will be comprised of pre-cast elements. However, given the uneven ground and gradient, there may be requirement for some concrete pouring in this area. As outlined above, any concrete wet works will be supervised by the designated EcOW. Concrete wet works will only be permitted to be carried out when a dry working area has been established. See methodology below. Once the frame has been installed the remaining components of the viewing deck will be installed by appropriately qualified personnel. As per Section 7.4.1 of Inland Fisheries Guidance (*IFI, 2016: Guidelines On Protection Of Fisheries During Construction Works in and Adjacent to Waters*), where wet work is required, all work must be complete in the dry and effectively isolated from any flowing water. Works will be carried out in the dry to avoid siltation of the Lough Rea and downstream watercourses. The following mitigations will be applied: › Works will be carried out in the dry to avoid siltation of the Lough Rea and downstream watercourses. › The work area will be temporarily dammed (coffer dam) with sandbags and will completely surround the work area. › A submersible pump will be used to pump water out of the works area, creating a dry working area, and will be pumped to a discharge point, a		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		minimum of 30m from any waterbody and within the main construction site. It will pass through a silt bag before discharge to ground. › Prior to pumping, electrofishing will be carried out within the works area under licence from the NPWS by a qualified ecologist to remove any fisheries and move them into Lough Rea. › Once a dry working area has been established and approved by the onsite EcOW, shuttering will be established and concrete will be carefully poured, ensuing no spillage. › All wet work will be allowed to fully cure before the working area is re-wetted. › All works within the working area will be undertaken in line with the *IFI, 2016: Guidelines On Protection Of Fisheries During Construction Works in and Adjacent to Waters* and under supervision of an EcOW.		
		Construction Management		
7	CEMP Section 3.1.3 & NIS Section 6	The following mitigation measures are proposed to avoid release of cement leachate from the site: › No batching of wet-cement products will occur on site. › Wet cement, where required will be brought to the site in ready-mix trucks. › No washing out of any plant used in concrete transport or concreting operations will be allowed on-site. › No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. › Use weather forecasting to plan dry days for pouring concrete.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event. › ECoW to supervise all concrete wet works in the dry working areas and adjacent to the lakeshore.		
		Fuel and Oil Control		
8	CEMP Section 3.1.4 & NIS Section 6	The following measures are proposed to avoid release of hydrocarbons at the site: › Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Off-site refuelling will occur at a controlled fuelling station. › On-site refuelling, if required will take place by direct refuelling from the delivery truck or from fuel stored within a bunded fuel tank. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations. › Vehicles will never be left unattended during refuelling. Only dedicated trained and competent personnel will carry out refuelling operations and plant refuelling procedures shall be detailed in the contractor's method statements. › Storage/refuelling will be located in and carried out in a designated area of the proposed site, located a suitable distance from excavation works. Bunded tanks will be used, and these will be inspected for leaks regularly. Spill kits will be available on site and staff will be trained in their use and in spill control. All spills shall be diverted for collection. › Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		against unauthorised access or vandalism, and provided with spill containment. › Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or recycling. › Storage bunds/trays, if required will be constructed of an impermeable membrane (HDPE Plastic) and will have the adequate capacity to contain the volume of the liquids contained therein, if a leak/spillage does occur from one of the storage vessels. › The storage area will contain a small bund lined with an impermeable membrane in order to prevent any contamination of the surrounding soils and vegetation. › All site plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed. All major repair and maintenance operations will take place off site.		
9	CEMP Section 4.3.5 & NIS Section 6	Every effort will be made to prevent an environmental incident during the construction and operational phase of the proposed project. Oil/Fuel spillages are one of the main environmental risks that will exist on the proposed site which will require an emergency response procedure. The importance of a swift and effective response in the event of such an incident occurring cannot be over emphasised. The following steps provide the procedure to be followed in the event of such an incident. › Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers. › If applicable, eliminate any sources of ignition in the immediate vicinity of the incident.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill. › If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses or sensitive habitats. › If possible, clean up as much as possible using the spill control materials. › Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited. › Notify the applicant immediately giving information on the location, type and extent of the spill so that they can take appropriate action. › External consultants will inspect the site and will assist by providing any advice possible to ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring. › The applicant will notify the appropriate regulatory body if deemed necessary.		
Biosecurity				
10	CEMP Section 3.2	› Prior to entering the works area, all machinery and personnel will be thoroughly disinfected to ensure that no inadvertent spread of invasive species into Lough Rea occurs. › All works within this area will be subject to strict biosecurity protocols to prevent the spread of the crayfish plague which is caused by the fungal-like organism, Aphanomyces astaci. › Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Rhododendron, Japanese Knotweed, Giant Rhubarb etc.) by thoroughly washing vehicles prior to entering the site. › Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		Air Quality and Dust Control		
11	CEMP Section 3.3	Construction dust can be generated from many on-site activities such as excavation and backfilling. The extent of dust generation will depend on the type of activity undertaken, the location, the nature of the dust, i.e., soil, sand, etc and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or, periods of dry weather. Construction traffic movements also have the potential to generate dust as they travel along the public road. The measures below will also prevent construction debris arising on the public road network. › The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness and cleaned as necessary. › Material handling systems and material storage areas, if required will be designed and laid out to minimise exposure to wind. › Water misting will be utilised on-site as required to mitigate dust in dry weather conditions, if required. › The transport of soils, demolition material, aggregates or other material, which has the potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary. › Daily inspection of construction sites to examine dust measures and their effectiveness. › All construction related traffic will have speed restrictions on un-surfaced areas within the site to 60kph.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
Noise				
12	CEMP Section 3.3 & NIS Section 6	The operation of plant and machinery, including construction vehicles, is a source of potential noise impacts. Noise levels shall be kept below those levels specified in the National Roads Authority – *"Guidelines for the Treatment of Noise and Vibration in National Roads Schemes"* or such further limits as imposed by Galway County Council. The Proposed Development shall comply with BS 5228 *"Noise Control on Construction and open sites Part 1: Code of practice for basic information and procedures for noise control."* During the works, any plant introduced to the site will not be excessively noisy. Exhaust and silencer systems on plant will be maintained in a satisfactory condition and operating correctly at all times. Defective silencers will be immediately replaced. Proposed measures to control noise include: › Construction equipment for use outdoors shall comply with the European Communities Regulations– Noise Emission by Equipment for Use Outdoors – SI 241 - 2006. › If utilised, diesel generators will be enclosed in sound proofed containers to minimise the potential for noise impacts. › Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected. All construction plant and equipment to be used on-site will be modern equipment and will comply with the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations. › Plant with the potential of generating noise or vibration will be placed as far away from sensitive properties as permitted by site constraints.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Regular maintenance of plant will be carried out in order to minimise noise emissions. Particular attention will be paid to the lubrication of bearings and the integrity of silencers. › All plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the works. › If compressors are required, they will be of the "sound reduced" models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. › Machines, which are used intermittently, will be shut down during those periods when they are not in use. › Training will be provided by the Site Management to drivers to ensure smooth machinery operation/driving, and to minimise unnecessary noise generation. › Where necessary, further measures for the reduction of construction noise and vibration levels will be defined by Galway County Council and adhered to by the Main Contractor. It is recommended that drivers of heavy goods vehicles (HGVs) associated with the development extend due care and courtesy to other road users. Excessive engine revving will be avoided at all times. The proposed construction working hours will be 08:00-18:00 Monday to Saturday. Construction will not take place at the site on Sundays or Public Holidays. Deviation from these times will only be allowed in exceptional circumstances where written approval has been received from the planning authority and when other relevant third parties i.e., nearby homeowners and property owners have been notified and have agreed to works taking place during such time periods.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
Traffic Management				
13	CEMP Section 3.5	The proposed traffic management measures to be adopted during the construction works are summarised below. Please note that this is not an exhaustive list, and it will be updated accordingly by the appointed contractor in consultation with the local authority. › Warning signs / Advanced warning signs will be installed at appropriate locations in advance of the construction site access locations. › A site specific Construction Traffic and Transport Statement will be agreed upon with the Galway County Council prior to works starting. › Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; and movement of construction vehicles will be restricted to these designated routes. › Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on HGVs carrying dust producing material. › Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds. › Parking of site vehicles will be managed and will not be permitted on public road, unless proposed within a designated area that is subject to traffic management measures and agreed with Galway County Council. › Deliveries of construction materials will be planned to ensure that the materials are delivered only as they are required and will avoid peak hours when possible. › Works that require the use of multiple vehicles, such as concrete pours, will be planned to ensure there will be no queuing on the public roadways surrounding the site.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› A road sweeper will be employed, if necessary, to clean the public roads of any residual debris that may be deposited on the public roads leading away from the construction works. › On site wheel washing will be undertaken for construction vehicles to remove any debris prior to leaving the site. › All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. All scheduled maintenance will not be carried out on the public highway. › Safe and secure pedestrian facilities are to be provided where construction works obscure any existing pedestrian footways. Alternative pedestrian facilities will be provided in these instances, supported by physical barriers to segregate traffic and pedestrian movements, and to be identified by appropriate signage. Pedestrian facilities will cater for vulnerable users including mobility impaired persons. The site is accessed via the R351 south of Loughrea town. The site will not be open to members of the public. When vehicles are entering the site, or leaving the site, these movements will be supervised by designated members of staff who will act as road marshals. The construction site gates will be kept closed when not in use and monitored by security. Traffic cones and set-back signage will be put in place to warn and safely direct cyclists around obstructions, if required.		
Archaeological Mitigations				
14	CEMP Section 3.5	An Underwater Archaeological Impact Assessment was prepared by Mizen Archaeology as part of the Request for Further Information. This report makes the recommendation that all lakebed disturbance be subject to licensed archaeological monitoring by a suitably qualified underwater archaeologist. The terrestrial elements of the Proposed Development should also be subject to archaeological		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		monitoring, in accordance with the recommendations of the Development Applications Unit (under Section 177AE).		
		Arboricultural Management		
15	CEMP Section 3.7 and Arboricultural Report	› The project arboriculturist will collaborate with the project team to minimise tree impacts where possible and ensure trees have minimal impact on the proposed development. The project team will adjust the layout where practicable to reduce these impacts. › Any issues in relation to the trees on site will be discussed with the project arboriculturist and local authority prior to works being carried out. **Tree Works** › All tree works will likely be carried out prior to construction activity on site, though this would be subject to appropriate seasonal timing (i.e. bird nesting season). › A qualified, insured tree surgery contractor will carry out works according to BS:39982010 › Tree removal will be conducted carefully to avoid damage to surrounding trees. › If stump grinding is necessary, protective measures (e.g., ground guards, plywood sheets) will safeguard trees' Root Protection Areas (RPAs). **Tree Protective Fencing** **Installation**		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Once tree works are completed, protective fencing will be erected in the position indicated by a solid pink line on TPR-LP-01 in the Arboricultural Report › The fenced-off area, known as the Construction Exclusion Zone (CEZ), protects trees, their RPAs, and supplementary planting areas. Please see Arboricultural Report for fence specifications › All weather "Keep Out" signs will be secured to the fences. › Where fencing is impractical, Protective boxes and ground protection will be used. Please see Section 8.6 of the Arboricultural Report **Site Access and Parking** › These areas will be a minimum of 10 metres away from trees and slopes. › Clearly signposted storage areas will prevent unauthorised material placement. › Materials will be stored in containers/on pallets with plastic coverings to avoid soil compaction or contamination **Ground Protection** Where traffic is expected within in a CEZ, approved ground protection will be used to dissipate vertical loads and prevent soil contamination. › Prepare Ground: Remove loose organic matter; level surface with non-compacted,no-fines stone. › Lay Geotextile: Place non-woven geotextile fleece with 300 mm overlapping dry joints		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Edge Containment: Install treated timber/railway sleepers along edges. › Deploy Cellular System: Place Cell Web (150-200 mm) over geotextile, pin/anchor open › Fill and Compact: Gradually fill with 20-40 mm clean sharp stone using a roll-out method › Final Surcharge: Add 25mm of 40-20 mm clean angular stone **Construction Phase** › The project arboriculturist will be informed of any planned works in a CEZ › Tree monitoring will be conducted, with health and safety recommendations made as needed **Tree Fencing Maintenance** › Fencing must remain upright, rigid, and intact throughout construction › The main contractor is responsible for daily inspections and repairs › No materials or equipment shall be stored behind protective fencing **Working within a Construction Exclusion Zone** › Any work in the CEZ requires project arboriculturist consultation › Ground protection (e.g., ground guards, heavy-duty plywood over woodchip) will be used for temporary access		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Tree protective fencing, if removed temporarily, will be securely stored and reinstated post-works › Work will be manual-only—no heavy machinery allowed › Existing hard surfacing within a RPA should be utilised for ground protection. If its removal is necessary, it must be done in a "working back-the-way" manner to maintain continuous ground protection › Removal of structures and materials within the (CEZ) will be carried out manually using appropriate hand tools, such as a mattock, pneumatic breaker, shovel, and wheelbarrow. If encountered, roots under 25 mm in diameter may be pruned; larger roots require approval from an arboriculturist. Any exposed roots left overnight will be protected with soil or moist hessian › Where permanent surfaces are to be installed within a CEZ, No-Dig methods will be implemented. Finished surfaces will be porous to allow gas and water movement **Use of Cranes** › If the use of cranes is expected to interfere with trees, then working space will be provided by facilitation pruning or temporary branch tying. A specification for which will be prepared by the project arboriculturist › The smallest practicable crane will be used to prevent potential damage to trees and soil compaction. If there is a large crane on site, then it may be more prudent to move materials around trees from a far, as this will prevent soil compaction around trees. › A banksman will direct lifting to prevent tree damage		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		Excavations › Excavations within RPAs is avoided where possible. › If unavoidable, solutions such as piles or pads with above-ground beams will be used. › Trial holes (600 mm deep) will be dug using Air-Spade/hand tools › Roots under 25 mm may be pruned; larger roots require arboriculturist approval. › Roots left exposed overnight will be covered with soil or moist hessian. › Piling near trees will use smallest practicable diam piles › Sleeved bored pile/screw piles will be used to protect the soil and roots from toxic effects of uncured concrete. **Services** › Services will be routed outside RPAs where possible › If unavoidable, trenchless insertion methods will be used, with entry/exit pits outside RPAs (Table 3). To avoid damage to roots when using trenchless insertion methods, the depth of the pit will be 750 mm. › If the service route must pass through the RPA, it will be routed under the centre of the tree, where there are less roots. › External lubrication of equipment with materials other than water or vegetable oil (e.g. mineral oil, bentonite, etc.) will not be used when working within the RPA. › Shallow service runs may be excavated manually, avoiding roots and moving pliable ones		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Roots under 25 mm may be pruned; larger roots require arboriculturist approval. › Roots left exposed overnight will be covered with soil or moist hessian. › No heavy machinery excavation within RPAs **Finished Ground Levels and Landscaping** › Existing RPA ground levels will remain unchanged and incorporated into the finished development. If the new ground level outside of the RPA is higher, then a retaining structure will be used to prevent water pooling around the tree. › No heavy machinery within RPAs. Landscaping will be done manually › Herbicide use near retained trees will be minimised, with only direct, systemic applications allowed if necessary		
		Invasive Species Management		
16	CEMP Section 3.8 & NIS Section 6	› Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Rhododendron, Japanese Knotweed, Giant Rhubarb etc.) by thoroughly washing vehicles prior to entering the site. › A risk assessment and method statement must be provided by the Contractor prior to commencing works. › Fences will be erected around areas of infestation, as confirmed by test pits, and warning signs shall be erected. › A designated wash-down area will be created, where power-washed material from machinery can be contained, collected, and disposed of with other		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		contaminated material. This area will contain a washable membrane or hard surface. › Stockpile areas will be chosen to minimise movement of contaminated soil. › Stockpiles will be marked and isolated. › Contaminated areas which will not be excavated will be protected by a root barrier membrane if they are likely to be disturbed by machinery. Root barrier membranes will be protected by a layer of sand above and below and topped with a layer of hardcore. › The use of vehicles with caterpillar tracks within contaminated areas will be avoided to minimise the risk of spreading contaminated material. › Any material that is imported onto any site will be verified by a suitably qualified ecologist to be free from any invasive species listed on the 'Third Schedule' of Regulations 49 & 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I 477 of 2011). This will be carried out by searching for rhizomes and plant material. › Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present. › Any soils or subsoils contaminated with invasive species will be sent for disposal to an authorized waste facility. › A suitably qualified ecologist will be on site to monitor and oversee the implementation of invasive species remedial works. Plant and equipment which is operated within an area for the management of materials in contaminated areas will be decontaminated prior to relocating to a different works area. The decontamination procedures will take account of the following: › Personnel may only clean down if they are familiar with the plant and rhizome material and can readily identify it.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Decontamination will only occur within designated wash-down areas. › Vehicles will be cleaned using stiff-haired brush and pressure washers, paying special attention to any areas that might retain rhizomes e.g., wheel treads and arches. › All run-off will be isolated and treated as contaminated material. This will be disposed of in already contaminated areas.		
		Waste Management		
17	CEMP Section 3.9 & NIS Section 6	› All waste will be collected in skips and the site will be kept tidy and free of debris at all times. › All construction waste materials will be stored within the confines of the site, prior to removal from the site to a permitted waste facility. › Ordering of materials should be on an 'as needed' basis to prevent over supply to site. Co-ordination is required with suppliers enabling them to take/buy back surplus stock. › Request that suppliers use least amount of packaging possible on materials delivered to the site. › Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal. › Ensuring correct sequencing of operations. › Use reclaimed materials in the construction works. › Hazardous waste will be kept separate from all other construction waste to prevent contamination and removed appropriately. › Concrete can be reused as aggregate for roads cable trench backfilling materials › Plastic packaging etc. can be used to cover materials on site or reused for the delivery of other materials.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
18	CEMP Section 3.9 & NIS Section 6	› All waste will be collected in skips and the site will be kept tidy and free of debris at all times. › Waste oils and hydraulic fluids will be collected in leak proof containers and removed from the site for disposal or recycling. It is also essential that all empty oil containers and other hazardous wastes should be disposed of in accordance with the requirements of the Waste Management Act, 1996. › All construction waste materials will be stored within the confines of the site, prior to removal from the site to a licensed waste facility. › A self contained port-a-loo with an integrated waste holding tank will be used within the confines of the site. This unit will be maintained by the providing contractor and removed from site upon completion of the construction works. › No wastewater will be discharged on-site during the construction phase.		

6. PROGRAMME OF WORKS

6.1 Construction Programme

The demolition and construction phase will take approximately 12-18 months to complete. This is typically broken down into several phases. An example of the programme of works is outlined in Table 6-1 below. The construction programme will be finalised on appointment of a contractor before commencement of the development.

Table 6-1 Phasing Scope of Works

Phase No.	Description	Scope of works
Phase 1	Site Setup	This occurs from months 1-2 and includes laying the matting or gravel for the site setup and machinery mobilisation.
Phase 2	Demolition	This occurs from months 2-3 It includes demolition of the existing structures and removal of material.
Phase 3	Foundations	This occurs from months 3-5. It includes digging laying foundations and other preparatory works.
Phase 4	Building Structures	This occurs from months 5-7. It includes building the main structures within the site.
Phase 5	Internal Fit Out	This occurs from months 7-12. It includes the fitting out of the buildings and civils connections.
Phase 6	Circular Viewing Deck & Steps/Ramp	This occurs from months 12-14. This includes in-lake works.
Phase 7	Close Out	This occurs in the last months of construction (months 14-18) any landscaping works if required followed by machinery demobilisation and site disassembly.

7. COMPLIANCE AND REVIEW

7.1 Site Inspections and Environmental Audits

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

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

7.2 Environmental Compliance

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

Environmental Near Miss

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

Environmental Incident

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

Environmental Non-Compliance

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

7.3 Corrective Action Procedure

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

- Environmental Audits.
- Environmental Inspections and Reviews.
- Environmental Incidents; and,
- Environmental Complaints.

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

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