CLIENT: Lumcloon Energy Limited

PROJECT: LEL Castlelost Preliminary Construction Environmental Management Plan (CEMP)

Prepared by: Halston Environmental & Planning Limited

Date: December 2021

Document Control

Client:	Lumcloon Energy Limited
Project Name	LEL Castlelost (CEMP)
Project Ref. No.	SEP-0347

Document Checking:

Author:	Colm Staunton	Signed:

Checked by:	Colm Staunton	Signed:

Issue	Date	Status
v1	05/12/2021	Draft
v2	17/12/2021	Final

Halston Environmental & Planning Ltd.
Westport Road
Castlebar
Co. Mayo
Ireland
F23 K162

Tel. +353 (0)94 9010111

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APPENDICES

1 INTRODUCTION

Lumcloon Energy Ltd (the Applicant) submitted a planning application to Westmeath County Council in September 2021 for development works associated with the construction of a gas fired reserve generator (LEL Flexgen Castlelost) and a grid connected energy storage system (ESS) facility at Kiltotan and Collinstown and Oldtown, Rochfortbridge, County Westmeath. To provide for connection of the Flexgen and ESS facilities to the electricity transmission system, a GIS substation (LEL GIS Castlelost Project) is proposed on adjoining lands. The LEL GIS Castlelost Project is deemed to be a strategic infrastructure development and accordingly the application for it is made to An Bord Pleanála.

This Preliminary Construction Environmental Management Plan (CEMP) incorporates the Construction Waste Management Plan and Incident Response Plan.

1.1 PURPOSE AND OBJECTIVE

This plan outlines the approach to environmental and waste management throughout the construction works of the proposed development and associated activities with the primary aim of reducing any adverse impacts from construction on the environment and improving the overall environmental performance of the appointed construction contractor.

The purpose of this Plan is:

- To help ensure compliance with legal and contract requirements,
- To control and where possible minimise, the environmental impacts of the construction works,
- To minimise the risk of causing pollution or a nuisance and associated costs and delays, and
- Promote best construction and environmental on-site practices for the duration of the works.

The plan and methodology seek to demonstrate how works on the project can be delivered in a logical, sensible and safe sequence with the incorporation of specific measures to mitigate the impact on people, property and the environment.

Any constraints and mitigation measures shall be interrogated by the Main Contractor as part of the tender process and the specific CEMP to be developed by the Contractor as part of their methodology to complete the works. Approval of the CEMP, to be developed by the Contractor, will be required prior to commencing works on site.

This document should be viewed as an outline plan with the site-specific CEMP to be developed by the Main Contractor /EPC Contractor for implementation throughout the project in consultation with Statutory Undertakers / Authorities and affected Stakeholders prior to works commencing on site.

Proposed environmental measures that will be installed on site during construction are included in this preliminary CEMP. This document will be updated to include any additional conditions proposed by the relevant local authority as a result of their review of the preliminary CEMP.

The CEMP is an integral part of the site health, safety, environmental and quality management system and constitutes a component of the Construction Health and Safety Plan documentation. The CEMP is also subject to the requirements of the site quality management system with respect to documentation control, records control and other relevant measures.

In the event of an accident or emergency on site during the construction period, the CEMP will be reviewed, and procedures amended if necessary. All personnel and sub-contractors will be made aware of the CEMP during the toolbox talks. The site manager or his environmental manager will be responsible for maintaining and updating the approved document.

This CEMP is a live document and contents will be communicated to all site personnel and reviewed every month. This document should be read in conjunction with the mitigation measures expressed in the Halston Environmental Impact Assessment Report (EIAR) document. The identification and control of environmental aspects are further examined as part of this document (Preliminary CEMP). As part of Contract CEMP works, the environmental aspects and control measures should be further reviewed and prioritised.

2 LEGISLATION AND GUIDANCE

Relevant legislation and best practice guidance that have been considered includes but is not limited to the following.

2.1 NATIONAL AND INTERNATIONAL LEGISLATION

- Water Framework Directive (2000/60/EC);
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009, as amended;
- Local Government (Water Pollution) Acts 1977, as amended;
- Habitats Directive (92/43/EEC);
- Air Pollution Act, 1987;
- Birds Directive (2009/147/EC); and
- Wildlife Act, 1976 (S.I. No. 39 of 1976)

2.2 ENVIRONMENT LIABILITY REGULATIONS

The Regulations supplement existing National and European Legislation to achieve the prevention and remediation of environmental damage. Environmental damage under the European Communities (Environmental Liability) Regulations 2008 means:

- Water damage that has significant adverse effects on water status under the Water Framework Directive (2000/60/EC);
- Land damage that creates a significant risk to human health as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or micro-organisms; and
- Damage to protected species and natural habitats.

The Regulations represent an overarching piece of legislation that can be used in concert with all the Agency's existing powers, but will only be used in the appropriate circumstances when environmental damage has occurred as a result of an incident.

2.3 BEST MANAGEMENT GUIDELINES

The following Guidelines should be used, as a minimum, by the contractor to prepare their Method Statements and Environmental Management Plan:

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

- Fishery guidelines for Local Authority works. Department of Marine and Natural Resources 1998;
- CIRIA – Guideline Document C532 – Control of Water Pollution from Construction Sites;
- CIRIA – Guideline Document C624 – Development and Flood Risk – Guidance for the Construction Industry;
- CIRIA Guidance C515: 'Control of groundwater for temporary works' (Somerville et al., 1986);
- CIRIA Guidance C741: Environmental good practice on site guide (Charles & Edwards, 2015);
- CIRIA Guidance C750D: 'Groundwater control: design and practice' (Preene et al., 2016); and
- CIRIA - Control of water pollution from construction sites - guide to good practice (SP156);
- CIRIA - C648 Control of water pollution from linear construction projects & Site Guide C649;
- NetRegs Guidance for Pollution Prevention for works and maintenance in or near water (NetRegs, 2017);
- Environment Agency Pollution Prevention Guidelines for construction and demolition sites (EA, 2012).
- Inland Fisheries Ireland 2016 Guidance on Protection of Fisheries During Construction Works In and Adjacent to Waters.

Should this document further develop to contract stage, the following documents should be reviewed and associated requirements applicable to this contract be included within this Plan:

- Tender/contract documents
- Site Investigation
- Planning Application Documents (EIAR) and Planning Permission Conditions

2.4 WASTE MANAGEMENT CONTEXT

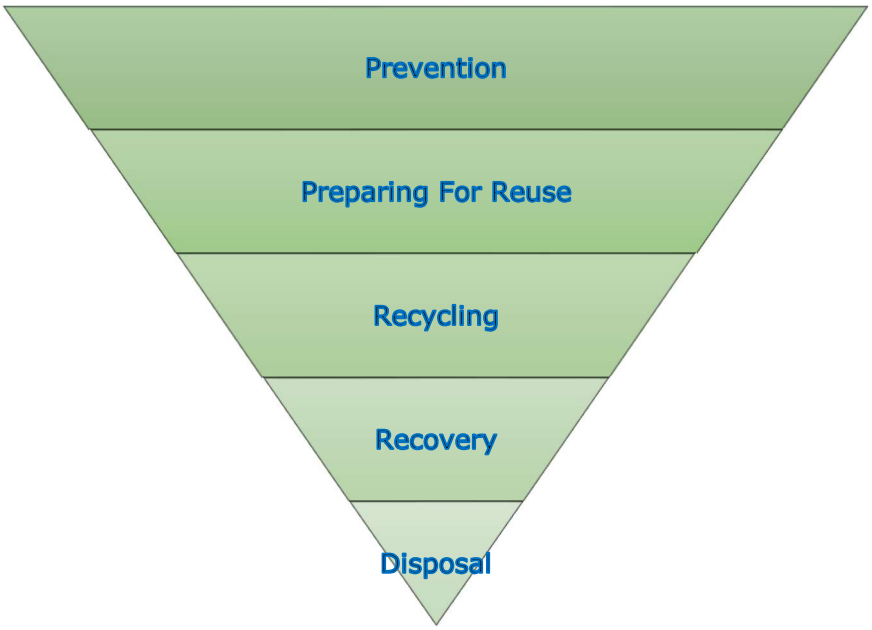
The Department of Environment, Climate and Communications (DECC) published the Waste Action Plan for a Circular Economy in September 2020 and is Ireland's new roadmap for waste planning and management. This Plan shifts focus away from waste disposal and looks instead to how we can preserve resources by creating a circular economy. The 2020 Plan replaced "A Resource Opportunity – Waste Management Policy in Ireland (DoECLG, 2012).

The Plan outlines the contribution of the sector to the achievement of a number of other national plans and policies including the Climate Action Plan. It also matches the level of ambition being shown across the European Union through the European Green Deal, which encompasses a range of actions supporting circularity and sustainability. The Waste Action Plan for a Circular Economy sets out a range of aims and targets for the State and the measures by which these will be achieved, including increased regulation and measures across various waste areas such as Circular Economy, Municipal Waste, Consumer Protection and Citizen Engagement, Plastics and Packaging, Construction and Demolition, Textiles, Green Public Procurement and Waste Enforcement.

The Eastern Midlands Waste Management Plan 2015-2021 provides the framework for solid waste management in the region and sets out a range of policies and actions to meet specified mandatory and performance-based targets. The Eastern and Midlands Waste Region comprises 12 local authority areas of Dublin City, Fingal, Dún Laoghaire-Rathdown, Kildare, Laois, Longford, Louth, Offaly, Meath, Wicklow, Westmeath and South Dublin

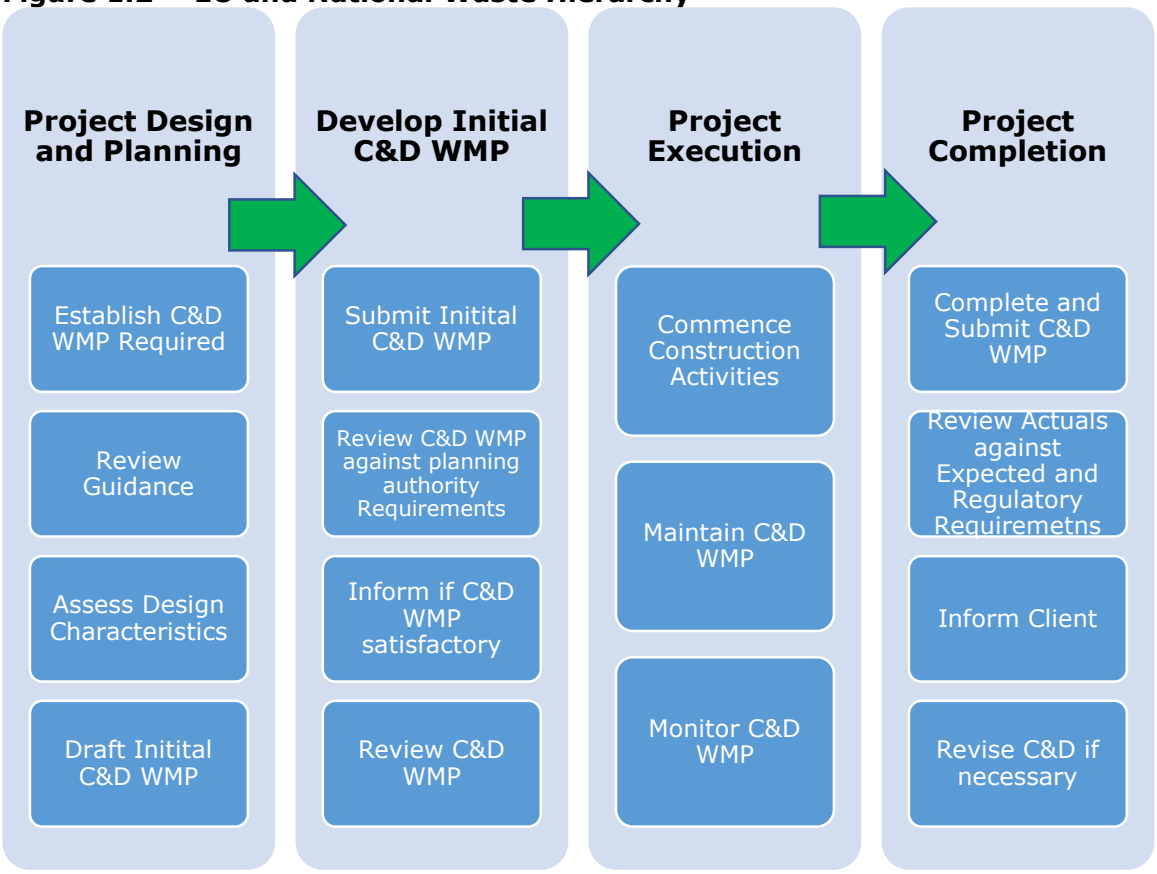
In terms of planning, the Plan sits alongside county and city development plans, guiding the development of regional and national waste treatment infrastructure. However, the scope of the regional plan is more than just the identification of infrastructure for the waste sector; it provides a roadmap for better coordination, prevention, resource efficiency and regulatory activities. This plan is currently being revised to accord with National Policy.

Figure 1.1 EU and National Waste Hierarchy



Waste management on construction sites is an iterative and step-by step process and accordingly the C&D WMP will be considered as a live document which requires inputs and updates over the entire construction phase.

Figure 1.2 EU and National Waste Hierarchy



In terms of the current Westmeath CDP and of relevance to the development proposal and waste management during the lifecycle (construction to decommissioning) of the project are the following waste management pol:

CPO 10.122: Support the implementation of the Eastern Midlands Region Waste Management Plan 2015-2021 and any updates made thereto.

CPO 10.123: Encourage and support waste prevention, minimisation, reuse, recycling and recovery as methods of managing waste.

CPO 10.124: Facilitate the transition from a waste management economy to a green circular economy to increase the value recovery and recirculation of resources.

CPO 10.126: Promote and facilitate communities to become involved in environmental awareness activities and community-based recycling initiatives or environmental

management initiatives that will lead to local sustainable waste management practices.

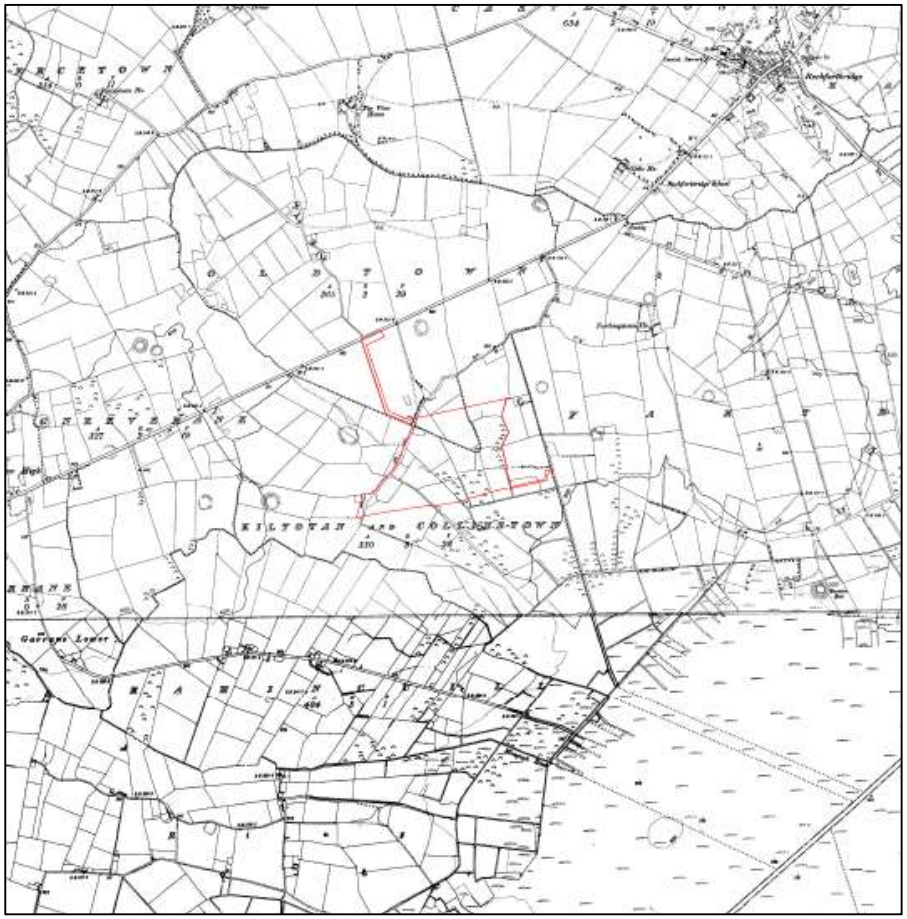
3 SITE DETAILS

The three projects will be located on a 54-acre site at Kiltotan and Collinstown, Oldtown, Co. Westmeath, which is under the control of the applicant. The proposed development lands are located approximately 2km southwest of Rochfortbridge and 3.5km northeast of Tyrrellspass. The M6 motorway defines the southern boundary of the proposed site and the R446 (N6) provides the proposed main access point to the site and defines part of the northern site boundary. The lands within the development boundary gently rise from the lowest point of 93.5m OD in the southeast close to the boundary with the M6 motorway to 107.1m OD in the west of the site and 105m OD and 107m OD at the position where the lands border the R446.

There are areas of extensive cutaway bogs, quarries and forestry located to the south and beyond the M6 motorway. Lands in the general area of the site are predominantly agricultural pastures with some arable lands. The development lands contains some farm outbuilding, farm sheds, feed silo and silage clamp which will be demolished and removed from site in accordance with best practice.

A map showing the location of the development lands on which the projects are proposed is presented in Figures 2.1 and 2.2 below.

Figure 3.1 Site Location Map



4 PROJECT DESCRIPTION

As outlined above, this CEMP deals with construction works associated with three separate projects within the proposed development lands at Kiltotan and Collinstown, Oldtown, Co. Westmeath. A description of the proposed projects is provided below.

4.1.1 LEL Flexgen Castlelost Project (Project 1) –

- Consent being sought under Section 34 of the Planning and Development Act, as amended

The LEL Flexgen Castlelost Project will comprise five (5no.) open cycle gas turbine (OCGT) electrical generating units, totalling approximately 275MWe (megawatts electrical), ancillary plant, buildings and infrastructure. The LEL Flexgen Castlelost project is designed to operate intermittently and provide generating capacity during periods of high demand or when renewable energy cannot meet demand. An OCGT unit consists of a turbine connected to an electric power generator and the five (5No.) turbines are designed to operate independently of each other. The turbines are designed to burn natural gas as their primary fuel. OCGT units are advantageous due to their operational flexibility and can be turned on quickly to provide peak load. Two bunded tanks will be provided on site for the storage of diesel as a secondary fuel in accordance with the Commission for Regulation of Utilities (CRU) requirements. The turbines will be capable of being converted to the combustion of green hydrogen as a fuel in the future which will allow for carbon free and climate-neutral plant operation.

The proposed LEL Flexgen Castlelost Project will also be served by natural gas delivered by underground natural gas pipeline from the gas transmission network. Gas Networks Ireland (GNI), as the designated competent authority, will separately manage the process of delivering the underground gas transmission pipeline to the proposed AGI (including route selection). It is expected that construction of the underground gas pipeline from the existing transmissions system to the development lands will take approximately 10 months. Depending on the exact route, the pipeline construction route will be approximately 30m in width (subject to final route selection localised constraints). The working width of the selected route provide for installation of a 250mm nominal diameter steel pipe in a trench width of 1.5m and approximate depth of 2.0m (soil cover above the pipe being a minimum of 1.2m).

4.1.2 LEL GIS Castlelost Project (Project 2)

- Consent being sought under Section 182 of the Planning and Development Act, as amended

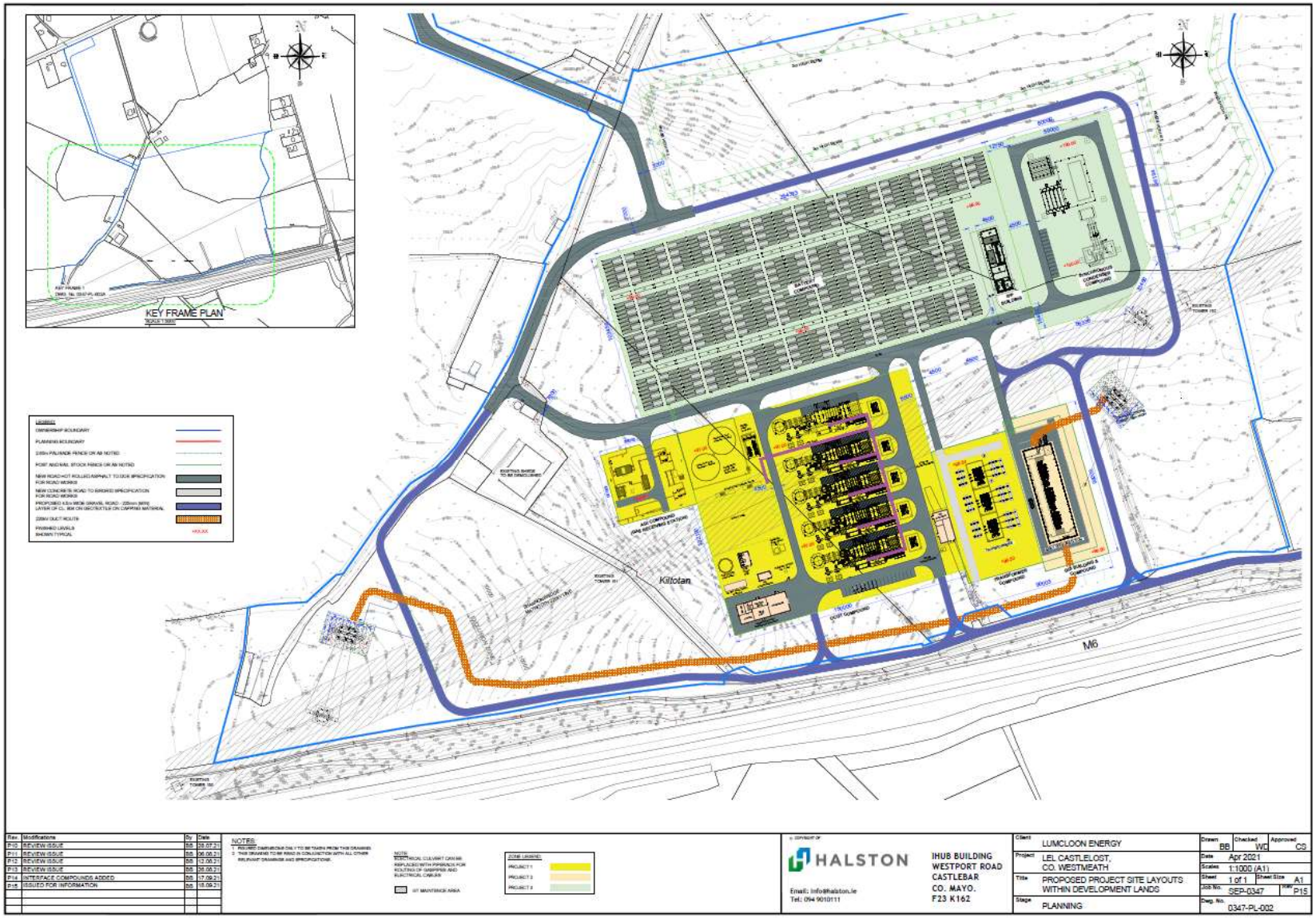
The LEL Flexgen Castlelost and LEL ESS Castlelost projects will connect to a proposed 220kV Gas Insulated Switchgear (GIS) electrical substation, which will be developed on lands adjoining the projects. The LEL GIS Castlelost Project will involve installation of two (2No.) 220 kV underground circuits forming a connection to the existing Shannonbridge-Maynooth 220 kV overhead line (located within the development boundary) via two (2No.) new mini-interface electrical compounds (each being 19.5m (w) x 29.0m (l)) and two single circuit 23m high towers. The GIS substation itself includes a two storey (17m high) building which will contain electrical switchgear, a battery room, a workshop room and WC. A 36m high communication tower, new entrance, access roadway and all ancillary site development works.

4.1.3 LEL ESS Castlelost Project (Project 3)

- Consent being sought under Section 34 of the Planning and Development Act, as amended

The LEL ESS Castlelost Project plant will comprise an open area battery storage system compound, synchronous condenser compound, IPP (customer) building and all ancillary electrical equipment and development works. The LEL ESS Castlelost Project will store surplus renewable energy generated during periods of low demand and release this to the grid with demand is greater, i.e., it will provide load shifting and ancillary services to the electricity grid.

Figure 4.1 Proposed Overall Site Layout



5 CONSTRUCTION WORKS

5.1 OVERVIEW

Subject to obtaining planning permission, it is envisaged that the LEL GIS Castlelost Project and the LEL Flexgen Castlelost Project will be constructed over an 18–25-month period commencing October 2022. Commencement of construction of the LEL ESS Castlelost Project would commence in March 2023 and would occur over an estimated 23-month period. The design and undertaking of construction work associated with the connection of the LEL Flexgen Castlelost Project to the gas network will be managed by Gas Networks Ireland (GNI). It is envisaged that construction works associated with the gas pipeline will be undertaken over an estimated 10-month period.

Therefore, development of the three projects at the site is likely to occur over an estimated 28-month period. After the estimated 28 month-month construction period, it is expected that all projects will be fully constructed, commissioned and capable of operating as designed. The specific details of the construction programme are not currently known as such this programme will be developed under EPC contract as part of the detailed design phase. It is therefore difficult to assess the staffing and delivery levels for the development. However, it is considered that the design and proposed layout of projects has developed sufficiently to discuss the potential environmental impacts of proposed construction methods. An estimate of construction traffic volumes has been made for a site of this size and typical works associated with a development of this type are described.

The timing of the commencement of construction is subject to planning, design, tendering and ecological constraints. Any works associated with site clearance and removal of soils and internal hedging would be seasonally limited to mitigate against any adverse ecological affects. The impact of construction activities on Biodiversity and Roads and Traffic are assessed in the EIAR. This preliminary construction environmental management plan will be developed and implemented for the construction phase of the development. The document will provide a framework under which construction activities, which have potential for environmental impact (e.g., generation of dust, ecological impacts, surface water discharge, etc.), will be managed. Mitigation measures as outlined in the EIAR are included within this plan. An indicative construction schedule for each project relative to each other is outlined below in Figure 5.1 subject to the granting of statutory consent for each development separately. It should be noted that the timing and phasing of projects and activities are approximate and are indicative rather than a definitive programme of works.

Table 5.1 Preliminary Construction Programme

Year	2022			2023											2024												2025	
Month	**10**	**11**	**12**	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**01**	**02**
LEL GIS Castlelost	**E&P**			**C&S**						**M&E**						**C&T**													
LEL Flexgen Castlelost	**E&P**									**C&S**									**M&E**								**C&T**		
LEL ESS Castlelost						**E&P**				**C&S**									**M&E**								**C&T**	

Notes:

1. The construction timelines are for each project are indicative and will be finalised at detailed design stage of the projects.
2. In relation to LEL GIS Castlelost Project, timings of certain tasks /works will be subject to system outage planning by Eirgrid and EBS Networks.
3. Construction of the gas pipeline is non-contestable works and will be carried out by GNI.
4. E&P = Site Evaluation and Preparation (Works)
   C&S = Civil & Structural (Works)
   M&E = Mechanical & Electrical (Works)
   C&T = Commissioning and Testing (Works)

5.2 ORGANISATIONAL STRUCTURE AND RESPONSIBILITIES

The construction project will be managed by an EPC /Main contractor. The EPC /Main contractor will appoint a Construction Project Manager who will have responsibility for coordinating and managing good environmental and health and safety practices during construction.

The Construction Project Manager shall maintain monthly environmental programmes to ensure that construction activities on this contract are planned and managed in accordance with the environmental requirements stipulated by the Client /Owners Engineer. This management structure will be further defined by the appointed contractor and will include the names of the assigned personnel with the appropriate responsibility and reporting structure

5.3 CONTACTS

5.3.1 Primary Contacts

Table 5.1 Primary Contacts

Title	Name	Phone	Email
Project Manager			
Construction Manager			
SHEQ Advisor			
Site Engineer			
Quantity Surveyor			
Waste Representative			

The EPC Contractor /Main Contractor is responsible for ensuring that all employees and sub-contractors follow the requirements of the CEMP. The Contractor will be required to provide training and supervision to ensure that the requirements are adhered to. It is anticipated that the main environmental responsibilities for the key staff will be as set out below (TBC by the Contractor).

5.3.2 Third Party Contacts

Table 5.2 Third Party Contacts

Organisation	Position	Name	Phone	Email
Westmeath County Council				
Inland Fisheries Ireland				
Transport Infrastructure Ireland (TII)				
Office of Public Works (OPW)				
Environmental Protection Agency (EPA)				
National Parks and Wildlife Services (NPWS)				
Health and Safety Authority (HSA)				
Emergency Services				
Other				

The **Construction Project Manager** will:

- Provide information on contract requirements, including scope of works and forecast of waste quantities to SHEQ Advisor following contract award and prior to start of works on site and also when any changes occur.
- Nominate the following as required: Waste Rep, person to undertake weekly Site Compound checks, person to check drip trays and bunds and person to supervise refuelling of tanks and bowsers, person to complete watercourse monitoring Booklet (where applicable), person to complete air quality and noise booklet (where applicable).
- Ensure a forecast of waste types, quantities and disposal routes is produced before works start on site.
- Ensure required consents are obtained before associated works start.
- Ensure environmental waste minimisation and environmental mitigation measures are incorporated into design, construction method and/ or materials employed, where possible.
- Ensure environmental and waste requirements are included on Requisitions and in Subcontracts and Orders.
- Ensure a current version of the Contract Organisation Chart is displayed on site notice boards and individuals with environmental responsibilities are named on the Authorised Signatures List where appropriate.
- Ensure oil, including diesel, is stored in properly bunded tanks/ bunded mobile bowsers/ drip trays.
- Report Incidents in accordance with the reporting system.
- Report Non-conformances via the non-conformance tool.
- Report Incidents and Non-conformances to the SHEQ Advisor as soon as possible.
- Ensure the SHEQ Advisor is informed of environmental complaints.
- Liaise with Statutory Authorities and Client as required and ensure records of communication (including verbal) are kept. Ensure Statutory Authorities are always accompanied on site (preferably by the Project Manager and the SHEQ Advisor).
- Notify the Environmental Health Officer of any particularly noisy works or any works outside the contract hours before construction begins.
- Ensure all residents are notified of noisy works before they begin.
- Ensure environmental performance including review of Incidents and Non-conformances, Waste arisings and any Contract Objectives and Targets are included as part of Contract Review Meetings.

- Approve the Contract Environmental Management Plan and ensure employees and subcontractors implement the environmental controls.
- Ensure employees and subcontractors receive Induction Training (including environment) and Tool Box Talks as appropriate.
- Ensure staff needed for audits are available when required.
- Ensure actions resulting from Corrective Action Requests and Observations raised during audits are completed by the deadlines and signed off copies of Corrective Action Requests are forwarded to the relevant SHEQ Advisor.

The Ecological Clerk of Works (ECoW)

- Ensure that all mitigation measures used to protect the environment are in place and are maintained during the work;
- Undertake and report on the weekly monitoring and undertake the weekly site audits;
- Revise the mitigation measure if the monitoring evidence indicates that the measure is not effectively protecting the environment;
- Undertake an invasive species survey in advance of any soil being excavated for disposal off-site. If invasive species are identified the ECoW will prepare an Invasive Species Management Plan;
- Supervise any excavation; and
- Provide toolbox talks to all sub-contractors before they start on site.

The **SHEQ Advisor** will:

- Ensure the implementation of the Environmental Management System, and associated documentation on a daily basis.
- Address day to day environmental matters and communicate with construction management team
- Obtain environmental regulatory consents/permits as required (e.g. EPA, Westmeath County Council, OPW. National Waste Collection Permit Office (NWCPO), Inland Fisheries. & NPWS).
- Report Environmental Incidents to the Statutory Authorities if necessary.
- Log and monitor Environmental Incidents and Non-conformances.
- Disseminate information including changes to legislation, to relevant employees.
- Identify employees that require environmental training, provide training and maintain training records.
- Provide advice and deal with queries and correspondence on environmental issues.

- Identify significant environmental impacts for contracts and help set-up contracts and site compounds to include necessary controls.
- Identify any environmental consents that are required and ensure they are obtained.
- Produce the Contract Environmental Management Plan and / or Site-Specific Information.
- Produce/ maintain or ensure production/ maintenance of all aspects of Site Waste Management Plan
- Monitor waste quantities and verify & validate the waste records obtained from site.
- Undertake contract environmental inspections to ensure controls are in place and working.
- Monitor progress in closing out Corrective Action Requests and Observations raised during audits.
- Agree process for regular reporting to senior management on the Contract.
- Ensure all environmental records are kept and readily available.
- Obtain prior agreement from site management in writing for any deviations from assigned Procedures (e.g. use of client procedures or forms).

Quantity Surveyor will:

- Check that Waste Carriers are registered and Waste Management Sites are licensed before subcontracts or orders are placed.
- Ensure environmental and waste requirements are included on Requisitions/ Subcontracts or Orders.
- Reconcile waste invoice against Waste Transfer Notes/ Consignment Notes and tip receipts before authorising payment.
- Monitor waste quantities and costs and provide information to assist in the production of Site Waste Management Plan Reports.

Waste Rep will:

- Arrange for collection of waste.
- Keep an up-to-date record of waste removed from Site
- Confirm with SHESQ Advisor that Waste Collection Permits/ Waste Facility Licenses are valid and either keep a record of confirmation or obtain copies for site files
- Complete and sign Waste Transfer Notes/ Hazardous Waste Consignment Notes. Give copies to Drivers, send top copy to invoicing and keep photocopy on file.
- If hazardous waste is being removed, complete and retain a copy of the Waste Transfer Form.

- Ensure waste storage/ segregation/ recycling activities are correctly implemented and appropriate waste records and statistics are maintained.

Subcontract Buyers will:

- If a subcontractor is to act as a Waste Carrier and dispose of waste provide details of their Waste Collection Permit and the intended disposal sites Waste Licence to SHEQ Advisor before placing subcontract.
- Include environmental and waste requirements in subcontracts.

Drivers will:

- Inform the Waste Rep. what waste they are removing and where it is being taken prior to removing any waste from site.
- Collect Waste Transfer Note/ Consignment Note from Waste Rep when collecting waste.
- Only take waste to a licensed Waste Management Site as instructed by the Waste Rep/ SHESQ Advisor.
- Get Waste Management Site to sign Waste Transfer Note/ Consignment Note and give to SHESQ Advisor along with all associated receipts.

All Construction Staff will:

- If there is an incident, stop work, contain it and report it to the Site Manager.
- Contact the Waste Rep when waste needs to be removed.
- Pass any queries or correspondence on environmental issues to SHESQ Advisor.
- Work in accordance with Group SHESQ Procedures, Contract Environmental Management Plan and Method Statements.

5.4 TRAINING

Environmental awareness training on this project will include:

- Induction Training
- Tool Box Talks
- Communication/ Briefing Sessions

Environmental awareness training included at induction shall cover the following basic elements:

- The SHEQ Policy

- Overview of applicable environmental legal and regulatory requirements
- The Construction Environmental Management Plan including works specific environmental aspects and impacts
- The Environmental Emergency response training including Spill Control & Spill Kits.
- The Construction Waste Management Plan
- Water Pollution Prevention
- Environmentally sensitive areas
- Wildlife/ Invasive Plants
- Dust management controls
- Noise and vibration Controls
- Material Storage and Refuelling
- Responding to communications/complaints received by the public.
- Reporting an Environmental Incident
- Other matters of environmental interest

The Environmental Advisor shall retain details and records of all training provided. Additional environmental training shall be provided as required by the Environmental Advisor or environmental experts.

Contract specific information will be displayed on notice boards and briefed to all staff. Site-specific Environmental Do's & Don'ts, which list the key controls specified in this Plan, will be issued to site operatives and subcontractors.

Training will be provided in accordance with the Core Skills Matrix. A Training Attendance Form will be completed for each training session and an Environmental Training Matrix will be maintained.

5.5 COMMUNICATION

5.5.1 Internal

Environmental issues will be reviewed at the monthly Contract Review meeting, in accordance with the appointed contractor's management system. The issues covered will include:

- Compliance contractor management system and any contract specific environmental requirements.
- Legal compliance e.g. consent requirements
- Environmental Incidents & Non-conformances
- Audit Corrective Action Requests to ensure actions are completed by deadlines.

5.5.2 External

The Project Manager (in conjunction with the SHEQ Advisor) will be responsible for receiving, documenting and responding to any environmental communication from third parties. All verbal communication from third parties will be logged in the contract Communication Log in accordance with the agreed Communication Plan.

The SHEQ Adviser will meet as required and as agreed with the client**,** with statutory agencies, e.g. Environmental Protection Agency, local authority (Westmeath County Council) Environmental Health Officers, Inland Fisheries Ireland, NPWS, other Stakeholders (Gardai, local business owners, landowners) and the local community to ensure works are carried out with minimal environmental disturbance.

Complaints from the public will be logged on a Complaint Record form and a recorded on the Complaint Register.

5.6 DOCUMENT CONTROL

All environmental documents will be controlled by the Appointed Contractor Procedures /Method Statements.

5.7 DESIGN

Environmental impacts of design will be managed in accordance with the Appointed Contractor Procedures /Method Statements. This involves including Environmental Design Aims in the Design Brief and monitoring these through the Design Review meetings.

5.8 CONTRACT CHECKS AND INSPECTIONS

The following inspections will be undertaken:

- Supervisor Weekly Checklist
- SHEQ Monthly Inspection
- Management Tours

5.9 RECORDS

Records will be maintained in accordance with the Appointed Contractor Procedures.

5.10 AUDITS

Internal audit of this contract will be undertaken in accordance with the Appointed Contractor Procedures.

5.11 MANAGEMENT REVIEW

A Contract Management Review will be undertaken every 3 months. Management reviews will be undertaken in accordance with the Appointed Contractor Procedures.

5.12 SCHEDULE AND WORKING HOURS

It is envisaged that construction of the development proposal is likely to occur over an estimated 28-month period; refer to Table 5.1 for the overall indicative timeframe and timeframes for each of the three projects.

Subject to agreement with the planning authority, it is anticipated that the following times will constitute the standard working hours on the construction site.

- Monday to Friday 07:00 to 19:00
- Saturday 08:00 to 18:00
- Sunday No Work
- Public Holidays No Work

Working hours may vary slightly depending on weather conditions and daylight hours during winter months. Heavy construction activities will be avoided where possible outside the normal working hours outlined above.

5.12.1 Accommodation /Facilities

The relevant statutory requirements will be provided for all workers on the construction site and will be provided in a secure compound including:

- Canteen facilities and drinking water supply
- Toilet, wash up and locker facilities and hot water
- Drying room
- Car parking for workers
- First Aid Office
- Site Engineers & Resident Engineers offices
- Site offices for Contractors

6 CONTROLS AND MITIGATION MEASURES

Controls specified in this section are designed to:

- Meet legal and contract requirements
- Limit the identified significant impacts
- Deal with unexpected environmental issues

Environmental controls (e.g. consent conditions) that are more specific to certain activities will be discussed and agreed in advance with the Project Manager and the appropriate public bodies including local authorities and the Environment Agency. The controls will then be included in site specific Method Statements in accordance with the Group Procedure – Preparation and Issue of Method Statements Risk Assessments.

6.1 SUBCONTRACTORS

Subcontractors will be appointed in accordance with the Appointed Contractor (EPCContractor) Procurement Policy Procedures:

Subcontractors are required to work in accordance with this Construction Environmental Management Plan and Method Statements.

The subcontractors to be used on this contract are detailed in the table below

Table 6.1 Subcontractors

Subcontractor (name)	Scope of Works	Main Activities	Environmental Controls
TBC	Earthworks, Drainage & Services	Bulk excavation, filling, installation of drainage & site services	Subcontractor's Method Statement's environmental controls reviewed by Main Contractor
TBC	Concrete and Structural Works	Construction of concrete foundations and Buildings	Subcontractor's Method Statement's environmental controls reviewed by Main Contractor
TBC	Mechanical Works	Installation of modular equipment and process pipework	Subcontractor's Method Statement's environmental controls reviewed by Main Contractor
TBC	Electrical Works	Installation of SCADA and process electrical works	Subcontractor's Method Statement's environmental controls reviewed by Main Contractor

TBC	Testing & Commissioning	Testing & Commissioning of the process	Subcontractor's Method Statement's environmental controls reviewed by Main Contractor
TBC	Site Fencing	Installation of Permanent boundary fence	Subcontractor's Method Statement's environmental controls reviewed by Main Contractor
TBC	Landscaping	Hard & Soft Landscaping of the site	Subcontractor's Method Statement's environmental controls reviewed by Main Contractor
TBC	Waste Disposal & Difficult waste disposal	Skip Supply Waste Removal/ Disposal	Duty of Care Waste Collection Permit
TBC	Dust Monitoring	Set up dust deposition jars Collection of the dust deposition jars and lab analysis (if required)	Subcontractor's Method Statement's environmental controls reviewed by Main Contractor
TBC	Noise Monitoring	Set up noise monitors at agreed locations (if required)	Subcontractor's Method Statement's environmental controls reviewed by Main Contractor
TBC	Site Compound	Installation, maintenance & removal of temporary site compound & security	Subcontractor's Method Statement's environmental controls reviewed by Main Contractor

The above is a non-exclusive list of the main subcontracted works.

6.2 RESOURCE USE

Measures to reduce resource usage during the planning and operational phases of the works will include the actions given in the table below.

Table 6.2 Management of Resources

TASK	RESPONSIBILITY
Fuel Combustion (Transport/Plant)	
Collect data on quantities of diesel/ petrol used in vehicles and plant.	Project Manager/ SHEQ Advisor/ Manager
Collect data on quantities of gas oil used.	Project Manager/ SHEQ Advisor/ Manager
Collect data on modes of transport to and from work and business miles travelled.	Project Manager/ SHESQ Advisor/ Manager
Explore options to reduce the amount of car travel to and from work and minimise the adverse environmental effects of business-related travel.	Project Manager/ SHEQ Advisor/ Manager
Promote good practise by encouraging use of sustainable modes of transport and where feasible use minibuses/ vans to transport staff.	Project Manager/ SHEQ Advisor/ Manager
Promote fuel efficiency and good driving practices	Project Manager/ SHEQ Advisor/ Manager
Ensure the correct vehicle, plant & equipment is provided and used for the work being undertaken. I.e. do not select equipment that is over-powered for the task being carried out.	Project Manager/ SHEQ Advisor/ Manager
Ensure vehicles, mobile plant, generators and other equipment are serviced regularly to maintain their efficiency.	Foreman
Switch off vehicles and other mobile plant when not in use.	All staff
Electricity	
Minimise the use of generators to provide electricity. Wherever possible connect to mains electricity as soon as possible.	Project Manager
Collect data on quantities of directly purchased electricity.	Project Manager/ SHEQ Advisor/ Manager

TASK	RESPONSIBILITY
Install energy efficient devices/ renewable energy where reasonably practicable e.g. Infrared sensors linked to lighting, air conditioning and heating controls.	Project Manager
Promoting energy efficiency with all staff. Identifying where energy savings can be made and implement them. E.g. turning off computers/ photocopiers when not in use.	SHEQ Advisor/ Manager
Water	
Measure per capita water use in the site offices.	Project Manager/ SHEQ Advisor/ Manager
Install water efficient devices in washrooms e.g. push taps, flow regulator/ restrictors, low flush toilets, cistern devices e.g. hippo, save-a-flush to reduce flush volumes	Project Manager
Promoting water efficiency with all staff and encourage good behaviour. e.g. maintaining hoses, pipes and water using equipment in good condition and checking for leaks regularly	SHEQ Advisor/ Manager
Fit trigger nozzles on hosepipes and flow restrictors and automatic shut off devices to hoses and water supply pipes where appropriate	Foreman
Use recycled or grey water for damping down dust where possible	Foreman
Use scrappers to clean up mud rather than washing down with water	Foreman
Waste	
Minimise waste by ensuring materials are stored properly and used efficiently.	Project Manager/ Foreman
Consider waste when purchasing materials. Where possible/ practicable select materials that can be re-used or recycled.	Project Manager
Recycle and reuse materials where possible.	Project Manager/ SHEQ Advisor/ Manager
Collect data on quantities of waste produced and percentage recycled (diverted from landfill).	Project Manager/ SHEQ Advisor/ Manager
Materials	
Procure materials from certified sources.	Project Manager/ Buying Department

TASK	RESPONSIBILITY
Designing out unsustainable materials where possible and minimising waste.	Designers
Specifying materials/ products that have less impact on the environment.	Designers
Specifying the use of peat free product for landscaping.	Project Manager
Procure recycled materials where possible.	Project Manager/ Buying Department
Introduce a '*take-back policy*' on suppliers, so where possible, no delivery will leave the site without taking associated waste and packaging with them.	Project Manager/ Buying Department

Note: Reducing resource usage by minimising wastage and preventing pollution is also addressed under the other sub-headings in this section of the Plan.

6.3 WASTE MANAGEMENT

All waste arising on the Contract, including that generated by sub-contractors will be managed in accordance with the *Appointed Contractors Procedures /Method Statements*; The principle of "Duty of Care", as set out in the Waste Management Act 1996, as amended, will apply, whereby the waste producer is responsible for all waste from generation to recovery or disposal.

A separate Site Waste Management Plan (Attachment A) has been produced detailing how waste will be managed on this contract. The Construction Waste Management Plan describes the controls and processes that will be used to manage materials effectively and reduce the amount of waste disposed of to landfill by identifying opportunities to reduce, re-use and recycle.

Waste quantities and management options will be identified prior to works commencing on site and recorded on a Waste Forecast.

Throughout the course of the Contract, whenever waste is removed from site, information on the identity of the person removing the waste, the type and quantity of the waste and the site the where waste is being taken to will be recorded using a Waste Transfer Note or Hazardous Waste Consignment Note and/ or summarised on the Record of Waste Movements.

Actual waste quantities and disposal routes will be reviewed periodically and summarised in a *Waste Report.* This review will monitor performance against the Contract Waste

Forecast and identify opportunities for improvement. The review will be discussed at the Progress Meetings**.**

Upon completion of the works the total waste produced on the Contract, the costs associated with its disposal, the disposal locations and the percentage recycled will be summarised on the *Contract Waste Report*. The Report includes a review of performance and any recommendations for waste management on future contracts.

A copy of the Construction Waste Management Plan comprising the Waste Forecast, the Quarterly Waste Returns Contract Waste Report will be retained at the site offices for three years after completion of the works.

6.3.1 Waste Controls

The following environmental controls and monitoring activities will be implemented on site:

Table 6.3 Waste Controls

TASK	RESPONSIBILITY
Ensure all waste disposal is arranged via the Waste Rep.	Project Manager/ SHEQ Advisor/ Manager
Where possible waste will be retained and reused on site to reduced traffic movements.	All staff
Plan to segregate waste as far as technically, environmentally and economically practicable into reusable and recyclable waste.	Project Manager/ SHEQ Advisor/ Manager
Introduce a '*take-back policy*' on suppliers, so where possible, no delivery will leave the site without taking associated waste and packaging with them.	Project Manager/ Buying Department
Ensure that copies of the following are retained on site: • Evidence of all relevant Waste Collection Permits. • All relevant Waste Management Licences / Exemption Certificates. • Waste Transfer Notes and Consignment Notes. • Site Waste Management Plan/ Hazardous Waste Register.	SHEQ Advisor/ Manager/ Waste Rep.
Do not accept damaged skips/ waste containers on to site	Foreman/ Waste Rep.

TASK	RESPONSIBILITY
Locate skips/ waste containers away from drains, watercourses and heavily trafficked areas.	Foreman/ Waste Rep.
Ensure hazardous waste containers are covered and located on hardstanding.	Foreman/ Waste Rep.
Locate non-hazardous skips/ waste containers on hardstanding if possible.	Foreman/ Waste Rep.
Ensure that waste is segregated and placed in the right skip/bin	Foreman/ Waste Rep.
Ensure all waste is stored securely so that it cannot escape (wind/ vermin).	Foreman/ Waste Rep.
Remove waste, disused materials, packaging and other debris at frequent intervals to ensure the site is kept clean and tidy.	Foreman/ Waste Rep.
Ensure all hazardous waste containers are covered.	Foreman/ Waste Rep.
Ensure all skips and bins are labelled with their contents (incl. EWC Code).	Foreman/ Waste Rep.
Place the correct waste in the correct skip.	All staff
Report skips that are leaking or overfull to your supervisor.	All staff
Report fly-tipping to the Foreman/ SHEQ Advisor/ Manager	All staff
Eliminate unnecessary wastage by: • storing materials neatly on flat solid ground to avoid damage and loss; • keeping materials in their packaging for as long as possible to protect them from damage; • protecting materials from the weather to avoid loss from exposure to the elements; • ensuring existing material containers are empty before opening new ones; and • keeping significant off-cuts for use elsewhere.	Foreman/ All staff

Should any contaminated land be encountered it will be stockpiled separately; covered to prevent wind or water spreading contaminants to the wider environment; tested, at a UKAS accredited laboratory and sent for remediation/ disposed of in accordance with 'Duty of Care'.

Other aspects of waste management such as inspections and waste training requirements are addressed in the relevant sections elsewhere in this CEMP.

6.4 FUEL AND OIL STORAGE

Fuel and oils will be stored in a manner to minimise the risk of pollution or ecological damage during fuel handling. The implementation of good fuel management practices and increased environmental awareness can significantly reduce the risk of environmental pollution or impact of ecological damage. Any waste oils or hydraulic fluids will be collected, stored in appropriate containers and disposed of offsite in an appropriate manner.

Secondary containment will be provided for all oil and diesel tanks:

- For a single tank, the secondary containment will be at least 110% of the maximum storage capacity
- For two or more tanks in one secondary containment system, the secondary containment will be at least 110% of the biggest tank's maximum storage capacity or 25% of the total maximum storage capacity of all the tanks, whichever is the greatest.

The types of fuel and oil that will be stored on this contract and how and where they will be stored are given in the table below:

Table 6.4 Fuel and Oil Storage

Type of Material	How and Where it will be stored
Diesel	• To be stored in bunded tanks or bowsers. • Fuel tanks and mobile bowsers must be kept locked when not in use and overnight. • Where a bulk tank is used, a 130-litre spill kit will be stored near the bunded area. • Metal jerry cans are to be used for hand carrying of fuel around the site. • Where practicable, only restricted hand carrying of fuel should be allowed on the site. • Metal jerry cans must be stored in a bund or drip tray when not in use. In vans /vehicles: • To be stored secure & upright in jerry cans (25 litres or less)

Type of Material	How and Where it will be stored
Oil	• To be stored in original container or in an appropriate container designed for the storage of oils. • Bowsers should be stored within site security compounds when not in operation. • Any tanks or drums should be stored in a secure container or compound, which should be kept locked when not in use. • Metal jerry cans are to be used for hand carrying of oil around the site. • Where practicable, only restricted hand carrying of fuel should be allowed on the site. • Metal jerry cans must be stored in a bund or drip tray when not in use. • The refuel of mobile plant will be undertaken well away from any drains or water bodies • A suitable spill kit or absorbent materials to be held in the vicinity

All refuelling and lubrication of equipment will take place on sealed and bunded surfaces within this area in order to avoid the potential for accidental spillage of hydrocarbons.

6.5 MATERIALS STORAGE

Materials and waste will be stored in a manner that minimises risk to the environment and reduces the potential for wastage due to exposure to the elements or damage. The types of potentially polluting materials associated with these works and how and where they will be stored is given in the table below:

Table 6.5 Material Storage

Type of Material	How and Where it will be stored
Topsoil	• To be stored beside the works to a height of no more than 3m. • Do not compact. • To be stored separately from subsoil. • Topsoil must be stored at least 3 metres away from any trees and hedgerows.
Subsoil	• To be stored beside the works to a height of no more than 5m. • Do not over compact. • To be stored separately from topsoil. • Subsoil must be stored at least 3 metres away from any trees and hedgerows.
Sand / Stone	• To be stockpiled in the allocated lay down area in the site compound in a way to minimise dust and wastage.
Cement	• To be stored in the original packaging on pallets inside the COSHH stores. • If cement is to be stored outside temporarily it should be stored off the ground on pallets, away from sensitive or heavily trafficked areas and covered with tarpaulin.
Other bagged materials	• To be stored inside a container where practicable otherwise off the ground on pallets and protected from the weather.
Chemicals, Bitumen, Paints, Solvents, Grease	• To be stored in the original packaging inside a drip tray. All chemicals should be stored appropriately in the COSHH stores. • Consult the SDS or COSHH sheets for details of particular storage requirements.
Batteries / fluorescent light tubes	• In a leak proof container within a designated covered storage area.
Contaminated Material	• To be stockpiled separately in a quarantined area, clearly marked and sealed off. To be covered to prevent wind or

Type of Material	How and Where it will be stored
Empty drums / containers	• To be stored in a designated area prior to disposal. • Away from sensitive boundaries and watercourses • Screening from external receptors, if possible
Inert waste	• To be kept separate from non-hazardous and hazardous waste in a clearly designated area, in a labelled skip located on hardstanding where possible.
Non-Hazardous waste	• To be kept separately from inert and hazardous waste. • To be segregated into its component streams where technically, environmentally and economically practicable. • To be kept in clearly labelled containers/ skips. • Containers/ skips to be in good condition, covered and located on hardstanding • Containers/ skips to be located away from sensitive
Hazardous waste	• To be kept separately from inert and non-hazardous waste. • To be segregated into its component streams and kept in clearly labelled containers/ skips. • Containers/ skip to be in good condition, covered and located on hardstanding • Containers/ skips to be located away from sensitive boundaries and watercourses • Containers/ skips to be screened from external receptors if possible.

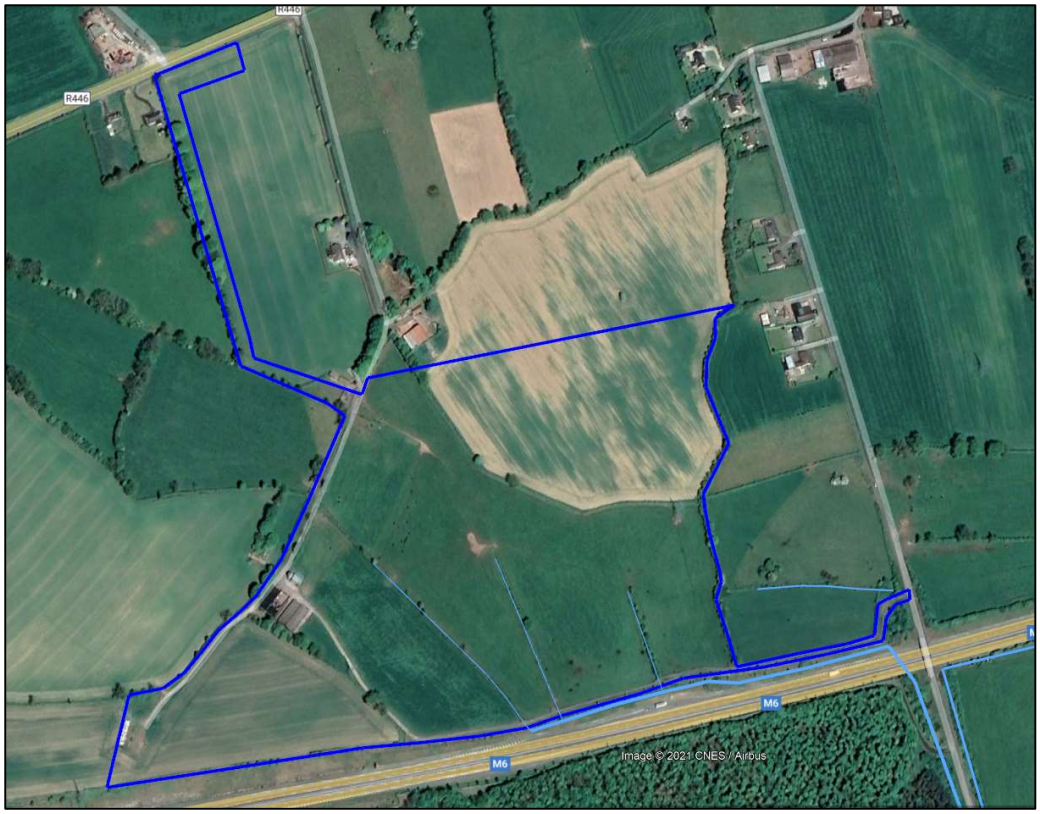
6.6 WATER

The development lands are located within the hydrological catchment of the Mongagh River. The proposed development lands are located approximately 500m to the north of the water course. The Mongagh River flows east into the River Boyne with its associated European sites, the River Boyne and River Blackwater SAC (Site Code 002299) and the River Boyne and River Blackwater SPA (Site Code 004232), which are located over 20 river km to the northeast of the proposed development lands.

There are no significant hydrological features identified within or near the site. However, some surface water drains (drainage ditches) were identified within the site boundary. The drainage ditches originate within the site boundary and run in a southerly direction before flowing in culvert under a gravel surfaced access road (farmers lane) and then into a TII drain that runs along the crest of the motorway cutting in an easterly direction within an oversized grassy channel. The TII drain meets a headwall and culvert that goes under the M6 in a southerly direction. Waters from the drain discharge to the Mongagh River to the south (refer to Figures 7.12 and 7.13). On the various dates when site walkover visits were undertaken during the months of June to December 2021, the drainage ditches within the boundary of the development lands were found to be dry and overgrown with vegetation.

Downstream, the Mongagh River flows east into the River Boyne with its associated European sites, the River Boyne and River Blackwater SAC (Site Code 002299) and the River Boyne and River Blackwater SPA (Site Code 004232), which are located over 20 river km to the northeast of the proposed development lands.

Figure 6.1 Drawing illustrating field drainage ditches and motorway drain



6.6.1 Control of Construction Site Surface Water Runoff Quality[1]

The early establishment of temporary drainage facilities will manage the risk of impacts on watercourses on and adjacent to the site during construction. In addition, construction operations will adopt best working practices.

The drainage proposals will be developed further prior to the commencement of construction however, any such improvements will be in line with the principles and mitigation presented in the EIAR and with conditions which be attached to planning. The protection of watercourses and downstream catchments that they feed is of utmost importance in considering the most appropriate drainage proposals for the site of the proposed development.

During the construction activities there will be a requirement for diverting rainwater away from the construction areas. Water will be filtered and treated to prevent sediment from entering ditches and water streams. There will be no direct discharges to any natural watercourses or drains, with all drainage waters being managed using settlement /siltation ponds and dispersed as overland flows. Check dams will be added to an artificial drains

[1] It should be noted that the controls measure are not prescribed to avoid or reduce adverse effects on European sites and are not considered in the determination of conclusions in the Screening Report for Appropriate Assessment.

created to control flows and sediment loads in artificial drains. The drainage proposals will be developed further prior to the commencement of construction. The following sections give an outline of drainage management arrangements in terms of pre-construction, construction and operational phases of the Proposed Development

As part of detailed design and in advance of any construction activities, a construction site drainage plan will be developed to assist with micro siting of proposed drainage controls. Artificial drains will be excavated and settlement ponds constructed to eliminate any suspended solids within surface water running off the site. Drainage infrastructure will include:

- Interceptor drains will be maintained up-gradient of all proposed infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained.
- Swales/road side drains will be maintained to intercept and collect runoff from access roads and hardstanding areas of the site, likely to have entrained suspended sediment and channel it to settlement ponds for sediment settling;
- Check dams will be maintained at regular intervals along interceptor drains and swales/roadside drains in order to reduce flow velocities and therefore minimise erosion within the system during storm rainfall events; and,
- Settlement ponds, emplaced downstream of swales and roadside drains, will buffer volumes of runoff discharging from the drainage system during periods of high rainfall, thus reducing the hydraulic loading to watercourses. The settlement ponds will be sized according to the size of the area they will be receiving water from but will be sufficiently large to accommodate peak flows storm events. Inspection and maintenance of all settlement ponds will be ongoing through the construction period. Best practice and practical experience on other similar projects suggest that in addition to the drainage plans that are included in the EIAR, there are additional site based decisions and plans that can only be made in the field through interaction between the Site Construction Manager and Environmental Advisors. In relation to decisions that are made on site it is important to stress that these will be implemented in line with the associated drainage controls and mitigation measures in Section 7 of the EIAR and to ensure protection of all watercourses.

Good housekeeping and facility management during the construction period will ensure that there will be no negative environmental impacts from the construction of the proposed facility. Sedimentation presentation controls include the following:

- Minimisation of exposed ground and soil stockpiles, through careful earthworks design.
- Minimising the time that ground is exposed and excavations are open through careful construction programming.
- Temporary stockpiles will be located away from drainage ditches, limited in height to 3m (topsoil) and the surface smoothed.
- Silt fences will be placed around the stockpiles where required to limit the potential for rainfall to wash fines into the drainage system. These comprise a technical filter fabric positioned as a fence around the exposed soil and sediment to catch fines within the runoff and reduce the input of fine sediment to the drainage system. Stockpiles which may be present for some time will be covered or seeded.
- Areas around infrastructure will be landscaped, and restored with topsoil and revegetated as soon as possible.
- Track drainage, designed to prevent the interception of large volumes of water, will be porous and act as soakaways thereby minimising any direct discharge to watercourses.
- Wheel washing activities will be conducted in designated areas, with runoff waters being conducted to soakaways constructed according to best practice.
- Use of buffer zones, silt traps and settlement ponds to avoid sediment reaching drains and watercourses

6.6.1.1 Cementitious Products

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

- A suitable casing will be used where wet concrete is proposed to ensure protection of watercourses until concrete has set.
- No batching of wet-cement products will occur on site;
- Supply of ready-mixed wet concrete products where possible or emplacement of pre-cast elements,
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site;
- Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Use weather forecasting to plan dry days for pouring concrete;

- Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event;
- A 20m buffer distance to nearby water courses will be emplaced for the duration of the construction works to prevent accidental run-off.

6.6.1.2 Fuel Oil, other Petroleum based substances and chemicals

- Construction compounds will be located at least 30m from local on site drains.
- Dedicated areas of hard standing for material deliveries separated a minimum of 10m drainage ditches
- Specific areas for oil storage and refuelling, separated a minimum of 10m from adjacent watercourses and comply with legislation, including providing bunds which contain 110% of on-site fuel storage capacity;
- Use spill kits, fill point drip trays, bunded pallets and secondary containment units;
- Enclosed and secured site and fuel storage areas will be secondarily secured;
- Develop a Construction Waste Management Plan;
- Develop a site-specific Incident Response Plan;
- Works involving the use of chemicals which are potentially harmful to the aquatic environment will be undertaken in a contained or lined area;
- Excavation and disposal off-site of contaminated soils (where required).
- Good housekeeping (daily site clean-ups, use of disposal bins, etc.) on the project site, and the proper use, storage and disposal of many substances used on construction sites, such as lubricants, fuels and oils and their containers can prevent soil contamination.

6.6.2 Water Monitoring

Proposed water quality monitoring is limited to the fact that there are no significant water features within the development lands. The water monitoring that will be undertaken onis outlined blow

- Check downstream watercourse to the south daily for:
  - Change in water colour.
  - Change in water transparency.
  - Oily sheen on water surface.
  - Scums & foams.
  - Dead / decaying plants, animals & fish.
- Turbidity, pH, Temperature, DO and Conductivity will be monitored at a chosen location along the downstream water course using a portable meter to ensure that the levels/concentrations are within expected and typical ranges.
- Keep a record of these checks in the Sampling Register.

- Ensure gullies/ drains are kept free from ingress of stone, spoil, tarmac and other material by checking daily

6.7 NOISE

6.7.1 Noise Controls

Noise will be minimised and managed in accordance with the controls specified in the EIAR (Chapter 10). Proposed contract working hours are Monday to Friday 07.00 to 19.00 and 08:00 to 18:00 on Saturdays. The site will be closed on Sundays. Controls that will be in place on this project are given in the table below.

- A Site Representative shall be appointed for matters related to noise and vibration.
- Any complaints received shall be thoroughly investigated.
- A written complaints log shall be maintained by the Site Manager. This shall, at a minimum, record complainant's details (where agreed) the date and time of the complaint, details of the complaint including where the effect was observed, corrective and preventative actions taken and any close-out communications. This will ensure that the concerns of local residents who may be affected by site activities are considered during the management of activities at the site.
- In the event of exceedance of the limits specified in Section 10.4.1 of the EIAR. at NSRs, works shall be ceased and measures implemented immediately to ensure that the limits are complied with.
- The operation of certain pieces of equipment, where substitution etc cannot be carried out shall be managed through monitoring and timing of use to ensure that the threshold values/criteria specified are complied with.
- Locate stationary plant and equipment as far away as possible from sensitive receptors and away from walls. Orientate away from receptor.
- Provide acoustic housing around noisy equipment or equipment that is required to run continuously.
- During the construction phase all equipment shall be required to comply with noise limits set out in EC Directive 2000/14/EC and the 2005/88/EC amendment on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors. The directive covers equipment such as compressors, welding generators, excavators, dozers, loaders and dump trucks.
- Temporary acoustic screening/hoarding shall be erected along the boundary of NSR3 with the construction access route. As a general rule of thumb, it is recommended that temporary screening break the *"line of sight"* from the sources to the windows. The hoarding surface density shall be a minimum 10kg/m^2.

6.7.2 Noise Monitoring

Noise monitoring will be undertaken to ensure compliance with required limits. Noise monitoring with capability for real-time review both on-site and remotely shall be conducted at nearby NSRs throughout site development and construction. Monitoring shall be conducted at NSRs 1, 2 and 3 at a minimum. Additionally, a Type 1 portable noise meter will be available for use on site.

6.8 AIR

As part of the air quality control measure a Dust Management Plan (DMP) will be developed and implemented. The appointed contractor will carry out dust monitoring along the site perimeter to confirm that the dust levels do not exceed 350mg/m^2/day average over 30 days in accordance with TA LUFT VDI Method (Bergerhoff Gauge). Dust gauges will be put in place at a number of locations (6No.) and the samples analysed at an accredited laboratory.

Controls that will be in place on this contract are given in the table below.

Dust	A designated Site Agent will be assigned overall responsibility for Dust Management;
Dust	Implementation of the Construction and Environmental Management Plan.
Dust	The design of the site and Construction programme considers dust impact management and chooses design approaches to minimise dust emissions;
Dust and general air quality	An effective training programme for site personnel will be implemented for the duration of the Construction Programme;
Dust and general air quality	A strategy for ensuring effective communication with the local community will be developed and implemented;
Dust	A programme of dust minimisation and control measures will be implemented and regularly reviewed;
Dust	A monitoring programme will be implemented.
Dust	Activities with potential for significant emissions will wherever possible be located at a position as far as possible removed from the nearest residential and commercial receptors;
Dust	The areas on site which vehicles will be travelling on will generally be hard-surfaced or compressed ground thus significantly reducing the potential for dust emissions from the vehicles;

Dust	The construction compound area will have hard standing areas to minimize dust generation from windblow.
Dust	In order to minimise the potential for wind-generated emissions from material storage bays, these bays will be oriented away from the dominant wind direction to minimise the effects of wind on release of dust and particulate.
Dust	Fixed and mobile water sprays will be used to control dust emissions from material stockpiles and road and yard surfaces as necessary in dry and/or windy weather.
Dust	A daily inspection programme will be formulated and implemented in order to ensure that dust control measures are inspected to verify effective operation and management.
Dust	A dust deposition monitoring programme will be implemented at the site boundaries for the duration of the construction phase in order to verify the continued compliance with relevant standards and limits.
Aspergillus Risks	The National Guidelines will be followed with regard to the effective management of Aspergillus risks.

In addition to the above, the Construction Site Manager shall enforce the following:

- Enforce appropriate an on-site speed limit on surfaced roads. Have sign posts indicating these speed limits.
- Turn off engines when not in use. If any plant or equipment is emitting black / heavy smoke, cease use and send for servicing
- No burning on site.
- Ensure vehicles do not queue at the site entrance.
- Provide wheel washing facilities at the entrance to the extension construction site lands to remove mud from haulage vehicles and to ensure mud is not transferred onto the surrounding road network (detergents will not be used and washes will incorporate appropriate containment systems).

6.9 WILDLIFE & ECOLOGY

There are no designated conservation areas within or close to the proposed development site. Therefore, the proposed development site does not directly impact on any Special Area of Conservation (SAC), Natural Heritage Area (NHA), Special Protection Area (SPA), National Parks or Nature Reserves.

Control measures associated with the potential impact on water quality are dealt with under the Water Quality Section of the CEMP.

6.9.1 Consents

No specific consents are required for the project works, but shall be reviewed as part of Contract CEMP preparation works.

6.9.2 Biodiversity Protection Measures

Wildlife will be protected in accordance with the controls specified in the Environmental Handbook. Mitigation measures that will be in place on this contract are given in the table below.

Table 6.11 Biodiversity

TASK	RESPONSIBILITY
General:	
Ensure all staff are aware of any conditions/ requirements attached to consents/ licences and of the controls detailed below.	Project Manager/ SHEQ Advisor
If any wildlife is found unexpectedly (e.g. reptiles, badgers or bats), contact your SHESQ Advisor.	All Staff
Implement controls as instructed by the SHEQ Advisor.	Project Manager/ Foreman
Nesting Birds:	
Check the site for nesting birds (including ground nesting birds). Make a record of this survey.	Project Manager/ Foreman
If any nesting birds are found, fence off the area and inform all staff of their location. Do NOT conduct works in this area.	Project Manager/ Foreman
Check trees for nesting birds before removing them or trimming any branches	All Staff
Do not disturb any nesting birds.	All Staff
When working near trees:	
Inform the SHEQ Advisor so that the council may be contacted to ensure there are no Tree Preservation Orders in the area.	Project Manager/ Foreman
Do not damage or interfere with any tree or hedge unless permission has been obtained from the Local Authority.	All Staff
Ensure where practicable young trees are relocated rather than removed	Project Manager/ Foreman

TASK	RESPONSIBILITY
If trees that are suitable as bat roosts are to be removed arrange for inspection by a bat license holder.	Project Manager/ SHEQ Advisor/ Manager/
If bats are present obtain a derogation licence prior to felling and supervise the work.	Specialist/ SHEQ Advisor
Undertake any pruning, crown lifting or removal of trees at an appropriate time of year (i.e. outside the bird-breeding season, which is March to August). Employ specialist contractors to carry out all tree cutting/surgery.	Project Manager/ SHEQ Advisor/ All Staff
Only remove the minimum of branches to allow access.	All Staff
Where branches must be lopped, make a clean cut above a joint.	All Staff
Ensure all site staff are briefed regarding the NJUG Guidelines on working in close proximity to trees and that the guidelines are implemented on site.	Project Manager/ SHEQ Advisor/ Manager/
Work as far away from the trees as possible. Where trees are in close proximity to the works set up protection zones around the trees to prevent damage to their branch and root system.	Project Manager/ Foreman
Ensure the tree protection zone is cordoned off and if possible is large enough to prevent access under the canopy of the tree.	Project Manager/ Foreman
Do not lean any materials up against tree trunks.	All Staff
If excavation under the canopy is required: • Hand-dig around tree roots • Retain as many roots as possible • If a root must be severed, make sure it is a clean cut • If roots are to be left exposed overnight cover with damp sacking	All Staff
Invasive Plants:	

TASK	RESPONSIBILITY
No invasive species were identified as part of EIA survey works undertaken in support of the planning application. However in accordance with best practice, invasive plant species is included as a task. *Invasive and Non-native Flora.* Japanese knotweed (*Fallopia japonica*) and Rhododendron (*Rhododendron ponticum*) have been recorded from within a 2km radius of the proposed development site, according to the NBDC data online. Should any of these plants be found in the general vicinity of the development site, please contact your SHEQ Advisor/ Manager for instructions on how to proceed.	Project Manager
If invasive plants are identified, contact specialist contractor to remove the plant off site in a safe manner in accordance with the relevant legal and other requirements.	SHEQ Advisor
Implement controls as instructed by the SHESQ Advisor/ Manager.	Project Manager/ Foreman

6.10 ARCHAEOLOGY AND HERITAGE

There are no previously recorded archaeological sites located within the proposed development lands and no adverse impacts are predicted upon the archaeological resource as a result of the proposed development.

No materials assets including features of architectural, archaeological or cultural heritage were identified in the planning applications (Refer to EIAR). There is no evidence that there are any material assets within the site. Further geophysical surveys are being undertaken under licence as part of planning requirements followed by submission of a written report to the Planning Authority and NMS. Depending on the content of the report, monitoring may be required and DCHG will advise on relevant matters and this shall be reviewed as part of Contract CEMP works.

6.10.1 Archaeology and Heritage Protection Measures

The requirement for any such works shall be reviewed as part of Contract CEMP works.

6.10.2 Record of Protected Structures

Not Applicable

6.11 SITE COMPOUND

The location of the Site Compound will be in the south eastern area of the site.

TASK	RESPONSIBILITY
Before site set up works begin photograph the condition of the site compound area (to help avoid erroneous claims after the works have been completed).	Project Manager/ Foreman
Provide perimeter fencing /hoarding at any location such that the environment in the area is not blighted by the construction site.	Project Manager
Provide signage with out of hours contact details.	Project Manager
Ensure that perimeter fencing /hoarding are regularly checked and kept free damage.	Foreman
Position site lighting to prevent intrusion /nuisance to neighbouring properties	Project Manager
Locate temporary site toilets/ waste skips away from site neighbours.	Project Manager
Ensure that the sites are kept clean, tidy and safe.	Project Manager
Store plant, equipment & materials at least 10m away from drains.	Project Manager/ Foreman
Keep cabins/containers locked outside working hours	Foreman
Provide site drainage arrangements that comply with the requirements of any discharge consents	Project Manager/ Foreman
Prevent materials, waste, and dust from blowing around.	Foreman
Allocate a person to supervise all fuel deliveries.	Project Manager/ Foreman
Display a notice giving details of safe delivery and storage procedures.	SHEQ Advisor/ Manager
Supervise all deliveries at all times.	Nominated person
Check level in tank prior to delivery to prevent overfilling.	Nominated person
Check delivery before discharge to ensure the correct fuel is being delivered.	Nominated person
Ensure that valve on bunded tank is closed and kept locked when not in use	All staff
Only re-fuel in designated areas within the site compound, using drip trays.	All staff

TASK	RESPONSIBILITY
Ensure that hose is kept within bund at all times	All staff
Never leave a vehicle/ plant unattended during re-fuelling.	All staff
Ensure any emergency vehicle maintenance is carried out using drip trays.	Fitters/ Foreman
Appoint a member of staff to be responsible for liaising with local groups	Project Manager
Consult with local resident groups about planned activities that may cause a nuisance, e.g. rock breaking, major deliveries etc.	Appointed person/Liaison Officer

6.12 EMERGENCY PREPAREDNESS/ENVIRONMENTAL INCIDENTS

An Emergency Response Plan (ERP) is presented in this section of the Preliminary 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.

Environmental incidents have the potential to adversely affect the appointed contractor through potential prosecution, blight to a site, contractual issues, public relations issues, through to increased costs for clean-up / management fees and delays to the build programme. The reporting of environmental incidents is vital in order to ensure they are dealt with correctly, adverse effects negated or minimised and that valuable lessons are learnt. Where environmental incidents are reported, actions can be formally completed that ensure control measures are put in place to avoid any future recurrence on site and, where relevant, across the company as a whole.

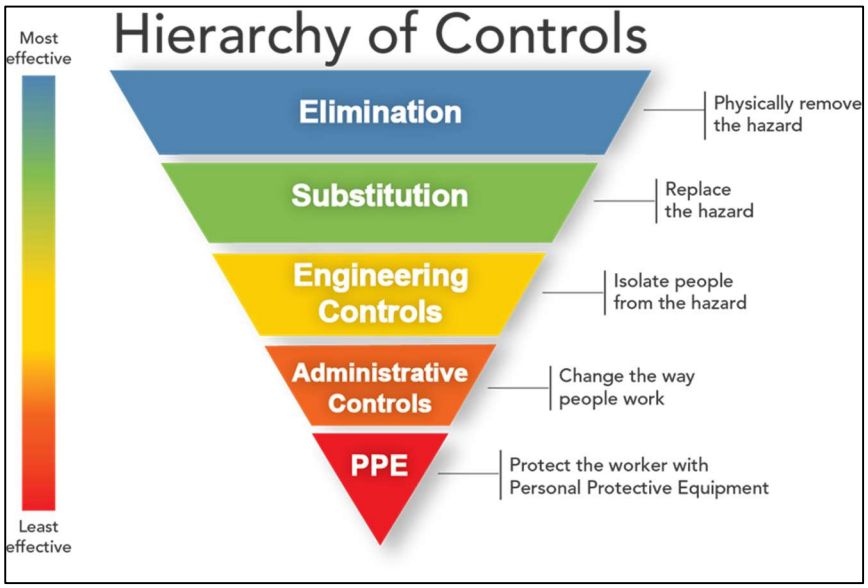
Emergency response scenarios have been identified as part of the implementation of the IMS and the controls for prevention and management of these scenarios are documented in the "*Emergency Preparedness and Response Plan"*. The purpose of this plan is to identify the potential emergencies and the measures that are in place to prevent the emergency or procedure to follow should the emergency occur. Emergency scenarios include:

- Fire
- Gas Release
- Gas Explosion
- Major Spillage
- Minor Spillage
- Personnel Injury
- Adverse, Severe Weather Conditions
- Road Traffic Collision

- Mechanical Entrapment

For each scenario, actions and environmental controls are prescribed in accordance with the hierarchy of controls. The effectiveness of actions and controls are considered during internal audits, at monthly operations meetings, quarterly management meetings and at the Management Review.

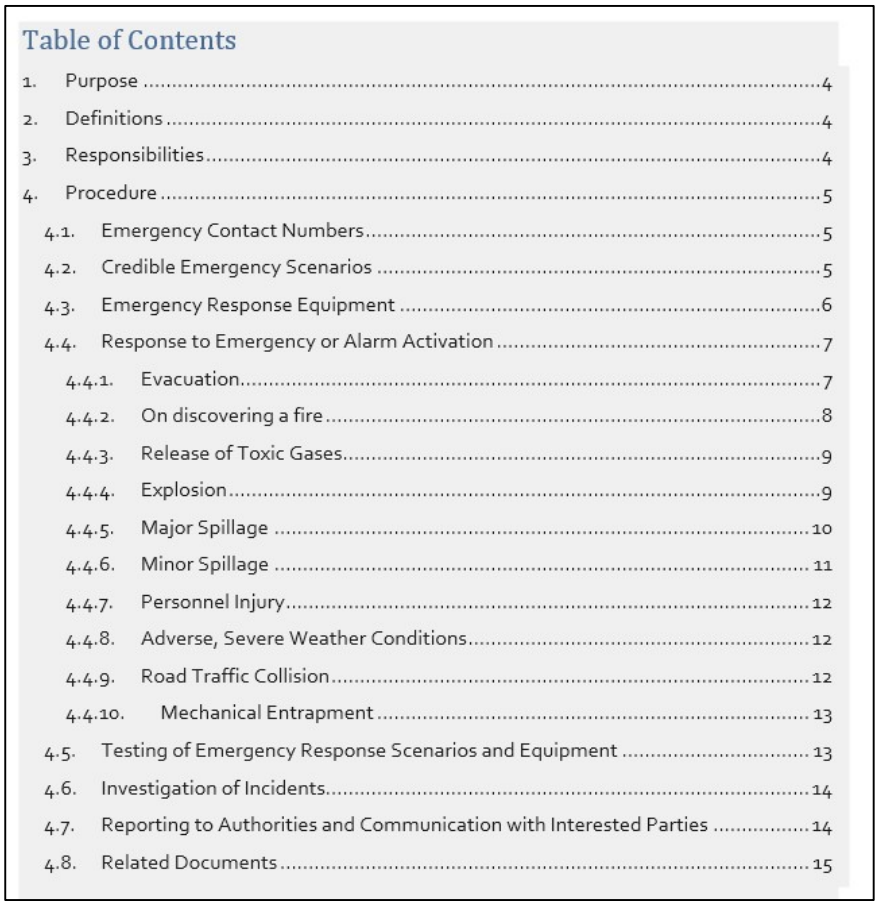
Figure 6.3 Hierarchy of Controls



It provides details of procedures to be adopted in the event of an emergency. 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/PSCS and suppliers as the project progresses. Where approved subcontractors 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 within this document. This is a working document that will requires updating and review throughout the various stages of the project.

The *Emergency Preparedness and Response Plan* contains the following detail which should be considered as part of finalisation of the development of the Outline CEMP to Contract CEMP:

Figure 6.4 Emergency Preparedness and Response Plan Contents



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In relation to the proposed construction project, the Emergency and Preparedness Response Plan will include the following:

- Roles Responsibilities;
- Definitions;
- Pollution Prevention;
- Environmental Incident Action;
- Notification;
- Review and Reporting;
- Fire;
- Evacuation;
- Periodic Testing;
- Spill Kits.

6.12.1 Roles and Responsibilities

The chain of command during an emergency response sets out who is responsible for coordinating the response. The Construction Site Manager, will lead the emergency response which makes him/her 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 is the SHEQ manager. In a situation where the Site Manager is unavailable or incapable of coordinating the emergency response, the responsibility will be transferred to the SHEQ manager.

6.12.2 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 6.12 Hazards associated with 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 and ladders	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 the above table, 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/fog horn that activates an emergency evacuation on the site.
- Make safe the area if possible and ensure that there is 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.
- 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, Westmeath County Council, Fire Brigade,
- Contact the next of kin of any injured personnel where appropriate.

6.12.3 Pollution Prevention;

The first priority is to prevent pollution occurring, in this regard, similar steps should be taken to managing the environment on site. In particular:

- Preplanning (e.g. Storage Bunding, Consent Licenses, Drainage Plan)
- Hazard identification and risk assessment
- Protective and preventative pollution measures incorporated in to the Environmental Management Plan (EMP), Method Statements and systems of work.
- Emergency planning e.g. procedures, spill kits etc.
- Information, instruction and training
- Inspection, supervision
- Performance auditing
- Review

6.12.4 Environmental Incidents /Non-Conformances

For the purposes of the CEMP, environmental incidents/ non-conformances are defined as follows:

- **Environmental Incident:** a failure to implement adequate environmental controls that has resulted in pollution of water, air or land, damage to wildlife and ecosystems (habitats) or nuisance to a local community.
- **Environmental Near Miss:** something that occurs that has the potential to cause an environmental incident but didn't.
- **Environmental Non-conformance:** a failure to implement environmental controls associated with planning conditions.
- **Complaint:** A significant grievance, dissatisfaction or accusation made by a client, member of the public or other third party relating to activities being completed by the appointed contractor

6.12.4.1 Types of Environmental Incident

To help with trend analysis incidents should be classified according to the type of incident. Incidents can usually be classified under one of the ten types listed below. However, this is not a definitive list and a different classification can be used if the incident does not fit within one of these.

- Air
- Archaeology & Heritage
- Contaminated Land
- Ecology
- Groundwater
- Noise & Vibration
- Oils & Chemicals
- Surface Water
- Traffic
- Waste

6.12.5 Notification

6.12.5.1 Response to an incident or imminent threat of an incident

All employees will be instructed to bring any environmental incidents they identify to the immediate attention of the Project /Site Manager, after first taking what steps they can to contain/ remediate the incident (without putting the health and safety of themselves or others at risk). If appropriate/ necessary the Project Manager/ SHEQ Manager will also inform the Client/ Statutory Authorities and liaise with their personnel in investigations, assessments and the implementation of appropriate corrective and preventive actions. Incident reports shall be completed within 1 day of occurrence. investigations shall be closed out within two weeks of occurrence. For more severe incidents, a full investigation report shall be carried out.

6.12.5.2 Emergency Communications Procedure

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

- Stay calm. It's important to take a deep breath and not get excited. Any situation that requires 999/112 is, by definition, is 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 don't get frustrated. Even though many emergency 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 any 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's 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 don't 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.

Table 6.12 Emergency Contacts List

Contact	Telephone No.
Emergency Services – Ambulance, Fire, Gardaí	To be completed
EPA Regional Inspectorate Castlebar	To be completed
Gardaí (Local)	To be completed
Gardai Westmeath	To be completed
Westmeath Fire Brigade	To be completed
Midlands Regional Hospital Tullamore	To be completed
Environmental Protection Agency	To be completed
Health & Safety Authority	To be completed
Eirgrid	To be completed
ESB Networks	To be completed
Westmeath County Council	To be completed
Inland Fisheries	To be completed
Other	

6.12.5.3 Reporting of Accidents and Dangerous Occurrences

Health and Safety Authority

Accidents and dangerous occurrences must be reported to the HSA in accordance with the Safety, Health and Welfare at Work (Reporting of Accidents and Dangerous Occurrences) Regulations 2016 (S.I. No. 370 of 2016).

The key points in relation to reporting of accidents and dangerous occurrences are:

- Only fatal and non-fatal injuries are reportable. Diseases, occupational illnesses or any impairments of mental condition are not reportable.
- Fatal accidents must be reported immediately to the Authority or Gardaí. Subsequently, the formal report should be submitted to the Authority within five working days of the death.
- Injuries to any employee as a result of an accident while at work where the injury results in the employee being unable to carry out their normal work duties for more than three consecutive days, excluding the day of the accident, must be reported to the Authority.
- Non-fatal accidents or dangerous occurrences should be reported to the Authority within ten working days of the event.
- Accidents to a person who is not your employee and is not at work but is injured by a work activity resulting in the person being taken to a hospital or medical facility must be reported.

A 'dangerous occurrence' means an occurrence arising from work activities in a place of work that causes or results in –

- The collapse, overturning, failure, explosion, bursting, electrical short circuit discharge or overload, or malfunction of any work equipment,
- The collapse or partial collapse of any building or structure under construction or in use as a place of work,
- The uncontrolled or accidental release, the escape or the ignition of any substance,
- A fire involving any substance, or
- Any unintentional ignition or explosion of explosives, as may be prescribed.

The prescribed dangerous occurrences which must be reported to the Authority are listed in Schedule 15 of Safety, Health and Welfare at Work (Reporting of Accidents and Dangerous Occurrences) Regulations 2016 (S.I. No. 370 of 2016)

6.12.6 Review and Reporting

The cause of any incident shall be determined by those involved when the incident or emergency occurred and those involved in the clean-up procedure. The appropriate corrective actions shall be implemented as soon as possible on detection of the incident. All incidents must be reported and documented on a site register. Where there has been direct damage to the environment it may be necessary to report this to the Regulator (e.g. Environmental Protection Agency /Local Authority). If direct damage has occurred the Construction Site Manager shall also be informed as soon as an incident has occurred.

6.12.7 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 fog horn 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 Manager to account for all personnel on site.
- Once all personnel have been accounted for the Site Manager will decide the next course of action which 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. Cognisance, integration and knowledge of emergency procedures associated with the existing biogas plant will be undertaken as part of Contract CEMP development works.

6.12.8 Periodic Testing

It is the responsibility of the Construction Site Manager or nominated SHEQ advisor to ensure that the emergency procedure is periodically tested to ensure it is effective. Frequency for testing should be determined by the level of risk for a particular project, however, it is recommended that this be carried out at least once every six months or once during the project lifetime where project duration is less than one year.

The test should be logged as good practice. The test should be reviewed to determine the effectiveness of the procedure and the need to amend the requirements if necessary.

6.12.9 Spill Kits

Sufficient types and quantities of spill response equipment should be available on site and should be kept where spills may occur. The quantity of spill response equipment should be sufficient to contain any likely spill that may occur on site. Types of spill equipment suitable for containing spills arising from different types of pollutants are provided below:

Table 6.13 Spill Kit Types

	Pollutants				
Spill on Ground	**Concrete Cement**	**Paints**	**Oils**	**Silt**	**Detergents**
Sand	✓	✓	✓	✗	✓
Straw Bales	✗	✗	✓	✓	✗

APPENDICES

APPENDIX A

Construction Waste Management Plan

Construction Waste Management Plan

Introduction

The following matrix[2] (Table 6.1) was developed by Halston and is used to provide indicative construction and demolition (C&D) waste management complexity scoring. The matrix uses six key metrics to assess how likely the project is to require a high level of regulatory attention and the level of detail which should be contained in the C&D WMP. The overall score for the project is calculated by adding the individual score for each of the metrics. The level of detail which should be contained in the C&D WMP is appropriate to the rating of the site:

- No requirement for C&D WMP's are those with score of up to 6
- Standard C&D WMP's are those with score of 7 -15
- Detailed C&D WMP's are those with a score of >15

Table 1 Matrix to Estimate Site C&D WMP Complexity

Metric		Score 1	Score 2	Score 3	Score 4
1	Do works involve infrastructural demolition works and /or is there potential ground contamination	Greenfield – undeveloped site	Existing buildings on site –non-industrial /commercial use or agricultural	Former light Industrial brownfield Use – potential for ground contamination	Former heavy industrial brownfield site with known ground contamination
2	Site Setting and Environmental Sensitivity including invasive species	Low	Medium	High	Very High
3	Duration of Construction Phase	<3 months	3-12 months	12 months – 2 years	>2 years
4	Expected Volume of Waste (export)	<100m^3	100-500m^3	500 – 1,000m^3	>1,000m^3
5	Floor Area	<125m^2	125-1,250m^2	>1,250m^2	
6	Estimated Cost of Project	<€300,000	€300,000 – €1,000,000	€1,000,000 – €10,000,000	>€10,000,000

[2] Matrix adapted from WG (Welsh Government), 2013. Waste (Wales) Measure 2010: Site Waste Management Plans Consultation Document and consideration of Irish Waste Regulations and Best Practice Guidance

Table 2 Matrix Score Assigned to Project

Metric	Answer	Score	Overall Score
Do works involve infrastructural demolition works and /or is there potential ground contamination	Yes, ground contamination unlikely.	2	16 (Detailed C&D WMP)
Site Setting and Environmental Sensitivity	High	1	
Duration of Construction Phase	28a months	4	
Expected Volume of Waste (export off-site)	<100m^3	1	
Floor Area	>1,250m^2	4	
Estimated Cost of Project	€1M-€10M -	4	

As can be seen in Table 2, the proposed development characteristics resulted in a score of 17; a detailed C&D WMP requirement. Outline details in respect of this is provided below.

Waste Classification

The EPA and the Eastern Midlands Waste Management Plan 2015-2021 defines Construction and Demolition (C&D) waste as *"...all waste that arises from construction and demolition activities including excavated soil from contaminated sites....listed in Chapter 17 of the European Waste Catalogue (EWC)"*[3].

If demolition waste is generated as part of the proposed development works it will involve careful decommission and removal of all plant and structures at the site (to provide for extension to the feedstock reception building and office building).

Other anticipated wastes which will be generated on site include soils, blocks; concrete and reinforced concrete; timber; metal sheeting, steel, bituminous materials such as bitumen macadam and asphalt; paving slabs; kerbs; used shuttering; scrap metal, scrap pipes and other plastics; canteen and office waste; lubricating oil, hydraulic oil, scrap parts and other fluids generated from equipment maintenance; sewage from construction phase site toilets. The expected primary non-hazardous and hazardous waste streams that will be generated during construction activities are classified in accordance with the European Waste Catalogue in Table 3 below.

[3] It is worth noting, however, that the C&D W stream can overlap into other EWC chapters (Chapters 8, 15 and 20)

Table 3 EWC Classification of Wastes

Waste Description	EWC Code
Waste plastics	02 01 04
Soil and Stone	17 05 04
Concrete	17 05 07
Wood	17 02 01
Bituminous mixtures	17 03 02
Gypsum	17 08 02
Iron and steel	17 04 05
Insulation materials	17 06 04
Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	17 09 04
Canteen waste	20 03 01

Construction Site Waste Management

Roles and Responsibilities

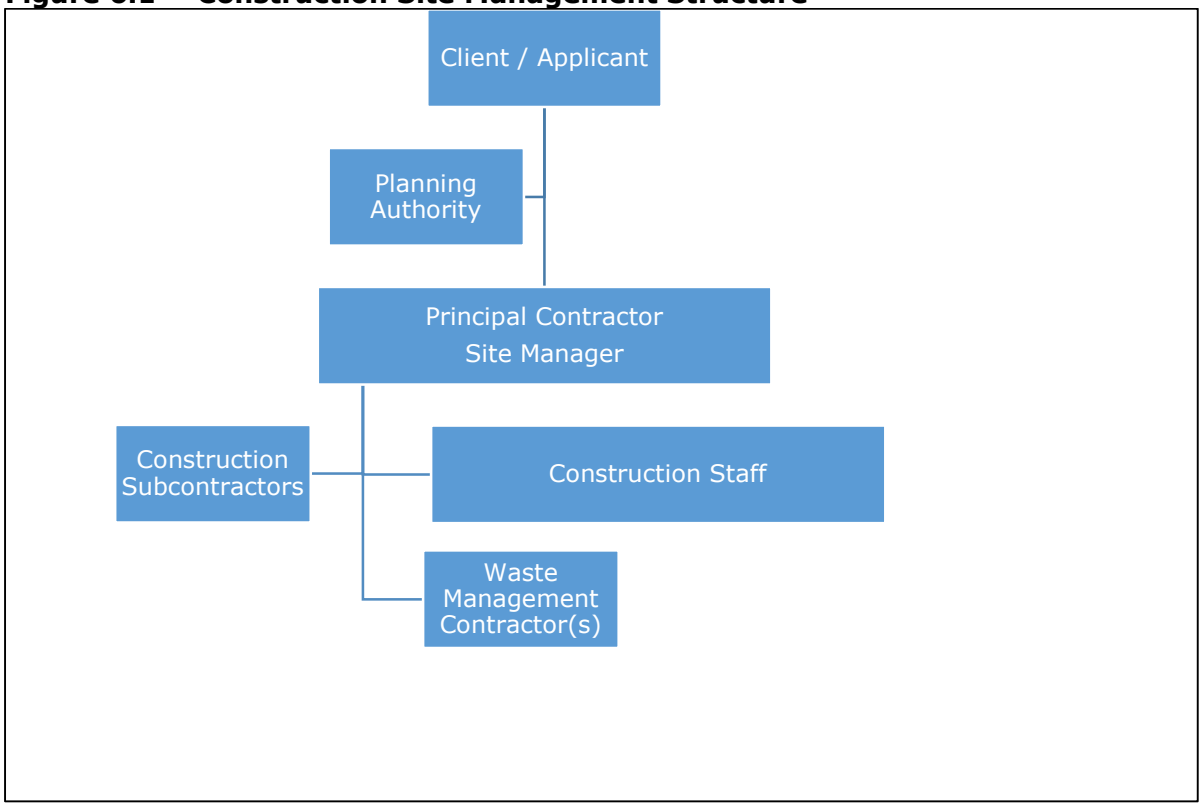
Both the applicant and principal contractor have roles and responsibilities in relation to the C&D WMP. The Appointed Contractor will be responsible for most aspects of the Construction Waste from the date of the contract.

The Site Construction Manager will be designated as the Responsible Person and have overall responsibility for the implementation of the on-site C&D WMP. The site manager will be assigned the authority to instruct all site personnel to comply with the specific provisions of the C&D WMP. At the operational level, a nominated Environmental Representative from each sub-contractor company on the site will be assigned the direct responsibility to ensure that the discrete operations stated in the overall construction plan are performed on an on-going basis. Figure 6.1 below provides a management structure for the construction site.

Table 6.4 Roles and Responsibilities

Description of Duty	Client	Principal Contractor
Ensure that from the start of the Project, an approach to waste management is taken that complies with all relevant waste regulations Produce and submit a C&D WMP that meets Westmeath Co. Co. requirements and industry guidance	✓	
Give reasonable directions to any contractor so far as is necessary to enable the Principal Contractor to comply with his duties under these Regulations.	✓	✓
Make and maintain arrangements to record waste arisings within the Project.		✓
Communicate the C&D WMP to all those affected by it, including workers on site and any subcontractors, and undertake monitoring checks to ensure that it is implemented.		✓
Receive and record waste carrier registration details and waste transfer notes in the C&D WMP to ensure that waste removed from the site is transferred to the prescribed destination and is managed in accordance with applicable waste management legislation		✓
Ensure so far as is reasonably practicable that every worker carrying out the construction work is provided with (i) suitable site induction; and (ii) any further information and training which the worker needs for the particular work to be carried out within the terms of the C&D WMP		✓
View, revise and update the C&D WMP as and when necessary, ensuring that any changes in roles and responsibilities are clearly communicated to those affected	✓	✓
Take reasonable steps to ensure that sufficient site security measures are put in place at the site to prevent any illegal disposal of waste	✓	✓
Inform the Client on the requirements of a construction waste management plan to ensure that Client is aware of obligations to meet under regulations (applies to Principal Contractors where appointed)		✓

Figure 6.1 Construction Site Management Structure



Designated skips and receptacles will be provided on site for all recyclable wastes. The appointed waste contractor will collect and transfer the recyclable wastes as skips are filled. The non-recyclable waste will be transferred by an authorised waste collector to licensed facilities (e.g. canteen waste, general waste). Numerous licensed waste contractors are available in the area and will be obtained from the waste management authority listing.

A successful C&D WMP is largely dependent on how readily it can be integrated in to normal site operations by site manager. The C&D WMP will be implemented to compliment site construction activities and will be promoted by raising awareness and its importance via site inductions, site training, toolbox talks, etc.

Demolition Waste Generation

The majority of the C&D waste will be clean, inert material and it is proposed to reuse it for construction purposes where possible. The onsite farm outbuilding, farm sheds, feed silo and silage clamp will be demolished and removed from site in accordance with best practice. Works will involve careful decommission and removal of all farm structures at the site. Anticipated wastes which will be generated include soils, bricks and blocks; concrete and reinforced concrete; timber; metal sheeting and steel. Materials arising from this process will be recycled /disposed of at authorised waste management facilities.

Construction Waste Generation

During construction activities, it is expected that construction waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, glass, packaging waste, steel etc.

Soils, Subsoils and Bedrock

A key aspect in the design stage of the project was to aim to eliminate the off-site disposal of excavated materials wherever possible and to reduce the potential for landscape and visual effects.

Construction activities during the construction phase have the potential to release contaminants to the surface waters via drainage channels, specifically silt /sediment, concrete /grouting materials, foul effluent and oils. However, these impacts can be controlled and mitigated and considered as imperceptible negative temporary impacts on the basis that construction mitigation measures are carried out as outlined below.

- Prior to commencement of construction, the outline CEMP will be further development and submitted to the planning authority for agreement.
- Planned construction works will be carried out with the least feasible disturbance of soils. It is proposed that no excavated soil materials (spoil) will be exported off site and will be near boundaries (particularly to the north). Soil stripping and site levelling works will be confined to the site itself. Low lying areas of the site will be filled and levelled with the spoil material. Timetabling of vegetation removal, topsoil stripping and the development of earthworks on-site will fully consider seasonal, ecological and hydrological constraints.
- An accident management plan will be developed to provide spill response procedures, emergency contact details in addition to equipment inventories and their location. All staff will be made aware of this document, and its content, during site induction and it will be available in the site office. Staff will be trained in the implementation of the Plan and the use of any spill control equipment as necessary.
- A drainage plan will be prepared for the construction programme and showing proposed sediment traps and monitoring /discharge control points. The plan will include use of settlement features and traps.
- Concrete will be mixed off–site and imported to the site. The pouring of concrete will take place within a designated area to prevent concrete runoff into the soil / groundwater media.
- Wash down and washout of concrete transporting vehicles will take place at an appropriate facility offsite.

- Good housekeeping (daily site clean-ups, use of disposal bins, etc.) on the project site, and the proper use, storage and disposal of many substances used on construction sites, such as lubricants, fuels and oils and their containers can prevent soil contamination.
- Pollution of aquatic systems during the construction phase will be reduced by the implementation of the following best practice mitigation measures. Due cognisance is paid to the following guidance documents for construction work on or near water;
    - IFI (2016) Guidelines on protection of fisheries during construction works in and adjacent to waters - Guidance for consultants and contractors;
    - CIRIA (2004) – Guideline Document C697 The SUDS Manual;
    - CIRIA (2004)– Guideline Document C624 Development and flood risk - guidance for the construction industry;
    - CIRIA (2006) Control of water pollution from linear construction projects. Site guide;
    - SEPA (2010) Engineering in the water environment good practice guide sediment management;
    - SEPA (2009) Engineering in the Water Environment Good Practice Guide: Temporary Construction Methods; and,
    - SEPA (2017) Works and maintenance in or near water. GPP 5.
- All chemical and fuel fill points and hoses will be contained within bunded areas. Adequate protection measures will be put in place to ensure that all hydrocarbons used during the construction phase are appropriately handled, stored and disposed of in accordance with recognised standards as prescribed out by the EPA.
- Foul drainage from all site offices and construction facilities will be contained and disposed of in an appropriate manner to prevent pollution of local watercourses in accordance with the relevant statutory regulations.
- Routine monitoring of water quality will be carried out at appropriate locations during construction. Parameters to be monitored should include pH, total suspended solids, BOD and COD.

It is not expected that any contaminated material will be encountered during the construction works due to the history of the site (greenfield). However, in this unlikely instance, the material will be segregated, classified and suitably disposed of under waste permit to a waste licensed facility following notification to the Council. This highly unlikely event would increase the off-site disposal rates.

Plastic

As plastic is now considered a highly recyclable material, much of the plastic generated during construction will be diverted from landfill and recycled. The plastic will be segregated at source and kept as clean as possible and stored in a dedicated skip.

Timber /Wood

There will be timber waste generated from the construction work as off-cuts or damaged pieces of timber from building construction. Timber that is uncontaminated (free from paints, preservatives, glues etc.) will be recycled. Again, designated signed areas will be used for segregation and collection on site. A permitted contractor will be used to transfer the material to a waste licensed facility for recovery /recycling (e.g. energy use, wood chips, etc.).

Scrap Metal

Steel is a highly recyclable material and there are numerous companies that will accept waste steel and other scrap metals. A segregated skip will be available for steel/metal storage on-site pending recycling.

Cardboard Packaging

Cardboard packaging will be flattered and placed in a covered skip to prevent it getting wet prior to its recovery off site.

Plasterboard

Waste gypsum can be recycled into new plasterboard. A skip will be provided for the separate collection of waste plasterboard and collected as necessary.

Hazardous Wastes

On-site storage of any hazardous wastes produced will be minimised with off-site removal organised on a regular basis. Appropriate storage of all hazardous wastes on-site will be undertaken including bunding of fuels, lubricants etc. to minimise exposure and risk to human beings and environmental receptors. Segregated hazardous wastes (such as waste oils) will be recovered wherever possible and failing this, disposed of appropriately.

Canteen and General Waste

Regular housekeeping of the temporary canteen/W/C areas will be carried out. Removal of domestic waste from the construction compound will be carried out by a permitted waste contractor. Any temporary W/C utilities used on site during the construction phase will be maintained by an approved and permitted contractor.

There will be a general skip or receptacle for C&D waste not suitable for reuse or recovery. This skip will include general wet waste (mixed food waste and food packaging), contaminated cardboard, contaminated plastic etc. Workers on the site will be encouraged to recycle as much municipal waste as possible and segregated bins will be provided. Prior to removal, the municipal waste receptacle will be examined to confirm not cross contamination has occurred.

Tracking and Documentation

The site manager will maintain a copy of all waste collection permits in the construction site office. A record of all imported material (such as clean fill material such as broken rock, clause 804 gravel, etc.) will also be kept on file. If waste is being transported to another site, a copy of the waste permit or EPA waste licence will be kept on file at the site construction office. It is not expected that any waste will be produced on site that will require transfrontier shipping documentation (TFS). If this instance arises, this will be arranged via the national competent authority; Dublin City Council is designated as the National Competent Authority for the export, import and transit of waste shipments under S.I. No. 419 of 2007 Waste Management (Shipments of Waste) Regulations, 2007.

Estimated Cost of Waste Management

The cost associated with waste management for the site will be further developed and incorporated into the CEMP (containing Construction Waste Management Plan) by the construction site manager once construction contracts have been put in place and appointments made. Estimated waste totals will initially be calculated during costing of the project and these will be comparted against actual waste total as construction on the project progresses. The CEMP will be updated with this information when available will be inputted to the CEMP and a summary overview will be available.

Training of construction staff in relation to the CEMP will be the responsibility of the site manager. A copy of the CEMP will be made available to all personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the CEMP and informed of the responsibilities which fall upon them as a consequence of its provisions.

Where source segregation, selective demolition and material reuse techniques apply, each member of staff will be given instructions on how to comply with the CEMP. Signage will be designed to reinforce the key messages within the CEMP and will be displayed prominently for the benefit of site staff.

Record Keeping and Waste Audits

Records will be kept for each waste material which leaves the site, wither for reuse on another site, recovery, recycling or disposal. A system will be put in place to record the construction waste arising on-site.

The waste manager or delegate will record the following:

- Waste taken off-site for reuse.
- Waste taken off-site for recovery.
- Waste taken off-site for recycling.
- Waste taken off-site for disposal.
- Waste (soil & stone) accepted on-site for recovery.

For each movement of waste off-site, a signed waste collection docket will be obtained by the waste manager (or delegate) from the contractor. This will be carried out for each material type. This system will also be linked with the delivery records. A signed waste acceptance docket will be issued for each movement of waste on-site.

Waste Audits

The site manager will be responsible for conducting waste audits at the site during the construction of the development. The site manager will arrange for full details of all arisings, movements and treatment of construction and demolition waste discards to be recorded during the construction stage of the project. Each consignment of C&D waste taken from the site will be subject to documentation to ensure full traceability of the material to its final destination.

Review of Records and Identification of Corrective Actions

A review of all the records for the waste generated and transported off-site, as well as waste accepted, will be undertaken mid-way through the C&D phase. If waste movements are not accounted for, the reasons for this will be established in order to see if and why the record keeping system has not been maintained. Each material type will be examined in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how

the waste reduction targets can be achieved. Waste management costs will also be reviewed.

Consultation with Relevant Authorities

The site manager will consult and respond to any planning requirements of Westmeath County Council during the construction phase of the project. The Council will also be consulted to discuss all available all available waste reduction, re-use and recycling opportunities are identified and utilised.

Post-Construction

Within three months of all construction works being completed, a final version of the CEMP (including construction waste management plan) will be completed and made available to the planning authority for inspection. The report will summarise the outcomes of waste management processes adopted and the total recycling/reuse/recovery figures for the development.