Resource & Waste Management Plan

North South 400 kV Interconnector Development

Client – ESB Networks

Document No.: PE687-F0422-PS422-007-000

Date: July 2025

Engineering and Major Projects, One Dublin Airport Central, Dublin Airport, Cloghran, Co. Dublin,

K67 XF72, Ireland.

Phone +353 (0)1 703 8000

www.esb.ie

File Reference:	PE687-F0422	
Client / Recipient:	ESB Networks	
Project Title:	North South 400 kV Interconnector Development	
Report Title:	Resource & Waste Management Plan	
Report No.:	PE687-F0422-PS422-007-000	
Revision No.:	001	
Prepared by:	Colm Driver Joshua Montague	Date: 26th July 2023 July 2025
Title:	Environmental Specialist	
Verified by:	Blathnaid Mc Polin Paul Feely	Date: 18th August 2023 July 2025
Title:	Senior Contaminated Land Specialist	
Approved by:	Deirdre Newell	Date: 31 July 2025
Title:	Planning & Environmental Manager	

Change History of Report

Date	New Revision	Author	Summary of Change
	00		

Table of Contents

LIST OF TABLES:

LIST OF FIGURES:

1 INTRODUCTION

This Resource & Waste Management Plan (R&WMP) is one of a series of environmental plans produced for the construction of the Republic of Ireland section of the permitted North South 400kV Interconnector (NSIC) (ABP Planning Ref: 02.VA0017). The implementation and operation of this Plan is entirely the responsibility of the appointed contractor. Furthermore, this plan will be updated as a live R&WMP document by the contractor once appointed and throughout the project life span.

The Resource & Waste Management Plan (R&WMP) and associated Addendum(s) outlines methods of good practice for waste minimisation by:

- Providing a brief description of the proposed project
- Identifying appropriate methods of waste minimisation
- Identifying waste streams and estimate recovery rates
- Measuring waste arising during works and compare to minimum recovery rates

The following list of legislation and guidance will be followed throughout the project:

- Waste Framework Directive 2008/98/EC
- Landfill Directive 1999/31/EC
- Waste Management Act 1996
- National Hazardous Waste Management Plan 2021-2027
- National Waste Management Plan for a Circular Economy 2024-2030
- Best Practice Guidelines on the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects (DoEHLG), October 2021
- The Management of Waste from National Road Construction Projects
- European Communities (Waste Directive) Regulations 2011 (S.I. 126 of 2011) as amended 2011 (S.I. No. 323 of 2011) and 2016 (S.I .315 of 2016)
- Waste Management (Collection Permit) Regulations (S.I. No. 820 of 2007) as amended 2008 (S.I. No 87 of 2008), 2015 (S.I. No. 197 of 2015) and 2016 (S.I. No. 24 and 346 of 2016)
- Waste Management (Facility Permit and Registration) Regulations 2007, (S.I No. 821 of 2007) as amended 2008 (S.I. No. 86 of 2008) as amended 2014 (S.I No. 320 and No. 546 of 2014) and as amended 2015 (S.I. No. 198 of 2015)
- Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended 2004 (S.I. No. 395 of 2004) and 2010 (S.I. No. 350 of 2010)
- Waste Management (Packaging) Regulations 2003 (S.I. 61 of 2003) as amended 2004 (S.I. No. 871 of 2004), 2006 (S.I. No. 308 of 2006) and 2007 (S.I. No. 798 of 2007)
- Waste Management (Landfill Levy) (Amendment) Regulations 2012 (S.I. 221 of 2012) as amended 2015 (S.I. No. 189 of 2015)
- European Communities (Shipment of Hazardous Waste exclusively within Ireland) Regulations 2011
- Waste Management (Shipment of Waste) Regulations (S.I. 419 of 2017)
- The Environmental Protection Act 1992 and amendments and subordinate regulations
- Protection of the Environment Act 2003 (S.I. No. 413 of 2003)
- Construction Industry Research and Information Association (CIRIA) document 133 Waste Minimisation in Construction
- Litter Pollution Act 1997 (S.I. No. 12 of 1997) and amendments and subordinate regulations
- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (DoEHLG), June 2006

- Guidance on Soil and Stone By-products in the context of Article 27 of the European Communities (Waste Directive) Regulations, 2011, Version 3, EPA, June 2019
- Eastern Midlands Region Waste Management Plan, 2015 – 2021

Further to the list of relevant legislation, the Contactor(s) are also committed to adhering to the particulars of the following supporting documentation:

- The project specific Construction Environmental Management Plan (CEMP) and associated CEMP Addendum(s).
- The project specific Construction Traffic Management Plan (TMP) and associated TMP Addendum(s).
- ESB document: '*Employer's Minimum Environmental Requirements for Construction and Demolition Projects and Related Works and Activities'*.
- EPAs '*Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects'* (2021).

For a full explanation on *Addendum(s)* and *work packages*, please refer to Section 1.2 of the CEMP.

The requirement for a Resource & Waste Management Plan (R&WMP) (previously referred to as Construction Waste Management Plan – CWMP) has been identified in the proposed development Environmental Impact Statement (EIS) and planning conditions. The appointed contractor shall adopt and comply with this R&WMP. The document shall be treated as a *live* document and shall be updated and revised as required during the construction phase of the proposed project. Likely revisions to the R&WMP may include new waste streams, suitable new waste collection permitted companies and suitable waste disposal facilities.

This R&WMP has been prepared in accordance with the requirements of the EIS, the National Waste Management Plan for a Circular Economy 2024-2030 and EPA guidance 'Best practice guidelines for the preparation of resource & waste management plans for construction & demolition projects'.

The key principles underlying this plan will be to follow the waste management hierarchy with waste prevention and minimisation being the priority succeeded by reuse and recycling. Facilities for segregation of waste will be made available to optimise reuse and recycling of construction waste and correct disposal of domestic waste.

1.1 Approach to R&WMP

As outlined in Section 7.3.4 (Volume 3B) of the EIS, the proposed linear development is expected to require a construction period of approximately three years. It will be carried out in a number of different work packages and it will involve different contractors. Nonetheless, the core principles underpinning the initial resource and waste management plan outlined in this submission will remain consistent across all work packages and throughout the entire construction period. The plan will be continuously updated as a live document as the development progresses to ensure it reflects the upcoming work packages, current environmental conditions, current legislation and best practices.

Consultation with Local Authorities

Since March 2024, ESB has engaged in ongoing consultation with Monaghan, Cavan, and Meath County Councils regarding the agreed approach to the discharge of planning conditions. During these meetings,

in relation to Condition 3, it was agreed that ESB would submit a Construction Environmental Management Plan (CEMP), a Traffic Management Plan (TMP), and a Resource and Waste Management Plan (RWMP), collectively encompassing the entire development.

Due to the linear nature of the development in excess of 100km and estimated 3 year construction programme, it is impractical to provide information in this document for work packages that may not start for months or years into the future. In order for a CEMP, TMP and RWMP to reflect real time conditions, they need to be based on the most current information available in advance of construction of a particular work package. For example:

- Preconstruction site surveys at specific sites are typically carried out several weeks in advance of construction commencing.
- Similarly, a traffic management plan should be based on the road network and road conditions that exist close to the time when construction will commence.

In order to address these issues, it was agreed with the county councils that the management plans to be submitted at this time would focus on the principles that underpin such management plans. These are not site specific but are applicable in any construction project.

It has been agreed that the main Construction Environmental Management Plan (CEMP), Traffic Management Plan (TMP) and Resource Waste Management Plan (RWMP) documents and the first work package addendum(s) will be submitted to local authorities for approval. The material storage yard will be the first work package associated with the development, so initially, approval of all documents will be sought before construction commences.

This phased approach to delivery of the work programme is discussed in Chapter 7.2 (Volume 3B) and also in Chapter 13.6.1 (Volume 3C) of the Environmental Impact Statement (EIS) where it states that consultation with local authorities are required on the construction programme.

Work Packages

Given the extensive linear nature of the permitted development, it will be divided into discrete work packages ;

- The initial work package will focus on the establishment of a Material Storage Yard near Carrickmacross (Work Package No. 1),
- Subsequent packages—Work Packages No. 2, No. 3, etc. will concentrate on the construction of the 400 kV overhead line towers and subsequent stringing of tower sections.
- Upon completion of tower construction, later work packages will include the completion of the stringing of the overhead line and the civil and electrical works associated with Woodland Substation.

Addendums

The overhead line route will be segmented accordingly into each work package, accompanied by tailored supplementary addendum(s) covering CEMP, TMP and RWMP site specific information.

In each case, all addendum(s) will be submitted to the relevant local authority for agreement prior to the commencement of work packages.

As noted above, the first addendum to be submitted for agreement is the Material Storage Yard, which will follow the submission of the main documents.

Each addendum will allow up to date information to be submitted within months prior to construction of each work package over the three-year period.

2 PROJECT DESCRIPTION

2.1 Overhead Line Works

This project consists of the construction of a new 400 kV overhead line linking the existing Woodland 400 kV substation, located approximately 8km south of Dunshaughlin in Co. Meath, with a planned 400 kV substation, located approximately 3km north of the village of Moy in Turleenan, Co. Tyrone. The general alignment of the overhead line route from Tyrone in Northern Ireland to Co. Meath in the Republic of Ireland (ROI) is approximately 137.6 km in length. This R&WMP covers the new 400 kV overhead line from structures 103 to 410 and associated works for the part of the development in the Republic of Ireland.

The Turleenan – Woodland 400 kV line section in the Republic of Ireland will comprise of 299 no. new lattice steel support structures made up of:

- 220 no. Intermediate Towers
- 77 no. Angle Towers
- 2 no. Transposition Towers

Approximately 2.85km of the new 400 kV circuit will be strung on 9 no. existing double circuit lattice steel support structures (Structures 402 - 410), the presently unused northern side of the existing Oldstreet - Woodland 400 kV transmission line.

Further detail on the overhead line works is presented in the Construction Environmental Management Plan (CEMP). Please refer to route map drawings MT-001-001 to MT-002-003 submitted with the Planning Application (Volume 1B) for more details on the proposed route and structure locations.

2.2 Substation Works

The following civil works are required in Woodland 400 kV Substation on the E10 Turleenan 400 kV line bay:

- Construct foundations for new overhead line gantry
- Construct numerous concrete plinths
- Install ducting
- Installation of 2 no. C2 chambers at the base of existing tower 410 and associated fibre ducting

2.3 Material Storage Yard

The proposed development includes the construction of a Material Storage Yard for the overhead line works. It is proposed to be located in Carrickmacross, County Monaghan. Please refer to drawing PE687-D141-145-001 for more information on the location of the proposed site compound.

The material storage yard is 1.4 ha and is located immediately adjacent to the southern side of the N2 approximately 3 km south of Carrickmacross. The yard will facilitate staff parking, temporary site offices, welfare facilities (comprising 'Portaloos'), raw materials storage, waste storage and segregation, appropriately bunded refuelling areas and chemical storage areas. The yard works include associated site works, a new site entrance onto the L4700 Local Road and a 2.6 m high boundary palisade fencing (with noise barrier affixed along the south, east and west boundaries). Refer to Figure 2.1 & 2.2 below for the OHL routes in Cavan, Monaghan and Meath areas respectively.

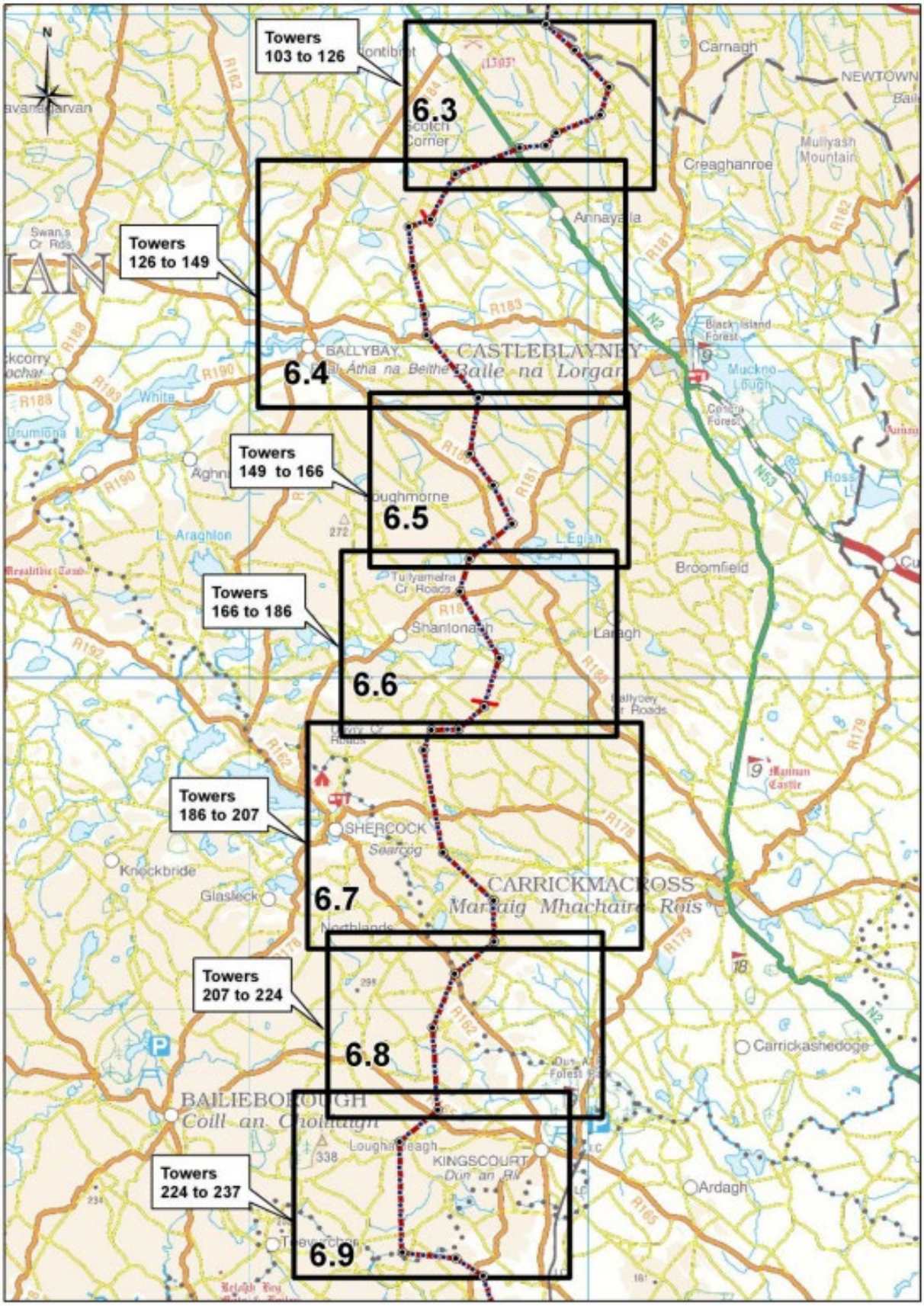

Figure 2-1: **Cavan Monaghan Study Area Section of Circuit**

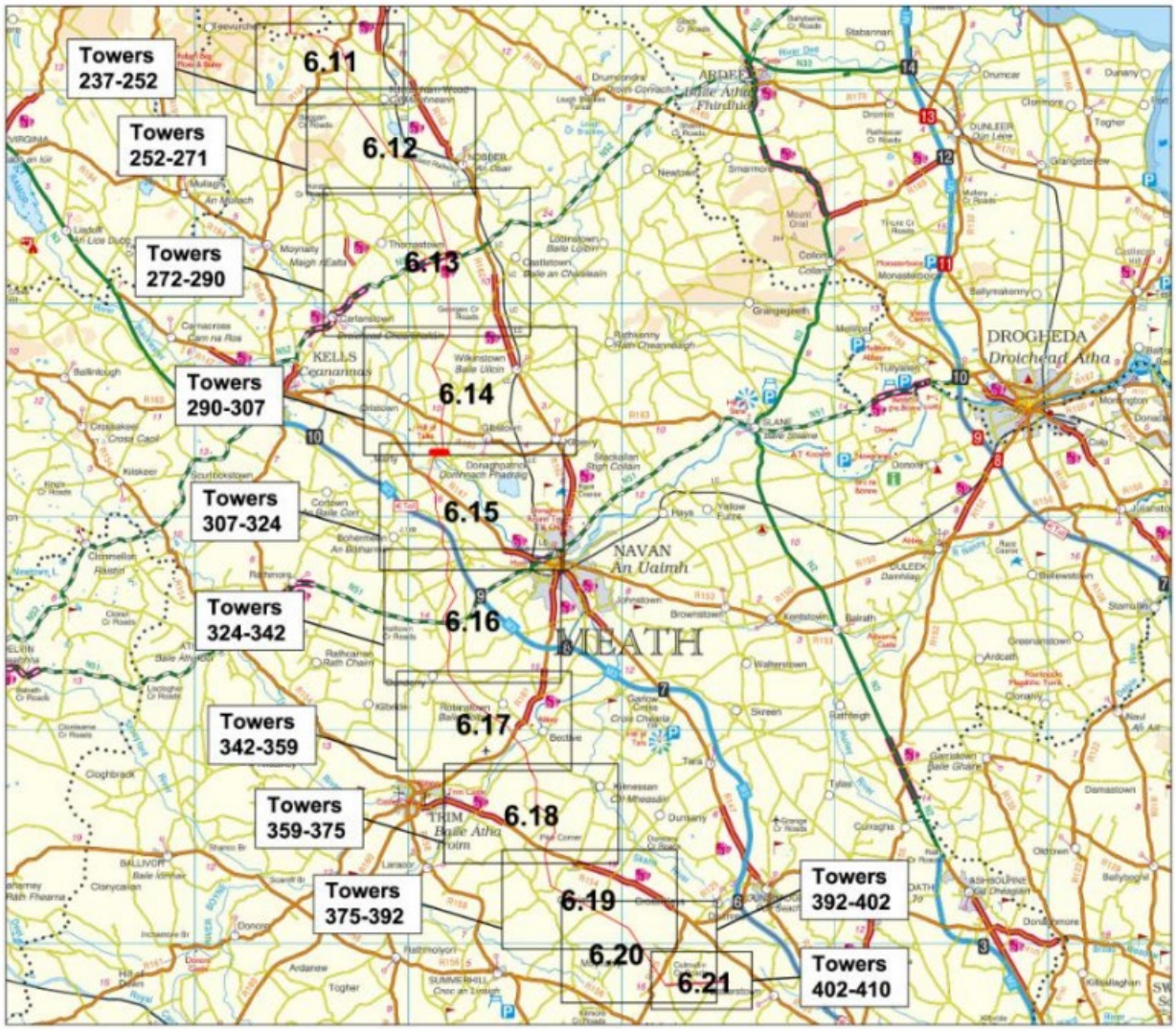

Figure 2-2:Meath Study Area Section of Circuit

2.4 History

Historic land-use along the OHL route is largely agriculturally based. There are no historic landfills reported within 1 km of the OHL route. However, there are reclaimed areas noted along the route that may contain potentially contaminated fill material. These are referenced in Section 5.3.1 below.

Soils beneath the OHL, substations and material storage yard are not considered likely to pose an unacceptable risk to human health, building and services, environmental receptors or third-party sites.

2.5 NSIC EIS

As part of the submission to An Bord Pleanála for planning permission, an EIS (EirGrid, 2015) was prepared for the proposed development.

The 2015 EIS identified that a Construction Waste Management Plan should be prepared for this project. However, new EPA guidance has been released since the EIS was produced, therefore a R&WMP shall be prepared. This document will be drafted in accordance with the Best Practice Guidelines on the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects published

in 2021 by the Environmental Protection Agency (EPA). Mitigation Measures are set out in the following sections of the NSIC EIS:

- NSIC EIS Volume 3B – Chapter 11: Summary of Mitigation Measures
- NSIC EIS Volume 3C – Chapters 2 to 14: Cavan – Monaghan Study Area
- NSIC EIS Volume 3D – Chapters 2 to 14: Meath Study Area

This R&WMP incorporates the mitigation measures indicated in the EIS and the project-specific CEMP and provides details of intended construction practice for the proposed development.

2.6 Planning Conditions

The planning conditions arising from the grant of approval of An Bord Pleanála (Board Order 02.VA0017) identifies the requirement to prepare a R&WMP.

The conditions also identify the requirement for the R&WMP to comply with the waste management mitigation measures identified within the EIS, which are included below. Condition number 3 detailed in the list below relates to waste:

"*Prior to the commencement of development, a construction and environmental management plan, a traffic management plan and a waste management plan shall be submitted to, and agreed in writing with, the relevant planning authority following consultations with relevant statutory agencies, including Inland Fisheries Ireland and the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, and Irish Water. This plan shall incorporate the mitigation measures indicated in the environmental impact statement and shall provide details of intended construction practice for the proposed development, including:*

a) Details of appropriate geophysical survey in respect of construction sites in the vicinity of towers 103 to 118.
b) Measures to demonstrate compliance with the relevant regional waste management plans.
c) Site specific arrangements for each temporary access route.
(i) arrangements for stepping down vehicle size,
(ii) arrangements for offloading of materials,
(iii) short term road closures,
(iv) the phasing of construction works which are accessed by single lane carriageways, and
(v) the arrangements for the transfer and management of concrete, including wash out facilities,
d) Arrangements for the completion of pre- and post-construction road surveys. The pre-construction survey shall be completed three months prior to the commencement of the development.
e) Details of the locations for water quality monitoring and the proposed water quality
f) Monitoring protocols in respect of surface water bodies.
g) Details of monitoring of water levels and water quality in wells within 100 metres of the Proposed alignment.
h) Means to control dust at construction sites.
i) *Details of liaison procedures to resolve any issues or community concerns*.

Monitoring of the construction phase of the development shall be carried out by a suitably qualified person to ensure that all mitigation measures contained in the environmental impact statement and the Response to the Issues Raised in Submissions/Observations document are implemented. A record of daily

checks that works are being undertaken in accordance with the construction environmental management plan shall be available for inspection by the relevant planning authority. Monitoring reports shall be submitted to the relevant planning authority and other relevant statutory bodies in accordance with the requirements of the relevant planning authority."

These mitigation measures shall also comply with the National Waste Management Plan for a Circular Economy 2024-2030, which supersedes Regional Waste Management Plans. An update of all planning conditions, including Condition 3 is provided in Section 2.2 of the CEMP. This details how each item above is being addressed by ESB and Contractors.

These mitigation measures shall also comply with relevant regional waste management plans as referred to in the 2015 EIS. This was the latest legislation available at the time, which have now been unified under the National Waste Management Plan (2024-2030). The applicable regions were the Connacht – Ulster Region (Counties Monaghan and Cavan) and the Eastern – Midlands Region (County Meath). The objectives and policies of these plans are outlined below.

2.7 Development Plan Waste Objectives & Policies

This section of the R&WMP details the relevant National and County Development Plans and their associated waste objectives that applicable to this development.

National Waste Management Plan for a Circular Economy (2024-2030) Targeted Policies

TP1.1 – *"Identify and promote new means, methods and key drivers of sustainable consumption practices to reduce waste generation."*

TP1.2 – *"Ensure that all non-household municipal waste settings adopt best practice on waste segregation and are serviced with a segregated waste collection system to maximise the quantity and quality of materials collected."*

TP1.4 – *"Implement appropriate engagement and/or enforcement measures in response to non-compliances identified."*

TP3.2 – *"Promote the eco-design of products that are resource-efficient, durable, repairable, reusable and upgradable in order to maximise material reuse and prevent waste generation."*

TP4.1 – *"Maintain the primacy of kerbside source segregated collection of commercial/household waste as the optimum method to ensure the quantity and quality of materials collected."*

TP6.2 – *"Improve the source segregation and processing of recyclable bin materials to optimise recycling and aid circularity."*

TP8.1 – *"Prioritise waste prevention and circularity in the construction and demolition sector to reduce the resources that need to be captured as waste."*

TP8.3 – *"Incorporation of the EPA Best Practice Guidelines for the preparation of Resource & Waste Management Plans for Construction & Demolition Projects and NWPS Soil & Spoil Action Plan, and monitoring by local authorities of the application of these requirements."*

TP8.4 – *"Identify and promote materials with a low embodied carbon and high circular potential to maximise use in the construction sector."*

TP11.1 – *"The development or enhancement of existing or new infrastructure or initiatives will be subject to the application of the waste hierarchy and the waste facility siting guidance for all new infrastructure (with this guidance to be embedded in Local Authority Development Plans)."*

TP12.3 – *"Support the development of viable reuse/ repair infrastructure and initiatives including materials recovery or other advanced pre-treatment infrastructure that increases the circular potential of materials."*

Monaghan County Development Plan (2019-2025) Waste Objectives & Policies

WMP 1 – *"To implement and support the strategic objectives of the Connaught-Ulster Regional Waste Management Plan 2015-2021 and any subsequent Waste Management Plan adopted during the current plan period".*

WMP 4 – "*To require that all construction projects are carried out in accordance with Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects".*

WMP 6 – "*To support the circular and bio-economy through the efficient use of resources and to support any development proposals which contribute to this concept*".

WMP 7 – "*To support the minimisation of waste creation and promote a practice of reduce, reuse and recycle where possible and to safeguard the environment by seeking to ensure that residual waste is disposed of appropriately".*

WMP 9 – "*To require that treatment/management of any contaminated material shall comply as appropriate with the Waste Management Act 1996 (waste licence, waste facility permit) and under the EPA Act 1992 (Industrial Emissions licensing, in particular the First Schedule, Class 11 Waste). These measures will ensure that contaminated material will be managed in a manner that removes any risk to human health and ensures that the end use will be compatible with any risk and be in accordance with Section 8.29 Construction and Remediation".*

Cavan County Development Plan (2022-2028) Waste Objectives & Policies

WM01 – "*Support the implementation of the Connacht-Ulster Region Waste Management Plan 2015-2021 and any updates made thereto*".

WM02 – "*Implement EU and national waste and related environmental policy, legislation, guidance and codes of practice to improve management of material resources and wastes*".

WM06 – "*Encourage and support waste prevention, minimisation, reuse, recycling and recovery as methods of managing waste*".

WM13 – "*To require developers to prepare construction and demolition waste management plans for new construction projects over certain thresholds which shall meet the relevant recycling/recovery targets for such waste in accordance with the national legislation and national and regional waste management policy*".

WM14 – "*Treatment and/or management of any contaminated material shall comply as appropriate with the Waste Management Act 1996 (waste licence, waste facility permit), as amended, and under the EPA*

Act 1992 (Industrial Emissions licensing, in particular the First Schedule, Class 11 Waste), as amended. These measures will ensure that contaminated material will be managed in a manner that removes any risk to human health and ensures that the end use will be compatible with any risk".

Meath County Development Plan (2021-2027) Waste Objectives & Policies

INF OBJ 54 – "*To facilitate the transition from a waste management economy to a green circular economy to enhance employment opportunities and increase the value recovery and recirculation of resources*".

INF POL 61 – "*To facilitate the implementation of National Waste Legislation, National and Regional Waste Management Policy and the circular economy*".

INF POL 65 – "*To adopt the provisions of the waste management hierarchy and implement policy in relation to the County's requirements under the current or any subsequent Waste Management Plan. All prospective developments in the County shall take account of the provisions of the regional waste management plan and adhere to the requirements of the Plan. Account shall also be taken of the proximity principle and the inter-regional movement of waste*".

INF POL 66 – "*To ensure that hazardous waste is addressed through an integrated approach of prevention, collection, and recycling and encourage the development of industry-led producer responsibility schemes for key waste streams*".

INF OBJ 67 – "*To require developers to prepare construction and demolition waste management plans for new construction projects over certain thresholds which shall meet the relevant recycling/recovery targets for such waste in accordance with the national legislation and national and regional waste management policy*".

3 ROLES & RESPONSIBILITIES

This section outlines the responsibilities for the key project stakeholders to ensure the development of an effective R&WMP through the lifecycle of the project. Typical responsibilities are detailed in the EPA Best Practice Guidelines for R&WMP.

3.1 ESB

- Require the preparation and submission of an R&WMP as part of the design and planning submission, even if not requested by the planning authority.
- Require the preparation and submission of an updated R&WMP as part of the construction tendering process.
- Ensure that the R&WMP is agreed and submitted to the local authority prior to commencement of works on site.
- Request the end-of-project R&WMP and related waste management documentation from the Contractor.

3.2 Contractor Responsibilities

The Contractor to undertake and is responsible for the following:

- Preparing, implementing and reviewing the R&WMP through construction (including the management of all suppliers and sub-contractors) as per the requirements of these guidelines.
- 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. As above, any resource that is legally a 'waste' must only be transported to an authorised waste facility.
- 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.

4 WASTE MANAGEMENT PRINCIPLES

This plan outlines the approach to waste management that shall be employed on the project where waste is generated.

The plan shall comply with the EPA's '*Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects' 2021* and any additional requirements set out as commitments in the planning application EIS and NIS.

4.1 Definition of Waste

Section 4(1)(a) of the Waste Management Acts defines waste as "*any substance or object belonging to a category of waste specified in the First Schedule or for the time being included in the European Waste Catalogue which the holder discards or intends or is required to discard, and anything which is discarded or otherwise dealt with as if it were waste shall be presumed to be waste until the contrary is proved*".

The exclusion to the above definition applicable to the proposed development as taken from S.I. No. 126/2011 - European Communities (Waste Directive) Regulations 2011 relates to "*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*".

A significant proportion of the topsoil, subsoil and bedrock material arising from the construction activities can be reinstated at the base and surrounding surface areas of the tower.

4.2 Definition of Waste Holder

A "Waste Holder" is defined at Section 5 of the Waste Management Act, which is the general definitions section, as amended by the EC (Waste Directive) Regulations 2011 (SI 126/2011).

A "waste holder" means the waste producer or the person who is in possession of the waste. Just because generated waste has been transferred to, for example, a waste transport company and they have control of the waste, does not mean that there is no liability attached to the original waste producer.

Under the EU "Polluter Pays" concept, the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect management of waste produced, including the actions of any contractors engaged e.g., for transportation and disposal/recovery/recycling of waste. It is therefore imperative to ensure that waste contractors engaged are legally compliant with respect to waste transportation, recycling, recovery, and disposal. This includes the requirement that a contractor handle, transport, and recycle/recover/dispose of waste in a manner that ensures that no adverse environmental impacts occur arising from these activities. It is the responsibility of the original waste producer or other waste holder in the chain to ensure that waste is appropriately managed. Liability in the case of inappropriate/unauthorised waste management can be attached to multiple bodies. There is an obligation on the contractor and ESB to ensure that generated soil waste, for example, is managed appropriately. It is therefore critical that clear procedures for waste management are developed and followed over the course of the construction of the development.

Under the duty of care guiding principle of the Waste Management Act 1996 (as amended) and subsequent Irish legislation, the waste producer is responsible for waste from the time it is generated through until its legal recycling, recovery, or disposal (including its method of disposal).

4.3 Circular Economy

A Waste Action Plan for a Circular Economy – Ireland's National Waste Policy 2020 – 2025 (hereafter referred to as the National Waste Action Plan) (DCCAE 2020) notes that: '*In a circular economy the value of products and materials is maintained for as long as possible; waste and resource use are minimised, and resources are kept within the economy when a product has reached the end of its life, to be used again and again to create further value.'*

The circular economy model tries to avoid using unnecessary resources in the first place and to keep resources 'in flow' by means of effective and smart reuse and recycling strategies reducing the use of virgin materials (**Figure 4-1**).

The guidelines address the best practice approach for the following phases of a project:

- Prior to Construction – including the stages of planning and procurement in advance of works on site; and
- During Construction – relating to the effective management of resources and wastes during construction or demolition operations

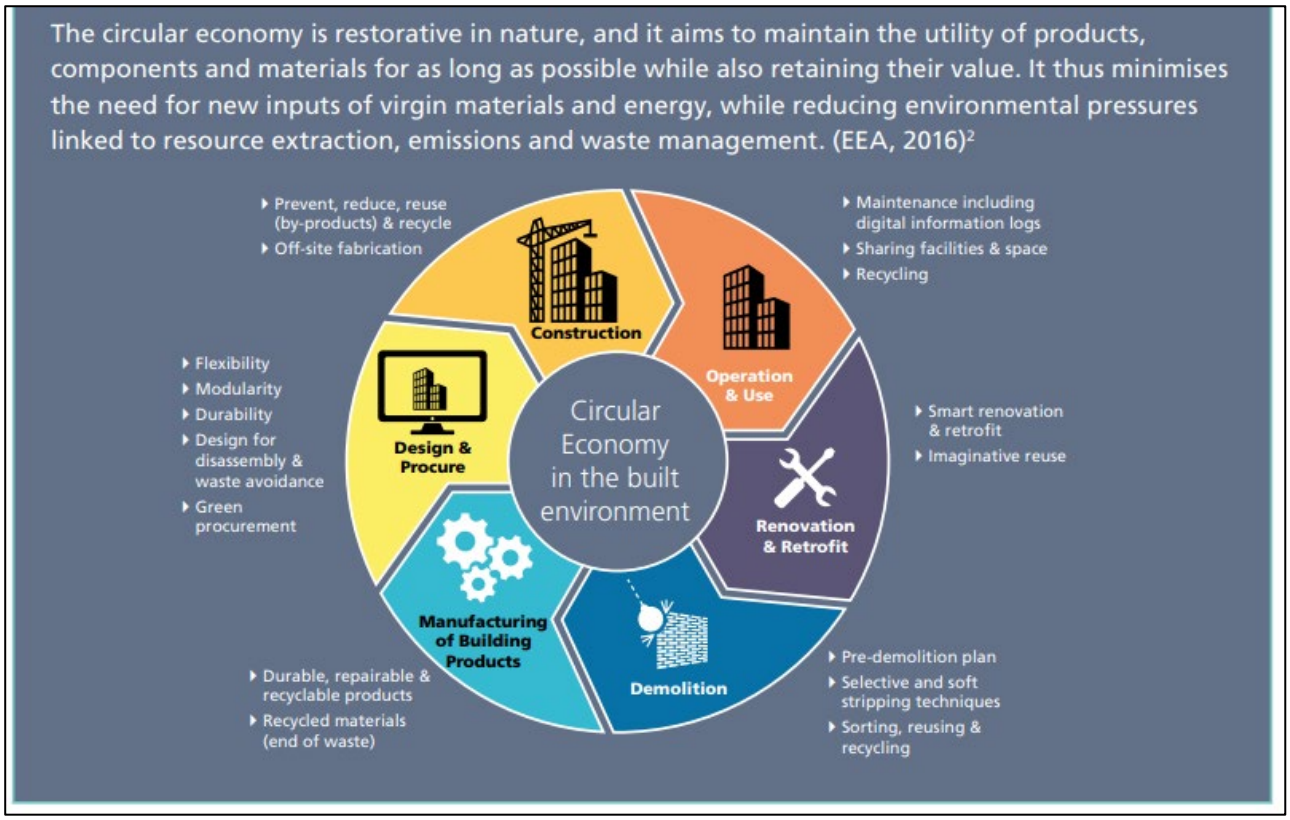

Figure 4-1: **Circular Economy Model, (EPA, 2021)**

Under the EU Waste Directive (2008/98/EC), waste hierarchy outlines that waste prevention and minimisation are the first priority in managing wastes, followed by waste reuse and recycling with disposal being considered as a last resort (**Figure 4-2, below**). The Directive also mandates that hazardous waste generation should be avoided or at least minimised.

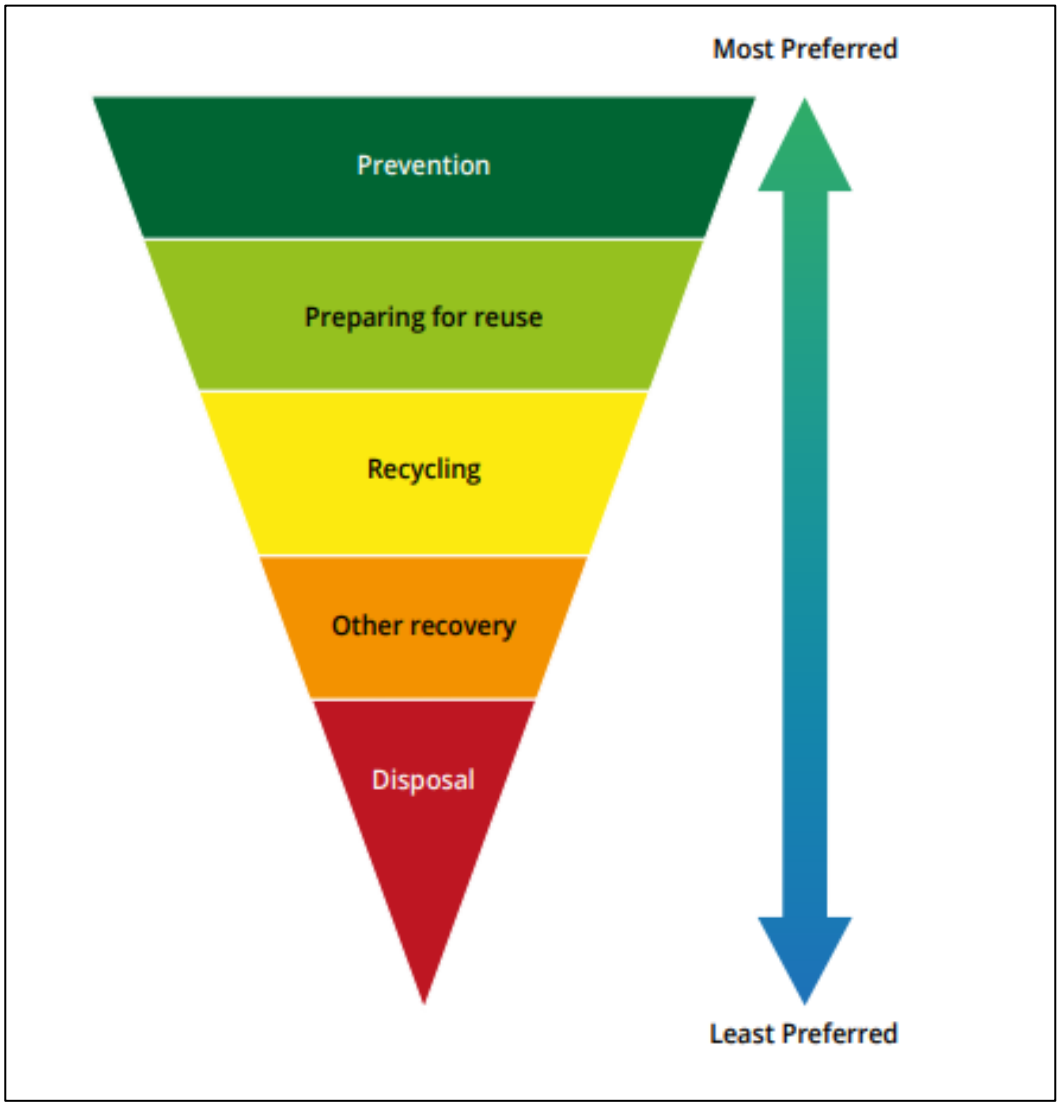

Figure 4-2: Waste Hierarchy Flow Chart, EPA 2021

4.3.1 Prevention of Waste

Prevention includes measures taken before a substance, material or product has become waste, that reduce:

(i) the quantity of waste, including through the reuse of products or the extension of the lifespan of products;

(ii) the adverse impacts of the generated waste on the environment and human health or;

(iii) the content of harmful substances in materials and products.

4.3.2 Reuse of Waste

Where possible, construction material will be reused on site or off site. Material removed from site will be organised through an appropriately authorised waste collector removing to an authorised facility

(licensed, permitted or registered as required). A letter of acceptance will be obtained from the licenced waste facility prior to removal of the waste off-site.

4.3.3 Recycling of Waste

Segregation of waste streams shall be implemented on site to maximise recycling and recovery.

Individual waste streams will be segregated through the use of separate bins, storage containers or clearly defined areas for stockpiling.

Waste will be stored appropriately as follows:

- Clearly marked signs;
- Enclosed to prevent waste escaping; &
- Segregated by type where possible.

4.3.4 Recovery

Waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

5 CONSTRUCTION & DEMOLITION MATERIALS MANAGEMENT

A construction material storage yard is required for the storage of material and other construction activities. This is currently a greenfield site which will need to be prepared for this use. This will generate waste soil, which will be re-used subject to suitable classification and applicable authorisation(s), and / or removed to a licensed waste recovery facility and / or landfill. The proposed extension works at the existing Woodland Substation will similarly involve the generation of waste material (approximately 3,500 m^3 (Ref: Section 7.3.5 of Volume 3B)) which will be removed off-site to a licensed waste recovery facility and / or landfill.

Site management, with responsibility for ordering of materials, shall ensure that materials are ordered so that the quantity delivered, the timing of the delivery, and the storage is not conducive to the creation of unnecessary waste. The material storage yard will, through operation and commercial occupancy, also generate waste. **Table 5-1** below details typical waste materials encountered during construction activities.

Excavated material will be generated during the construction of the proposed development, specifically in relation to the tower foundations, and by the enabling works of the material storage yard. A worst-case scenario would be that all excavated material 24,700 m^3 (10,500 m^3 for all the towers in Cavan Monaghan Study Area (Ref: Section 7.5.2 of Volume 3C) and 14,200 m^3 for all the towers in Meath Study Area (Ref: Section 7.5.2 of Volume 3D)) for the proposed development would be sent to landfill. However, it is anticipated that the majority of excavated material will be reused as infill material based on the construction methodology of the towers, and where topsoil is stripped back it will be replaced. All disturbed field surfaces will be reinstated as per construction methodology. Furthermore, it is now proposed to construct the OHL with the increased use of piled foundations which will reduce the estimated amount of excess soil and stone. Therefore, minimising the waste material disposed off-site and the majority of the soil and stone can be re-used subject to classification and environmental testing.

Timber waste will be generated from hedgerows, tree lines and forestry to clear open space for overhead line development.

Table 5-1: Typical Waste Material

Waste Material	EWC Waste Codes
Concrete, bricks, tiles and ceramics	17 01
Plastic packaging	15 01 02
Bituminous mixtures, coal tar and tarred products	17 03
Metals	17 04
Soil, stones	17 05
Canteen/Domestic Waste	20 01
Waste Oil	13 01
Oil Filters & Solid Oily Waste	13 07
Absorbents, Filter Materials, Wiping Cloths	15 02
WEEE	16 02

Waste Material	EWC Waste Codes
Paper/Cardboard	20 01 01
Batteries	16 06
Wood/Timber	17 09
Foul Effluent	20 03 06

5.1 Mixed Construction & Demolition Waste

Following segregation, any residual mixed C&D waste will be collected in containers or skips specifically for mixed C&D waste; these will be removed offsite for subsequent offsite separation and recycled at a waste disposal / recovery facility in accordance with all relevant waste management legislation.

The principal sources of waste will be as a result of excavations, canteen and office waste and packaging waste from the yard, the installation of overhead line tower foundations, substation plinths, substation ducting, substation land drainage, erection of overhead line towers, stringing of overhead line conductor, installation of HV station equipment and installation of fibre optic cable. A non-exhaustive list of the anticipated types of waste is set out below.

5.1.1 Topsoil [EPA Waste Classification Code 17 05 04]

This is the surface soil usually including an organic layer where layer plants, bushes etc. have roots and which is turned over by farming activities.

Topsoil will be removed for the construction of overhead line tower foundations and stripped during enabling works of the material storage yard. Topsoil will also be excavated from the Woodland site as part of the substation extension works and replaced with hardcore materials to protect the underlying layers of subsoil. Insofar as reasonably practicable, topsoil shall be reinstated on-site as excavated in order to minimise the amount of waste generated and to reuse topsoil. Greenfield topsoil waste will be assessed in accordance with relevant waste acceptance criteria for soil recovery facilities and waste landfills, whichever is necessary. Topsoil waste shall be removed from site by a licensed haulier and transported to a suitable licensed waste disposal facility or waste transfer station.

Greenfield soil and stone waste may be suitable for recovery at a suitable soil recovery facility so long as the waste soil meets the waste acceptance criteria outlined by the EPA Guidance Document Guidance on waste acceptance criteria at authorised soil recovery facilities. Soils destined for disposal at suitable soil recovery facilities will comply with these guidelines. Where appropriate, a soil and stone waste assessment will be completed by an appointed competent Environmental Consultant / Contaminated Land Consultant using the HazWasteOnline™ Tool and Waste Acceptance Criteria (WAC) testing as well as Soil Recovery Facilities (SRFs) disposal options.

Any stockpiles of waste soils created during the project must be correctly and appropriately managed. All stockpiles will be temporarily stored at each construction site prior to removal by a licensed haulier. The stockpiles must be segregated as per the Waste Classification with sufficient recording and signposting for each stockpile.

5.1.2 Subsoil [EPA Waste Classification Code 17 05 04]

Subsoil is the soil strata located beneath the topsoil.

Subsoil will be removed for the construction of overhead line tower foundations, installation of plinths and any ducting works. Insofar as reasonably practicable, inert subsoil shall be reinstated as excavated where possible in order to minimise the amount of waste generated and to reuse subsoil. Greenfield subsoil waste will be assessed in accordance with relevant waste acceptance criteria (WAC) for soil recovery facilities and waste landfills, whichever is necessary. Excess greenfield subsoil shall be re-used subject to the agreement of the landowner and subject to suitable classification, and / or removed from site by a licensed haulier and transported to a suitable licensed waste disposal facility or waste transfer station.

Greenfield soil and stone waste may be suitable for re-use subject to suitable classification and / or recovery at a suitable soil recovery facility so long as the waste soil meets the waste acceptance criteria outlined by the EPA Guidance Document Guidance on waste acceptance criteria at authorised soil recovery facilities. Soil waste destined for disposal at suitable soil recovery facilities will comply with these guidelines. Where appropriate, a soil and stone waste assessment will be completed by the appointed competent Environmental Consultant using the HazWasteOnline™ Tool and Waste Acceptance Criteria (WAC) testing as well as Soil Recovery Facilities (SRFs) disposal options.

Subsoil will be excavated from the brownfield site located at Woodland 400kV substation to facilitate the construction of substation plinths, substation ducting, substation land drainage, and the installation of the HV station. All soil and stone wastes generated from the brownfield area of these sites will be suitably assessed by an appointed Environmental Consultant / Contaminated Land Consultant to determine the suitability for disposal off-site at appropriate licensed waste facility by a licenced haulier.

A suitably experienced and qualified environmental consultant shall undertake any required soil waste classification assessments required to assess both topsoil and subsoil construction wastes.

Any stockpiles of waste soils created during the project must be correctly and appropriately managed. All stockpiles will be temporarily stored at each construction site prior to removal by a licensed haulier. The stockpiles must be segregated as per the Waste Classification with sufficient recording and signposting for each stockpile.

5.1.3 Rock and Stone [EPA Waste Classification Code 17 05 04]

This section refers to potential wastes derived from the solid rock strata located underneath surface layers of subsoil / topsoil.

Bedrock may be removed for the construction of overhead line tower foundations, installation of plinths, substation ducting and substation land drainage. Insofar as reasonably practicable, natural bedrock shall be reinstated as excavated where possible in order to minimise the amount of waste generated and to reuse this natural resource.

Bedrock derived waste will be assessed by an appointed Environmental Consultant / Contaminated Land Consultant in accordance with relevant waste acceptance criteria for soil recovery facilities and waste landfills, whichever is necessary. Excess bedrock shall be re-used subject to suitable classification. Any excess rock and stone which cannot be reused will be removed from site by a suitable licensed haulier and transported to a suitable licensed waste disposal facility or waste transfer station by a licenced haulier.

Hardcore material will be laid at the site of the proposed material storage yard. Upon completion of the project, this hardcore material will be excavated in order to return the site to its former condition. This excess hardcore material shall be treated as waste.

5.1.4 Concrete [EPA Waste Classification Code 17 01 01]

Waste concrete is any concrete that is transported to site and is not used in foundation construction, plinth construction, ducting installation or other civil works as part of the proposed development. Concrete waste will also be generated when returning the Material Storage Yard to its former condition.

As stated in the EIS (Volume 3B Chapter 11), raw or uncured waste concrete or similar will be disposed of by removal to approved/licensed disposal sites. A concrete wash out area will be provided at each OHL tower site using sealed mobile skips to prevent discharge to surface water or groundwater.

Excess concrete materials on site shall be returned to the off-site batching plant by a licensed haulier. The waste concrete shall be removed for reuse/recycling periodically. A licensed haulier shall be employed to transport the concrete materials to a licensed facility from the construction sites.

5.1.5 Metal [EPA Waste Classification Code 17 04 07]

Metallic waste consists of any items of hardware, conductor off-cuts, tower steelwork, nuts/bolts, rebar, station equipment or any other pieces of metal used for any of the construction activities which are not required for the permanent overhead line and station structures.

Excess metal materials on site after a tower has been erected and conductor has been strung shall be segregated from other waste at source and temporarily stored at the construction site. At each construction site, metal materials shall be stored in a dedicated skip in order to optimise reuse / recycling. A licensed haulier shall be employed to transport the metal materials to a licensed waste facility from the construction sites.

5.1.6 Plastic Packaging [EPA Waste Classification Code 15 01 02]

Plastic waste is considered as any plastic material generated from the construction activities primarily as a result of packaging of construction materials.

Plastic materials on site shall be segregated from other waste at source and stored at the construction site. Within each construction site, plastic materials shall be stored in a dedicated skip in order to optimise reuse / recycling. A licensed haulier shall be employed to transport the plastic materials to a licensed waste facility from the construction sites.

5.1.7 Cardboard / Paper [EPA Waste Classification Code 20 01 01]

Cardboard / paper waste is any cardboard / paper material generated from the construction activities primarily as a result of packaging of construction materials.

Cardboard / Paper materials on site shall be segregated from other waste at source and stored at the construction site. At each construction site, cardboard / paper materials shall be stored in a dedicated skip in order to optimise reuse / recycling. A licensed haulier shall be employed to transport the cardboard / paper materials to a licensed waste facility from the construction sites.

5.1.8 Timber [EPA Waste Classification Code 17 02 02]

Timber waste is any timber generated from conductor drums, material pallets, formwork, cut offs and vegetation management.

Timber that is free from paints, preservatives etc. shall be segregated from other waste at source and stored at the construction site. At each construction site, timber materials shall be stored in a dedicated skip in order to optimise reuse / recycling. A licensed haulier shall be employed to transport the timber materials to a licensed waste facility from the construction sites.

5.1.9 Settled Solids and Road Sweepings [EPA Waste Classification Code 17 09 04]

If deemed necessary by the Contractor, vehicle wash down areas may be required at the Material Storage Yard. Any solids washed off vehicles from washing would be considered waste. In addition, any road sweepings picked up by Road Sweepers at site entrances would be considered waste.

A licensed haulier shall be employed to transport the settles solids and road sweepings to a licensed waste facility from the Material Storage Yard.

5.2 Potentially Hazardous or Hazardous Waste

5.2.1 Machinery Fuel / Oil and Solvents [EPA Waste Classification Code 13 02 & 13 07]

Oil and fuel to be used for machinery during construction are classed as hazardous waste and must be stored properly. A dedicated storage tanker / barrel etc. shall be used in a bunded area in the Material Storage Yard.

At the tower locations or access routes along the overhead route, in the event that refuelling is required outside of designated areas, fuel will be transported in a mobile double skinned tank and a spill tray will be employed during refuelling operations.

At Woodland substation, the construction site will have a demarcated area for refuelling, where applicable.

Precautionary measures will be taken to avoid spillages of contaminants including oils / fuels and concrete or cement (at tower construction sites). These include:

- use of secondary containment, e.g. bunds around oil storage tanks;
- use of drip trays around mobile plant;
- supervising all deliveries and refuelling activities; and
- designating and using specific impermeable refuelling areas isolated from surface water drains

No raw materials or fuels will be stored within, or in the vicinity of Natura Sites or within 50m of water courses, nor will there be any servicing or refuelling of vehicles within, or in the vicinity of, Natura sites or 50 m of water courses.

In accordance with the project EIS, the potential impact on the underlying subsurface strata from material spillages, all oils, fuels and solvents used during construction will be minimised by appropriate storage using temporary proprietary bunded surface (i.e., contained bunded plastic surface). Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place away from

surface water gullies or drains. No refuelling will be allowed within 50m of a stream/river, or within 20 m of a drainage ditch. Spill kits and hydrocarbon absorbent packs will be stored in this area and operators will be fully trained in the use of this equipment.

Oil, petrol and other fuel containers will be double-skinned and bunded to be able to contain 110% volume. Bund specification will conform to the current best practice for oil storage such as Enterprise Ireland's Best Practice Guide BPGCS005 Oil Storage Guidelines.

5.2.2 Creosote [EPA Waste Classification Code 17 02 04]

ESB standard wooden poles which may be used for temporary works purposes will be pre-treated with creosote. Storage of such poles in the material storage yard shall be done so in a designated bunded area in accordance with ESB Networks materials standards to prevent discharge or leaching of creosote to ground. After wooden pole sets have been used on site, a licensed haulier shall be employed to transport the materials to a licensed waste facility from the site or material storage yard.

5.2.3 Foul Effluent [EPA Waste Classification Code 20 03 06]

Temporary facilities will be provided for construction works at tower locations and at the material storage yard. The contractor will provide chemical toilets and a holding tank and arrange regular collection by a licensed company for discharge to the nearest local authority sewage treatment plant.

The contractor should ensure to use eco-friendly practices and treat and dispose of the wastewater in compliance with environmental regulations. Wastewater will only be removed by an appropriately licensed haulier.

5.3 Potentially Contaminated or Contaminated Ground

5.3.1 Soils and Rock [EPA Waste Classification Code 17 05 03]

The entirety of the overhead line works will take place in greenfield locations and therefore it is not anticipated that contaminated ground will be encountered. In accordance with the schedule of Mitigation Measures outlined within the project EIS, all excavated materials will be visually assessed by the appointed Environmental Consultant and / or site foreman for signs of possible contamination, such as staining or odour, samples of this soil will be analysed for the presence of possible contaminants in order to ensure that historical pollution of the soil has not occurred.

Once potentially contaminated or contaminated ground is encountered, the contractor will contract a suitably qualified and experienced environmental consultant. The environmental consultant will assess and conclude on the level of risk to environmental and human health receptors and outline next steps required (if any). ESB shall be notified if and when potentially or contaminated ground is identified.

In accordance with the project EIS, a construction material storage yard will be constructed for the storage of material and other construction activities. The proposed construction material yard is currently a greenfield site which will be prepared for this temporary use. The construction of the yard will generate waste topsoil and subsoil, which will be removed to a licensed waste recovery facility and / or landfill. The proposed works at the existing Woodland Substation will similarly involve the generation of waste material which will be re-used on-site or removed off-site to a licensed waste recovery facility or landfill. The ground at this location shall be sampled, tested and classified in advance of works taking place.

Any stockpiles of hazardous or potentially hazardous waste soils created during the project must be correctly and appropriately managed. Stockpiles must be stored on an impermeable surface to avoid cross contamination. Furthermore, the stockpile must be covered with polyethene plastic or similar to avoid run-off. The stockpiles must be segregated as per the Waste Classification with sufficient recording and signposting for each stockpile.

Table 7.8 of Volume 3C and Tables 7.9 of Volume 3D of the EIS identify the following sites which may contain potentially contaminated ground within 200m of the proposed alignment.

Table 5-2: Potentially Contaminated Ground Locations

Tower	Approximate Distance from Tower	Description
107	120m south-east of Tower 107	Reclaimed land (borrow pit) – Possibly related to Disused Lead Mine (Lemgare)
108	125m north-east of Tower 108	Disused Lead Mine (Lemgare) and associated infrastructure
117	170m south-east of Tower 117	Disused Lead Mine (Tassan) and associated infrastructure
131	70m north-west of Tower 131	Reclaimed land (gravel pit)
140	200m north of Tower 140	Railway land Ballybay to Castleblayney (Great Northern Railway)
153	120m south of Tower 153	Reclaimed land (gravel pit)
172	170m west of Tower 172	Reclaimed land (gravel pit)
180	Tower Base for Tower 180	Reclaimed land (gravel pit)
182	120m west and south-west of Tower 182	Reclaimed land (gravel pit)
199	Tower Base for Tower 199	Reclaimed land (quarry)
216	100m west of Tower 216	Reclaimed land (quarry)
245	150m south south-west of Tower 245	Reclaimed land (borrow pit)
256	80m north to Tower 256	Reclaimed land (quarry)
261	100m west of Tower 261	Reclaimed land (quarry)
262	200m east of Tower 262	Reclaimed land (quarry)
316	15m north-east of Tower 316	Railway land (Athboy Branch of Midland Great Western Railway)
327	50m east of Tower 327	Reclaimed land (borrow pit)
344	20m north-west of Tower 344	Reclaimed land (borrow pit)
350	120m east south of Tower 350	Reclaimed land (borrow pit)
363	80m south of Tower 363	Railway land (Athboy Branch of Midland Great Western Railway)
389	120m south-east of Tower 389	Reclaimed land (borrow pit)
393	60m south-west of Tower 393	Reclaimed land (borrow pit)

5.3.2 Invasive Species and Noxious Weeds

Any invasive plant material noted on site will be removed off site and disposed of at appropriate licensed waste disposal facility. Any invasive species found to occur within 15m of working areas will require its

eradication to avoid the spread of invasive species, to ensure compliance with the European Communities (Birds and Natural Habitats) Regulations 2011". These works outlined would be completed in accordance with the project EIS and the project-specific CEMP details the management of invasive species if encountered during the project.

5.4 Volumes of Waste

Volumes of waste at each site will vary depending on the foundation size, topography.

It is considered that the vast majority of excavated material will consist of sub soil and naturally excavated soils and rock. All excess material will be taken off-site and recovered / deposited at an appropriately licensed / permitted waste management facility. The use of piled foundations will reduce the volume of excess soil and stone generated during construction, and it is envisaged that the majority of the excavated material can be reused subject to classification and environmental testing.

5.5 Litter Control, Site Clearing and Pest Control

The Contractor shall ensure that all sites and storage areas are cleaned and maintained on a daily basis to ensure good housekeeping and minimise the risk of slips, trips and falls to site personnel. All skips, mini skips and bin receptacles will be appropriately labelled. The designated Waste Storage Areas will be kept in a tidy state and secure at all times. Skips covers are to be in place for litter and pest management.

Litter bins shall be provided at all site locations. Site construction waste will be segregated and stored in designated skips as previously outlined.

In order to protect surface and groundwater from mud and other site materials, movement of vehicles shall be limited to site access routes and the proposed working areas around each site location. Wheel wash facilities shall be made available at the Material Storage Yard. Such wash down facilities shall be located in a bunded area with a means to capture settled solids and oily water from washed down vehicles.

Regular inspections of the roads in the vicinity of the sites will be carried out. The Contractor will also carry out road sweeping operations to remove any development related dirt and detritus deposited on the public road by construction traffic. Waste generated from road sweepings shall be either be transported by the licensed Contractor directly to a licensed waste facility.

Pest control measures shall be deployed by the Contractor, where deemed necessary and in particular in the vicinity of welfare facilities that are stationed at a site for a period of time.

Tools and machinery shall be securely stored when not being used in order to reduce risk of potential contact with vermin.

Hygiene facilities shall be made available at all sites in order to clean tools and machinery prior to use.

5.6 Native/Non-Contaminated Soils

The balance of soil materials excavated from the work areas will be reused where possible, where no evidence of contamination is noted, for landscaping purposes, and infill where appropriate, ensuring that any residual soil waste is kept to a minimum. Any surplus soil will be characterised and removed offsite in accordance with all relevant waste management legislation.

All soil requiring disposal offsite will require waste classification in accordance with Environmental Protection Agency (EPA) requirements as set out in the documents 'Waste Classification List of Waste & Determining if Waste is Hazardous or Non-hazardous' (EPA, 2015), and 'Determining if waste is hazardous or non-hazardous' (EPA, 2018), and all other relevant waste management legislation. In addition to screening against relevant Waste Acceptance Criteria (WAC), the preparation of a waste classification tool (HazWasteOnline™ tool / EPA paper tool or similar etc.) will be required to be carried out in order to determine the relevant List of Waste / European Waste Catalogue (LoW / EWC) code for the transport of any waste soils which require offsite removal and disposal.

5.7 Timber

Timber waste will be segregated in order to prevent contamination by other wastes and will be stored so as to limit the potential for this material to rot. Timber will be removed offsite for recycling at a waste disposal / recovery facility in accordance with all relevant waste management legislation.

Ordering	Careful ordering of quantities and programming the timings of deliveries will result in the prevention of unnecessary waste quantities, which typically results from over-ordering and spoilage due to lengthy storage and associated risks.
Handling & Storage	The materials should be kept dry and bound and packaging should only be removed from wood and timber materials when they are to be used.
Prevention	A policy of tight estimation of materials will prevent excess wood and timber materials delivered. Sub-Contractors employed will be responsible for wood/timber waste arisings from their activities and will be required to conform to the requirements of the site C&D plan. Excessive waste production by sub-contractors should be monitored.
Minimisation	Proper storage of wood and timber materials in clean covered skips will minimise the risk of damage to the materials and encourage reuse.
Re-Use on-site	Wood and timber materials can be reused on-site with opportunities for use in shuttering and joinery applications. Excess timber materials may also be wood-chipped and used as cover for trees and bedding.
Re-Use off-site	Excess wood/timber materials which are not used on site, will be stored safely and removed by the appropriate contractor to be reused on another construction site.
Waste Recovery	Any wood wastage generated on-site, which cannot be reused, will be source-segregated on-site and stored separately in a suitable receptacle to prevent cross-contamination. These materials will be removed off-site for recovery/recycling to a permitted facility in the area. Replaced wooden poles will be collected by Enva and taken for disposal.

5.8 Metal Materials

Metal waste will be generated during the project. All waste metal will be segregated offsite at the waste disposal / recovery facility for reuse and recycling in accordance with all relevant waste management legislation.

Metal waste will be stored in a dedicated container within a secure part of the construction compounds, and regular collections from these compounds to the waste recycling facility will limit the potential for unauthorised entry and theft.

Ordering	Careful ordering of quantities and programming the timings of deliveries will result in the prevention of unnecessary waste quantities, which typically results from over-ordering and spoilage due to lengthy storage and associated risks.
Handling & Storage	These materials are of relatively high value so care should be taken on-site to ensure careful handling and storage of them to prevent wastage. Materials should be stored securely until required and remain wrapped and bound to minimise spoil.
Prevention	A policy of tight estimation of materials will prevent excess metal materials delivered. Sub-Contractors employed will be responsible for metal waste arisings from their activities. Excessive waste production by sub-contractors should be monitored.
Minimisation	Metals to be used during construction will be 'made to order', where possible, to minimise on-site labour and excess trimmings on-site.
Re-Use/Recycling Off-site	Ferrous and non-ferrous metals will be stored separately on-site in skips to ensure maximum recovery of the material off-site at a permitted facility.
Waste Recovery	All metals not used on-site will be source-separated, stored and sold on to authorised handlers for recycling off-site.

5.9 Packaging

Where possible, packaging will be segregated for recycling or returned to the supplier. Almost all materials delivered to the construction site will be wrapped and protected by packaging material e.g., plastic film, wooden pallets, cardboard, metal wrap, cellophane wrapping, Styrofoam etc. It is important that packaging material is managed efficiently to ensure that the site remains free of windblown and discarded packaging material.

Packaging wastes will be removed (paper / cardboard / plastic / general waste) offsite for subsequent offsite separation and disposal at a waste disposal / recovery facility. Waste packaging will be stored in dedicated containers in the waste storage area for collection and subsequent segregation and recycling.

The Contractor will source such suppliers to minimise packaging waste on-site and associated waste management costs for recovery/disposal.

Handling & Storage	Packaging is designed to protect materials during transportation and should remain in place until absolutely necessary to prevent spoilage/damage of the material. Once packaging is removed it should be stored in a dedicated skip. The skip should be kept covered to prevent littering and contamination.
Prevention	A policy of tight estimation of materials will prevent excess packaging waste delivered to the site.
Minimisation	Suppliers which take back packaging waste from materials should be identified when sourcing materials to minimise packaging waste generation on-site.
Re-Use/Recycling Off-site	Any packaging waste which can be returned to a supplier should be stored separately and securely and be presented in good condition for re-use or recycling.
Waste Recovery	Packaging materials which cannot be returned to a supplier should be separated into individual waste streams, e.g., cardboard, paper, plastic, wood etc. and presented for recovery off-site at an appropriate permitted/licensed facility.

5.10 Fuel Waste

Waste oil, filters, etc. are stored in labelled bunded containers or in a filter bin and will be collected by a licensed oil-recycling contractor (for example a contractor like ENVA), as necessary. Records will be maintained of the volumes of waste oil generated.

5.11 Hazardous Material

Hazardous materials such as oils, paints, fuels and other chemicals etc. to only be removed by a licensed specialised contractor (e.g., ENVA) and will be stored in the interim, as per their instructions and requirements.

Ordering	Careful ordering of quantities and programming the timings of deliveries will result in the prevention of unnecessary waste quantities, which typically results from over-ordering and spoilage due to lengthy storage and associated risks.
Handling & Storage	Hazardous materials will be carefully handled and stored on-site in designated areas. These areas will be separate from non-hazardous materials to avoid contamination and pollution. Depending on the quantities of hazardous materials accepted at the site, it may be necessary to provide a temporary bunded area. This will need to be reviewed and monitored during construction.
Prevention	A policy of tight estimation of materials will prevent excess materials delivered. Sub-Contractors employed will be responsible for hazardous waste arisings from their activities and will be required to conform to the requirements of the site C&D plan.
Re-Use Off-site	Excess materials, which are not used on site, will be stored safely, and removed by an appropriate contractor.

Waste Recovery or Disposal	Hazardous waste materials generated on-site will be stored safely and removed off-site by an appropriate contractor permitted to transport hazardous wastes for safe recovery or disposal.

5.12 Canteen Waste / Domestic Non-Hazardous

Onsite staff canteens will generate food and packaging waste. Dedicated containers will be provided at each canteen within each site compound to permit easy segregation of these wastes; brown bins will be provided for compostable food waste, green bins will be provided for dry recyclables (packaging, hard plastic, paper, cardboard, tetrapak etc.) and black bins will be provided for any residual waste.

5.13 Ground Contamination

All soil requiring disposal offsite will require waste classification in accordance with Environmental Protection Agency (EPA) requirements as set out in the documents *'Waste Classification List of Waste & Determining if Waste is Hazardous or Non-hazardous'* (EPA, 2018), and all relevant waste management legislation.

In addition to screening against relevant Waste Acceptance Criteria (WAC), the preparation of a waste classification tool will be required to be carried out in order to determine the relevant LoW / EWC code for the transport of any waste soils which require offsite removal and disposal.

Should any ground contamination be encountered during the construction phase of the development the Site Manager / EcCoW / appointed Environmental Consultant should be immediately notified and consulted with.

5.14 Transportation and Processing of Waste off Site

The transportation and processing of waste shall be carried out in accordance with the legislation identified in Section 4 of this R&WMP.

Any contractor or third party employed to transport waste off site is required to have a waste collection permit. Any facility used to process, recycle or dispose of waste is also required to have a permit. These permits are required to be referenced in the Daily Waste Dispatch Log or Register.

The main Contractor shall maintain records of the hauliers and facilities used during the construction of the permitted development and keep copies of the relevant permits.

Tables 5-2 and 5-3 in the following sections highlight a non-exhaustive list of licensed waste facilities and hauliers. The selection of facilities or hauliers is not limited to those provided on this list.

5.15 Licensed Waste Facility Locations

Please refer to Appendix 7.2 of Volumes 3C and 3D of the EIS for information on the Licensed Waste Facilities included at the Planning Application stage of the project. A non-exhaustive list of the licensed waste facility locations in the vicinity of the proposed development are also set out in Table 5-2 below.

The specific waste facilities to be used will be selected by the contractor and approved by ESB in advance of any waste leaving site for these facilities.

Authorisation Reference Number	Name	Address	Operating In	Expiry Date	Waste Code*	Waste Description*
WFP/MH/15/0002/02)	Roadstone Limited	Deerpark Quarry Carrickdexter Slane Co. Meath	Meath	04/02/2026	17 01 01	Concrete
COR/MH/17/0002/02	Tarstone Road Maintenance Ltd	Dean Hill Hayestown Navan Co Meath	Meath	26/05/2027	17 01 01 17 04 07 17 05 04	Concrete Mixed Metals Soil and Stone
WFP-CN-20-0001-01	Wilton Waste Recycling Ltd	Kiffagh Crosserlough Ballyjamesduff Co. Cavan	Cavan	04/08/2025	17 01 01 17 02 01 17 02 03 17 04 07 17 05 04 17 09 04 20 01 01	Concrete Wood Plastic Mixed Metals Soil and Stone Mixed Construction and Demolition Wastes Paper and Cardboard
WFP-MN-11-0009-09 (Waste Facility Permits - Environment (monaghan.ie)	Blue Dolphin Environmental Limited	Kincorragh Smithborough Co Monaghan	Monaghan	09/07/2029	17 01 01 17 02 01 17 02 03 17 04 07 17 05 04 17 09 04 20 01 01	Concrete Wood Plastic Mixed Metals Soil and Stone Mixed Construction and Demolition Wastes Paper and Cardboard
WFP-MN-19-0002-01 (Waste Facility Permits - Environment (monaghan.ie)	Finnegan Waste Recycling Limited	Monalia Donaghmoyne Carrickmacross Co Monaghan	Monaghan	22/04/2029	17 01 01 17 04 07 17 05 04 17 09 04 20 01 01	Concrete Mixed Metals Soil and Stone Mixed Construction and Demolition Wastes Paper and Cardboard

Table 5-3: Licensed Waste Facility Locations

**For a full list and description of wastes handled at each facility refer to the National Waste Collection Permit Office database.*

5.16 Licensed Waste Haulers

A non-exhaustive list of the licensed hauliers in the vicinity of the proposed development are set out in Table 5-3 below. An updated list of waste hauliers and their NWC permits can be found at the following website National Waste Collection Permit Office Home (nwcpo.ie). The specific waste hauliers which will be used during the works will be selected by the contractor and approved by ESB in advance of any waste leaving site for these facilities.

WCP Number	Name	Address	Operating In			Waste Code*	Waste Description*
NWCPO-17-11892-01	A.J Grab Hire	Cornasassonagh Shantonagh Castleblaney Co. Monaghan	Meath	Cavan	Monaghan	17 01 01 17 05 04 17 09 04	Concrete Soil and Stone Mixed Construction and Demolition Wastes
NWCPO-15-11515-02	Kercon Construction	Cortown, Kells, Co. Meath	Meath	Cavan	Monaghan	17 01 01 17 02 01 17 02 03 17 04 07 17 05 04 17 09 04 20 01 01	Concrete Wood Plastic Mixed Metals Soil and Stone Mixed Construction and Demolition Wastes Paper and Cardboard
NWCPO-16-11852-02	Leinster Grab Hire	Mullagh Kilcock Co. Meath	Meath			17 01 01 17 02 01 17 04 07 17 05 04 17 09 04	Concrete Wood Mixed Metals Soil and Stone Mixed Construction and Demolition Wastes
NWCPO-18-12142-01	Stephen Marron Truck & Trailer Services Ltd	Bocks Upper Carrickmacross Co. Monaghan	Meath			17 01 01 17 05 04 17 09 04	Concrete Soil and Stone Mixed Construction and Demolition Wastes
NWCPO-17-11944-01	John J.Duffy Construction	The Commons Navan Co. Meath	Meath			17 01 01 17 02 01 17 04 07 17 05 04 17 09 04	Concrete Wood Mixed Metals Soil and Stone Mixed Construction and Demolition Wastes
NWCPO-01-00340-03	Bernard Ward	Crossalare Laragh Castleblayney Co. Monaghan	Meath			17 01 01 17 05 04 17 09 04	Concrete Soil and Stone Mixed Construction and Demolition Wastes

WCP Number	Name	Address	Operating In			Waste Code*	Waste Description*
NWCPO-17-11983-02-T	Greenrock Recycling Ireland Ltd	Foxtown Summerhill Co. Meath	Meath			17 01 01 17 05 04 17 09 04	Concrete Soil and Stone Mixed Construction and Demolition Wastes
NWCPO-09-01173-03	Powertrack Plant Hire Ltd	Springvalley Summerhill Co. Meath	Meath			17 01 01 17 05 04 17 09 04	Concrete Soil and Stone Mixed Construction and Demolition Wastes
NWCPO-17-11912-02	SEM Construction	Carlanstown Kells Co. Meath.	Meath	Cavan		17 01 01 17 04 07 17 05 04	Concrete Mixed Metals Soil and Stone
NWCPO-16-11761-02	Tusker Steelworks Ltd.	Tusker Broomfield Castleblayney Co. Monaghan	Meath	Cavan	Monaghan	17 01 01 17 02 01 17 04 07 17 09 04	Concrete Wood Mixed Metals Mixed Construction and Demolition Wastes
NWCPO-04-06145-03	J&K McKenna Haulage	Lismeenan Castleshane Co. Monaghan	Meath	Cavan	Monaghan	17 01 01 17 05 04 17 09 04	Concrete Soil and Stone Mixed Construction and Demolition Wastes
NWCPO-18-12178-01	Finnegan Waste Recycling Ltd	Monalia Donaghmoyne Carrickmacross Co. Monaghan	Meath	Cavan	Monaghan	17 01 01 17 02 01 17 02 03 17 04 07 17 05 04 17 09 04 20 01 01	Concrete Wood Plastic Mixed Metals Soil and Stone Mixed Construction and Demolition Wastes Paper and Cardboard
NWCPO-19-12202-01	Gerard McElvaney Ltd.	Listraheagney Castleshane Co. Monaghan	Meath		Monaghan	17 01 01 17 05 04	Concrete Soil and Stone
NWCPO-11-07593-03	T.D. Freight Limited	Tullycara Castleblayney Co. Monaghan	Meath	Cavan	Monaghan	17 02 03 20 01 01	Plastic Paper and Cardboard

WCP Number	Name	Address	Operating In			Waste Code*	Waste Description*
NWCPO-05-06193-02	Dermot Crosby Contracts Ltd	Drumconrath Navan Co. Meath	Meath	Cavan	Monaghan	17 01 01 17 02 01 17 02 03 17 04 07 17 05 04	Concrete Wood Plastic Mixed Metals Soil and Stone
NWCPO-17-11949-01	Patrick Farrelly Transport Services Ltd	17 De Valera Park Drumconrath Navan Co. Meath	Meath	Cavan	Monaghan	17 01 01 17 05 04	Concrete Soil and Stone

Table 5-4: Licensed Waste Haulers

**For a full list and description of wastes handled by each company refer to the National Waste Collection Permit Office database.*

6 WASTE LICENCES

It is anticipated that waste materials will have to be moved off-site throughout this project.

The material storage yard, as previously mentioned, will be used to store steel and equipment required for the construction of the overhead line. It will also include staff facilities and meeting rooms for use during the works. In this context, the term 'material' refers specifically to steel and equipment necessary for the overhead line construction and does not include soil, waste, or any other by-products.

Since no project-related waste will be transported back to this location, the site does not require a waste facility licence, waste permit, or certificate of waste permit. Waste generated will be limited to onsite sources—primarily office and canteen waste, as well as packaging materials from equipment and crates (e.g. timber, plastic)—and will be stored in a designated waste storage area.

Waste topsoil, subsoil, rock and concrete will be generated at each site where foundation installations will take place at tower sites across the overhead line route. All such waste materials shall be handled in accordance with the Resource Waste Management Plan. Soil excavated during foundation works will be temporarily stockpiled onsite if sufficient space is available and subsequently reinstated around the base of the tower once construction is complete. In instances where space is limited, the soil will be removed from the site by a licensed waste haulier and transported to a licensed facility.

The Contractor to engage with specialist waste service contractors, who will possess the requisite authorisations, for the collection and movement of waste off-site, and to bring the material to a facility which currently holds a Waste Licence or Waste Permit.

Table 6-1: List of Waste Authorisation(s) required for the project

Authorisation Type	Specific Need for Project (Y/N?)
Waste Licence	N
Article 27 authorisation	N
Waste Permit	N
Waste Collection Permit	N
Movement of Hazardous Waste Form	N

The proposed Waste Carriers for this project that the Contractor intend to set up contracts with are detailed in **Table 6-2**

Table 6-2: Licenced Waste Hauliers

Waste Type	Company	Licence/Permit No.
C&D Waste	TBC	TBC
Soils & Stones	TBC	TBC

Hazardous Waste	Enva	TBC
Waste Oil & Oily Waste	Enva	TBC
Mixed Municipal Waste	TBC	TBC
Recycled Waste	TBC	TBC

7 TRAINING

Copies of the project specific Resource & Waste Management Plan will be made available to site personnel. Environmental management, site rules and waste management arrangements will be discussed as part of the Site Safety Induction, which all site personnel must attend.

Toolbox Talks will also be held periodically to inform employees of their responsibilities under the plan and current waste management legislation.

Environment and spill kit training refreshed annually or as appropriate for all site staff.

8 WASTE MANAGEMENT RECORDS & AUDITING

The Contractor shall arrange for full details of all arisings, movements and treatment of construction & demolition waste discards to be recorded during the construction stage of the project.

Each consignment of C&D waste and waste soil taken from the site will be subject to documentation, which will conform to the table below and ensure full traceability of the material to its final destination.

Regular Waste Disposal Audits shall be carried out by the Contractor, with specific emphasis on the disposal of C&D Waste and waste soil, to reconcile quantities of waste disposed of with quantities of waste arising, and associated audit records made available to the Employer on request.

The Contractor shall co-operate with any audits undertaken by Local Authority Waste Enforcement personnel and the Waste Enforcement Regional Lead Authorities (WERLA).

Details of the inputs of materials to the construction site and the outputs of wastage arising from the project will be investigated and recorded in a Waste Audit, which will identify the amount, nature and composition of the waste generated on the site.

The audit will examine the manner in which the waste is produced and provide a commentary highlighting how management policies and practices may inherently contribute to the production of C&D waste.

8.1 Appointment of Waste Manager

The Contractor shall appoint a “Waste Manager” who will have responsibility for all aspects of waste management during the construction and for the implementation of the R&WMP.

The Waste Manager shall have the responsibility of implementing the objectives and measures of the R&WMP and shall be granted the requisite authority to secure achievement of this purpose.

The “Waste Manager” shall be appropriately trained and technically competent. The Waste Manager shall be responsible for:

- Obtain and review a suitable waste acceptance letter from the proposed waste disposal facility. Prior to the removal of the waste from the site, the Contractor will request and obtain a letter of acceptance from the proposed waste facility. The letter of acceptance will include the following information as a minimum:
    - The name and address of the waste site, the proposed waste classification, waste code, waste description, waste tonnage, and reference to the relevant samples that were used to classify the waste stream. The name, address, and waste facility permit or licence number should be clearly referenced by the waste facility. The letter will outline that the

waste facility can accept the relevant waste stream in accordance with the current waste facility permit or licence.
    - The letter of acceptance will conclude that the waste facility deems that based on the information provided, the waste stream is suitable for disposal at their facility and that the facility is happy to accept the waste stream for disposal at a future date.
- Ensuring works crews are briefed on this plan and the waste stream segregation being carried out on site.
- Ensuring waste collection permits and disposal and management facilities permits/licences are updated with the live R&WMP.
- Maintained a Daily Waste Despatch Log.
- Review the proposed waste haulage vehicle registration to verify that the vehicle is listed on the relevant waste collection permit.
- Ensuring waste collection permits and disposal and management facilities permits/licences are reviewed for suitability and up to date.
- Maintain records on waste removal from site. Which will be summarised and maintained within a Daily Waste Despatch Log.
- Organise collection of full waste receptacles and delivery of empty receptacles.
- Carrying out audits (fortnightly) to determine the effectiveness of the waste management system being implemented. To ensure that all waste records up to standard and to verify that all waste permit holders are suitable licenced. To verify that all waste loads have been reconciled and accounted for
- Ensuring waste collection permits and disposal and management facilities permits/licences are updated within the live R&WMP.

8.2 Procedures for record keeping (waste register) and reporting

- The Contractor shall ensure that all waste records shall be stored on the SharePoint site or another sharing platform and via management systems on site for hard copies of waste records for the project life.
- All records will be retrievable at site level upon request from interested parties. This includes documents such as haulier dockets, facility dockets and final waste transfer forms.
- In advance of proposed soil and waste transfer, the Contractor will request letters of acceptance from the proposed waste facility/landfill/transfer station that will accept the waste.
- A Waste Register (also may be known as a waste despatch log) will be held on site where a record will be kept of each waste consignment taken from the site. The details recorded for each consignment will, at a minimum, include:
    - Date of removal of waste
    - Waste stream description
    - Waste LoW (EWC) code.
    - Quantity of waste (in tonnes or litres as appropriate)
    - Waste haulage contractor name and address.
    - Waste haulage collection permit no.
    - Waste haulage vehicle registration.
    - Waste disposal contractor name and address.
    - Waste treatment (Reuse/Recycling/Disposal) contractor certificate of registration, permit no. or waste licence no. including appropriate disposal/recovery code.
    - Confirmation that waste was received/accepted by designated facility.
    - Final destination of the waste (including waste licence number)

- Following the transfer of the waste, Site management shall obtain confirmation of the tonnage of waste transferred to the facility. This tonnage must be noted on all waste records.
- A monthly waste report summarising all waste types leaving site shall be prepared by the Contractor.

It is the responsibility of the "Waste Manager" to ensure records are kept up to date throughout the construction of the proposed development. Records should include, but not limited to, the following:

- Records of quantities of waste exported from each site and / or Contractor's compound
- Records of licensed hauliers used and a register of their respective licenses
- Records of licensed waste facilities used and a register of their respective licenses
- Record of how waste was processed (e.g. recycled, heart recovery, disposed)

Once appointed the contractor will include details of their waste management systems within the live R&WMP.

8.3 Auditing

It is the responsibility of the "Waste Manager" to ensure audits are carried out on the implementation of the R&WMP throughout the construction of the proposed development. The Contractor shall co-operate with any audits undertaken by Local Authority Waste Enforcement personnel, and the Waste Enforcement Regional Lead Authorities (WERLA).

Audits shall be carried out at an appropriate interval to be determined by the "Waste Manager" and shall be carried out on sites where work is taking place and in the Contractor's compound.

Records of all audits shall be maintained by the "Waste Manager". Waste audits completed by the Waste Manager should:

- Review all waste acceptance letters obtained prior to the transfer of waste off-site. Ensure that the waste acceptance letter is valid.
- Review all records for the waste generated and transported off-site. All waste movements should be accounted for. A non-compliance such as not having an account of waste movements must be reported to ESB.
- Examine each waste stream to establish where the largest percentage of waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how effective they are.
- Check each waste receptacle to ensure correct segregation of waste streams. If cross contamination is found the works crew will be briefed on the importance of the correct segregation of waste streams.

8.4 Daily Waste Despatch Log

As described in Section 8, the contractor shall appoint a Waste Manager who will have responsibility for all aspects of waste management during the construction and for the implementation of the R&WMP.

One of the key duties of the Waste Manager will be to maintain a Daily Waste Despatch Log. A sample Daily Waste Despatch Log is presented below in Table 9-1, below.

Date	Time	Waste Code	Waste Description	Estimated Waste Volume or Tonnage	Waste Collection Permit (WCP) No.	WCP name & Address	Vehicle Registration	Waste haulage facility docket number	Waste Facility Permit (WFP) No.	WFP name & Address	Waste disposal facility docket number

Table 8-1: Example of Daily Waste Dispatch Log