Appendix A Technical Team

Environmental Report Lead

Dr. Richard Lowe – Director BSc (Hons) MSc PhD

Richard is a Director with AECOM and has worked on the consenting of numerous energy projects in the UK and Ireland including OCGTs, CCGTs, reciprocating engines and, increasingly, decarbonisation projects including CCS enabled power stations and hydrogen production facilities.

Richard has worked on numerous international power projects located in Turkey, Italy, Netherlands, Mauritania, Turkmenistan, South Africa, Venezuela, Dominican Republic, Guatemala, Chile, Tanzania and Peru, covering environmental impacts and concept design issues, including acting as Lenders Advisor and appraising IFC compliance. Richard also directs industrial air quality work, having been involved in more than 200 assessments to date, interpreting dispersion modelling assessments to support BAT justifications for a wide range of industrial, power and development clients. In addition, Richard has conducted more than 40 due-diligence audits and specialises in mergers and acquisitions in the power sector. In addition, Richard has conducted more than 40 due-diligence audits and specialises in mergers and acquisitions in the power sector.

Richard has been Project Director for 6 DCO consent applications for CCGTs and OCGTs in the UK, ranging from 299MW to 2,500MW, including drafting of Requirements, assessment of CCR and CHP feasibility, BAT appraisal for cooling technology, stack height evaluation, consultation with key stakeholders and consideration of permitting and COMAH implications. Richard has led the environmental inputs to the DCO on all projects, as well as the planning and concept engineering inputs on two of them. All used the Rochdale Envelope approach to provide a flexible consent.

Table A1: Expertise of the Environmental Technical Team

Environmental Section	Consultant	Qualification / Summary of Relevant Experience
Air Quality	**Gareth Hodgkiss (AECOM)**	**Associate Director, BSc (Hons), MSc, MIEnvSc, MIAQM** Gareth Hodgkiss is a full member of the Institute of Air Quality Management and the Institution of Environmental Sciences, with over 14 years' professional experience in the delivery of air quality services for various development led projects across the British Isles and further afield. Of relevance to the Proposed Development, Gareth has undertaken, reviewed and verified assessments of local air quality impacts of major remediation works and large construction projects, which have considered impacts on human health, amenity and sensitive ecology, to support planning applications and the requirements of the appropriate regulator.
Noise and Vibration	**Alex Southern (AECOM)**	**Principal Acoustic Consultant, BSc (Hons) MSc, PhD MIOA** Alex Southern has over 15 years of experience working in acoustics research and consultancy. He joined AECOM in 2012 and has built a wealth of experience in assessing industrial, commercial and residential developments. Alex has experience in a wide range of acoustics reach and consultancy, including measuring, predicting, modelling and assessing emissions from various industrial facilities including within the power and renewables sector. Alex was awarded the Institute of Acoustic young person's award for innovation and lead AECOM Auralisation capability, technology allowing stakeholders to hear a development before it is finished.
Biodiversity	**Tony Marshall (AECOM)**	**Technical Director, C Ecol, MCIEEM** Tony is a Chartered Ecologist with more than 12 years' experience in ecological consultancy. He leads AECOM's ecology teams in Ireland and Scotland. He has worked on large-sale infrastructure development projects across these countries, and elsewhere in the UK. He has extensive experience in Ecological Impact Assessment and Appropriate Assessment, at all stages of the processes, including screening / scoping, baseline data collection, assessment and reporting. In 2021 Tony was the technical lead for ecology and ornithology on the EIA for a proposed 910 MW low carbon power station with carbon capture and storage capabilities in the north-east of Scotland. Tony was responsible for developing and managing the robust programme of baseline field surveys and studies, and for authoring the biodiversity chapter of the EIAR. Tony has also worked for clients in Ireland where emissions to air was the key impact with the potential for effects on ecological receptors.
	Clare McIlwrath (AECOM)	**Associate Ecologist, CEnv MCIEEM** Clare is a Chartered Environmentalist and full member of CIEEM, with a background in terrestrial ecological assessments. She has 20 years' experience working as an ecological consultant and has significant experience of Ecological Impact Assessment (EcIA) and Appropriate Assessment for large-scale development projects. Over the course of her career, she has worked on projects in the power, transport, property, and local government sectors including significant project experience with National Grid. Clare is a Committee Member of the Yorkshire and Humber Section of the Chartered Institute of Ecology and Environmental Management (CIEEM).
Population & Human Health	**Dave Widger (AECOM)**	**Senior Director, BSc (Hons), MSc** Dave Widger is a Senior Director and Head of AECOM's Economic Development Team with over 20 years' experience in economic development and regeneration with particular expertise in health impact assessment, and community and socio-economic impact assessment of major mixed-use and infrastructure schemes. Dave Widger is an experienced Technical Lead with significant experience of working with internal and external staff to deliver complex, major infrastructure projects. He has worked on and led population and health assessments for High Speed 2, Heathrow, A303 Stonehenge and Dublin Airport.
	Alex Edwardson (AECOM)	**Graduate Consultant BA (Hons), MSc** Alex is a Graduate Consultant in the Economic Development team based in Manchester. Since joining in September 2021, she has worked on multiple population and human health focused projects. She is experienced in producing baseline assessments of socio-economic, demographic, and health profiles of areas (using population, deprivation, and labour market data) and reviewing planning policy at a local, regional, and national level. From this, she has assessed potential impacts of schemes on population and human health receptors such as employment, general health, and community amenities. She has also used findings from other technical chapters such as air quality, noise, and transport to provide informed assessments of potential impacts of proposed developments.
Land, Soils & Geology	**Kevin Ford (AECOM)**	**Associate Director and Hydrogeological Consultant, MSc, UK and A BSc (Hons)** Kevin has more than 28 years of professional experience in this field. Kevin is a Project Director for site investigations, sampling programmes and geo-environmental assessments with regards to impacts of industrial developments on groundwater, soil and bedrock. He specialises in environmental site assessments in relation to soil, bedrock and groundwater contamination by a variety of organic and inorganic contaminants. Kevin have extensive experience of ground contamination assessment and remediation for both public and private sector clients in Ireland involving environmental due diligence, pre-construction site investigation, EIAR inputs, contaminated land remediation and construction phase soil waste management.

Environmental Section	Consultant	Qualification / Summary of Relevant Experience
Water	**Jenny Rush (AECOM)**	**Associate Director and Hydrogeological Consultant, MSc, PDip, BA (Hons), CGeol** Jenny has more than 17 years of professional experience in this field. Jenny is a technical lead and AECOM-certified project manager on hydrogeological impact assessments, having regard of impacts from a variety of development types on groundwater receptors, resources and dependent ecosystems. She has gained considerable experience in option selection and impact assessment on Irish road projects, within challenging geological and hydrogeological settings, *i.e.*, karst, as well as key experience in water resource assessment, management and protection, through work with UK water companies and Irish group water schemes.
Climate	**Ben Murray (AECOM)**	**Associate Director, BSc (Hons) CEnv MIEMA** Ben Murray has over 20 years' professional experience in the field of carbon accounting and management, including the delivery of greenhouse gas and climate change assessments for a range of large-scale infrastructure projects across the UK and Ireland. He has led the climate impact and mitigation assessments for inclusion in EIA for infrastructure projects across the power, road, rail, water and aviation sectors.
Material Assets	**Rebecca Dunlea (AECOM)**	**Senior EIA Consultant, BA, MA, MSc MCIWEM** Rebecca is a Senior Environmental Consulant in the AECOM Environment and Sustainability Team. Rebecca has seven years experiences in the environmental sector. She has experience coordinating multi-disciplinary teams across all stages of the EIA process, Screening, Scoping and Environmental Impact Assessment Reports (EIAR) and field work and monitoring (groundwater and surface water). Rebecca also has experience in all stages of Strategic Environmental Assessment (SEA) process.
Cultural Heritage	**David Kilner (AECOM)**	**Principal Archaeological Consultant, BA (Hons), PG Dip, MSc, MIAI** David Kilner has over 20 years' experience in the heritage sector. Prior to joining AECOM, David was Senior Archaeologist with a commercial archaeological company based in Belfast which involved working all over Ireland. His experience covers a range of projects, from planning advice to archaeological baseline research and EIA to procuring and managing archaeological specialists and sub-contractors undertaking field survey.
Landscape and Visual	**Joerg Schulze (AECOM)**	**Associate Landscape Architect, Dipl.-Ing. (FH), LA, MILI** Joerg Schulze has over 16 years' professional experience working for clients in the private and public sectors. He has a comprehensive track record in developing and managing landscape and visual impact assessments of large industrial, commercial, residential, infrastructural, renewable energy, tourism and civic developments throughout the island of Ireland. He has extensive experience in all stages of the planning, design, tender and implementation process, contract management and as consultant for Part 8 applications for road schemes and EIA processes. He has prepared residential visual impact assessments, manages the production of photomontages and the preparation of zones of theoretical visibility and theoretical visual intensity mapping.
Traffic and Transportation	**Paul Kirk (AECOM)**	**Senior Transport Consultant, BA (Hons)** Paul is a Senior consultant in the Newcastle team in England and has over 15 years' experience providing transportation advice to both our public and private sector clients alongside feasibility studies, traffic modelling and detailed highway design services. Paul's specialisms are in developing Transport Impact Assessments (TIA), Environmental Assessments (EIAR) and Road Safety Audits for both small and large developments.
Waste Management	**Mike Bains (AECOM)**	**Technical Director, BSc (Hons), CChem MRSC** Mike Bains has 24 years' experience in environmental consultancy, predominantly in the field of waste management in Ireland, the UK and internationally. He has been subject-matter expert for waste management in a large number of major projects, including nationally significant infrastructure projects in the UK. Mike is also experienced in waste management in the pharmaceutical sector.
	Lucy Hill (AECOM)	**Principal Resources and Waste management Specialist, BSc (Hons), MSc, University Advanced Diploma in Asphalt Technology, MCIWM, CRWM, CEnv** Lucy Hill has 14 years' consultancy experience across a range of sectors including waste, oil and gas, manufacturing, industrial and pharmaceuticals and road, rail, airport and energy infrastructure. Expertise centres on strategic waste planning including site waste management planning and operational waste strategies, Environmental Impact Assessment (EIA), waste technology reviews, guidance document, case study production and facilitation designing out waste. Providing a pivotal link between EIA and practical aspects of resource and waste management. Lucy is an Individual Member International Solid Waste Association, International Waste Manager, member of the Hazardous Waste Working Group and UK committee, and member of the Editorial Panel for Proceedings of the Institution of Civil Engineers - Waste and Resource Management.

Appendix B Framework Construction Environmental Management Plan (CEMP)

Temporary Emergency Generation Power Plant West Offaly Power Station Shannonbridge

Appendix B
Framework Construction Environmental Management Plan (CEMP)

February 2023

Delivering a better world

Prepared for:

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Executive Summary

This document has been prepared on behalf of the Electricity Supply Board (ESB) (the Applicant) to provide a framework for a Construction Environmental Management Plan (CEMP). The Final / Contractor's CEMP will be produced by the contractor appointed by the Applicant to undertake the construction of the Designated Development. By implementing the measures set out in the following sections, the final CEMP will help to manage environmental issues appropriately during construction. These measures should therefore be considered as agreed embedded mitigation that will be applied to control the environmental effects of construction of the Designated Development.

Section 1 provides an overview of the Designated Development, the Applicant and a description of the Site of the Designated Development.

Section 2 details the indicative construction programme, including construction facilities, delivery routes for construction materials, construction lighting and recycling and disposal measures for construction waste.

Section 3 gives an indication of the project specific information which will be included by the Contractor under each sub-section within the Final CEMP. This includes a table summarising the potential impacts for each environmental topic (Air Quality, Traffic, Noise and Vibration, Biodiversity, Landscape and Visual, Land and Soils, Water, Materials Assets, Cultural Heritage, Waste, Population and Human Health and Climate) reported in the *Temporary Emergency Generation Power Plant West Offaly Power Station Environmental Report* (ER) (AECOM, 2023). Mitigation and enhancement measures described in the ER to address construction impacts are also presented. Monitoring requirements for mitigation measures are described where these have been proposed in the ER and the responsibilities for implementation are to be confirmed in the Final CEMP. Submission and approval of the Final / Contractor's CEMP prior to commencement of construction is proposed to be secured by a condition.

Annex A presents a Framework Resource and Waste Management Plan (RWMP). This outlines the waste management strategy for the construction phase by considering likely waste arisings from construction activities and provides recommended management measures, taking into account the principles of the waste hierarchy. A final RWMP would be developed by the Contractor.

1. Introduction

1.1 Overview

This Framework Construction Environmental Management Plan (CEMP) has been prepared by AECOM Ireland Ltd. on behalf the Electricity Supply Board (ESB) ('the Applicant or ESB').

The Applicant is seeking approval for a Temporary Emergency Generation (TEG) project ('the Designated Development') within the boundary of the West Offaly Power (WOP) Station, Shannonbridge, Co. Offaly. The Designated Development will involve construction works, installation and operation and eventual decommissioning of eight Open Cycle Gas Turbines (OCGT) with a total operational output capacity (net output) of 264 MWe approximately on 9.22 hectares (ha) of land ('the Site') within the existing WOP Station site boundary.

The Designated Development is described in **Section 2** (Description of the Designated Development) of the *Temporary Emergency Generation Power Plant West Offaly Power Station Environmental Report (ER)*[1], and **Section 1.3** below.

1.2 The Applicant

ESB was established in 1927 as a statutory corporation in the Republic of Ireland, under the Electricity (Supply) Act 1927. ESB operates across the electricity market; from generation, through transmission and distribution to supply.

In accordance with the provisions of the *Development (Emergency Electricity Generation) Act 2022*, ESB will apply to the Minister for approval under Section 7 of the Act to carry out the Designated Development.

ESB has entered into an agreement with EirGrid to progress certain time-sensitive works which includes the preparation of application documents to seek approval from the Minister for the Designated Development under the above legislation.

Eirgrid identified the need for the Designated Development and identified the technology and the location *i.e.,* WOP Station, to provide temporary emergency electricity generation.

1.3 Designated Development

The Designated Development consists of the installation of eight OCGT units (LM2500Xpress units) which will collectively have the capacity to generate 264 MWe (net output) approximately of temporary emergency electricity, Site development and associated ancillary works required for the operation of the plant. The plant will operate as an emergency plant, with a maximum running time of 500 hours per annum, spending the majority of time on standby, and will be run to meet emergency of supply needs while complementing renewable power generation sources.

The objective of the project is to facilitate and ensure security of supply and provide support to the electricity network during periods when there is insufficient power generation to meet the power demand.

The eight OCGT units (LM2500Xpress units) have been selected for the development as they are able to respond to changes in electricity demand by starting up quickly and achieving full output within a short period of time.

With regard to the operational phase, it is envisaged that the Designated Development will have to be available to operate at the WOP Station site for approximately five years. At the end of the five-year period, the Designated

[1] AECOM (2023).

Development will be decommissioned, dismantled, and removed from this Site. Decommissioning would therefore be expected to commence at the end of 2028.

There will be eight OCGT units located at the WOP Station site, each with the nominal capacity of 35 MWe (33 MWe net output approximately) which will run on distillate oil (diesel) only. The Designated Development will comprise the following main components:

- 8 No. LM2500Xpress gas turbine generators, using distillate oil only
- 8 No. Steel Exhaust Stacks, each 3.3m diameter, 30m tall
- 2 No. 110kV Generator Step-up Transformers (GSUT)
- 2 No. Hypact compact switchgear units and associated surge arrestors
- 2 No. GSUT protection relay panels
- 2 No. BOP Power Control Modules (BOP-PCM), each including:
  - 11.5 kV Medium Voltage Switchgear / Fuse Disconnector
  - Low Voltage Auxiliary transformer
  - 400 V Low Voltage Switchgear
  - 125 V DC System
  - Fire detection and extinguishers.
- 1 No. Plant Common Controller Module
- 2 No. Control Module LVRT
- 2 No. instrument compressors
- 2 No. CCW fin fan coolers
- Electrical Bulk Material (cable, cable trays, earthing and lightning protection material, conduit, lighting and small power)
- 2 No. Fuel Oil Unloading Modules
- Fuel Oil Forwarding and filtration system (with fuel oil, forwarding pump and fuel filters)
- Fuel oil heating system
- Fire protection system including fire water pumps
- 3 No. Circular distillate oil storage tanks, concrete bunded, each with capacity of 1,690 tonnes (2,060m^3)
- 10 No. Double-skin distillate oil storage tanks, each with capacity of 70 tonnes
- Water storage tank
- Plant wastewater system with oily water separator
- Administration building
- Acoustic screens.

Demolition and removal of existing structures will be required to facilitate the installation of the Designated Development. The dismantling / demolition phase for the Designated Development will extend over approximately 1.5 months and will comprise:

- Dismantling and demolition of existing equipment and structures and associated foundations.
- Disconnection, removal and rerouting of existing underground services.

The construction phase of the Designated Development will comprise:

- temporary construction and laydown areas comprising hardstanding, laydown, and open storage areas;
- temporary facilities and stores;
- materials and plant storage;
- contractor compound and construction staff office and welfare facilities;
- temporary vehicle parking facilities; and
- signage.

In connection with and in addition to the above, the following infrastructure will be included:

- internal roads;
- lighting columns;
- security fencing and gates; and
- utilities, pipes, cables and connection to surface water drainage systems, oil-water separators, including channelling, culverting, crossings and works to existing drainage systems.

Further information on the Designated Development is provided within **Section 2** (Description of the Designated Development) of the *TEG West Offaly* ER[2].

1.4 Site of the Designated Development

The WOP Station is located in the townland of Cloniffeen, Shannonbridge, Co. Offaly. The WOP Station site comprises industrial and brownfield lands, reflecting its long-established use for power generation activity, including fuel management and electricity transmission infrastructure. The boundary of the West Offaly Power Station (the blue line boundary) covers c. 35.5 ha. The Site encloses an area of approximately 9.22 ha.

There has been continuous production of electricity at the WOP site since 1964. The Shannonbridge Power Station was replaced by the existing WOP Station, which was commissioned in 2004The WOP Station ceased operations on the 11 December 2020.

The WOP Station is owned by ESB and is separated into what were the two operational areas:

- the power station, associated buildings and infrastructure which were operated by ESB; and
- the fuel handling area which was operated by Bord na Móna.

The WOP Station site accommodates structures and activities typical of a power station including solid fuel (peat) storage, handling areas and associated plant, the power station - including exhaust gas treatment; filter house, stack and a range of ancillary services including water treatment and management systems, offices and administration areas.

The WOP Station site lies on the eastern banks of the River Shannon, downstream of its confluence with the River Suck. The WOP Station site is located south 850m south of the village of Shannonbridge and approximately 17km

[2] AECOM (2023).

south-west of Athlone town. The WOP Station site has its main access from the Regional Road R357 (Cloghan Rd).

The WOP Station site is generally surrounded by agricultural land, with an Industrial Machinery business, Shannonbridge village to the north, St. Kieran's Park residential estate to the north-east. A Battery Energy Storage facility is located to the east, a high voltage electrical substation to the south, the Dalton Centre to the south-east, and single one - off isolated farmhouses in the surrounding countryside.

Further south-west and north-east are two large, harvested bogs and to the south is a disused railway line that connects the two bogs with the WOP Station site.

The WOP Station is an EPA licensed site, managed in accordance with its EPA Industrial Emissions (IE) Licence. The IE Licence is still held by ESB.

1.5 Purpose and Structure of this Document

This Framework CEMP sets out a series of proposed measures that would be applied by the Contractor to provide effective planning, management and control during construction to control potential impacts upon people, businesses and the natural and historic environment.

This Framework CEMP has been produced in conjunction with the ER with the aim of ensuring that design and impact avoidance measures reported in the ER are implemented and are effective, together with any additional mitigation measures proposed to reduce significant adverse effects. Site-specific controls, which will be included within the Final CEMP, would be developed based on the measures set out in this Framework CEMP. The Final CEMP will be developed by applying the commitments set out in this Framework, the ER, Natura Impact Statement (NIS) (APEM, 2023) produced for the Designated Development and any planning approval conditions (should planning approval be granted).

It is expected that the Contractor will comply, as a minimum, with applicable environmental legislation at the time of construction, together with any additional environmental controls imposed by An Bord Pleanála (hereafter referred to as 'the Board'). The Final CEMP will, therefore, be designed with the objective of compliance with relevant environmental legislation, the mitigation measures set out within the ER, the NIS produced for the Designated Development and this Framework CEMP, and any planning approval conditions (should planning approval be granted). Any additional construction licences, permits or approvals that are required would be listed in the Final CEMP, including any environmental information submitted in respect of them.

Further guidance on specific areas, such as soil handling and dust management, are taken from industry best practice guidance documents, as set out in each discipline section of this Framework CEMP. The references to guidance documents are not intended to be exhaustive.

The Final / Contractor's CEMP will broadly reflect the structure of this Framework CEMP, which is as follows:

- **Section 2** provides an indication of the construction arrangements that have been assessed in the ER;
- **Section 3** presents additional information that might be included under each sub-section within the Final CEMP, which includes:
  - environmental impacts;
  - impact avoidance or reduction of measures to be applied. Including any measures identified during the detailed design or construction phase;
  - any other additional mitigation measures;

  - additional surveys or monitoring considered necessary pre-construction or during construction in order to confirm the status of receptors, and the effectiveness of impact avoidance/mitigation measures;
  - corrective action procedure to be applied, where necessary; and
  - links to other complementary plans and procedures;
- **Annex A** comprises a Framework Resource and Waste Management Plan (RWMP).

In summary, the Final CEMP will identify how commitments made during the assessment (and reported in the ER) will be translated into actions on-site.

The Contractor will be responsible for working in accordance with the environmental controls documented in the Final CEMP, which will allocate responsibilities for environmental performance. The overall responsibility for implementation of the Final CEMP will lie with the Applicant.

2. Construction Phase Arrangements

2.1 Indicative Programme

At this stage, a detailed construction programme is not available, as this is normally determined by the Engineering, Procurement and Construction (EPC) contractor for the construction of the Designated Development.

Pre-construction works, demolition and construction of the Designated Development will extend over approximately eight months, with the projected completion of the Designated Development to enable the first emergency generator to commence operation in winter 2023-2024.

2.1.1 Pre-Construction Phase

The pre-construction phase of the development includes preparatory works and consultation with statutory bodies (Health and Safety Authority (HSA), EPA etc.). Following this process, site clearance activities will commence. Typical activities will include preparation of the construction working area, laydown area and site clearance as required. Pre-construction activities will extend over 1.5 months approximately and will include the following works within the Site:

- Site levelling and removal of ornamental earthen mounds.
- Removal of landscaping trees and shrubs, including roots.
- Removal of lighting masts, street furniture etc.
- Filling of all underground voids, tanks, manholes, chambers etc.
- Removal of redundant underground cables, pipes and other services.
- Removal of concrete footpaths, internal roads and rail-tracks.
- Preparation / installation of Contractor's offices / welfare facilities.
- Connection of services / facilities to contractor's offices.
- Site perimeter fencing.

During the pre-construction works period, assessment of buildings proposed for demolition will be undertaken to determine they are clear of hazardous materials and to identify the demolition method and sequencing. The Site has been in use for electricity generation for many years and its history of use is well known and documented. A number of areas of the Site will require excavation for construction purposes. In addition to previous studies carried out, soil in these areas will be tested in advance of or during the construction phase to identify the appropriate waste classification which will determine the appropriate route for disposal.

2.1.2 Dismantling / Demolition Phase

The dismantling / demolition phase for the Designated Development will extend over approximately 1.5 months and will comprise:

- Dismantling and demolition of existing equipment and structures and associated foundations.
- Disconnection, removal and rerouting of existing underground services.

Figure 3 Dismantling and Demolition Plan (submitted with this application) shows the existing structures and plant to be dismantled / demolished. The list of existing structures and plant (including associated concrete foundations) which are intended to be dismantled / demolished include:

1. Rising Conveyor and associated reinforced concrete plinth supports (Blocks 1 & 8) (above and below ground structure).

2. Sewage Treatment System (Block 2) (above and below ground structure).
3. Septic Tank (Block 3) (Below Ground Structure).
4. Electrical Room (Block 4) (Steel Frame on Ground Bearing RC Slab).
5. Contractor's Office Building (Block 5).
6. First Aid Room Building (Block 6).
7. Maintenance Building (Block 7).
8. Entrance Gate, Fencing and Road (Block 9).
9. Laboratory / Office Building (Block 10).
10. Railway Service Building (Block 11).

2.1.2.1 Proposed Demolition Methodology

The overarching demolition concept for the plant is to minimise the generation of waste, and to maximize the recycling of appropriate waste products. In this regard it is envisaged that certain plant / equipment, primary structural steelwork and secondary steelwork and cladding are items which will be dismantled / demolished using appropriate techniques to maximize recycling.

The overarching principles applied during the dismantling / demolition phase will be developed further and planned by the Contractor. The demolition works will be undertaken by the Contractor in accordance with relevant applicable industry standards, such as BS 6187:2011 Code of practice for full and partial demolition or equivalent.

All structures and buildings to be demolished will be removed to ground level. The existing hard standing surfaces (building ground floor concrete slabs, tarmacadam surfaces, concrete footpaths, road kerbs) and foundations are intended to remain in place. Below ground structural voids and pits are intended to be filled and / or be capped.

Dismantling / demolition of structures and plant can be summarised as per the following categories:

Category A - High rise structures such as the conveyor. Soft strip as necessary. Creation of local access points into the structure. Appropriate removal, stripping down, sorting, segregation, and disposal of plant / equipment. Removal of roof build-up systems and wall cladding elements and generally the top-down dismantling (ensuring structure stability of primary frame and secondary elements) to ground level, together with the use of planned pre-weakening technologies or equivalent. Such structures will require specialist technical planning and appropriate Safety Management to ensure that they are safe against premature structural instability or collapse.

The introduction of localised failure mechanisms can be carried out in a number of ways. All items removed will be brought to the ground in a safe and controlled manner, controlling any noise or ground vibration impacts to within tolerable levels and to maintain proper health and safety on-site.

Category B - Low rise single storey buildings. Soft strip as necessary. Appropriate removal of plant and equipment. A conventional demolition approach may be adopted, e.g., the removal of roof cladding, wall cladding elements and the demolition of main frame elements to ground level.

Category C - Above Ground Level Reinforced Concrete foundation structures. Appropriate removal of plant and equipment. Break up using excavator mounted nibbler and crushing of environmentally clean above ground plinths and above ground foundations.

Category D - Below Grade Voids. Below grade structural voids and pits are to be filled with approved aggregates and or / be capped.

2.1.3 Construction Phase

Construction activities will progress from site set up and preparation, to construction and modular assembly works of the various components, followed by commissioning and testing of the Designated Development.

The preliminary works are scheduled to commence in May 2023, with initial site access and set up, pre-construction works, ground works and construction of plant equipment. The construction programme and commissioning are expected to be completed within approximately eight months.

The Contractor will be responsible for the design and installation of the emergency power generation plant. This will include the design, supply, and installation of all equipment and the installation of all equipment foundations.

Most of the new equipment will be skid mounted or containerised elements fabricated off site and delivered finished or for final assembly on-site. The main exception to this is the pipe and cable corridor which will contain the plant pipework (distillate oil, fire water etc) and cables (power cables, control cables etc) which will have to be fabricated on-site.

2.1.3.1 Construction Activities and Programme

On completion of pre-construction and demolition works, the following development activities, which are necessary to facilitate the construction phase of the Designated Development, will comprise:

- Ground excavation and construction of concrete foundations and bases.
- Assembly and erection of equipment.
- Ancillary and associated works.

Construction activities will gradually phase from pre-construction site preparation and demolition of redundant structures to predominantly construction and modular assembly works followed by commissioning and testing of the Designated Development.

The indicative construction programme and phasing works are outlined in **Table 2.1**.

Table 2.1: Duration of Phasing (indicative)

Phase	Timetable
Pre-construction works	1.5 months
Demolition works	1.5 months
Plant construction works (including installation)	5 months
Total	**8 months**

The Contractor will confirm the duration of construction phase works in the Final / Contractor's CEMP.

2.2 Working Hours

To address the urgent need to install the temporary emergency generation power plant, construction phase works will take place over a minimum of two eight hour shifts per day and on occasions, three eight hour shifts per day, seven days a week, during construction and commissioning phases, acting in full compliance with Irish labour and Health & Safety laws.

2.3 Environmental Training

2.3.1 Site Induction

All personnel working on the Designated Development shall attend a site induction. Personnel attending such an induction shall complete a site induction record acknowledging attendance and confirming that they understand

and agree to comply with the requirements of the Site. Copies of all certificates of competency, licences and other qualifications as deemed necessary by the Contractor shall be copied and documented. The environmental induction shall run concurrently with safety awareness training.

The induction shall include:

- overview of the goals and objectives of the environmental policy and CEMP;
- awareness in relation to the environmental risk associated with the Designated Development and methods of avoiding environmental risks as identified within the CEMP, the planning conditions, and any other relevant plans, documents, or reports;
- awareness of roles and individual responsibilities and environmental constraints to specific jobs;
- location of any sensitive receptors on or adjacent to the Site;
- location of habitats and species to be protected during construction, how activities may affect them and methods necessary to avoid impacts, controls to minimise noise and the importance of pollution prevention measures to protect nearby watercourses and sensitive receptors including residential properties;
- information on the environmental emergency response procedure to be followed onsite, should an environmental emergency occur, including contact details for key Site personnel to contact in an emergency; and
- information on the storage locations of spill kits across site and on the correct use of spill kits.

2.3.2 Daily Pre-Work Briefings, Toolbox Talks and Training

All supervisors are required to carry out daily briefings at the commencement of each shift to ensure environmental issues specific to the work being performed are being understood, evaluated and addressed. All personnel involved with site works must be briefed and sign onto the daily briefing form prior to commencing activities.

Toolbox Talks may be conducted prior to the start of specific work elements where there is a substantial environmental risk or when required to reinforce ongoing environmental issues and shall be repeated as necessary over the duration of the relevant works. Any toolbox talk training conducted shall ensure that relevant information is communicated to the workforce and that feedback can be provided on issues of interest or concern.

Personnel and sub-contractors working on environmentally sensitive sites shall be provided with environmental training to achieve a level of awareness and competence appropriate to their assigned activities. Targeted environmental awareness training may be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. Environmental training will be recorded and the records will be available for inspection upon request.

All personnel and staff involved in the construction, operation and decommissioning of the Designated Development shall be briefed on the ecological risks present and ecological sensitivities of the Site and its environs through ‘Toolbox Talks’ and provision of clear information about protected species and restricted areas and activities and will be made aware of the presence of ecological features (including the QI / SCI features of European sites) in the vicinity of the Designated Development and the mitigation measures and working procedures which must be adopted. Toolbox Talks shall also cover legal requirements and working arrangements necessary to comply with legislation. All staff (including sub-contractors) will receive regular updated talks and briefings.

Clear instruction on hazardous wastes and the particular dangers of each hazardous waste will be incorporated into training. **Table 2.2** summarises the indicative environmental training that will likely be required to be undertaken as a minimum as part of the Designated Development.

Table 2.2: Summary of Training Requirements

Training	Target	Frequency	Record
Site Induction	All Site personnel	Prior to working onsite	Induction Record Form
Daily Pre-working Briefings	All Site personnel	Prior to commencing daily works	Briefing Record Form
Toolbox Talks	Personnel relevant to the topic	As required	Toolbox Record Form
Project Management Meeting	Project Managers Engineers and Site Supervisors	Monthly	Meeting Minutes Record
Environmental Training	Personnel relevant to the activity	Quarterly or more frequently as required	Training Attendance Form
Environmental Bulletin	All company and Project personnel	As required	Environmental Bulletin Form

2.4 Complaints

A Complaints Register for internal communication and for receiving, documenting and responding to environmental complaints from external parties shall be established and will be maintained.

When a complaint is received (telephone calls and letters of complaint etc.), the following information must be taken as a minimum:

- Date and time of the complaint are recorded.
- Name of complainant (if provided).
- Nature of the complaint.

A mechanism for managing stakeholders' questions, concerns, and grievances from local residents and stakeholders' shall be implemented, appropriate conflict resolution processes will be implemented to ensure any issues are heard by the developer. All complaints received from external sources and incidents must be reported to the CEMPC and the appropriate site personnel Measures shall include but will not be limited to:

- complying with the requirements of the Data Protection Act, and other relevant legislation, the Contractor will record all Complaints, Comments and Queries (correspondence) received during construction. Stored data will be secured against theft, intrusion, or modification by malicious third parties in-line with current best practice;
- the Contractor will record any actions, including further correspondence, taken in respect of any Complaint, Comment or Query;
- the following timescales will apply in the Contractor's management of correspondence following submission:
  - within 8 working hours from receiving the complaint, an acknowledgement will be sent to the correspondent; and
  - within 72 hours, the Contractor will issue a response to any correspondence detailing further actions to be undertaken.
- the Contractor will aim to have completed and implemented their actions within seven working days of receiving correspondence.
- the Contractor will have a means by which to explore the Complaints, Comments and Queries interface within the reception area of the site offices, to allow access to the records during normal working hours.

2.5 Communication

The Contractor will:

- develop and implement a stakeholder communications plan that includes community engagement before work commences on-site;
- display the name and contact details of the person(s) accountable for complaints and/or queries on the site boundary; and
- display the head or regional office contact information.

2.6 Site Housekeeping

Good housekeeping is an important part of good environmental practice and helps to maintain a more efficient and safer site. The Site will be tidy, secure, and have clear access routes that are well signposted. The appearance of a tidy, well-managed site can reduce the likelihood of theft, vandalism, complaints and/or specific hazards that could affect the safe operation of the other businesses in the area, such as bird hazards and wind-blown litter.

As outlined in the fourth edition of CIRIA's '*Environmental good practice on site guide'* (C741), when considering good housekeeping, the Contractor will implement the following steps:

- Adequately plan the site with designated areas of materials and waste storage.
- Segregate and label different types of waste as it is produced and arrange frequent removal.
- Keep the site tidy and clean.
- Ensure that no wind-blown litter or debris leaves the site, use covered skips to prevent wind-blown litter.
- Keep hoarding tidy - repair and repaint when necessary, removing any fly posting or graffiti.
- Frequently brush-clean wheel washing facilities and keep haul routes clean from site derived materials.
- Keep roads free from mud by using a road sweeper.
- Ensure the site is secure.

2.7 Traffic Management

A Framework Construction Traffic Management Plan (CTMP) has been produced for the Designated Development and provides a framework document for ensuring work activities in, near or having impact upon the public highway, are undertaken safely and with minimal impact on traffic movement and existing infrastructure throughout the works programme.

During construction, the Contractor will ensure that the impacts from construction traffic on the local community (including local residents and businesses and users of the surrounding transport network) are minimised, where reasonably practicable, by implementing the measures set out in the Framework CTMP, refer to **Appendix C** of the TEG ER.

The Contractor will make aware the proposed works which will be undertaken in an area with a number of existing residential premises. Therefore, the Contractor will be required to always accommodate and make provision for access and egress to these premises paying particular attention to the provision of pedestrian / disabled / cyclist safe access and egress. The CTMP will include alternative routes for pedestrians and vehicles in the event that public roads or right of ways are closed during works, although this is not expected to be required. The CTMP will include measures to limit the amount of queuing required by construction vehicles outside the site boundaries.

There is the potential for a total of 13 routes to the Site which have been identified to a number of typical disposal and quarry sites that could be feasibly utilised during the works. In the near vicinity to the Site all construction traffic will access the site from the R357 and travel along the access road to the northern access point. From a desktop review of the route to the R357 to the west of the River Shannon and the east of the railway bridge no potential pinch points or restrictions have been identified.

Traffic control will be used to and from the Site as required, managed by an allocated member of the construction team.

The majority of construction traffic is expected to be generated during Q3 and Q4 of 2023, and it is estimated that at peak, there will be up to 38 Heavy Good Vehicles (HGVs) movements per day. An average of 15 HGV loads daily (30 HGV movements) is anticipated.

The number of construction workers required during the construction phase is expected to peak at approximately 100 persons. An average car occupancy of 1.2 passengers per vehicle has been assumed. As such, it is estimated that a maximum of 79 vehicles will arrive at the site during the day. There are no public transport services within close proximity to the Site but it is anticipated that up to 5% (five construction staff) would be staying in local accommodation (Bed and Breakfast, Hotel etc) and transported to the Site via vehicles / minibus.

The temporary emergency plant is designed in modular format to be transportable by road on standard HGV vehicles and therefore no abnormal load deliveries are anticipated.

The CTMP will consider where deliveries will be made to / from, what roads will be used and will include the scheduling of deliveries to and from the Site. Material deliveries and collections from Site will be planned, scheduled and staggered to avoid unnecessary build-up of demolition / construction works related traffic. HGV trips are anticipated to arrive and depart the Site at a uniform rate throughout the day to avoid pressure on the morning and evening peak hour periods.

The Contractor must distribute the HGV routing plan to all HGV drivers during their induction. It will be a condition of contract between the Applicant and the Contractor to require that all construction HGV deliveries must use the designated routes to access and egress the construction site. Sanctions will be put in place to deal with non-compliance.

The Contractor will erect temporary signage to appropriately direct all HGV traffic relating to the Designated Development (both accessing and egressing the Site). The Contractor will be required to maintain all the HGV route signage.

A full CTMP will be developed by the Contractor prior to the commencement of work on-site. No works shall commence until such time that the full CTMP has been prepared.

2.8 Parking Provisions

Parking will be provided using existing parking facilities and open areas of the WOP Station site for construction personnel and construction vehicles. The construction compounds and laydown areas will be located entirely within the WOP Station site. Refer to **Figure 5 Parking, Office and Laydown Areas** of the *TEG West Offaly* ER[3] (submitted with this application).

Where works are to take place at off peak times, sufficient on-site parking will be available for staff and visitors. Levels of employment will vary throughout the construction phase. Staff are expected to travel to the Site via a combination of car sharing and private passenger vehicles.

[3] AECOM (2023).

2.9 Wheel Cleaning Facility

In the interests of highway safety, wheel cleaning facilities will be installed on the WOP Station site near to the Site compound from the start of the construction phase. All HGV will be required to use the wheel wash prior to exiting the WOP Station site.

2.10 Road Sweeper

If required as identified by routine visual inspections, a mechanical road sweeper will be employed to clean the public roads adjacent to the Site of any residual debris that may be deposited on the public roads leading away from the construction works.

2.11 Site Lighting

Construction work outside daylight hours will be undertaken using adequate site lighting to ensure safe working conditions. Site lighting during construction will be designed to avoid light spill and will be pointed down at a 45-degree angle and away from sensitive receptors.

Where temporary construction lighting is required, it will consist of the lowest lumen lighting possible while also maintaining a safe working environment. Lighting will be designed so as not to cause a nuisance outside of the Site in relation to views from residential receptors or light disturbance to ecological receptors. The Site compound will have external lights for safety and security. These lights will be pointed down at a 45-degree angle and away from sensitive receptors.

The temporary lighting will be fitted with directional cowls to prevent light spill to the surrounding area, particularly also to the east of Zone 1 alongside the Dalton Building. Refer to **Figure 5 Parking, Office and Laydown Areas** (submitted with this application). The temporary lighting will only be directed at the works area ensuring no light overspill to suitable commuting and foraging habitat such as the River Shannon, woodland or scrub.

- Construction lighting will be designed so as to be sensitive to the potential presence of bats and will adhere to the following guidance:
  - Bats & Lighting: Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Trust (2010)).
  - Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals (2011)).
  - Bats and Lighting in the UK - Bats and the Built Environment Series (Bat Conservation Trust UK (2008)).
- All lighting systems will be designed to minimise nuisance through light spillage. Shielded, downward directed lighting will be used wherever possible, and all non-essential lighting will be switched off during the hours of darkness.

2.12 Recycling and Disposal of Waste

To control the waste generated during the site preparation and construction phase, the Contractor will minimise the creation of waste, maximise the use of recycled materials and assist the collection, separation, sorting, recycling and recovery of waste arisings, as far as reasonably practicable. The waste hierarchy outlines that waste prevention and minimisation are the priority in managing wastes, followed by waste reuse and recycling, with disposal being considered as a last resort.

A site-specific Resource and Waste Management Plan (RWMP) will be prepared by the Contractor in line with best practice guidelines such as the EPA '*Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction and Demolition Waste Projects'* 2021. The RWMP will be developed to control construction activities to minimise, as far as reasonably practicable, impacts on the environment and will specify the waste streams to be estimated and monitored and will set goals with regards to the waste produced. A Framework RWMP is included in **Annex A** of this Framework CEMP.

2.13 Best Practice Measures

The Contractor would be encouraged to be a member of the 'Considerate Constructors Scheme' which is an initiative open to all contractors undertaking building work.

Construction industry guidance (e.g., from the Construction Industry Research and Information Association (CIRIA)) will be adopted as far as reasonably practicable to assist in reducing the potential for pollution and nuisance. This will be achieved by employing best practice measures.

2.14 Soil Management

Impacts relating to the handling, movement and temporary storage of soils, will be controlled through the Final CEMP. Measures within the Final / Contractor's CEMP will include:

- a method statement for the works to include soil handling and storage proposals;
- a restoration specification (where applicable); and
- a post-works survey to confirm condition (where applicable).

Soils will be managed in accordance with the DEFRA *Construction Code of Practice for the Sustainable Use of Soil on Development Sites* (DEFRA, 2009) to minimise impacts on soil structure and quality.

The Contractor will develop a Soil Resource Plan (Soil / Sediment Control Plan) in accordance with relevant legislation and guidance. The plan will include information / details on such topics as:

- soil handling procedures, legislation and guidance used;
- good practice and general principles of soil handling;
- methods of stripping, stockpiling and stockpile maintenance, respreading and include an outline of the machinery to be used;
- haul routes to be used;
- the location and content of each soil stockpile;
- schedule of volumes of each material;
- expected after use / disposal of material (in line with all relevant legislation);
- roles and responsibilities including a list of responsible personnel for soil management supervision;
- biosecurity measure to be implemented (if required);
- seasonal working constraints;
- testing of soil conditions;
- importing soil to site; and
- transport of soil to and from site.

3. Impact Avoidance and Mitigation Measures Implementation Plan

3.1 Overview

This section sets out the embedded impact avoidance and additional mitigation, enhancement and management measures to be included as a minimum in the Final CEMP. It also illustrates where additional surveys will be required, either pre-construction or during construction. It describes how the monitoring strategy would be implemented in order to assess the effectiveness of mitigation measures, monitor the impact of construction works and take other actions necessary to enable compliance.

In the Final CEMP, this section will identify the responsible party for each mitigation, enhancement measure or monitoring requirement. As a contractor has not yet been appointed, responsibilities cannot be assigned at this stage.

3.1.1 Air Quality

Table 3.1: Air Quality

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
There is very little likelihood of significant air quality effects during construction based on the distances to receptors, the activities proposed, and the use of industry standard control measures. In terms of N deposition, the site has no perceptible impacts (<1%) at any SAC or SPA designated habitat.	The Contractor will be required to implement measures to minimise the amount of dust and emissions (including odour) produced during the construction of the Designated Development, including the production of a Dust Management Plan as part of the CEMP. Standard industry best practice mitigation measures shall be applied to the Site, for example that described in: • 'Control of dust from construction and demolition activities' (Kukadia, V., Upton S., & Hall, D. (2003)); • 'Best Practice Guidance: The control of dust and emissions from demolition and construction' (Greater London Authority (GLA) (2006)); • 'Guidance on the assessment of dust from demolition and construction', Institute of Air Quality Management (IAQM (2014)); and • 'Guidelines for the Treatment of Air Quality during Planning and Construction of National Roads' (TII (2011)). Mitigation measures will be undertaken so that construction works are carried out in such a manner that emissions of dust and other pollutants are limited, and that best practicable means are employed to minimise disruption, risks to human health, and to avoid unnecessary impacts on ecological habitats. Air Quality mitigation measures include: **Communications** • A Dust Management Plan (DMP) will be prepared, which may include measures to control other emissions. The level of detail will depend on the risk, and should include, as a minimum, the measures in this document. **Site Management** • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner and record the measures taken. • Make the complaints log available to the Applicant when asked. • Record any exceptional incidents that cause dust and / or air emissions, either on or off site and the action taken to resolve the situation in the logbook. **Preparing and Maintaining the Site** • Plan site layout so that machinery and dust causing activities are located away from receptors as far as possible. • Erect solid screens or barriers around dusty activities that are at least as high as any stockpiles on site. • Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period, where possible. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from site as soon as possible unless being re-used on-site.	Dust monitoring or recording will be undertaken by the Contractor to an approach agreed with the Applicant. In the event that significant or unacceptable dust effects on receptors arise from an activity – due to dry weather and high winds for example – activities may need to be ceased and additional mitigation measures applied. Monitoring shall include: • undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results and make the log available to the Applicant when asked; • carry out regular site inspections, record inspection results and make an inspection log available to the Applicant when asked • increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions; and • if required, agree dust deposition, dust flux or real-time PM_{10} continuous monitoring locations with the Applicant. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks, and construction.	**To be confirmed in the Final CEMP.**

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
	• Cover, seed or fence stockpiles to prevent wind whipping. **Operating vehicle / machinery and sustainable travel** • Ensure all vehicles switch off engines when stationary – no idling vehicles. • Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable. • Impose and signpost a maximum speed limit of 20 km/h on surfaced and 15 km/h on unsurfaced haul roads and work area. • Implement a Travel Plan that supports and encourages sustainable travel (car sharing etc,). **Construction Operations** • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation. • Use enclosed chutes and conveyors and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. **Waste Management** • Avoid bonfires and burning of waste materials. No fires will be permitted onsite. **Demolition** • Soft strip inside any buildings before demolition (retaining walls and windows in the building where possible, to provide a screen against dust). • Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. • Avoid explosive blasting, using appropriate manual or mechanical alternatives. • Bag and remove any biological debris or damp down such material before demolition. **Earthworks** • Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. • Use Hessian, mulches or trackifers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. • Only remove the cover in small areas during work and not all at once. **Construction** • Avoid scabbling (roughening of concrete surfaces) if possible. • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.		

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
	Track-out • Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. • Avoid dry sweeping of large areas. • Ensure bulk material transporting vehicles entering and leaving sites are covered to prevent escape of materials during transport. • Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. • Record all inspections of haul routes and any subsequent action in a site logbook. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site when reasonably practicable).		

3.1.2 Noise and Vibration

Table 3.2: Noise and Vibration

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
During the construction phase, noise levels are expected to vary depending on the work being carried out. Noise levels will likely be highest during the initial enabling period whilst louder activities such as earthworks take place. As the construction phase develops, noise levels are expected to reduce as less noisy works (plant installation, internal works within structures) take over. Potential noise and vibration sources during the construction phase comprise mobile plant and construction processes such as earthworks which can give rise to elevated sound and vibration levels. No significant effects are predicted based on the application of appropriate control measures.	Noise will be minimised through the adoption of best practicable means (BPM) as standard working practices across the Designated Development to ensure that noise is reduced whenever practicable. The following provisions, although not exhaustive, will be adhered to where practicable throughout the construction programme: • Temporary acoustical screens will be erected around the area where generator equipment is proposed during the demolition / construction phase to reduce noise disturbance effects upon SAC and SPA species (and also non-SCI species). • Vehicles and mechanical plant used for the purpose of the works will be fitted with effective exhaust silencers, maintained in good and efficient working order, and operated in such a manner as to minimise noise emissions. The Contractor will ensure that all plant complies with the relevant statutory requirements. • Machines in intermittent use will be shut down or throttled down to a minimum when not in use. • Pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers. • All compressors and generators shall be “sound reduced” models fitted with properly lined and sealed acoustic covers or enclosures, which shall remain closed whenever the machines are in use. • Equipment which breaks concrete, brickwork, or masonry by bending, bursting, or “nibbling” will be used in preference to percussive tools. Where possible, the use of impact tools will be avoided where the Site is close to sensitive receptors. • Wherever possible, equipment powered by mains electricity will be used in preference to equipment powered by internal combustion engine or locally generated electricity. • No part of the works nor any maintenance of plant will be carried out in such a manner as to cause unnecessary noise except in the case of an emergency when the work is absolutely necessary for the saving of life or property or the safety of the works. • Plant will be maintained in good working order so that extraneous noise from mechanical vibration, creaking and squeaking is kept to a minimum. • All vehicles, plant and machinery used during the operations shall be fitted with effective exhaust silencers and all parts of such vehicles, plant or machinery shall be maintained in good order and repair and be in accordance with manufacturer’s recommendations. • Vehicles associated with works shall not wait or queue on the public highway or on the worksite with engines running. • The Contractor shall carry out regular site inspections, specialist BPM checks, random senior management tours and unannounced audits to assess whether noise levels are acceptable and take steps to reduce them and to ensure all BPM mitigation measures have been implemented as required. • Careful handling of tools / equipment, placement and handling of materials, and control of raised voices on site shall be covered in activity plans, briefings and ‘toolbox talks’ as appropriate.	To be confirmed in the Final CEMP. Undertake daily on-site inspections, record inspection results and make the log available to the Applicant when asked. When activities with high noise levels are anticipated, construction noise level monitoring will be undertaken to check compliance. Increase the frequency of site inspections by the person accountable for noise issues on site when activities with high noise levels are being carried out. The final CEMP will set out a scheme for the provision of information to the relevant planning authority and local residents to advise of potential noisy works that are due to take place and for monitoring of noise complaints and reporting to the Applicant for immediate investigation and action.	**To be confirmed in the Final CEMP.**

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
	• All site personnel will be instructed on Best Practicable Means ('BPM') measures to limit noise and vibration as part of their induction training and as required prior to specific work activities. • Training, briefings and 'tool-box talks' shall be delivered to the site personnel to inform them of noise and vibration issues and the location of nearby receptors. • Suitable areas within the site compound have been provided for employees *i.e.,* designated smoking areas, to reduce disruption around the site boundary. Any noise complaints received during the construction phase will be investigated thoroughly. The results of the investigation, including measured noise and vibration levels at the time of the complaint, on-site activities and any corrective action taken, will also be reported to relevant stakeholders. **Construction Vibration** Construction activities such as groundworks have the potential to result in ground borne vibration. However significant effects due to vibration is normally limited to within 20m of the construction works. As the nearest Noise Sensitive Receptor is approximately 180m from the site boundary, ground borne vibration is not considered to be an issue and consequently no specific mitigation measures are proposed. **General** • Contractors will be made aware of the following guidance: – BS 5228 Code of practice for noise and vibration control on construction and open sites: Part 1 Noise and Part 2 Vibration; – NR/L2/ENV/015 Environment and Social Minimum Requirements for Projects – Design and Construction; and – NR/L2/ENV/121 Managing environmental and social impact of noise and vibration. • Loading and unloading of vehicles, dismantling of site equipment such as scaffolding or moving equipment or materials within the Designated Development Site to be conducted in such a manner as to minimise noise generation, as far as reasonably practicable. • Appropriate routing of construction traffic on public roads and along access tracks, to reduce construction traffic noise, as far as reasonably practicable. • No part of the works nor any maintenance of plant will be carried out in such a manner as to cause unnecessary noise except in the case of an emergency when the work is absolutely necessary for the saving of life or property or the safety of the works. • Construction activities taking place during night-time hours will need to be planned, managed and controlled appropriately so they do not give rise to elevated noise and vibration levels off-site. • The selected Contractor will be encouraged to be a member of the 'Considerate Constructors Scheme'.		

3.1.3 Biodiversity

Table 3.3: Biodiversity

Potential Impact	Mitigation / Enhancement Measure	Monitoring / Additional Survey Requirements	Responsibility
Middle Shannon Callows SPA and River Suck Callows SPA - Potential loss of functionally linked habitat (habitat which could support SPA SCI species). Potential indirect effects upon River Shannon Callows SAC due to air - or waterborne pollution; changes in hydrological conditions (quantity and quality) which could not be entirely screened out at the AA Screening stage. Loss and disturbance to other notable habitats within the Site. Disturbance effects upon SCI / protected / notable species from increased / changes to noise, lighting or changes in site conditions influencing species movements / dispersal / foraging. No significant effects are predicted based on the application of appropriate control measures.	Mitigation measures detailed in this Framework CEMP, ER, and NIS will be implemented in full in order to address potential effects upon biodiversity including SPA and SAC qualifying species. **During the dismantling / demolition and construction phase** • The Contractor will consult and comply with the requirements of CEMP with respect to any sites or species protected by law, which are likely to be affected by the construction, establishment and maintenance of the Site. There will be no works directly within the boundary of any European site. • The Contractor will comply with requirements of. *The Wildlife Acts of 1976 and 2000 ("The Wildlife Act") and the Flora (Protection) Order, 2015* by giving the protection to a wider range of plants, animals and birds, providing additional enforcement powers and increased penalties for wildlife-related offences when undertaking any works while will affect protected species. • Where required, the Contractor will provide more detailed method statements (including programming of activities) within the parameters set by the outline statements approved by NPWS. These will be prepared by the Contractor's Environmental Clerk of Works (ECoW) in association with other contractor staff. The method statements will be approved by the Project Ecologist prior to works commencing. Works will not start without agreed method statements in place. • The Developer will be responsible for obtaining any relevant licenses, such as for the management of protected species. • The Contractor will be responsible for ensuring all site workers are briefed on the ecological sensitivities of the Site and its environs through 'toolbox talks' and provision of clear information about protected species and restricted areas and activities if required. All staff (including sub-Contractors) will receive regular updated talks and briefings. • All Site clearance works will comply with current legislative requirements and best practice. • During the works, the Contractor will provide a fence between the Site including the temporary construction area, and the adjacent areas. This will limit construction works to within the confines of the Site. All re-fuelling of plant, equipment and vehicles will be carried out in designated and kerbed areas within the construction Site boundary. • All fuels, chemicals, liquid and solid waste will be stored in areas bunded in accordance with established best practice guidelines at the construction compound and spill kits will be used. **Protection of Amphibians** • As far as possible, any works within drainage diches or waterbodies will be carried out outside of the main amphibian breeding season (February-June). • If works are required within this season, drainage ditches / waterbodies will be inspected by a suitably qualified ecologists prior to work being carried out. Should frogs or newts be found at that time they will be captured under licence from NPWS and translocated to suitable alternative habitat within the Site. Captured amphibians will be relocated to areas of standing water that are not likely to quickly dry out and will not be affected by activities associated with the Designated Development. The ecologist will be required to have obtained a licence from NPWS prior to carrying out the inspection.	Any additional surveys will be instructed during the advance works, site clearance and construction phases as identified as necessary by the ecologist.	**Roles and responsibilities shall be confirmed in the Final CEMP.**

Potential Impact	Mitigation / Enhancement Measure	Monitoring / Additional Survey Requirements	Responsibility
	Protection of Birds • Mitigation measures detailed in the NIS (APEM, 2022) will be implemented in full in order to address potential effects upon SPA SCI species. • Temporary acoustical screens will be erected around the area where generator equipment is proposed during the demolition / construction phase to reduce noise disturbance effects upon SAC and SPA species (and also non-SCI species). • It is proposed that all structures and buildings present within the Site with potential to support nesting birds, will be demolished before 1st March and therefore outside of the breeding bird season (1 March - 31 August inclusive). Where this is not possible, demolition can take place within this season provided that the structures or buildings are inspected in advance by a suitably qualified ecologist, and it is confirmed that there is no evidence of nesting. On a review of photographs of the buildings and structures proposed to be demolished (shown as structures 1-11 on **Figure 3 Dismantling and Demolition Plan** (submitted with this application) none appears to provide more than limited potential for nesting by common species such as feral pigeon or corvid species (e.g., crows, rooks, jackdaws). There is sufficient alternative nesting habitat in the surrounding area to mitigate the loss of the structures and buildings which have low potential for nesting. • As far as possible, all required vegetation clearance will be carried out outside the nesting bird period, before 1st March and / or after 31st August inclusive to avoid direct effect upon nesting bird. The habitats within the Site appear to be limited to ephemeral and ornamental landscaped habitats e.g., amenity grassland, formal shrub planting, with several small or immature trees present. • If clearance cannot be undertaken outside of the breeding bird season, then the Site will be checked for breeding birds by the ECoW immediately before clearance commences, any identified active nests will be left until the hatchlings have fledged. • All cleared material of bird nesting potential will be moved and stored off-site to ensure that birds do not use the cleared material for nesting during the bird breeding season. Similarly, stockpiles of earth (particularly sandy material) will be left without vertical faces during the spring and summer period. • The Contractor's programme will clearly indicate any areas to be removed and their programmed schedule for removal. **Protection of Bats** • If demolition of buildings and structures within the Site is conducted within 18 months (i.e., by April 2024) then no additional specific mitigation measures are required. • If temporary construction lighting is required, it will consist of the lowest lumen lighting possible while also maintaining a safe working environment. The temporary lighting will be fitted with directional cowls to prevent light spill to the surrounding area, particularly also to the east of Zone 1 alongside the Dalton Building. The temporary lighting will only be directed at the works area ensuring no light overspill to suitable commuting and foraging habitat such as the River Shannon, woodland or scrub. • Construction lighting will be designed so as to be sensitive to the potential presence of bats and will adhere to the following guidance: - *Bats & Lighting: Guidance Notes for planners, Engineers, Architects and Developers (Bat Conservation Trust (2010))* - *Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals (2011)).*		

Potential Impact	Mitigation / Enhancement Measure	Monitoring / Additional Survey Requirements	Responsibility
	- *Bats and Lighting in the UK – Bats and the Built Environment Series (Bat Conservation Trust UK (2008)).* **Protection of Otter** • Any excavations will be left with a method of escape for any animal that may enter and will be checked regularly to ensure no animals are trapped within them. • Any pipes will be capped or otherwise blocked at the end of each working day, or if left for extended periods of time, to ensure no animals become trapped. • Within the Site, all vehicles will be restricted to a maximum speed of 20km/hr. This will help to minimise the risk of collision with mammals, including otter. • If an otter should be encountered at any point, then NPWS will be informed and NRA Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes will be followed. **Protection of Aquatic Habitats** • Measures to protect the water environment will be formulated in accordance with best practice guidance. The best practice guidelines are as follows: - IFI (2016). *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters.* - *CIRIA C741 Environmental Good Practice on Site (3rd edition) (C692).* - *CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors.* • The existing surface water management system, such as drains, settlement ponds, outfalls and interceptors / separators, will be inspected and confirmed to be in suitable working order prior to any Designated Development works commencing on the Site. • Additional new drainage installations will be installed in early stages of construction, alongside the remaining existing drainage facilities, can be used to treat runoff for silt and hydrocarbons early on in the programme. Daily weather forecasting will also be used to inform the works schedule, ensuring excavation works do not coincide with high intensity or extreme rainfall events. • The proposed surface water management system, including existing and proposed infrastructure, will be inspected and confirmed to be of sufficient capacity to treat any additional water generated by the Designated Development, including runoff from dust suppression, prior to discharge. • Washout from power cleaning of drainage lines, oil interceptors or any other pipework which may contain pollutants will be collected and treated. No contaminated washout will be allowed enter any watercourse or be discharged to ground. • There will be regular monitoring and prompt maintenance of these the overall surface water management system throughout the Designated Development. This will ensure that the drainage system continues to function as designed. • There will be no direct discharge to any watercourse at any time during the demolition, construction or phases. All surface water run-off within the Site will be directed to this drainage system (in line with all permit requirements). **Invasive Species Management Plan (ISMP)** An Invasive Non-Native Species plant (INNS) survey will be undertaken prior to construction to determine INNS are present onsite. If determined as necessary through this survey and after consideration of other		

Potential Impact	Mitigation / Enhancement Measure	Monitoring / Additional Survey Requirements	Responsibility
	available INNS data, an ISMP will be prepared to accompany the Final CEMP and would be agreed with relevant stakeholders. The ISMP will specify the measures and supervision necessary during construction to prevent the spread of plant and animal INNS to new locations. The ISMP will specify the control/ eradication (as reasonable and practicable), biosecurity measures and supervision necessary during construction to prevent the spread of plant and animal INNS to new locations. Biosecurity management measures will ensure that there will be no spread of INNS during the construction or decommissioning of the Designated Development. Biosecurity requirements will address all potential pathways for interaction with and dispersal of INNS, including movements of vehicles, machinery and staff: • Into the Site from third party locations, e.g. during construction mobilisation. • Between different parts within the Site (also taking into consideration movements between different watercourses). • From the Site for redeployment elsewhere. The following measures may be required depending on the presence of INNS within the Site of the Designated Development: • As far as possible, any stands of invasive non-native plants present within the Site will be demarcated and entirely avoided. • Where this cannot be achieved, the species will be subject to appropriate treatment and / or management. This may include herbicide application, coupled with on-site burial or off-site disposal to a suitably licensed landfill. • The provision of washdown facilities shall be provided for any personnel, plant or other equipment involved in works within an area potentially infested by an INNS. • The implementation of measures will be monitored by the ECoW.		

3.1.4 Population and Human Health

Table 3.4: Population and Human Health

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
Employment opportunities will be created as a result of the works. These will be temporary, but it is considered that there is sufficient accommodation capacity in the local area. Demolition / construction phase traffic will lead to an increase in the number of vehicles using many of the junctions near Shannonbridge village, however, the increase is not expected to lead to junctions in the area becoming over capacity, therefore congestion is not expected to become an issue, therefore a negligible impact is expected. The Designated Development has the potential to impact human health as a result of changes in local air quality, climate and noise, during the demolition / construction phases. No significant effects are predicted based on the application of appropriate control measures.	Dismantling / demolition works will be in accordance with the following guidelines: • BS 6187:2000: Code of Practice for Demolition. • Health and Safety Executive Guidance Notes GS 29 / 1, 2, 3 & 4. • S.I. 504 Safety, Health & Welfare at Work (Construction) Regulations 2013. • Air Pollution Act 1987. • Environmental Protection Agency Act 1992. • BS 5228:2009 Part 1: Noise Control on Construction & Open Sites. The Contractor will be responsible for the security of the Site and will be required to: • Install adequate fencing to the Site boundary. • Maintain Site security staff at all times. • Ensure restricted access is maintained to the works. • Operate a Site induction process for all Site staff. • Ensure all Site staff shall have current ‘safe pass’ cards. • Separate pedestrian access from construction at the main Site entrances provide a safe walkway for pedestrians along the site entrances.	To be confirmed in the Final CEMP.	**To be confirmed in the Final CEMP.**

3.1.5 Land and Soils

Table 3.5: Land and Soils

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
The demolition and construction phases of the Designated Development has the potential to result in different types and durations of impact on soils and geological receptors. These are: • Temporary impacts on soil structures as a result of soil excavation and compaction. • Temporary impacts on soil chemistry as a result of spillages of oils, fuels or other construction chemicals, or through the mobilisation of existing contamination following ground disturbance. • Impacts on surface and groundwater water quality due to deposition or spillage of soils, sediments, oils, fuels, or other construction chemicals / wastewater, or through mobilisation of contamination following disturbance of contaminated ground, sediments, or groundwater, or through uncontrolled site run-off. • Potential increase in volume and rate of surface water runoff from new impervious areas during construction, leading to an impact on flood risk. • Increased risk of groundwater flooding or recharge as a result of any below ground excavations. • Alteration in overland flow paths as a result of works associated with the Designated Development. • Temporary impacts on off-site receptors through the inhalation of potentially contaminated dust and dermal contact with contaminated soil following ground disturbance.	Mitigation measures as outlined within the Water section of this CEMP (see Section 3.1.6) are also relevant for the protection of land and soils during the construction phase activities and should be read in conjunction with the below. The following mitigation measures have either been incorporated into the design (i.e., embedded mitigation) or are standard construction or operational practices. These measures have, therefore been taken into account during the impact assessment. **Excavation and Control of Water** To minimise the potential for adverse impacts to soil structure and quality during the demolition and construction phases, the following mitigation measures will be in place: • Soil material will be stored temporarily within the Site in managed stockpiles that will not be allowed to dry out, to avoid generation of wind-blown dust. • Any stockpiled material will be managed in accordance with best practise guidelines (such as C*onstruction Code of Practice for the Sustainable Use of Soils on Construction Sites* (2009)). When required, pre-earthwork drainage will be put in place to avoid sediment being washed off site and will be included in the CEMP. • The Contractor will be required to prepare a Final Construction Traffic Management Plan (CTMP) to minimise Site traffic and, if relevant, damage to soil structure from smearing and compaction, refer to Appendix C (Framework CTMP). To minimise the potential for adverse impacts to soil chemistry and to water quality during construction, the following is an outline of the general mitigation measures that will be in place: • The construction of the Designated Development will be in accordance with good practice. • The Contractor will be required to include measures in the CEMP for minimising erosion by reducing disturbance and stabilising exposed materials. The CEMP will also consider control measures to minimise the release of mobilised sediment. The CEMP will also include methods of handling and storing chemicals and fuels, followed by an Emergency Response Plan to be implemented in the event of a spill or leak. Water quality monitoring will be undertaken pre and during-construction, details of which will be included in the Contractor's CEMP. This will be based on a combination of visual observations, in-situ testing using handheld water quality probes, and periodic sampling for laboratory analysis. • The Contractor will be required to ensure the safe storage of any hazardous materials or chemicals required onsite. Storage areas for flammable / toxic / corrosive materials will be located in a separate, locked, impermeable bunded and fenced off area. Material data sheets will be available for all these materials and the COSHH (Control of Substances Hazardous to Health) assessments kept within the relevant Risk Assessment for the task, all subject to the Applicant's approval. Storage will not be within 50m of a watercourse and designated storage areas will be bunded to 110% of storage capacity to contain the effects of any spills. These areas will be cleared and re-instated following completion of the Site. • A site-specific Resource and Waste Management Plan (RWMP) will be prepared by the Contractor, and all relevant contractors will be required to seek to minimise waste arising at source and, where such waste generation is unavoidable, to maximise its recycling and reuse potential. Recycling of materials will primarily	Site Investigations (SI) will be undertaken before construction to inform the development of the preliminary and detailed design. The SI will be designed to target the potentially contaminative sources identified. Where risks are deemed to be unacceptable, further detailed quantitative risk assessment and if required, detailed remediation strategies will be developed accordingly, pursuant to the process set out by the planning authorities. Additional measures to be confirmed in Final CEMP. Water quality monitoring will be undertaken in line with the requirements if the IE Licence.	**To be confirmed in Final CEMP.**

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
No significant effects are predicted based on the application of appropriate control measures.	take place off-site where noise and dust are more easily managed and less likely to impact on surrounding properties. • Should significant contamination occur as a result of construction stage activities, Offaly Co. Co. and the EPA will be notified, and corrective actions will be agreed. If water is encountered during below ground construction, suitable best practice de-watering methods will be used. No significant groundwater dewatering is anticipated. • Construction works will be carried out in such a way as to prevent, contain, or limit, as far as reasonably practicable, any adverse effects arising from the presence of contaminated land or materials (if encountered). Examples of these measures are as follows: - a contamination watching brief / environmental oversight to ensure that any significant contamination not identified during previous site investigations is recorded and dealt with appropriately; - should ground with significant levels of unknown contamination be encountered during construction, working methods and procedures for handling and disposal of material will be employed to minimise risk in line with the EPA's "Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites". If required, the material will be disposed of at a suitably licensed waste facility; - 'Clean' and 'dirty' (contaminated) work areas will be divided by internal fencing, if contamination is encountered; - Personal Protective Equipment (PPE) will be worn by ground workers and other staff; and - those potentially at risk will be made aware of potential site hazards via site safety induction and toolbox talk procedures. To minimise the potential for adverse impacts to off-site receptors and construction workers, the following is an outline of general mitigation measures that will be in place: • The Contractor has a duty under the Safety, Health and Welfare at Work Act 2005 and the Control of Substances Hazardous to Health (COSHH) Regulations 2002 to protect their employees against hazardous substances encountered at work. To that end and in accordance with CIRIA guidance R132 A Guide for Safe Working on Contaminated Sites (1996), the Contractor will be required undertake a COSHH assessment before any work is carried out at the Site which is likely to expose staff to substances hazardous to health. Even if no hazardous substances are identified during the planned site investigation, it would be best practice for the Contractor to ensure that all employees (construction workers) are issued with PPE appropriate to the hazards identified. PPE could consist of hazard-specific gloves, eye protection and respiratory protective equipment (RPE). Site Investigations (SI) will be undertaken prior to constriction to better understand the existing ground conditions and will inform the siting and layout of the Designated Development. It should be noted that the Designated Development involves limited excavation and will be constructed in accordance with current engineering standards, including an SI and understanding of ground conditions to inform construction works and design.		

3.1.6 Water

Table 3.6: Water

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
Leakage or accidental spillage during the construction phase. Damage or loss of features of geomorphological feature. Construction activities in vicinity of features of the River Shannon. Temporary dewatering. Use of natural resources. Increased water consumption and wastewater generation during construction phase. No significant effects are predicted based on the application of appropriate control measures.	**General** The final CEMP will be reviewed, revised and updated as the project progresses towards construction to ensure all relevant potential impacts and residual effects are considered and addressed as far as reasonably practicable, in keeping with available good practice at that point in time. The principles of the mitigation measures set out below are the minimum standards that the Contractor will implement. However, it is acknowledged that for some issues, there are multiple ways in which they may be addressed. In addition, the methods of dealing with pollutant risk will need to be continually reviewed on-site and adapted as construction works progress in response to different types of work, weather conditions, and locations of work. The Contractor will as a minimum conform to all permit / approval / licence requirements and best practice measures to avoid, reduce and minimise the risk of water pollution or unacceptable physical impacts (without mitigation) on waterbodies. Methods to deal with pollutant risk will be reviewed and adapted as construction works progress in response to different activities, weather conditions, and work locations. Measures to protect the water environment will be formulated in accordance with best practice guidance. The best practice guidelines are as follows: • IFI (2016). Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters. • CIRIA C741 Environmental Good Practice on Site (3rd edition) (C692). • CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors. **General Surface Water Management** • The existing surface water management system, such as drains, settlement ponds, outfalls and interceptors / separators, will be inspected and confirmed to be in suitable working order prior to any Designated Development works commencing on the Site. • Additional new drainage installations will be installed in early stages of construction, alongside the remaining existing drainage facilities, can be used to treat runoff for silt and hydrocarbons early on in the programme. Daily weather forecasting will also be used to inform the works schedule, ensuring excavation works do not coincide with high intensity or extreme rainfall events. • The proposed surface water management system, including existing and proposed infrastructure, will be inspected and confirmed to be of sufficient capacity to treat any additional water generated by the Designated Development, including runoff from dust suppression, prior to discharge. • Washout from power cleaning of drainage lines, oil interceptors or any other pipework which may contain pollutants will be collected and treated. No contaminated washout will be allowed enter any watercourse or be discharged to ground.	Water quality monitoring will be undertaken in line with the requirements if the IE Licence. This will be based on a combination of visual observations, in-situ testing using handheld water quality probes, and periodic sampling for laboratory analysis. Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items, and that all storage is located at least 50m from surface water receptors. A regular log of inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur. A programme of water monitoring and controlled discharges of water abstracted from open excavations should be implemented. The Contractor's / Final CEMP will cover all potentially polluting activities and include an Incident Response Plan. All personnel working on the Site will be trained in the implementation of the procedures. As a minimum, the CEMP for the Designated Development will be formulated in consideration of the standard best practice.	**To be confirmed in the Final CEMP.**

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
	• There will be regular monitoring and prompt maintenance of these the overall surface water management system throughout the Designated Development. This will ensure that the drainage system continues to function as designed. • There will be no direct discharge to any watercourse at any time during the demolition, construction or phases. All surface water run-off within the Site will be directed to this drainage system. **Sedimentation of Surface Waters and Sediment Barriers** • During the construction phase, the mitigation measures will ensure that no sediment contamination, contaminated run-off or untreated wastewater will enter watercourses on or near the Site. • Excavations will only remain open for the shortest possible time to reduce groundwater ingress. Silt traps will be placed around the Site to reduce silt loss and these will be inspected and cleaned or replaced regularly. • Run-off from spoil heaps will be prevented from entering watercourses by diverting it through settlement ponds and removing material off-site as soon as possible to designated storage areas. • Good construction practices will also be used during the construction phase, such as wheel washers and dust suppression on-site roads and at the Site access points. • Sediment barriers, such as silt fencing, will be used in areas where works are within 10m of watercourses. These barriers will be installed to directly treat surface water or direct surface water to the wider surface water management system. No existing riparian vegetation will be removed at any stage of the works. • The extent of exposed ground will be minimised where possible and stockpiles covered so to reduce sediment supply and prevent the creation of any contaminated runoff. The potential will be further minimised by using grit traps to drain stockpile and wheel-wash areas so silt from these activities can be diverted to the drainage network. Straw bales and Terram will also be used at appropriate locations deemed to be at risk from silt pollution during construction works. In addition to these mitigation measures, general methods of good practice to keep the site tidy will be employed to minimise surface water contamination. • Should short-term stockpiles be required these will be located at least 50m away from any watercourse. Slopes of these stockpiles will be made stable and regularly checked by the Contractor. Stockpiles shall be stored on impermeable surfaces and covered using tarpaulin. • Surface water run-off from working areas will not be allowed to discharge directly to the River Shannon. To achieve this, the drainage system will be constructed prior to the commencement of major site works. All design and construction will be carried out in accordance with CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors. **Fuel and Chemical Handling** • It will be necessary to adopt the following mitigation measures at the Site in order to prevent spillages to ground and drains of fuels, and to prevent any consequent surface water impacts. • Designate a bunded storage area at the Contractor's compound(s) and at least 50m away from surface water gullies or drains for oils, solvents and paints used during construction. The fuel storage tanks shall be bunded to a volume of 110% of the capacity of the largest tank / container within the bunded area,	The CEMP will include a range of site-specific measures as discussed above.	

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility

away from any drains and / or watercourses. The Contractor will allow for regular checks and maintenance as required.

- Drainage from the bunded area shall be diverted for collection and safe disposal. All containers within the storage area will be clearly labelled so that appropriate remedial action can be taken in the event of a spillage. When moving drums from the bunded storage area to locations within the Site, a suitably sized spill pallet will be used for containing any spillages during transit.
- Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in designated impermeable refuelling areas isolated from surface water drains. Spill kit facilities shall be provided at the fuelling area in order to provide for any accidental releases or spillages in and around the area. Any used spill kit materials should be disposed of via a hazardous waste contractor.
- Where mobile fuel bowsers are used on the Site in the event of a machine requiring refuelling outside of the designated area, fuel will be transported in a mobile double skinned tank. Any flexible pipe, tap or valve must be fitted with a safety lock where it leaves the container and locked shut when not in use. Each bowser should carry a spill kit and each bowser operator must have spill response training. No refuelling will be allowed within 50m of River Shannon.
- Adequate stocks of hydrocarbon absorbent materials (e.g., spill-kits and / or booms) shall be held on-site in order to facilitate response to accidental spills. Spill response materials shall also be stored on all construction vehicles. It is important that the spill kits are regularly inspected and immediately replaced if used.
- All equipment and machinery will be checked for leaks and other potential sources of contaminants before arriving on-site and on a daily basis. Any equipment or machinery likely to introduce to contaminants will not be brought on-site or will be removed from the Site immediately if any leak is discovered. Spill kits will be available to machine operators, and they will be trained in their use.
- The storage of fuels and hazardous materials during the construction phase provides further potential for pollution incidents. Some removed topsoil and excavated material will be stored for reuse by the Site, and it is important that these designated storage areas are strategically located in relation to the watercourses and any other drains, so that there is no risk of topsoil or any other material being washed into the watercourses or drainage network.
- The storage of hazardous substances will be necessary during construction and a number of considerations will need to be made to reduce the potential for pollution from these sources. Fuel will be required to be stored at least 50m from a watercourse and refuelling will only take place in designated areas, on hardstanding by appropriately trained personnel.

Control of Concrete and Lime

- Ready-mixed concrete will be brought to the Site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated water to the underlying subsoil and groundwater.
- The pouring of concrete will take place within a designated area protected to prevent concrete runoff into the soil / groundwater media. Washout of concrete transporting vehicles will take place at an appropriate

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
	facility, offsite where possible. Alternatively, where wash out takes place on-site, it will be carried out in carefully managed designated on-site wash out areas. **Concrete Crushing** • Crushing of concrete on Site will only occur at the designated location. The mobile concrete crusher, if used, will be located c. 350m from the River Shannon at the closest point. Dust and surface water control systems will be put in place at this location prior to crushing activities. **Concrete Runoff** • No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out within 20m of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface, and undertaken off site where possible. • The Contractor will be required to manage and mitigate concrete works ensuring that no concrete is laid during wet weather if achievable, so to reduce the risk of concrete being washed off the site and into the surface water drains or watercourses.		

3.1.7 Climate

Table 3.7: Climate

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
Greenhouse gas emissions. In-combination climate change impact. No significant effects are predicted based on the application of appropriate control measures.	The Framework CEMP will act as an overarching document that presents a number of considerations that will limit GHG emissions and ensure the Designated Development is in line with industry best practice standards. The following list outlines a number of measures that will be considered for integration into the construction and decommissioning phases of the Designated Development, to minimise GHG emissions. • When sourcing materials for the Designated Development first choice should be given to locally sourced materials. • Any existing materials already on the Site should be considered for reuse for the Designated Development, where feasible. • When possible, machinery, vehicles and energy should all use low and zero carbon energy e.g., electric vehicles and solar powered pitch lights. • Workers will be informed of the ways in which they can reduce their energy use and avoid unnecessary energy consumption onsite e.g., avoid leaving equipment running when not in use and turning off lighting when not in use. • Reduce potential emissions by minimising the waiting time for loading and unloading materials, and efficiently handling materials on site. • Undertaking regular maintenance of plant and machinery. The following is a number of measures that will be considered for integration into the demolition / construction and decommissioning phases of the Site, to help reduce the effects of climate change and extreme weather events on the Designated Development. • Preference will be given to construction materials that are more resilient to the identified impacts of climate change. • The Contractor will monitor weather forecasts and plan works accordingly, protecting workers and resources from any extreme weather conditions. • Consideration will be given to suitable storage and bunding of any pollutants to protect from high rainfall events. • Omit any topographic low points and install drainage if required to mitigate the risk of surface water flooding. • Critical equipment to be raised above estimated peak flood level (e.g., electrical equipment). • Minimise maintenance during extreme weather events e.g., high wind events. • Maintenance of the drainage system to be included within the general site management.	To be confirmed in the Final CEMP.	**To be confirmed in the Final CEMP.**

3.1.8 Material Assets

Table 3.8: Material Assets

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
Risk to the environment from accidental pollution incidents. No significant effects are predicted based on the application of appropriate control measures.	The following measures will be implemented during the dismantling / demolition and construction phase: • Construction works will be carried out in such a way as to prevent, contain, or limit, as far as reasonably practicable, any adverse effects arising from the presence of contaminated land or materials (if encountered). • 'Clean' and 'dirty' (contaminated) work areas will be divided by internal fencing where any contamination is encountered. • Appropriate Personal Protective Equipment (PPE) will be worn by ground workers and other staff. • Those potentially at risk will be made aware of potential hazards via site safety induction procedures. • Leaks and spills will be prevented, and control measures (outlined in Section 4.7 of the TEG ER (AECOM, 2023) used to prevent contaminants entering the sub-surface or groundwater environment. • Material removed as part of the construction will be re-used elsewhere in the project where practicable and possible. • Any soil / overburden encountered will be separated where removal is required and will be conserved and stored in a designated area and appropriately protected, ready for re-use as fill for the project. • Contaminated materials will be assessed as either: solids; liquids; gas; and leachate to allow for appropriate management. • The measures outlined in Table 3.6 will be implemented to prevent the contamination of ground and surface watercourses during the works. • Hazardous dust emissions will be prevented during excavation, or from stockpiles by implementing the measures outlined in Table 3.1. • The Contractor has a duty under the *Safety, Health, and Welfare at Work (Construction) Regulations 2013* to protect their employees against hazardous substances encountered at work. To that end and in accordance with CIRIA guidance (R132) *A guide for safe working on contaminated sites (1996)*, the Contractor will be required to undertake a risk assessment before any work is carried out at the site which is likely to expose staff to substances hazardous to health. Should hazards be identified during additional site investigation, the Contractor will be required to ensure that all employees (construction workers) are issued with personal protective equipment (PPE) appropriate to the hazards identified. PPE will, as required, consist of hazard specific gloves, eye protection and respiratory protective equipment (RPE).	To be confirmed in the Final CEMP.	**To be confirmed in final CEMP.**

3.1.9 Cultural Heritage

Table 3.9: Cultural Heritage

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
Previous groundworks will have impacted any unrecorded heritage assets which may have existed. Groundworks associated with the Designated Development will introduce noise, dust and vibration to the study area. This could impact the settings of heritage assets especially the Protected Structures. No significant effects are predicted based on the application of appropriate control measures.	No archaeological mitigation is required during the dismantling / demolition and construction phase. Should any archaeological features or material be uncovered during archaeological testing or any phase of the dismantling / demolition and construction phase, ground works will cease immediately, and the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH) will be informed. Time must be allowed for a suitably qualified archaeologist to inspect and assess any material. If it is established that archaeologically significant material is present, the NMS may require that further archaeological mitigation be undertaken.	To be confirmed in the Final CEMP.	**To be confirmed in the Final CEMP.**

3.1.10 Landscape and Visual

Table 3.10: Landscape and Visual

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
Visibility of new landscape features. Increased visibility of construction activities and vehicles. No significant effects are predicted based on the application of appropriate control measures.	The Contractor's CEMP will detail the Contractor's overall management during the dismantling / demolition and construction phase. The CEMP will incorporate all of the mitigation measures required to ensure that the work is carried out in a way that minimises the potential for impacts to occur to the landscape, natural heritage and visual environment. • Existing landscape areas within and on the boundary of the Site, including along the boundary with the River Shannon, shall be fenced off and protected during the dismantling / demolition and construction phase. These areas will not be used as compound or laydown areas. • Construction compounds will not be located within the root protection area of trees or plantings to be retained. Proposed lighting within compounds and on the Site shall be directed downwards and shall not be directed to or illuminate landscape areas within the Site or areas outside of the construction site. • The compound areas will be fully decommissioned and reinstated at the end of the construction phase.	To be confirmed in Final CEMP.	**To be confirmed in Final CEMP.**

3.1.11 Traffic Management

Table 3.11: Traffic Management

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
Severance and intimidation associated with increased construction traffic, HGV and abnormal loads. Decrease in highways safety and increase in driver delay. Increased traffic flows, including HGV, on the roads leading to the Site. There is very little likelihood of significant air quality effects during construction based on the distances to receptors, the activities proposed, and the use of industry standard control measures. No significant effects are predicted based on the application of appropriate control measures.	The access point to the Site is located from the R357 Cloghan Rd. In order to minimise disruption to local traffic and maintain the safety of road users, the Contractor will be required to establish a traffic management system. This will account for: • planning and controlling the movement of vehicles, plant and non-motorised users that are present within the Site, access to and egress from the Site and on the adjacent road network; and • ensure that safety of construction operatives, motorised and non-motorised users are not compromised. This will be achieved by effective implementation of a Construction Traffic Management Plan (CTMP) to be prepared and initiated by the Contractor. The CTMP shall be included as part of the Contractor's CEMP. **Construction Traffic Management Plan (including HGV)** A full / final CTMP will be developed by the Contractor prior to the commencement of work on-site. No works shall commence until such time that the full CTMP has been prepared. The final CTMP will provide details of anticipated vehicle volumes. The objective of the CTMP will be to: • provide protection from traffic hazards that may arise as a result of the construction activities and journeys to and from the Site; • installation of mirrors (if required) and construction traffic warning signs at site entrance junction; • manage potential adverse impacts on the public road network and ensure network performance is maintained at an acceptable level; • minimise adverse impacts on users (motorised and non-motorised) of the public road network and adjacent properties and community facilities; • plan deliveries to the Site; • ensure adequate signage is in place at the Site access points before use; and • ensure that the roads and footways at the site access are kept clear of debris, runoff, soil, and other material (complementing the Site wheel wash facilities). The Contractor will make aware the proposed works which will be undertaken in an area with a number of existing residential premises. Therefore, the Contractor will be required to always accommodate and make provision for access and egress to these premises paying particular attention to the provision of pedestrian / disabled / cyclist safe access and egress. The CTMP will include alternative routes for pedestrians and vehicles in the event that public roads or right of ways are closed during works, although this is not expected to be required. The CTMP will include measures to limit the amount of queuing required by construction vehicles outside the Site boundaries.	The Contractor will undertake such monitoring as is necessary to assess the effectiveness of the measures included in the CTMP to control the routing and impact of construction traffic including HGV. This will include the maintenance of records of construction HGV entering and leaving the Site, which will be available to the Applicant on request. Monitoring measures will provide a firm basis upon which to answer queries and complaints. Further details to be confirmed in the Final CEMP.	CTMP Co-ordinator to oversee management, monitoring and implementation of the individual measures within the CTMP. **To be confirmed in Final CEMP.**

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
	Construction debris particularly site clearance, spoil removal and dirty water runoff, have the potential to cause a significant impact on footpaths and roads adjoining a construction site, if not adequately dealt with and these matters will be fully addressed in the contractors CTMP. **Traffic Management General Measures** • Warning signs / advanced warning signs will be installed at appropriate locations in advance of the construction access locations. • Consideration will be given to reduce the volume of construction traffic accessing the site through reduce - reuse and recycle methods. Delivery control will also be adopted to reduce potential heavy vehicle convoys. • Temporary signage designating permissible HGV routes; • Material deliveries and collections from site will be planned, scheduled and staggered to avoid unnecessary build-up of demolition/construction works related traffic; • HGV trips are anticipated to arrive and depart the site at a uniform rate throughout the day to avoid pressure on the morning and evening peak hour periods; • Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on trucks carrying dust producing material; • Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds within the site; • Parking of site vehicles will be managed and will not be permitted on the public road, unless proposed within a designated area that is subject to traffic management measures.; • A road sweeper will be employed to clean the public roads adjacent to the site of any residual debris that may be deposited on the public roads leading away from the construction works; • On site wheel washing will be undertaken for construction trucks and vehicles to remove any debris prior to leaving the site, to remove any potential debris on the local roads; • All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. Spill kits will be available on site. All scheduled maintenance carried out off-site will not be carried out on the public highway; • Safe and secure pedestrian facilities are to be provided where construction works obscure any existing pedestrian footways. Alternative pedestrian facilities will be provided in these instances, supported by physical barriers to segregate traffic and pedestrian movements, and to be identified by appropriate signage. Pedestrian facilities will cater for vulnerable users including mobility impaired persons; and • Using Garda escorts for abnormal loads where required. **Site Management measures** • complaint registers will be kept detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out; • equipment and vehicles used on site will be in good condition such that emissions from diesel engines etc. are not excessive;		

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
	• pre-start checks will be carried out on equipment to ensure they are operating efficiently and that emission controls installed as part of the equipment are functional; • monitoring and control of demolition / construction traffic during construction works; and • the use of prefabricated elements to minimise on site fabrication and assembly thereby reducing the numbers of site operatives required. Dust deposition levels will be monitored on a regular basis in order to assess the impact that site activities may have on the local ambient air quality. The flowing procedures will be implemented: • The dust deposition rate will be measured by positioning Bergerhoff Dust Deposit Gauges at strategic locations near the boundaries of the site for a period of 30 (+/- 2) days if required. Monitoring should be conducted as required during periods when the highest levels of dust are expected to be generated i.e., during site preparation works and soil stripping activities. • The exact locations will be determined after consideration of the requirements of Method VDI 2119 with respect to the location of the samplers relative to obstructions, height above ground and sample collection and analysis procedures. • After each 30 (+/- 2 days) exposure period, the gauges will be removed from the sampling location, sealed and the dust deposits in each gauge will be determined gravimetrically by an accredited laboratory and expressed as a dust deposition rate in mg/m2/day in accordance with the relevant standards. • Technical monitoring reports detailing all measurement results, methodologies and assessment of results shall be subsequently prepared and maintained by the Site Manager. **Site Routes** • Site access routes (particularly unpaved areas) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25% to 80%. • A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles or delivery vehicles within the vicinity of the Site; • Bowsers will be available during periods of dry weather throughout the construction period. Research shown found that the effect of surface watering is to reduce dust emissions by 50%. The bowser will operate during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use; and • Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced areas shall be restricted to essential Site traffic only. Si**te Traffic on Public Roads** • Spillage and blow-off of debris, aggregates and fine material onto public roads will be reduced to a minimum by employing the following measures.		

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
	• Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered at all times to restrict the escape of dust. • Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only. • A power washing facility or wheel cleaning facility will be installed near to the Site compound for use by vehicles exiting the site when appropriate. • Road sweepers will be employed to clean the Site access route as required. **HGV** • HGV arrivals, including deliveries, will be managed as far as reasonably practicable to avoid on-site congestion. Any noisy works outside the core working hours, if required, will be agreed with the Applicant on a case-by-case basis. • Traffic movements will be controlled during the Designated Development construction phase in order to minimise potential impacts on the surrounding road network. The contractor will be required to provide detail of any HGV routing in the full CTMP. This will consider where deliveries will be made to/from and what roads will be used. • Should any complaints be raised by members of the public with regards to construction HGV not using the dedicated HGV route to the Site, records along with CCTV footage where available would be used to identify the offending HGV involved and appropriate sanctions put in place with the aim of avoiding repeat events. • The Contractor must ensure that the designated HGV route is adhered to by HGV drivers and the contractor must ensure that the policy and routing plan is distributed to all HGV drivers. This policy will be reinforced during staff inductions, with sanctions put in place to deal with non-compliance with the aim of ensuring no repeat events. • To ensure compliance with the measures set out above, the contractor must enforce the disciplinary procedure, 'yellow/ red card system' or equivalent. • In the first event of non-compliance, a warning will be issued to the HGV driver (yellow card). In the event of any repeat of the contravention, that driver will be prohibited from making further HGV deliveries to the Site (red card). • As mentioned above the Contractor must distribute the HGV routing plan to all HGV drivers during their induction. It will be a condition of contract between the Applicant and the Contractor to aim to ensure that all construction HGV deliveries must use the designated route to access and egress the construction site. Sanctions will be put in place to deal with non-compliance in the interests of highway safety, wheel cleaning facilities will be installed at the Site from the start of the construction phase. All HGV would be required to wheel wash when exiting the Site. • The Contractor will erect signage at the main junctions to appropriately direct all HGV traffic relating to the Designated Development (both accessing and egressing the site). These will be in place for the duration of the construction phase and will be checked regularly to confirm they are visible throughout. • The Contractor will be required to maintain all the HGV route signage. • A formal process of liaison between all relevant parties (for example Contractor and the relevant County Council) will: – make all parties aware of the results of monitoring of the final CTMP;		

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
	– provide a route by which any complaints and transport related issues and be communicated, identified, and dealt with. The Final CEMP will include vigilance and security systems to safely shutdown the plant in the event of any aircraft related incident. During the commissioning (and operational) phase, working with suppliers to ensure that all relevant materials (including chemicals) bought to the Site that are classified as hazardous are transported in compliance with applicable regulations and guidance.		

3.1.12 Waste Management

Table 3.12: Waste Management

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
Hazardous waste arisings are expected to comprise small quantities of oils, chemicals and similar materials typically used as part of construction activities. Procedures for the storage and management of these wastes will be further detailed in the Contractor's RWMP. The waste management facilities to be utilised during construction are not yet known and suitability will be determined by the Contractor. Since it is not possible to estimate the exact composition of construction waste at this time a total material recovery rate in line with the national performance of 78% (reported for 2020) is anticipated to be achievable for non-hazardous construction waste (excluding naturally occurring soil and stones (Waste Code 17 05 04)). A recovery rate below 70% would be considered to be a significant impact. The quantities of waste are very unlikely to be more than 5% of national waste arisings due the nature and scale of demolition and therefore not considered significant. It is assumed that this waste would have a high recovery rate and is likely be recovered rather than sent to landfill.	A site-specific Resource and Waste Management Plan (RWMP) will be prepared by the Contractor. The RWMP will be employed to ensure sustainable and effective waste management throughout the dismantling / demolition and construction phase of the Designated Development. Adherence to the RWMP prepared for the dismantling / demolition / construction works will ensure that the management of waste arising is dealt with in compliance with the provisions of the Waste Management Act 1996 (as amended), associated Regulations, Litter Pollution Act of 1997 (as amended) and the *Eastern-Midlands Region Waste Management Plan 2015-2021, and A Waste Action Plan For a Circular Economy* - Irelands National Waste Policy 2020-2025 and that it will achieve optimum levels of waste reduction, re-use and recycling. Typical waste materials that will be generated from the C&D works include: • Structural Steelwork; Rebar; Structural Concrete; Cladding; Rubber; Plastic; MMMF (Man Made Materials/Fibres); Soft Strip Cables and materials; Masonry; Mixed Waste; Soil & Stone; Topsoil; Concrete; and Asphalt. The management of all hazardous waste arisings, if they occur, shall be coordinated in liaison with Health and Safety Management. The Contractor will use the Waste Hierarchy as a guide to encourage the prevention of waste and to define waste management options. When considering waste management options for the Site, the Contractor will take account of the Site's location, natural environment and available infrastructure. The Contractor will consider the following options when determining the preferred waste management option for each waste stream. • Prevention • Preparing for reuse • Recycling • Other recovery • Disposal. **Prevention and Preparing for Reuse** To reduce the potential impacts from materials and waste, and to achieve high levels of sustainability in the Designated Development as a whole, the Contractor will apply the principles of the Waste Hierarchy and adopt best practice measures (BPM) which go beyond statutory compliance. This may include BPMs set out in construction industry guidance for example, guidance from the Considerate Constructors Scheme (CCS), Waste and Resources Action Programme (WRAP) and Construction Industry Research and Information Association (CIRIA). As outlined in the RWMP Guidelines the Resource Manager (RM) will engage with team or individuals tasked with procurement of materials and services to ensure best practice procedures are employed to prevent residual resources at the Site. A range of good practice measures may include the following: • Select procurement routes to minimise unnecessary packaging, e.g., applying 'Just-in-Time' (JIT) delivery processes to minimise material spoilage.	To be confirmed in the Final CEMP.	**To be confirmed in the Final CEMP.**

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
No significant effects are predicted based on the application of appropriate control measures.	• Implement ordering procedures and supply chain systems that avoid waste, i.e., no over-ordering, use of take-back schemes for packaging, material surplus and offcuts. • Plan the work sequence to reduce the potential for on-site residual resource generation. The following approaches will be implemented, where practicable, to further minimise the quantity of waste arising and requiring disposal: • Reuse of materials on-site wherever feasible, e.g., reuse of excavated soil for landscaping, recycling of demolition materials into aggregates. • Off-site prefabrication, where practical, including the use of prefabricated elements. • Segregation of waste at source, where practical, to facilitate a high proportion and high-quality recycling. • Off-site reuse, recycling and recovery of materials and waste where reuse on-site is not practical, e.g., through use of an off-site waste segregation or treatment facility or for direct reuse or reprocessing off-site. **Recycling** The aim is to reuse materials won on-site by recycling them into an alternative form that can be used for construction purposes (for example crushing concrete, brick or other inert wastes to produce aggregate material). By recycling on-site, as far as practicable, the quantity of waste requiring off-site management is reduced and carbon emissions associated with transportation are eliminated. Recycling may also be achieved by utilising materials with a recycled content, such as recycled aggregates produced off-site. **Recovery** This generally aims to recover energy from waste which cannot otherwise be reused or recycled. This may include waste materials such as hazardous liquids or solids that can be sent to energy from waste facilities. Recovery may also include the beneficial use of materials on land for restoration (backfilling operations). **Disposal** The least preferred option in the Waste Hierarchy is a final disposal route such as landfill. Some waste streams will inevitably end up with such a solution. When placing waste disposal contracts, the Contractor will consider the implications of long-distance travel in terms of health and safety risk, commercial terms and increased emissions from vehicles. **Waste Storage** The main waste storage area will be located within the Site compound. A dedicated and secure area containing bins, and / or skips and storage areas will be provided for waste materials generated by construction site activities. Waste materials generated will be segregated at waste collection and storage areas where it is practical. Where the on-site segregation of certain waste types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste Contractor will collect and transfer the wastes as receptacles are filled. The Site construction manager will ensure that all staff are informed of the requirements for segregation of waste materials by means of clear signage and verbal instruction. Site employees will be made responsible for ensuring good Site housekeeping.		

Potential Impact	Mitigation / Enhancement Measures	Monitoring / Additional Survey Requirements	Responsibility
	Pest Management A pest control operator will be appointed as required to manage pest on-site during the dismantling / demolition and construction phase. Organic and food wastes generated by Site staff will not be stored in open skips, but in closed waste receptacles. Any waste receptacles will be carefully managed to prevent leaks, odours and pest problems.		

3.2 Implementation and Operation

3.2.1 Roles and Responsibilities

The Contractor shall employ a suitably experienced and qualified Construction Environmental Management Plan Co-ordinator (CEMPC) / Environmental Site Officer to undertake co-ordination of monitoring of the works' impacts and implementation of the Contractor's proposals, in respect of all environmental requirements.

A CEMPC / Environmental Site Officer shall be present onsite for the duration of the Designated Development. The CEMPC / Environmental Site Officer shall be the point of contact for dealing with environmental issues for the Contractor's employees, sub-contractors, relevant authorities/environmental bodies, and members of the public. The CEMPC / Environmental Site Officer shall also be responsible for controlling the construction impacts arising from the activities of the Contractor and sub-contractors in accordance with the CEMP.

The CEMPC / Environmental Site Officer shall prepare, implement, manage, review and revise the CEMP with the sole purpose of ensuring that the environment is safeguarded at all times from anticipated or unexpected adverse impacts during construction.

Within the Contractor's team, the CEMPC / Environmental Site Officer shall have the authority to ensure that the CEMP is effectively implemented. The CEMPC / Environmental Site Officer must notify the Applicant of any transgressions in respect of the CEMP so that necessary sanctions can be imposed.

In general, the duties of the CEMPC / Environmental Site Officer shall include the following:

- implementation of the CEMP procedures;
- routine environmental monitoring, recording and reporting;
- maintaining and auditing the CEMP and documents that underpin it;
- environmental training including daily Toolbox Talks to site staff and design staff;
- liaison with statutory authorities as required;
- assist in liaison with the relevant authorities / environmental bodies and local community; and
- any other activities that may be necessary in order to protect wildlife and the environment during the works.

Indicative contractor team roles and responsibilities have been identified within **Table 3.13**. This is indicative only and the final CEMP will set out all roles, responsibilities and actions required in respect of implementation of the measures described in this Framework CEMP, including:

- an organogram showing team roles, names and responsibilities;
- training requirements for relevant personnel on environmental topics;
- information on site briefings and Toolbox Talks that will be used to equip relevant staff with the necessary level of knowledge to follow environmental control procedures;
- measures to advise employees of changing circumstances as work progresses;
- communication methods (e.g. updates via the Applicant's website);
- document control; and
- environmental emergency procedures.

All construction works associated with the authorised development must be carried out in accordance with the approved CEMP unless otherwise agreed with the Applicant.

Table 3.13: Key Contractor Team Roles and Responsibilities (indicative)

Role	Responsibilities
Contractor's Project Director	▪ Assign specific environmental duties to competent members of the Contractor's Team. ▪ Identify the environmental training needs of personnel under their control and arrange appropriate training programmes and ensure records are being maintained. ▪ Ensure that significant environmental aspects identified for the Designated Development are managed. ▪ Promote the continual improvement of environmental performance.
CEMP Coordinator (CEMPC) / Environmental Site Officer	▪ Develop, maintain and audit the CEMP (and supporting documents/plans) to ensure all aspects, impacts and statutory requirements etc. are reflected in the CEMP. ▪ Develop and implement a programme of regular environmental inspections, monitoring, recording and reporting by the Environmental Site Representative(s) in accordance with procedures set out in the CEMP. ▪ Ensure that the works are constructed in line with the CEMP. ▪ Liaise with statutory authorities. ▪ Attend regular construction meetings to ensure environmental issues are discussed and addressed by the Contractor's Team. ▪ Liaise with relevant authorities/environmental bodies and the local community as required. ▪ Comply with duties under relevant legislation and company procedures in relation to environmental incident investigation and reporting. ▪ Provide support and training to the workforce with regard to understanding environmental aspects, impacts, regulatory requirements, best practice, constraints and methods of working. ▪ Nominate the Environmental Site Representative(s). ▪ Appoint environmental specialists as required. ▪ Ensure identified environmental specialists are in attendance onsite as required by the CEMP. ▪ Review non-conformance reports provided by the Environmental Site Representative(s) and/or the Inland Fisheries Ireland (IFI) Environmental Advisors to identify any underlying issues or patterns to identify suitable ameliorative measures.
Contractor's Project Manager	▪ Ensure that the CEMP is produced, maintained, implemented and distributed to all relevant parties. ▪ Provide an on-call 24hr resource as a first point of contact for environmental issues / incidents. ▪ Monitor the completion of corrective actions by the Site Manager and act as required to expedite completion. ▪ Provide regular reports to the Applicant on environmental performance, including details of any identified incidents or non-conformances and corrective actions. ▪ Ensure that all personnel for whom they are responsible are aware of the CEMP and implement the relevant requirements. ▪ Evaluate the competence of all subcontractors and suppliers and ensure that they are made aware of and comply with the CEMP and associated procedures. ▪ Establish a consultation and communication system, including employees, partners, sub-contractors, designers and third parties, etc., where relevant.
Site Manager	▪ Ensure that all personnel undergo suitable and sufficient environmental induction before starting work on the Designated Development, and periodic refresher environmental awareness training throughout the construction. ▪ Ensure staffs attend the appropriate environmental courses that are organised by the Environmental Manager (CEMPC). Ensure the Environmental Manager is maintaining records of training delivered to Site staff. ▪ Monitor the performance of personnel and activities under their control and ensure arrangements are in place so that all personnel can work in a manner which minimises risks to them and to the environment. ▪ Undertake a programme of regular environmental inspections in liaison with the Environmental Site Representative(s). ▪ Complete any corrective actions identified by the Environmental Site Representative(s) and provide status reports as required to OCC. ▪ Assist and support the Environmental Manager (CEMPC) and statutory bodies in the investigation of any incidents. ▪ Notify the Environmental Site Representative(s) of all environmental issues or incidents arising over the course of operations.
Environmental Specialists (i.e. Ecological Clerk of Works (ECoW) and Environmental Clerk of Works (EnvCoW))	▪ Attend site as required to monitor the protection of asset in accordance with the requirements of relevant legislation, mitigation as outlined within the ER, NIS and any other reports produced for the Designated Development), mitigation measures as outlined within planning conditions, the construction contract and the CEMP. ▪ Identify potential risks to wildlife and develop suitable control measures. ▪ Provide status reports and updates to the Environmental Site Representative(s) in the completion of their activities. ▪ Provide advice about ecological and environmental and issues during the construction of a development including advice on protected species, pollution, surface water management, material management, air quality and noise. ▪ ECoW and EnvCoW roles can be carried out by the same person once they are adequately qualified.

3.3 Checking and Corrective Action

3.3.1 Monitoring

Environmental focused monitoring and inspection activities shall be carried out throughout the lifetime of the Designated Development. The frequency of these monitoring and inspection activities will be agreed in advance of construction with the Applicant, will be stated within the final CEMP and will be in line with planning conditions. Additional monitoring and inspection will take place outside of the agreed frequency where an environmental incident occurs or where activities that can have a significant environmental impact are occurring.

As part of the monitoring process, the Contractor will allocate a designated CEMPC / Environmental Site Officer(s), who would be present on-site throughout the construction, including when new activities are commencing. The Environmental Site Officer will observe site activities and report any deviations from the final CEMP in a logbook, along with the action taken and general conditions at the time. The Applicant will be informed of any deviations from the final CEMP as soon as possible following identification of such issues. The CEMPC / Environmental Site Officer will also assist the Applicant with day-to-day contact with regulatory agencies such as the EPA.

During construction, the CEMPC / Environmental Site Officer will conduct regular walkover surveys to ensure all requirements of the final CEMP are being met and to monitor compliance. It is anticipated that a daily visual check and a detailed weekly check shall be carried out and these records will be available upon request. Action from these surveys will be documented on an Environmental Action Schedule, discussed with the Site Foreman for programming requirements and issued weekly for actioning.

The CEMPC / Environmental Site Officer will arrange regular formal inspections to ensure the requirements of the final CEMP are being met. After completion of the works, the Environmental Site Officer will conduct a final review.

During the construction phase the following monitoring measures will be considered at a minimum:

- regular inspection of surface water run-off and sediments controls;
- soil sampling to confirm disposal and short-term storage options for excavated soils;
- regular inspection of construction/mitigation measures shall be undertaken e.g. concrete pouring, refuelling etc.;
- dust monitoring and monitoring of dust control measures;
- noise and vibration monitoring and monitoring of noise and vibration control measures;
- surface water monitoring (if required); and
- daily monitoring of general housekeeping onsite.

3.3.2 Auditing

Planned and documented audits (including waste and environmental audits) aimed at evaluating the conformance of the Designated Development will be carried out throughout the construction phase. The frequency of the audits will be agreed in advance with the Applicant. As a minimum this would include;

- weekly site walkover with results presented at the Contractors' regular meetings with the Applicant.
- dedicated waste audits shall be carried out at a frequency agreed in advance with the Applicant. All waste types and records would be available for review upon request.

The CEMP will be reviewed and audited every 6 months as a minimum and updated in line with current guidance and legislation.

3.3.3 Consents and Licences

All statutory consents and licences required to commence onsite construction activities shall be obtained ahead of works commencing, allowing for the appropriate notice period. It will be the responsibility of the Contractor to ensure all consents and licences required are in place prior to the start of construction.

These will include, but are not limited to:

- site notices;
- construction commencement notices;
- licence to connect to existing utilities (inc. water) and mains sewers, where required;
- abstraction and/or discharge licenses; and
- road opening/closure licences (if applicable).

3.3.4 Records

The CEMPC / Environmental Site Officer will retain records of environmental monitoring and implementation of the final CEMP. This will allow provision of evidence that the final CEMP is being implemented effectively. These records will include:

- an Environmental Action Schedule;
- records of licences, permits and approvals;
- results of inspections;
- other environmental surveys and investigations; and
- environmental equipment test records.

The final CEMP will be a live document and as such updated regularly, with a full review on at least a quarterly basis throughout construction.

3.4 Management Review

The final CEMP will be signed off on completion of the construction works. The operator of the Site will then implement and maintain an Environment Management System (EMS).

4. References

AECOM (2023). *Temporary Emergency Generation Power Plant West Offaly Power Station Environmental Report (ER*).

APEM (2023). *Temporary Emergency Generation (TEG) Power Plant: Appropriate Assessment (AA) Screening and Natura Impact Statement (NIS).*

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Annex A Framework Resource and Waste Management Plan (RWMP)

A.1 Introduction

This Framework Resource and Waste Management Plan (Framework RWMP) has been prepared at a stage when exact quantities and volumes of waste material have not yet been determined. This document is considered to be live and is to be updated by the Contractor in accordance with the relevant guidance (Environmental Protection Agency (EPA) *Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction and Demolition Projects, 2021*[4] (herein referred to as the 'RWMP Guidelines')).

This Framework RWMP will be updated by the Contractor into a Contractor's Resource and Waste Management Plan prior to commencement of works and will be part of the Contractor's CEMP. The construction stage RWMP will be produced by the Contractor and submission and approval of the final RWMP prior to commencement of construction is proposed to be secured by a condition.

This Framework RWMP has been developed to act as a guide for site staff on how to manage construction materials and waste, in accordance with both legal and best practice requirements.

This Framework RWMP does not replace the requirement for the completion of a construction phase RWMP. The Framework RWMP presents the approach that would be adopted as a minimum throughout construction and forms a framework for the approach of the construction stage RWMP.

RWMPs are used as a good practice measure on construction projects and to support planning and consenting applications. This Framework RWMP has been developed to act as a guide for site staff on how to manage construction materials and waste, in accordance with both legal and best practice requirements. The Contractor will use this framework RWMP as a framework for producing the RWMP for use throughout the duration of the Designated Development construction phase.

It is anticipated that some of the required information will not be available until the detailed design phase, such as commitments, target setting, design approach and designing out waste strategies. It shall be the responsibility of the Contractor to update the RWMP once this information becomes available.

Sections related to the commitment to responsibilities, auditing, training, reporting, tracking, supply chain, etc. shall be set up and refined by the Contractor prior to commencement of works.

In developing the RWMP, the Contractor will re-use materials where practicable, where permitted under the relevant waste legislation, and where the material meets engineering requirements. The methods outlined in *Construction Code of Practice for the Sustainable Use of Soils on Construction Site*s (2009) will be taken into consideration in order to maintain the quality of moved and stored soils and minimise impacts on soil structure and quality. Vermin control will also be implemented by the Contractor.

A.2 Waste Management Legislation and Policy Context

The Contractor must ensure that the Contractor's RWMP is updated to reflect current legal requirements and the waste management practices of the Designated Development as necessary, both prior to and during the construction works. The Contractor must ensure all required authorisations are obtained.

[4] EPA (2021). *Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction and Demolition Projects*.

The following information is reproduced from the RWMP Guidelines[5].

The European Waste Framework Directive (Directive 2008/98/EC),[6] as amended by Directive (EU) 2018/851[7] (Waste FD) sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling and recovery. It also includes definitions for when waste ceases to be waste and becomes a secondary raw material (end-of-waste criteria) and how to distinguish between waste and a by-product. The Waste FD is enacted in Ireland under European Communities (Waste Directive) Regulations 2011.[8]

Waste is defined by Article 1(a) of the Waste FD[6] as "*any substance or object (in the categories set out in Annex I) which the holder discards or intends or is required to discard"*.

The legal definition of waste also covers substances or objects, which fall outside of the commercial cycle or out of the chain of utility. In particular, most items that are sold or taken off-site for recycling are wastes, as they require treatment before they can be resold or reused.

In practical terms, wastes include surplus earthworks materials and soil, scrap, unwanted surplus materials, packaging, recovered spills, office waste, and damaged, worn-out, contaminated or otherwise spoiled plant, equipment and materials.

In Ireland, the primary waste legislation is the Waste Management Act 1996,[9] as amended, and Section 32 of the Act places a general obligation on the holder of waste to comply with legislation and ensure all wastes are managed within the requirements of the Act. In short, the obligation to manage waste legally lies with the holder of waste, which means the waste producer or the person who is in possession of the waste. At a construction site, the mandatory obligation to appropriately manage waste generated at a construction site lies with the Client and the Principal Contractor.

Under Section 3(1) of the Act,[9] the requirements do not apply to the following materials, which hence are not considered 'waste':

- Land (in-situ) including unexcavated contaminated soil and buildings permanently connected with land – relates to land and buildings prior to any construction or demolition where material remains untouched. Once it has been excavated or otherwise removed, the material may enter into the control regime set down by the Waste Management Act.
- Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated.

In addition, there are two important provisions within the European Communities (Waste Directive) Regulations 2011[8] that are of relevance to the construction sector and the prevention of waste and these allow for the classification of resources out of the waste regime as follows:

- Article 27 allows for the notification of a material as a by-product rather than a waste where certain criteria can be demonstrated by the legal person (i.e. further use is certain, no need for further processing, produced as part of a process and further use is lawful).

[5] EPA (2021). *Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction and Demolition Projects*.
[6] The European Parliament and The Council of the European Union, 2008. *Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives*.
[7] European Union, 2018. *Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste.*
[8] Government of Ireland (2011). *S.I. No. 126/2011 - European Communities (Waste Directive) Regulations 2011*.
[9] Government of Ireland (1996). *Waste Management Act 1996*.

- Article 28 sets out the grounds by which a material, which is recovered or recycled from waste, can be deemed to be no longer a waste and complies with a set of end-of-waste criteria (substance / object to be used for specific purposes, a market or demand exists, fulfils technical requirements and no overall adverse impact to human health or the environment).

Policy

A Waste Action Plan for a Circular Economy, Ireland's National Waste Policy 2022-2025[10] sets out Ireland's approach to transitioning to a circular economy.

For construction and demolition (C&D) waste, the plan supports the provisions and targets of the European Communities (Waste Directive) Regulations 2011[8] by undertaking to streamline the decision-making processes for by-product notifications and end-of-waste and updating best practice guidance in line with the Waste Hierarchy.

The Plan calls for the replacement of the existing Regional Waste Management Plans with a single National Waste Management Plan containing targets for reuse, repair, resource consumption and a reduction in contamination. The single Plan will aim to build on the progress from 2015, strengthen national capacity and delivery while retaining a regional focus for implementation. Development of this National Waste Management Plan commenced in 2021 and will be informed by the outcomes of this evaluation.

For the purposes of waste management planning, Ireland is divided into three regions. The Designated Development is located within the Eastern Midlands region and the Eastern-Midlands Waste Management Plan 2015-2021[11] provides the framework for the prevention and management of wastes in a safe and sustainable manner.

The *Offaly County Development Plan (CDP) 2021-2027* sets out the overall planning and sustainable development strategy for the county[12].

A.3 Waste and Recycling Targets

The environmental assessment of the Designated Development is based on it achieving certain performance standards with respect to the recovery of C&D waste.

Member States such as Ireland must ensure that the preparation for reuse, recycling and other material recovery of non-hazardous C&D waste (excluding naturally occurring material defined in List of Waste category 17 05 04) is a minimum of 70% by weight. The Waste FD specifies that this target should be achieved by preparing for reuse, recycling and other material recovery, including backfilling operations using waste to substitute other material. However, as outlined in the RWMP Guidelines,[13] the Waste FD C&D recovery target is designed for national statistics and is not an appropriate target for individual projects.

As outlined in the RWMP Guidelines the responsibility for setting any project target lies with the Client who may dictate the appropriate performance specification for the project through imposing mandatory contractual obligations on the Contractor. Clients and Design Teams are recommended to reference the relevant industry practice, design standards and certification schemes in setting any project-specific target for the Contractor.

The following can be taken into consideration when setting waste targets:

- Standard, good and best practice recovery rates by material are provided by WRAP.[14] Recovery rates for key construction materials and other construction wastes relevant to the Project are provided in **Table A.1**.

[10] Government of Ireland (2020). *Waste Action Plan for a Circular Economy, Ireland's National Waste Policy 2022-2025*.
[11] Eastern-Midlands Waste Region (EMWR) (2015). *Eastern-Midlands Waste Region Waste Management Plan 2015-2021*
[12] Offaly County Council (2021). *Offaly County Development Plan 2021-2027*.
[13] EPA (2021).
[14] WRAP (2007). *Waste Recovery Quick Wins. Improving Recovery Rates without Increasing Costs*. No longer available online.

- The EPA's 'Progress to EU Targets'[15] reports Ireland's performance against targets set out in European Directives shows performance of 84% was reported for 2019, exceeding the 70% target.

Table A.1: Standard, Good and Best Practice Recovery Rates by Material

Material	Standard Practice Recovery (%)	Good Practice recovery (%)	Best Practice Recovery (%)
Metals	95	100	100
Packaging	60	85	95
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	75
Electrical equipment	Limited information	70	95
Cement	Limited information	75	95
Liquids and oils	100	100	100
Hazardous	50	Limited information, cannot be 100% since some hazardous waste e.g., asbestos must be landfilled.	

A.4 Indicative Roles and Responsibilities

The main RWMP roles and responsibilities as outlined in the RWMP Guidelines are shown in **Table A.2**. The Contractor will complete and add any additional roles to **Table A.1** prior to the commencement of the construction phase.

Table A.2: Roles and Responsibilities

Position	Name	Contact Details	RWMP Responsibility
Client Advisory Team (e.g., Engineers, architects, consultants etc.) Project Manager			• Drafting and maintaining the RWMP through the design, planning and procurement phases of the project. • Appointing a Resource Manager (RM) to track and document the design process, inform the Design Team and prepare the RWMP. • Include details and estimated quantities of all projected waste streams. This should also include data on waste types (e.g. waste characterisation data, contaminated land assessments, site investigation information) and prevention mechanisms (such as by-products) to illustrate the positive circular economy principles applied by the Design Team. • Incorporate relevant conditions imposed in the planning permission into the RWMP. • Handover of the RWMP to the Contractor at commencement of construction for the development of the RWMP in a similar fashion to how the safety file is handed over to the Contractor. • Work with the Contractor as required to meet the performance targets for the project.
Client Project Manager			• Establishing the ambition and the performance targets for the project. • Set out these commitments and targets in relation to prevention and minimisation in the project brief, tendering documentation including pre-qualification requirements, invitation to tender, etc. • Require the preparation and submission of an updated RWMP as part of the construction process. • Ensure that the RWMP is agreed and submitted to the Applicant prior to commencement of works on-site. • Request the end-of-project RWMP from the Contractor.
Contactor Project Manager			• Preparing, implementing and reviewing the RWMP through construction (including the management of all suppliers and sub-contractors) as per the requirements of these guidelines.

[15] EPA (2021). *Progress to EU Waste Targets. 1 December 2021*.

Position	Name	Contact Details	RWMP Responsibility
			• Identifying a designated and suitably qualified RM who will be responsible for implementing the RWMP. • Identifying all hauliers to be engaged to transport each of the resources / wastes off-site. Note that any resource that is legally a 'waste' must only be transported by a haulier with a valid Waste Collection Permit. • Identifying all destinations for resources taken off-site. • End-of-waste and by-product notifications addressed with EPA where required. • Clarification of any other statutory waste management obligations, which could include on-site processing. • Full records of all resources (both wastes and other resources) should be maintained for the duration of the project. • Preparing a RWMP Implementation Review Report at project handover.

A.5 Approach to Waste Management

The Applicant is committed to delivering a development that is sustainable in regard to matters relating to waste management and will comply with the relevant statutory requirements. This requirement will be passed onto the Contractor. Decisions made at the detailed design stage of the Designated Development will impact on the quantity and types of materials used, the quantity and types of waste arising and the management of materials and waste.

Waste elimination will start as early as possible and the Contractor and their design team will work in conjunction with the Applicant to design and plan waste minimisation. The Designated Development's design development has and will continue to apply the principles of Designing out Waste (DoW), which include:

- Design for reuse and recycling;
- Design for green procurement;
- Design for off-site construction;
- Design for materials optimisation; and
- Design for deconstruction and flexibility.

The proposed construction phase RWMP will identify the types and quantities of waste anticipated to be generated, along with the definition of suitable disposal routes. The construction phase RWMP will also include details as to how material reuse and recycling options will be maximised. The construction phase RWMP will be maintained as a live document, to be updated and monitored by the Contractor, in order to demonstrate compliance with the Waste Duty of Care and other relevant regulations.

The RWMP will require that the Contractor segregates waste streams on-site, prior to them being taken to a waste facility for recycling or disposal. All waste removal from the Site will be undertaken by fully licensed waste carriers and taken to permitted waste facilities.

Prior to construction, the Contractor must record, in the contractor RWMP, all actions to be implemented to reduce waste or material use on the Designated Development, and the resulting benefits.

In general, the following measures shall be considered during the design and construction phases of the Designated Development, where technically, economically and environmentally practicable:

- designing the Designated Development in a manner that facilitates the reuse of acceptable material arisings, for example those associated with earthworks and other excavations;
- achieving an earthworks balance (cut and fill material) within the design of the Designated Development, where possible, to minimise the need to import and export material;

- the inclusion of land within the Designated Development boundary for the temporary on-site storage of soils, excavated materials and other materials;
- the appropriate sizing of construction compounds to enable the segregation and storage of waste, and to facilitate off-site recovery;
- the retention of existing infrastructure within the Designated Development design where feasible, to minimise the need for the demolition of components and infrastructure and the associated generation of waste material;
- the reuse of excavated materials and the recycling of demolition and construction materials within the Designated Development, where practicable, to minimise the need to import and export material;
- the optimisation of designs through the incorporation of precast concrete elements to reduce on-site waste arisings;
- importing alternative (recycled and secondary) aggregate materials during construction, where practicable, and establishing procedures to ensure it is uncontaminated; and
- establishing Key Performance Indicators (KPIs) for monitoring and reporting data on waste arising and diversion from landfill.

Waste Types and Actions

At this stage it is not possible to confirm the anticipated type and estimated volumes of waste to be produced from construction. **Table A.3** provides a summary of the anticipated waste types and how each waste type is expected to be managed to reduce adverse impacts.

Table A.3: Waste Types and Management

Waste Type	Main Management Process
Soil arisings	Reuse on-site where appropriate, remediate where necessary.
Concrete, masonry and aggregates	Crush and reuse, investigate potential for off-site use.
Metals	Recycle via appropriate waste carrier.
Paper and cardboard	Segregate and recycle via appropriate waste carrier.
Sanitary waste	Remove by specialist waste contractor.
Plastics and glass	Recycle via appropriate waste carrier.

A further source of construction waste would relate to packaging waste associated with materials used during construction.

Any excess spoil generated during construction will be managed through the RWMP that would form part of the final CEMP. Spoil which cannot be re-used will be removed from site for re-use, treatment or disposal at a permitted facility. The re-use of excavated materials during construction will be governed by relevant legislation and guidance such as *Regulation 27 of the European Communities (Waste Directive) Regulations 2011*, as amended *and Article 28 of the European Communities (Waste Directive) Regulations 2011, as amended*, as well as any other relevant legislation and guidance.

Management of Excavated Materials

The Contractor will set out within the RWMP, their proposal for the management and re-use of any excavated materials on or off site, where permitted in accordance with the relevant legislation.

Where the Contractor proposes to maximise the re-use of any excavated material in order to minimise the generation of waste, it will set out how it proposes to manage and document this re-use and will be carried out in line with all relevant legislation and guidance.

The Contractor will establish the controls necessary to manage the generation, handling, and storage of waste at the Site.

These controls may rely on the other plans within the CEMP, for example the protection of stockpiles against rainwater ingress and leachate runoff, the bunding of hazardous waste storage areas containing liquids (e.g., oils, paints), and the management of waste collection vehicles both within and when leaving the Site (dust and noise).

Waste Minimisation Actions and Mitigation

The Waste Hierarchy sets out the priority order that should be considered when managing wastes. A basic representation is provided in **Plate A.1** shows the waste hierarchy. The Principal Contractor will use the Waste Hierarchy as a guide to encourage the prevention of waste and to define waste management options.

When considering waste management options for the Designated Development, the Principal Contractor will take account of the site's location, natural environment and available infrastructure. The Principal Contractor will consider the following options when determining the preferred waste management option for each waste stream.

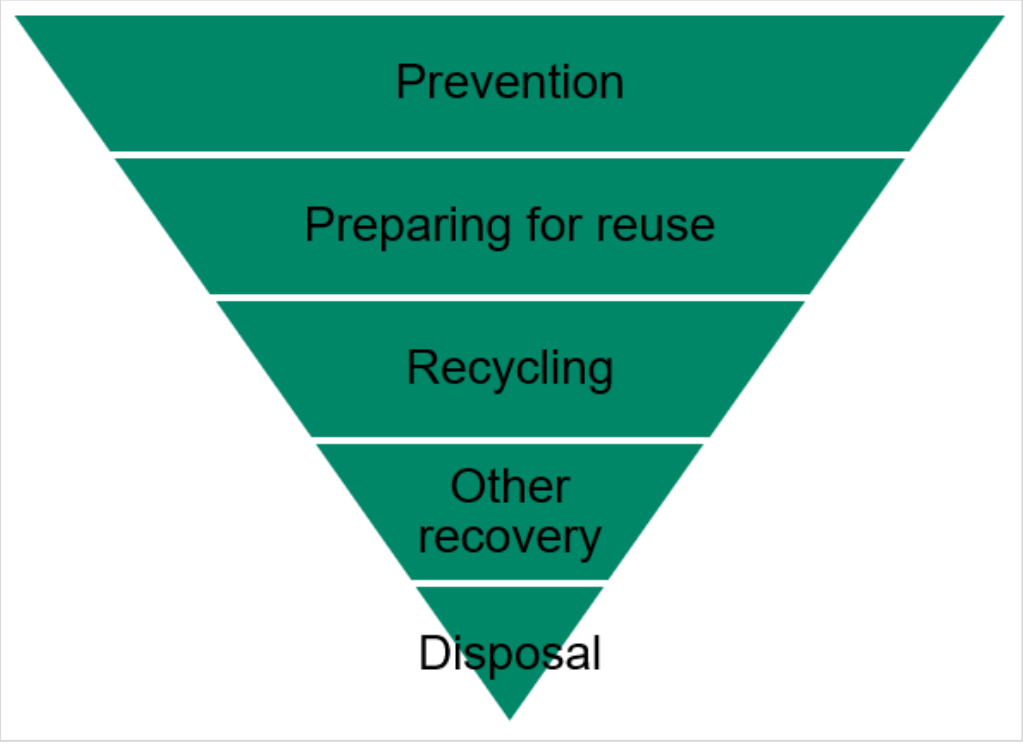

Plate A.1: The Waste Hierarchy[16]

The aim of prevention and preparing for reuse is to reduce the potential impacts from materials and waste, and to achieve high levels of sustainability in the Designated Development as a whole. The Principal Contractor will apply the principles of the Waste Hierarchy and adopt best practice measures (BPM) which go beyond statutory compliance.

[16] European Commission (2022). *Waste Framework Directive.*

This may include BPMs set out in construction industry guidance for example, guidance from the Considerate Constructors Scheme (CCS), Waste & Resources Action Programme (WRAP) and Construction Industry Research and Information Association (CIRIA).

Recycling aims to reuse materials won on-site by recycling them into an alternative form that can be used for construction purposes (for example crushing concrete, brick or other inert wastes to produce aggregate material). By recycling on-site, as far as practicable, the quantity of waste requiring off-site management is reduced and carbon emissions associated with transportation are eliminated. Recycling may also be achieved by utilising materials with a recycled content, such as recycled aggregates produced off-site.

Recovery generally aims to recover energy from waste which cannot otherwise be reused or recycled. This may include waste materials such as hazardous liquids or solids that can be sent to energy from waste facilities. Recovery may also include the beneficial use of materials on land for restoration (backfilling operations).

The least preferred option in the Waste Hierarchy is a final disposal route such as landfill. Some waste streams will inevitably end up with such a solution. When placing waste disposal contracts, the Principal Contractor will consider the implications of long-distance travel in terms of health and safety risk, commercial terms and increased emissions from vehicles.

Waste minimisation actions relating to site generated construction waste will include consideration of:

- agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme;
- implementation of a ‘just-in-time’ material delivery system, as far as reasonably practical, to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste;
- attention to material quantity requirements to avoid over-ordering and generation of waste materials;
- wherever possible, leftover materials (e.g. timber off cuts) and any suitable demolition materials shall be reused on-site;
- segregation of waste at source where practical; and
- re-use and recycling and recovery of materials and waste off-site where re-use on-site is not practical (e.g. through use of an off-site waste segregation or treatment facility and re-sale for direct re-use or re-processing off-site).

Facilitate recycling and appropriate disposal by on site segregation of all waste materials generated during construction into appropriate categories, including:

- Topsoil, subsoil, gravel hard-core
- Concrete, bricks, tile, ceramics, plasterboard
- Asphalt, tar and tar products
- Metals
- Dry Recyclables e.g., cardboard, plastic, timber.
- All waste assessed as 'not suitable for reuse' shall be stored in skips or other suitable receptacles in a designated area of the site, to prevent cross contamination between waste streams, dispersion and leaching.
- Uncontaminated excavated material (top-soil, sub soil, etc.) shall be segregated, stockpiled and reused on site in preference to importation of clean fill, where possible.

- If excavated material cannot be used on site, the potential for its transfer to another site under, for example, Article 27 of the European Communities (Waste Directive) Regulations 2011 should be explored.
- Where possible, the Contractor shall ensure that all waste leaving site will be recycled or recovered.

Additional Actions for Dealing with Waste

The Contractor will regularly review and update where required the assumptions on waste arisings and management and record and implement procedures for assessing, managing and recording waste arising on-site.

In addition to the waste management measures as detailed in the 'Approach to Waste Management' section above, there are actions that will be introduced as part of the construction RWMP which would contribute to the general reduction of waste generation during construction, including:

- appointment of an CECMPC/Environmental Site Officer who will hold overall responsibility for waste management, coordinate all waste and environmental issues on-site, monitor waste data and identify training needs. Sites with such personnel tend to perform better in managing waste;
- accurate record keeping of waste types, volumes and disposal routes and destinations;
- staff awareness training to ensure all personnel know the correct procedures on-site for waste segregation, disposal and actively promote recycling on-site through clear signage;
- setting of targets / Key Performance Indicators (KPIs) for waste recycling and reduction; and
- establishing a good management structure, which will allow prompt decision making relating to improvements in waste management and recycling initiatives.

A.6 Waste Identification, Classification, Quantification and Handling

Waste arising for the project shall be segregated, identified and classified by the contractor in accordance with applicable waste regulations and guidance.

Wastes shall not be removed from the site until properly classified, assigned a correct LoW code and all appropriate tracking and disposal documentation is in place.

For each waste stream identified and classified, and for each waste stream that may arise during the course of the works, the following shall be identified and documented by the Contractor in their RWMP:

- an appropriate waste classification and correct LoW code; the classification of materials as non-hazardous and / or hazardous waste will be determined in accordance with EPA (2018) Guidance "Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-hazardous" using the www.hazwasteonline.com web-based waste assessment system (as recognized by the Environmental Protection Agency) and using Waste Acceptance Criteria in accordance with the European Communities (EC) Council Decision 2003/33/EC, which establishes criteria for the acceptance of waste at landfills;
- a suitable Waste Collection Contractor in possession of a valid Waste Collection Permit for the collection of waste within the Offaly County Council area;
- appropriate waste recovery, recycling or disposal facilities, including any required transfer stations whereupon the said facilities shall be in possession of a valid Waste Facility Certificate of Registration, permit or Waste License, as appropriate.

Where any material is being recovered onsite or offsite for reuse, the Contractor shall provide confirmation of any application to the EPA under Article 27 or Article 28 to classify material as a by-product or as end-of-life waste

respectively; and final reconciled waste quantities generated, including details of waste disposal, reuse and recovery quantities.

The Applicant will require that the contractor segregates waste streams on-site, prior to them being taken to a waste facility for recycling or disposal.

A.7 Segregation and Storage

The following minimum segregation and storage strategy requirements shall be adhered to:

- Waste streams shall be individually segregated; and all segregation, storage & stockpiling locations will be clearly delineated on site drawings. At the waste storage areas, the Contractor must segregate waste into the following types as a minimum: inert; wood; metals; packaging; general waste; hazardous solid wastes; hazardous liquid wastes. All containers within the storage area will be clearly labelled so that appropriate remedial action can be taken in the event of a spillage.
- Waste storage, fuel storage, stockpiling and movement are to be undertaken with a view to protecting any essential services (electricity, gas, water) and with a view to protecting environmentally sensitive areas (e.g. watercourses, ditches, treelines, hedgerows) and existing localised groundwater quality boreholes (if applicable).
- Contaminated or potentially contaminated soil shall be stockpiled only on hard-standing or high-grade polythene sheeting to prevent cross-contamination of the soil below and should be located away from watercourses, drainage systems, ditches etc.
- Roles and responsibilities of those managing the segregation and storage areas shall be identified.
- The waste storage area should contain suitably sized containers for each waste stream. The number and sizing of containers shall be agreed with the waste Contractors in advance of the commencement of the project.
- All segregation and waste storage areas shall be inspected regularly by the appointed Resource Manager;
- Waste shall be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to:
  - prevent environmental pollution (bunded and/or covered storage, minimise noise generation and implement dust / odour / pest control measures, as may be required);
  - maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent reuse, recycling and recovery; and
  - prevent hazards to site workers and the general public during construction phase (largely noise, vibration, dust and pests).
- Construction materials that are stored on-site must be in designated areas that are flat, accessible and secure in order to avoid damage or loss. Materials must be stored in appropriate conditions to avoid damage through, for example, water ingress or vermin. Materials must be retained in their original packaging to protect them from damage.
- The Contractor must ensure that the construction site compounds incorporate designated waste storage areas for skips or similar suitable waste receptacles. The Contractor must ensure that these areas are surfaced with an impermeable barrier, such as hardstanding/tarmac or using impermeable membranes; should be suitably contained, bunded or defined as required; and the location of any existing drainage will be noted.

- The Contractor shall ensure containers are clearly labelled using a colour coding system so that users know what wastes can be placed in each container. Waste containers must be appropriately colour coded using generic colour codes, an example is shown in **Plate A.2**.
- Lockable storage shall be provided for all hazardous waste.
- All waste containers must be sited at least 50m away from watercourses, ditches, drains and other areas of environmental sensitivity.
- Liquid wastes must be stored in enclosed/lidded containers and stored within a suitable bunded area, or otherwise provided with secondary containment.
- Separate containers must be provided for each type of hazardous waste.
- Each type of hazardous waste must not be mixed with any other hazardous or non-hazardous waste.

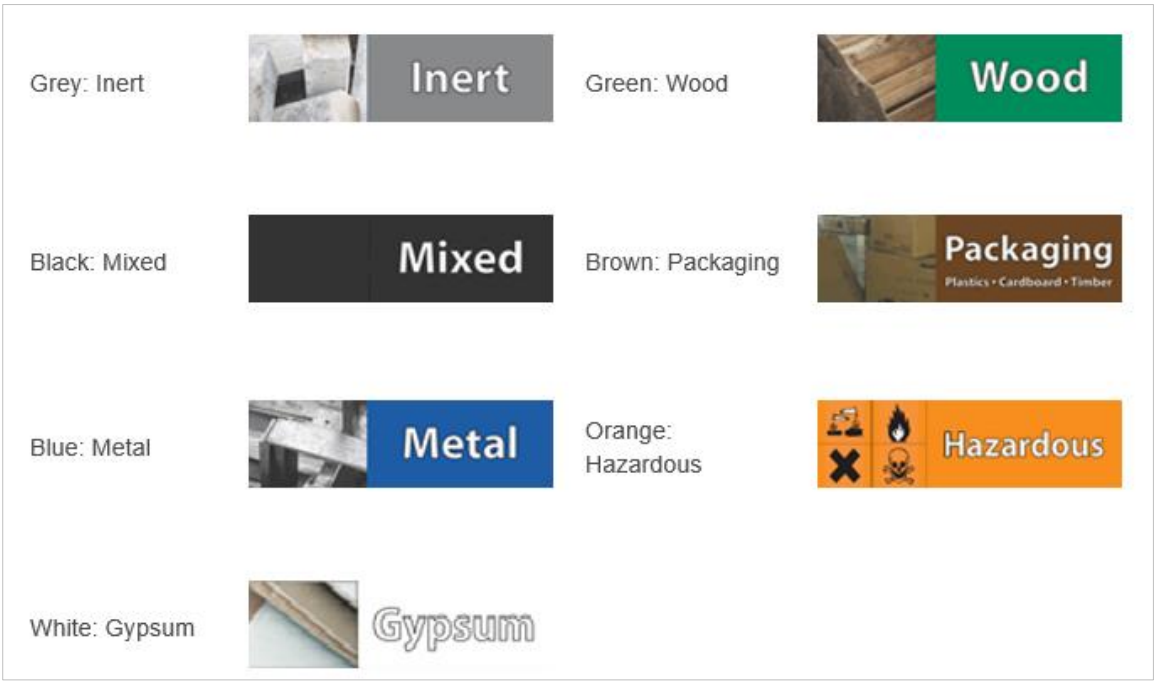

Plate A.2: Example of Waste Container Colour Codes

A.8 Documentation of Waste

The Contractor will develop a Waste Documentation System within the overall documentation system for the works in accordance with the *Best Practice Guidelines for The Preparation of Resource Management Plans for Construction & Demolition Projects* (EPA, 2021). The documentation to be maintained in relation to wastes includes the following (where applicable):

- the names of the agent(s) and the transporter(s) of the wastes and hold a copy of associated waste collection permits;
- the name(s) of the person(s) responsible for the ultimate recovery or disposal of the wastes, and hold a copy of associated waste facility permits and licences;
- the ultimate destination(s) of the wastes;
- written confirmation of the acceptance and recovery or disposal of any hazardous waste consignments;
- the tonnages and EWC (European Waste Catalogue) Code for the waste materials;

- details of any rejected consignments;
- the Waste Transfer Forms for hazardous wastes transferred from the Site; and
- the Certificates of Recycling, Re-use or Disposal for all wastes transferred from the Site.

A.9 Audit Monitoring and Review

To be most effective, it is important that the construction phase RWMP is a live document which, like the Final / Contractor's CEMP, is regularly reviewed and updated. Waste will be monitored routinely through regular site inspections (weekly at a minimum). Monitoring of waste and implementation of waste management plans will assist in achieving waste minimisation obligations, as detailed within the construction phase RWMP as well as helping to identify opportunities for improvements and potential cost reductions.

The following is not an exhaustive list and represents typical activities undertaken at each stage.

Waste monitoring, including:

- updating the construction phase RWMP at regular intervals to illustrate changes to the Site, such as waste types, volumes, sub-contractors and changes in personnel and to drive continual improvement in promoting management of wastes as high up the waste hierarchy as possible;
- monitoring compliance with relevant legislation and regulations and checking that the construction phase RWMP is being implemented appropriately, monitored through regular (weekly at a minimum) site inspections;
- completing monthly logs detailing the volume of material brought on-site and the volume of waste generated, including the type and route of disposal/ recovery; and
- collating monthly data detailing all waste movements into a quarterly report to be submitted to the Environmental Site Officer for use during the annual waste audit and waste review.

Waste auditing (undertaken annually as a minimum), including collating/ reviewing:

- operations / staffing levels, composition, waste monitoring reports and quantity of waste generated;
- current waste management procedures;
- existing activities including, for example, key roles and responsibilities; and
- an estimation of waste volumes including a comparison from previous and projected years (where appropriate).

The results of the waste audit will be used to inform the waste review.

A waste review would be undertaken following the completion of a waste audit and the completion of regular waste monitoring. The review would provide an opportunity to consider the suitability of the management strategies that are in place in relation to relevant regulations and best practice procedures, and identify areas for improvement, lessons to be learnt and improved cost saving and sustainability; and the review would consider monthly, quarterly and annual reports, compare waste related data that has been collected and include guidance and proposals to drive continual improvement.

The monitoring procedures detailed above will be undertaken as a minimum and defined within the construction phase RWMP.

A.10 Conclusion and Summary

This Framework RWMP presents the approach that will be implemented during the construction phase.

This Plan illustrates and seeks to guide the Contractor and Applicant to:

- recognise that the construction phase RWMP will underpin the approach to waste management for the Designated Development construction phase;
- define indicative roles and responsibilities within the organisations to ensure those responsible for waste management are aware of their remit;
- demonstrate that key waste legislation will be met, and local and regional drivers will be fulfilled, including reviewing procedures should waste legislation and guidance be amended or updated in future;
- demonstrate that the construction phase will minimise waste as far as reasonably practicable in accordance with best practice via the implementation of a construction phase RWMP;
- develop a proactive and coordinated approach to sustainable waste management, reuse and recycling that will be encouraged and implemented at the Site through a number of recycling initiatives to divert as much recyclable waste as possible from landfill; and
- record and audit waste movement during construction.

Where individual waste types have not been identified within this Framework RWMP, these will be assessed in the construction phase RWMP.

Appendix C Framework Construction Traffic Management Plan (CTMP)

Temporary Emergency Generation Power Plant West Offaly Power Station Shannonbridge

Appendix C
Framework Construction Traffic Management Plan (CTMP)

February 2023

Delivering a better world

Prepared for:

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1. Introduction

1.1 Background

1.1.1 AECOM have been commissioned by the Electricity Supply Board (ESB) to provide an Outline Construction Traffic Management Plan (Outline CTMP) for a development at West Offaly Power (WOP) Station to install eight 35 MWe (nominal) Temporary Emergency Generation units (LM2500Xpress units) (herein referred to as the "Designated Development"), within the existing WOP Station, Shannonbridge, Co. Offaly ('the site').

1.1.2 The WOP Station site comprises industrial and brownfield lands, reflecting its long-established use for power generation activity, including fuel management and electricity transmission infrastructure.

1.1.3 The WOP Station is owned by ESB and is separated into what were the two operational areas;

- the power station, associated buildings and infrastructure which were operated by ESB; and
- the fuel handling area which was operated by Bord na Móna.

1.1.4 The WOP Station site accommodates structures and activities typical of a power station including fuel storage, handling areas and associated plant, the power station - including exhaust gas treatment; filter house, stack and a range of ancillary services including water treatment and management systems, offices and administration areas.

1.1.5 The WOP Station is an EPA licensed site, managed in accordance with its EPA Industrial Emissions (IE) Licence.

1.1.6 The Designated Development relates to the construction and operation of a temporary emergency generating (TEG) plant, comprising the installation of eight gas turbine generators. The TEG plant will be installed for up to five years from 2023. Dismantling / demolition of some existing equipment and structures will be required to facilitate these works.

1.1.7 The TEG Plant is designed to start quickly and will support the electricity supply system at peak demand and at times when other electricity generation sources are not sufficient to meet demand. The TEG Plant will operate up to 500 hours per annum on distillate oil (diesel oil).

1.1.8 The TEG units will be connected to on-site 110 kV transformers by means of cables running on elevated pipe / cable racks. The 110 kV transformers will connect to the national grid by means of overground cables through the existing on-site 110 kV substation on the WOP Station site.

Site Location

1.1.9 The Site of the Designated Development is located within the boundary of the existing WOP Station, Shannonbridge, Co. Offaly. The WOP Station site lies on the eastern banks of the River Shannon, downstream of its confluence with the River Suck, as shown in **Figure 1**.

1.1.10 The WOP Station site is located 850m south of the village of Shannonbridge and approximately 17km south-west of Athlone town. The WOP Station site has its main access from the Regional Road R357 (Cloghan Rd).

1.1.11 The WOP Station site is generally surrounded by agricultural land, with an Industrial Machinery business, Shannonbridge village to the north, St. Kieran's Park residential estate to the north-east. A Battery Energy Storage facility is located to the east, a high voltage electrical substation to the south, the Dalton Centre to the south-east, and single one - off isolated farmhouses in the surrounding countryside.

1.1.12 Further south-west and north-east are two large, harvested bogs and to the south is a disused railway line that connects the two bogs with the WOP Station site.

Figure 1. Site Location[1]

1.2 Designated Development

1.2.1 The Designated Development comprises eight 35 MWe nominal capacity turbine generators (LM2500Xpress units) and all associated ancillary connection infrastructure, site works and services. The Designated Development will consist of the following components:

- 8 No. LM2500Xpress gas turbine generators, using distillate oil only
- 8 No. Steel Exhaust Stacks, each 3.3m diameter, 30m tall
- 2 No. 110kV Generator Step-up Transformers (GSUT)
- 2 No. Hypact compact switchgear units and associated surge arrestors
- 2 No. GSUT protection relay panels
- 2 No. BOP Power Control Modules (BOP-PCM), each including:
  - 11.5 kV Medium Voltage Switchgear / Fuse Disconnector
  - Low Voltage Auxiliary transformer
  - 400 V Low Voltage Switchgear
  - 125 V DC System
  - Fire detection and extinguishers.

[1] Source: OpenStreetMap

- 1 No. Plant Common Controller Module
- 2 No. Control Module LVRT
- 2 No. instrument compressors
- 2 No. CCW fin fan coolers
- Electrical Bulk Material (cable, cable trays, earthing and lightning protection material, conduit, lighting and small power)
- 2 No. Fuel Oil Unloading Modules
- Fuel Oil Forwarding and filtration system (with fuel oil centrifuge, forwarding pump and fuel filters)
- Fuel oil heating system
- Fire protection system including fire water pumps
- 3 No. Circular oil storage tanks, concrete bunded, each with capacity of 1,690 tonne (2,060m3)
- 10 No. Double-skin distillate oil storage tanks, each with capacity of 70 tonnes
- Water storage tank
- Plant wastewater system with oily water separator
- Administration building
- Acoustic screens.

1.2.2 The proposed turbine generators, and the majority of other plant equipment, is modularised and will, for the most part, be delivered to the Site pre-assembled.

1.2.3 Due to the modularised nature of the Designated Development, excluding the site-specific preliminary demolition and civil works, the generation units can be installed and commissioned in approximately eight months.

1.2.4 Demolition and removal of existing structures (including removal of the overhead rising conveyor, disconnecting the existing foul sewer network (above and below ground) and removal of the septic tank (underground) and demolition of buildings), will be required to facilitate the installation of the Designated Development.

1.2.5 The TEG plant will be installed for up to five years from 2023 and will operate for up to 500 hours per year on distillate oil only.

1.2.6 Each emergency generating unit will be connected to the existing on-site 110kV transformer by means of cables running on elevated pipe / cable racks. The bunded 110 kV transformer is connected to the national grid through the existing on-site 110 kV Substation.

1.2.7 No changes to the electricity transmission supply infrastructure will be required to facilitate the Designated Development. Each generating unit will include one 30m high exhaust stack *i.e.,* eight stacks in total are proposed.

1.2.8 The Designated Development layout is shown in Error! Reference source not found. in **Annex B**.

2. Framework Construction Traffic Management Plan (CTMP)

2.1 General

2.1.1 This Framework CTMP deals directly with the impacts of the construction phase of the Designated Development. As with any construction project, the Contractor will be required to prepare a comprehensive CTMP for the construction phase. The purpose of such a plan is to outline measures to manage the expected construction traffic activity during the construction period.

2.1.2 This Framework CTMP will provide an overview of the likely routing of construction vehicles, based on a most likely scenario of construction. It should be noted that the impacts of the construction will be temporary, and it will be the Contractor's responsibility to prepare a CTMP in advance of any works.

2.2 Policy Guidance

2.2.1 Guidance for the temporary control of traffic at road works to facilitate the safety of the public during the works is provided below:

- Traffic Signs Manual Chapter 8 Temporary Traffic Measures and Sign for Roadworks (2019);
- Traffic Management Guidelines, Department of Transport (2003); and
- Requirements of Offaly County Council and other stakeholders.

2.3 Construction Programme and Phasing

2.3.1 The construction programme and any phasing proposals will be agreed in advance of the construction stage commencing.

Table 1. Duration of Phasing Stages

Phase	Timetable
Pre-construction works	1.5 months
Demolition works	1.5 months
Plant construction works	5 months
Total	**8 months**

2.3.2 The dismantling / demolition phase for the Designated Development will last approximately three months. The construction phase will last approximately five months.

2.4 Construction Route

2.4.1 The potential routings to disposal and quarries have been identified on ESB drawings in *West Offaly Power Plant Demolition & Grid Services* planning application (2022). The routes were selected to optimise the use of Regional, National and Motorway routes and avoid or minimise the use of local roads, wherever possible. Some locations have alternative routes, but this takes into account the aforesaid criteria.

2.4.2 There is the potential for a total of 13 routes to the Site which have been identified to a number of typical disposal and quarry sites that could be feasibly utilised during the works. In the near vicinity to the Site all construction traffic will access the site from the R357 and travel along the access road to the northern access point, as shown in **Figure 3**. From a desktop review of the route to the R357 to the west of the River Shannon and the east of the railway bridge no potential pinch points or restrictions have been identified.

2.4.3 The traffic generated by the development for the Demolition (Phase 1) and Construction (Phase 2) can be evaluated against the wider routings provided in **Annex A**.

Figure 2. Proposed Construction Route[2]

2.5 Parking

2.5.1 It is recommended that as part of the Construction Environmental management Plan (CEMP) the Contactor designates an area within the confines of the Site dedicated to operative car parking.

2.5.2 Parking will be provided using existing parking facilities and open areas of the WOP Station site for construction personnel and construction vehicles. Parking will be provided using existing parking facilities and open areas of the WOP Station site for construction personnel and construction vehicles. The construction compounds and laydown areas will be located entirely within the WOP Station site. Refer to **Figure 5 Parking, Office and Laydown Areas** (submitted with this application).

2.5.3 Where works are to take place at off peak times, sufficient on-site parking will be available for staff and visitors. Levels of employment will vary throughout the construction phase. Staff are expected to travel to the Site via a combination of car sharing and private passenger vehicles.

2.6 Mitigation Measures

2.6.1 A full CTMP will be developed by the Contractor prior to the commencement of work on-site.

2.6.2 No works shall commence until such time that the full CTMP has been prepared. Details of anticipated vehicle volumes will be within this plan, but indicative estimates are provided in Section 2.9.

2.6.3 The Contractor will make aware the proposed works which will be undertaken in an area with a number of existing residential premises. Therefore, the Contractor will be required to always accommodate and make provision for access and egress to these premises paying particular attention to the provision of pedestrian / disabled / cyclist safe access and egress. The CTMP should include alternative routes for

[2] Source: Google Map (2022).

pedestrians and vehicles in the event that public roads or right of ways are closed during works, although this is not expected to be required. The CTMP will include measures to limit the amount of queuing required by construction vehicles outside the site boundaries.

2.6.4 Construction debris particularly site clearance, spoil removal and dirty water run off can have a significant impact on footpaths and roads adjoining a construction site, if not adequately dealt with and these matters will require to be fully addressed in the Contractors CTMP.

Site Management

2.6.5 The Site activities will be undertaken with due consideration of the surrounding environment and the close proximity of sensitive receptors such as residents and pedestrians. Dust management during the construction phase will be the most important aspect in terms of minimising the impacts of the project on the surrounding air quality. The following measures will be implemented to ensure impacts are minimised:

- complaint registers will be kept detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out;
- equipment and vehicles used on-site will be in good condition such that emissions from diesel engines etc. are not excessive;
- pre-start checks will be carried out on equipment to ensure they are operating efficiently and that emission controls installed as part of the equipment are functional;
- monitoring and control of demolition/construction traffic during construction works; and
- the use of prefabricated elements to minimise on site fabrication and assembly thereby reducing the numbers of site operatives required.

2.6.6 Dust deposition levels will be monitored on a regular basis in order to assess the impact that site activities may have on the local ambient air quality. The following procedures will be implemented:

- The dust deposition rate will be measured by positioning Bergerhoff Dust Deposit Gauges at strategic locations near the boundaries of the site for a period of 30 (+/- 2) days if required. Monitoring should be conducted as required during periods when the highest levels of dust are expected to be generated i.e., during site preparation works and soil stripping activities.
- The exact locations will be determined after consideration of the requirements of Method VDI 2119 with respect to the location of the samplers relative to obstructions, height above ground and sample collection and analysis procedures.
- After each 30 (+/- 2 days) exposure period, the gauges will be removed from the sampling location, sealed and the dust deposits in each gauge will be determined gravimetrically by an accredited laboratory and expressed as a dust deposition rate in $mg/m^2/day$ in accordance with the relevant standards.
- Technical monitoring reports detailing all measurement results, methodologies and assessment of results shall be subsequently prepared and maintained by the Site Manager.

2.6.7 A limit value of 350 $mg/m^2/day$ will be used in comparison with recorded values.

Dust Control Measures

2.6.8 The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design, planning and effective control strategies. The siting of construction activities and the limiting of stockpiling will take note of the location of sensitive receptors and prevailing wind directions to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs.

- During working hours, technical staff will be available to monitor dust levels as appropriate; and
- At all times, the dust management procedures put in place will be strictly monitored and assessed.

2.6.9 The dust minimisation measures should be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust generation. In the event of dust nuisance occurring outside the site boundary, site activities should be reviewed, and procedures implemented to rectify the problem. Specific dust control measures to be employed are presented below.

Site Routes

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

- a speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles or delivery vehicles within the vicinity of the Site;
- bowsers will be available during periods of dry weather throughout the construction period. Research shown found that the effect of surface watering is to reduce dust emissions by 50%. The bowser will operate during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use; and
- any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced areas shall be restricted to essential Site traffic only.

Excavation

2.6.11 Excavation works during periods of high winds and dry weather conditions can be a significant source of dust.

- during dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust; and
- during periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.

2.6.12 The movement of trucks containing materials with a potential for dust generation to an off-site location will be enclosed or covered.

Stockpiling

2.6.13 The location and moisture content of stockpiles are important factors which determine their potential for dust emissions. The following measures will be put in place:

- overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible;
- regular watering will take place during dry/windy periods to ensure the moisture content is high enough to increase the stability of the soil and suppress dust; and
- should short-term stockpiles be required these will be located at least 50m away from any watercourse. Slopes of these stockpiles will be made stable and regularly checked by the contractor or appointed staff member. Stockpiles shall be stored on impermeable surfaces and covered using tarpaulin.

Site Traffic on Public Roads

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

- vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered at all times to restrict the escape of dust;
- any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only;

- a power washing facility or wheel cleaning facility will be installed near to the Site compound for use by vehicles exiting the Site when appropriate, and
- road sweepers will be employed to clean the Site access route as required.

2.7 Hours of Operation

2.7.1 To address the urgent need to install the temporary emergency generation (TEG) power plant, pre-construction works, dismantling / demolition activities and construction / equipment installation works described below will take place over a minimum of two eight-hour shifts per day and on occasions, three eight hour shifts per day, seven days a week, acting in full compliance with Irish labour and Health & Safety laws.

2.7.2 Where three eight-hour shifts per day are necessary, HGV and non-HGV traffic movements during night-time hours will kept to a minimum.

2.8 Traffic Management Measures

2.8.1 Below is a list of the proposed traffic management measures to be adopted during the construction works. Please note that this is not an exhaustive list, and that it will be the Contractor's responsibility to prepare a detailed CTMP.

- Warning signs / Advanced warning signs will be installed at appropriate locations in advance of the construction access locations.
- Consideration will be given to reduce the volume of construction traffic accessing the site through reduce – reuse and recycle methods. Delivery control will also be adopted to reduce potential heavy vehicle convoys.
- Temporary signage designating permissible HGV routes.
- Material deliveries and collections from site will be planned, scheduled and staggered to avoid unnecessary build-up of demolition / construction works related traffic.
- HGV trips are anticipated to arrive and depart the site at a uniform rate throughout the day to avoid pressure on the morning and evening peak hour periods.
- Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on trucks carrying dust producing material.
- Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds within the site.
- Parking of site vehicles will be managed and will not be permitted on the public road, unless proposed within a designated area that is subject to traffic management measures.
- A road sweeper will be employed to clean the public roads adjacent to the Site of any residual debris that may be deposited on the public roads leading away from the construction works.
- On site wheel washing will be undertaken for construction trucks and vehicles to remove any debris prior to leaving the Site, to remove any potential debris on the local roads.
- All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. Spill kits will be available on site. All scheduled maintenance carried out off-site will not be carried out on the public highway.
- Safe and secure pedestrian facilities are to be provided where construction works obscure any existing pedestrian footways. Alternative pedestrian facilities will be provided in these instances, supported by physical barriers to segregate traffic and pedestrian movements, and to be identified by appropriate signage. Pedestrian facilities will cater for vulnerable users including mobility impaired persons.
- Using Garda escorts for abnormal loads where required.

2.8.2 The mitigation measures will therefore ensure that the presence of construction traffic will not lead to any significant environmental degradation or safety concerns in the vicinity of the proposed works.

Furthermore, it is in the interests of the construction programme that deliveries, particularly concrete deliveries are not unduly hampered by traffic congestion, and as a result continuous review of haulage routes, delivery timings and access arrangements will be undertaken as construction progresses to ensure smooth operation.

2.9 Predicted Construction Traffic

2.9.1 The anticipated level of construction phase traffic has been based on an assumed and preliminary outline construction methodology. The construction traffic is anticipated to arrive at set designated intervals throughout the day.

2.9.2 The peak work force is predicted to be 100 personnel per day, with construction lasting eight months.

2.9.3 It has been conservatively assumed that a maximum of 100 construction staff will travel to site during all phases of the construction phase, with 95% (95 construction staff) travelling via passenger vehicle.

2.9.4 For the purposes of this assessment an average car occupancy of 1.2 passengers per vehicle has been assumed. As such, it is estimated that a maximum of 79 vehicles will arrive at the site during the day. There are no public transport services within close proximity to the Site, but it is anticipated that up to 5% (five construction staff) would be staying in local accommodation (Bed and Breakfast, Hotel etc) and transported to site via ESB vehicles / minibus to travel to site.

2.9.5 Pre-construction works require the highest number of HGVs, with an estimated 38 two-way HGV movements per day that will arrive and depart the Site during the pre-construction works.

2.9.6 For the demolition works it is estimated that up to 25 two-way HGV movements per day will arrive and depart the site during the demolition phases. After the demolition phase is complete, a construction phase will begin. At the peak of the construction works, approximately 30 two-way HGV movements daily will be required.

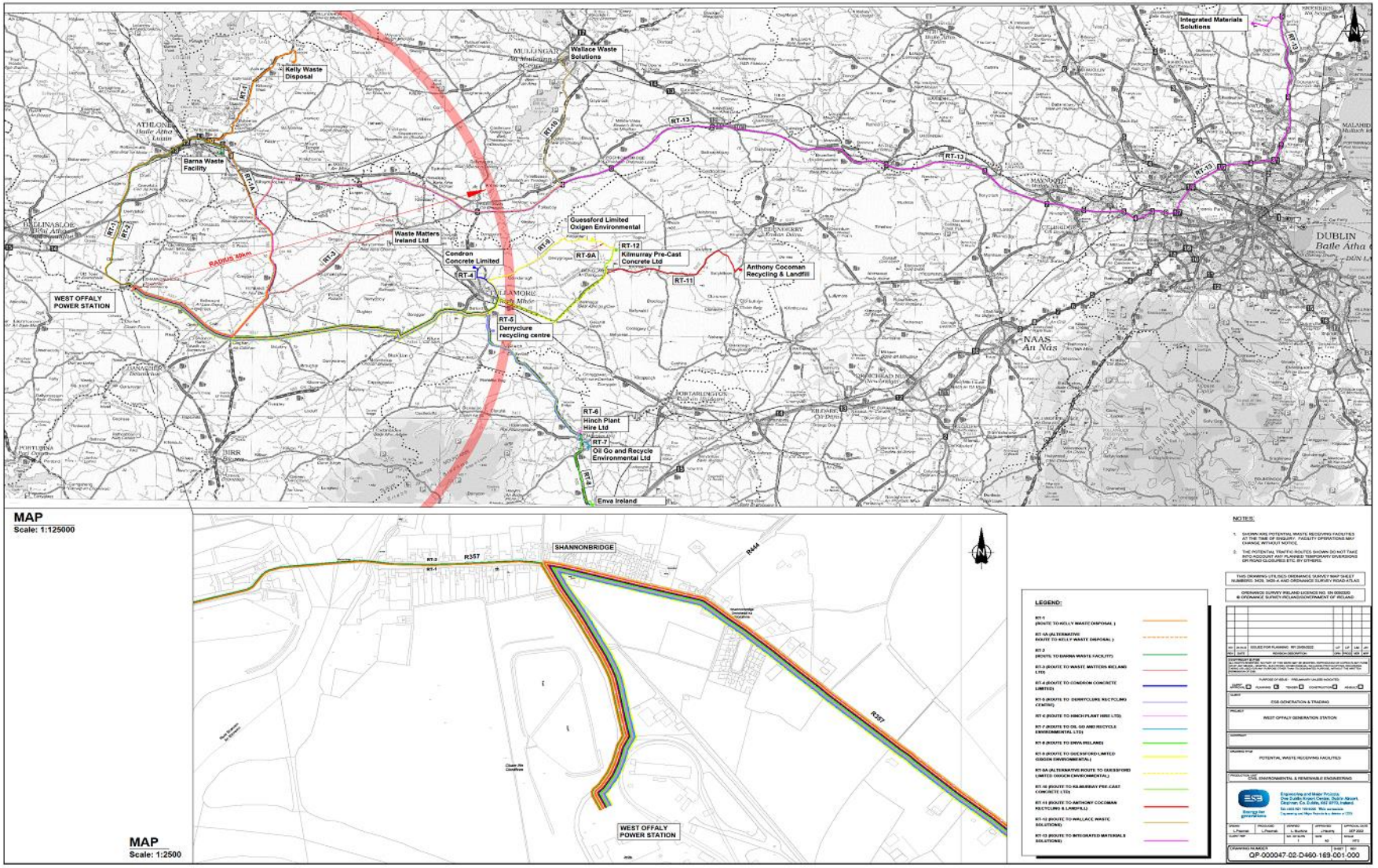
2.9.7 The worst-case scenario is therefore during the pre-construction phase and assumes that a maximum of 38 HGV movements will be required to remove material and to deliver loads to and from the site daily. It has conservatively been assumed that 50% (10 HGVs) loads will arrive and depart during the morning and evening peak hours.

2.9.8 A summary of estimates for construction traffic trip generation during demolition and construction phases is included in **Table 2.**

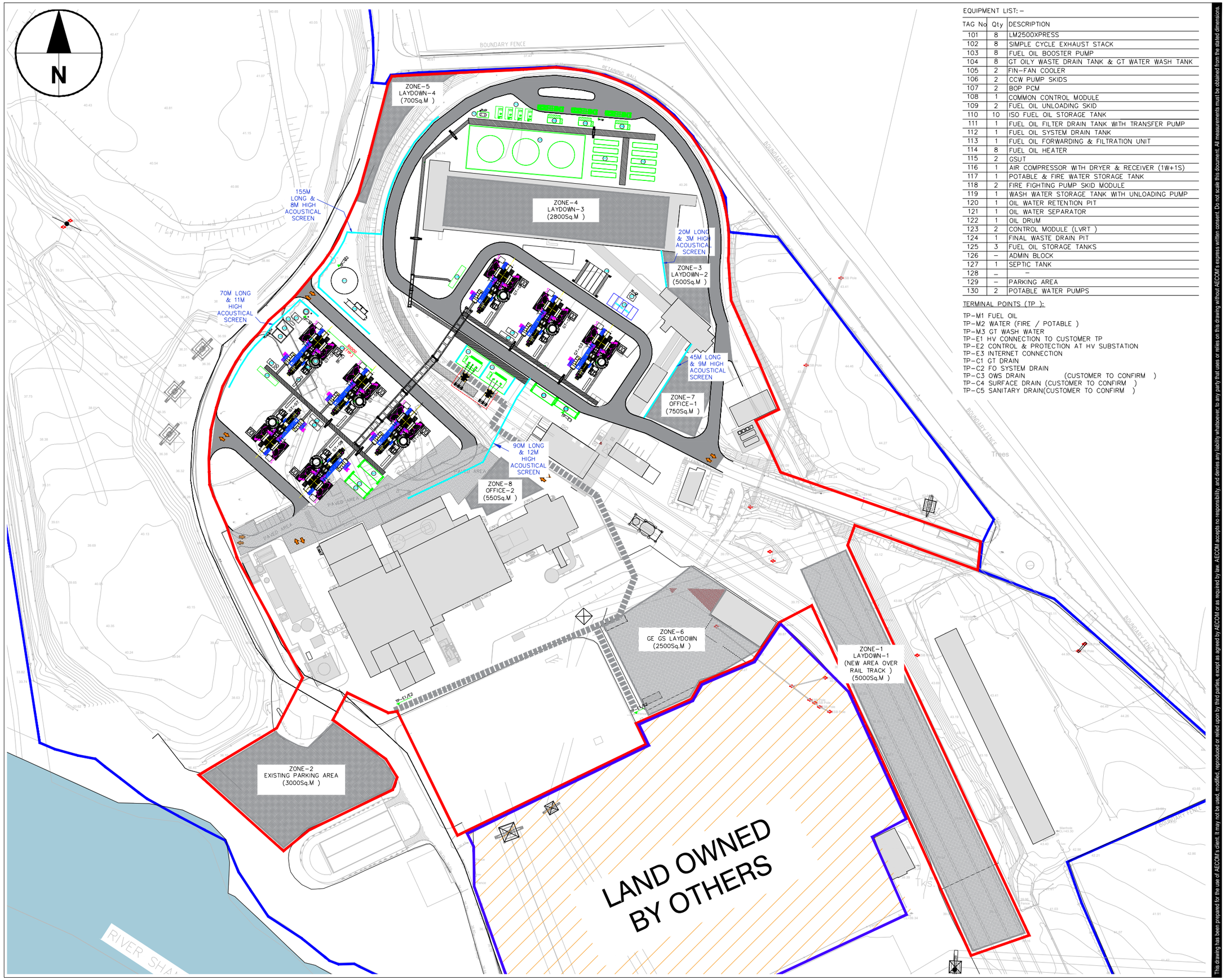
Table 2. Traffic Generation Estimated at Site

Phase	Personnel / Day	Vehicles with an occupancy of 1.2 passengers / day	ESB Minibus occupancy of 5 passengers / day	Total Staff Arrivals / Day (LGV)	HGV's Arrivals / Day	Total arrival trips / Day
Pre-construction works	100	79	1	80	19	**99**
Demolition works	100	79	1	80	13	**93**
Plant construction	100	79	1	80	15	**95**

Annex A Proposed Construction Routes



Annex B Figure 2 - Site Layout



EQUIPMENT LIST: –

TAG No	Qty	DESCRIPTION
101	8	LM2500XPRESS
102	8	SIMPLE CYCLE EXHAUST STACK
103	8	FUEL OIL BOOSTER PUMP
104	8	GT OILY WASTE DRAIN TANK & GT WATER WASH TANK
105	2	FIN–FAN COOLER
106	2	CCW PUMP SKIDS
107	2	BOP PCM
108	1	COMMON CONTROL MODULE
109	2	FUEL OIL UNLOADING SKID
110	10	ISO FUEL OIL STORAGE TANK
111	1	FUEL OIL FILTER DRAIN TANK WITH TRANSFER PUMP
112	1	FUEL OIL SYSTEM DRAIN TANK
113	1	FUEL OIL FORWARDING & FILTRATION UNIT
114	8	FUEL OIL HEATER
115	2	GSUT
116	1	AIR COMPRESSOR WITH DRYER & RECEIVER (1W+1S)
117	1	POTABLE & FIRE WATER STORAGE TANK
118	2	FIRE FIGHTING PUMP SKID MODULE
119	1	WASH WATER STORAGE TANK WITH UNLOADING PUMP
120	1	OIL WATER RETENTION PIT
121	1	OIL WATER SEPARATOR
122	1	OIL DRUM
123	2	CONTROL MODULE (LVRT)
124	1	FINAL WASTE DRAIN PIT
125	3	FUEL OIL STORAGE TANKS
126	–	ADMIN BLOCK
127	1	SEPTIC TANK
128	_	–
129	–	PARKING AREA
130	2	POTABLE WATER PUMPS

TERMINAL POINTS (TP):

TP–M1 FUEL OIL
TP–M2 WATER (FIRE / POTABLE)
TP–M3 GT WASH WATER
TP–E1 HV CONNECTION TO CUSTOMER TP
TP–E2 CONTROL & PROTECTION AT HV SUBSTATION
TP–E3 INTERNET CONNECTION
TP–C1 GT DRAIN
TP–C2 FO SYSTEM DRAIN
TP–C3 OWS DRAIN (CUSTOMER TO CONFIRM)
TP–C4 SURFACE DRAIN (CUSTOMER TO CONFIRM)
TP–C5 SANITARY DRAIN(CUSTOMER TO CONFIRM)

AECOM

PROJECT

Temporary Emergency Generation Power Plant -

West Offaly Power Station Shannonbridge

CLIENT

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LEGEND

- OWNERSHIP BOUNDARY
- DEVELOPMENT BOUNDARY
- LAND OWNED BY OTHERS

ISSUE/REVISION

I/R	DATE	DESCRIPTION
P2	03/02/2023	PLANNING
P1	20/01/2023	PLANNING
P0	30/11/2022	PRELIMINARY

STATUS

PLANNING

PROJECT NUMBER 60691388

SCALE 1:1750 @ A3

SHEET TITLE

ESB West Offaly

Propose Site Layout Plan

SHEET NUMBER

REV P2

Designer : Checked : Approved :
File Location:c:\USERS\KELMO\ONEDRIVE - AECOM\PROJECTS\WEST OFFALY ESB - EMERGENCY GENERATION\DISN - AECOM\CADD - SITE LAYOUT.DWG
Last Plotted: 2023-02-03
Last saved by: KELMO(2023-02-03)

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