

East Meath - North Dublin Grid Upgrade Construction Environmental Management Plan – Appendix C

Construction Resource and Waste Management Plan

EirGrid

March 2024



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Appendix C – Construction Resource and Waste Management Plan

1. Introduction

1.1 The Purpose of this Construction Resource and Waste Management Plan

This Construction Resource and Waste Management Plan (CRWMP) has been prepared to present the approach and application of waste management and mitigation measures for the construction of the East Meath – North Dublin Grid Upgrade (hereafter referred to as the Proposed Development). The CRWMP will ensure that waste arising during the Construction Phase will be managed and disposed of in a way that ensures compliance with the provisions of Number 10 of 1996 - Waste Management Act, 1996 (as amended) (hereafter referred to as the Waste Management Act), and associated Regulations to ensure that optimum levels of reduction, reuse and recycling are achieved.

The CRWMP has been prepared in accordance with the Environmental Protection Agency's (EPA) Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects (EPA 2021a) (hereafter referred to as the EPA WMP Guidance). The project life cycle of the CWRMP is illustrated in the EPA WMP Guidance as shown in Image 1.1.

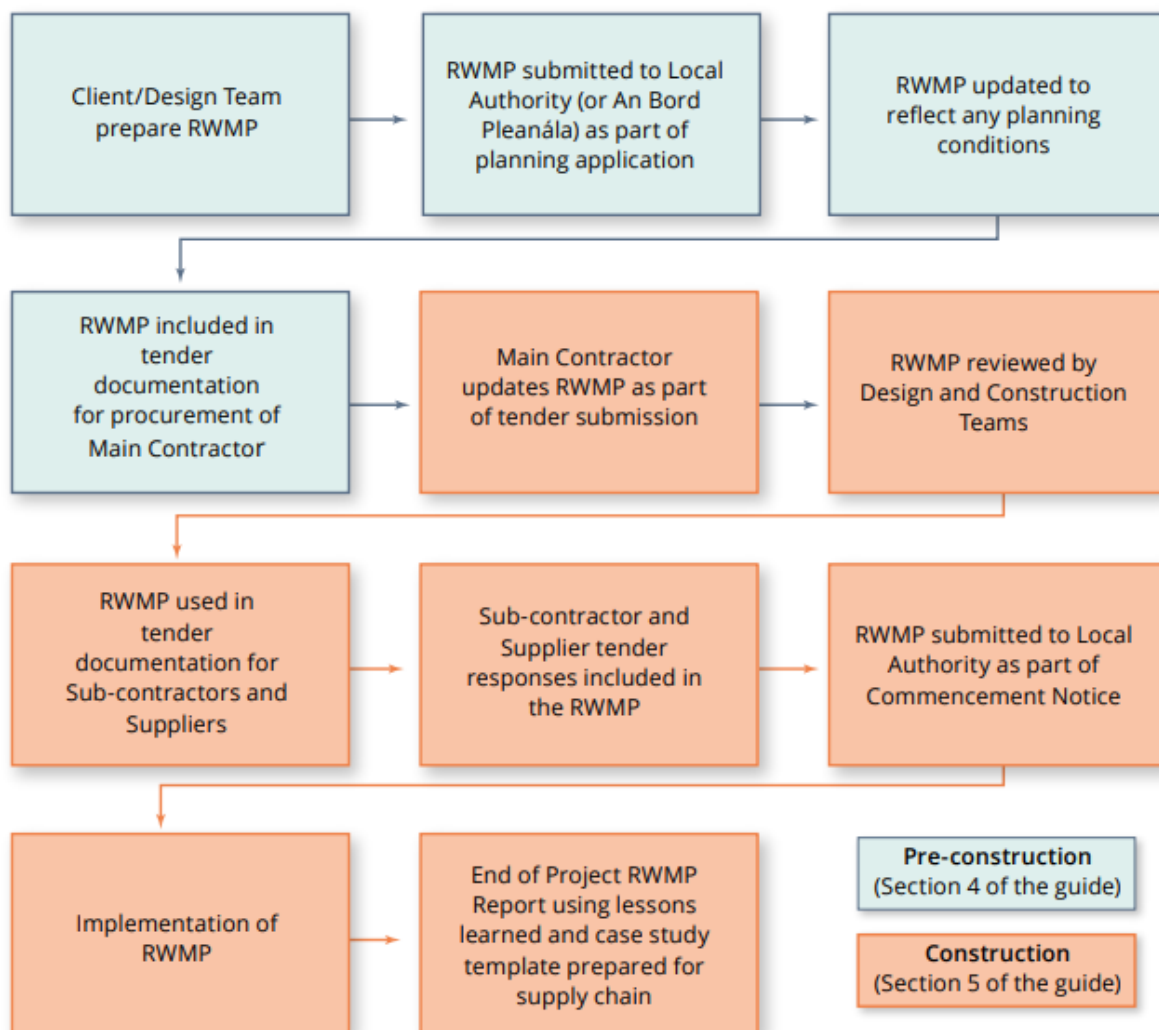


Image 1.1: Project Life Cycle of the Plan (EPA 2021a)

The CRWMP is based on the estimated quantities of waste generation and the proposed management measures from the Proposed Development at the planning stage. The requirement to develop, maintain and operate this CRWMP will form part of the contract documents for the Proposed Development and will be updated by the appointed contractor in advance of the commencement of construction activities on-site. Waste sent offsite for recovery or disposal will only be conveyed by an authorised waste contractor and will be transported from the Proposed Development site to an authorised site of recovery / disposal in a manner which will not adversely affect the environment. All employees will be required to comply with the obligations under this CRWMP.

The appointed contractor will be responsible for the further development of this CRWMP and the implementation of all necessary protocols and measures to ensure regulatory compliance, including the provision of data to the local authorities to enable fulfilment of reporting obligations.

The appointed contractor will be required to regularly revisit the CRWMP throughout the Construction Phase of the Proposed Development so that opportunities to maximise waste reduction / efficiencies are exploited throughout, and to ensure that data is collected on an ongoing basis so that it is as accurate as possible.

1.2 Structure of this CRWMP

Design Out Waste (EPA 2015) notes the preparation of a Waste Management Plan within the early design and feasibility phases provides a framework to carry out design reviews, and will be used as an implementation, benchmarking, monitoring and reporting tool throughout the overall construction process.

This CRWMP has been prepared in line with the recommendations of the EPA WMP Guidance (EPA 2021a) for Tier 2 projects ('larger scale projects, including Strategic Infrastructure Developments, Strategic Housing Developments, infrastructure projects (road, rail, gas, energy)') and consequently addresses the following:

- Introduction;
- Development Description;
- Roles and Responsibilities;
- Design Approach;
- Key Materials, Quantities and Costs;
- Site Management; and
- Site Infrastructure.

1.3 Relevant Guidelines, Policy and Legislation

Resource and waste management takes place in a legislative and policy framework. Applicable legislation, policy and best practice was reviewed as part of the preparation of this CRWMP. The key components of European Union (EU), national and local policy, legislation and guidance relevant to the proposed construction and demolition (C&D) waste are summarised as follows:

- Prevention and minimisation of waste is the preferred option;
- Where C&D waste is generated, it will be source separated to facilitate reuse and recycling and to maximise the diversion of waste from landfill;
- Where waste may not be prevented or recycled, it will be transported and disposed of in accordance with applicable legislation and without causing environmental pollution; and
- Waste may only be transferred by a waste collection permit holder and delivered to an authorised waste facility.

The following guidance and policy documents used in preparation of the CRWMP were:

- EPA WMP Guidance (EPA 2021a);

- Construction & Demolition Waste, Soil and Stone Recovery / Disposal Capacity – (Update Report 2020) (Regional Waste Management Offices 2020);
- National Waste Management Plan for a Circular Economy 2024-2030 (Regional Waste Management Offices 2024);
- Circular Economy Action Plan, for a Cleaner and More Competitive Europe (European Commission 2020);
- Circular Economy Programme 2021-2027 (EPA 2021b);
- The Department of Communications, Climate Action and Environment (DCCA) A Waste Action Plan for a Circular Economy, Ireland's National Waste Policy 2020-2025 (DCCA 2020);
- The Department of Environment, Climate and Communications (DECC) Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less' (DECC 2022);
- The Eastern Midlands Region Waste Management Plan 2015-2021 (Eastern Midlands Waste Region (EMWR) 2015);
- Design Out Waste: A design team guide to waste reduction in construction and demolition projects (EPA 2015); and
- Transport Infrastructure Ireland (TII) The Management of Waste from National Road Construction Projects (TII 2017).

The following directives and legislation were reviewed as part of the preparation of this CRWMP and are the central driver of waste policy in Ireland:

- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (hereafter referred to as the Waste Framework Directive);
- S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2020 (hereafter referred to as the Waste Directive Regulations);
- S.I. No. 163 of 1998 – Waste Management (Hazardous Waste) Regulations 1998;
- S.I. No. 86/2008 - Waste Management (Facility Permit and Registration) Regulations 2008, as amended;
- S.I. No. 821/2007 - Waste Management (Facility Permit and Registration) Regulations 2007;
- S.I. No. 820/2007 - Waste Management (Collection Permit) Regulations 2007, as amended;
- S.I. No. 419/2007 - Waste Management (Shipments of Waste) Regulations 2007;
- S.I. No. 189/2015 – Waste Management (Landfill Levy) Regulations 2015;
- S.I. No. 126 of 2011 – European Communities (Waste Directive) Regulations 2011 (as amended);
- Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste (hereafter referred to as the Landfill Directive);
- Waste Management Act;
- Number 26 of 2022 – Circular Economy and Miscellaneous Provisions Act 2022; and
- Number 12 of 1997 - The Litter Pollution Act 1997 (Revised).

1.3.1 Irish Waste Management Targets

Under the Waste Framework Directive, EU Member States must achieve 70% of material recovery of non-hazardous and non-soil-and-stone C&D waste by 2020.

With respect to the Proposed Development, the most applicable target is laid out in Article 11(2)b of the Waste Framework Directive regarding C&D waste:

"By 2020, the preparing for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the list of waste shall be increased to a minimum of 70 % by weight".

The EPA reported in August 2023 that Ireland achieved 85% material recovery in 2021 (the most recent year for which statistics are available), surpassing the 70% EU target (EPA 2023a).

Every effort will be made to achieve the required level of material recovery of C&D waste as part of the Proposed Development in accordance with EU targets under the Waste Framework Directive as well as regional waste management targets. A baseline of available C&D waste capacity within the Eastern-Midlands Waste Region (EMWR) was calculated in Chapter 15 (Waste) in Volume 2 of the Environmental Impact Assessment Report (EIAR) (included in the planning application pack) and is summarised in Table 1.1.

Table 1.1: Summary of Approximate Annual Capacity for Soil and Stone Waste within the EMWR (EPA 2023b; EPA 2024; National Waste Collection Permit Office (NWCPO) 2024)

Facility Name	Number of Facilities (November 2023)	Approximate Maximum Capacity per Annum C&D / Soil and Stone Waste (tonnes)
Landfills	3	363,000
Incinerators	2	50,000
Soil Recovery Facilities	8	3,555,000
Local Authority Waste Facility Permits / Certificates of Registration	148	4,000,000
Total	161	7,968,000

1.4 Objectives of the CRWMP

The overall objective of the CRWMP is to minimise the quantity of waste material generated and disposed of as a result of the Construction Phase of the Proposed Development. The key principles which drive this objective are the Circular Economy model and the Waste Hierarchy. These are explained further in the following sections.

1.4.1 Circular Economy

The principal objective of sustainable resource and waste management is to use resources more efficiently, where the value of products, material and resources is maintained in the economy for as long as possible such that the generation of waste is minimised. To achieve resource efficiency there is a need to move from a traditional linear economy to a circular economy. Image 1.2 illustrates the circular economy model.

As stated in the National Waste Action Plan for a Circular Economy, Ireland’s National Waste Policy 2020-2025 (Government of Ireland 2020):

"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 EU Circular Economy Action Plan, For a Cleaner and More Competitive Europe (European Commission 2020) notes that:

"the EU needs to accelerate the transition towards a regenerative growth model that gives back to the planet more than it takes, advance towards keeping its resource consumption within planetary boundaries, and therefore strive to reduce its consumption footprint and double its circular material use rate in the coming decades".

The Whole Government Circular Economy Strategy 2022–2023 (Government of Ireland 2021), sets out a policy framework for transitioning to a circular economy, including measures to reduce the circularity gap, raise awareness and support investment into circular initiatives and to identify barriers.

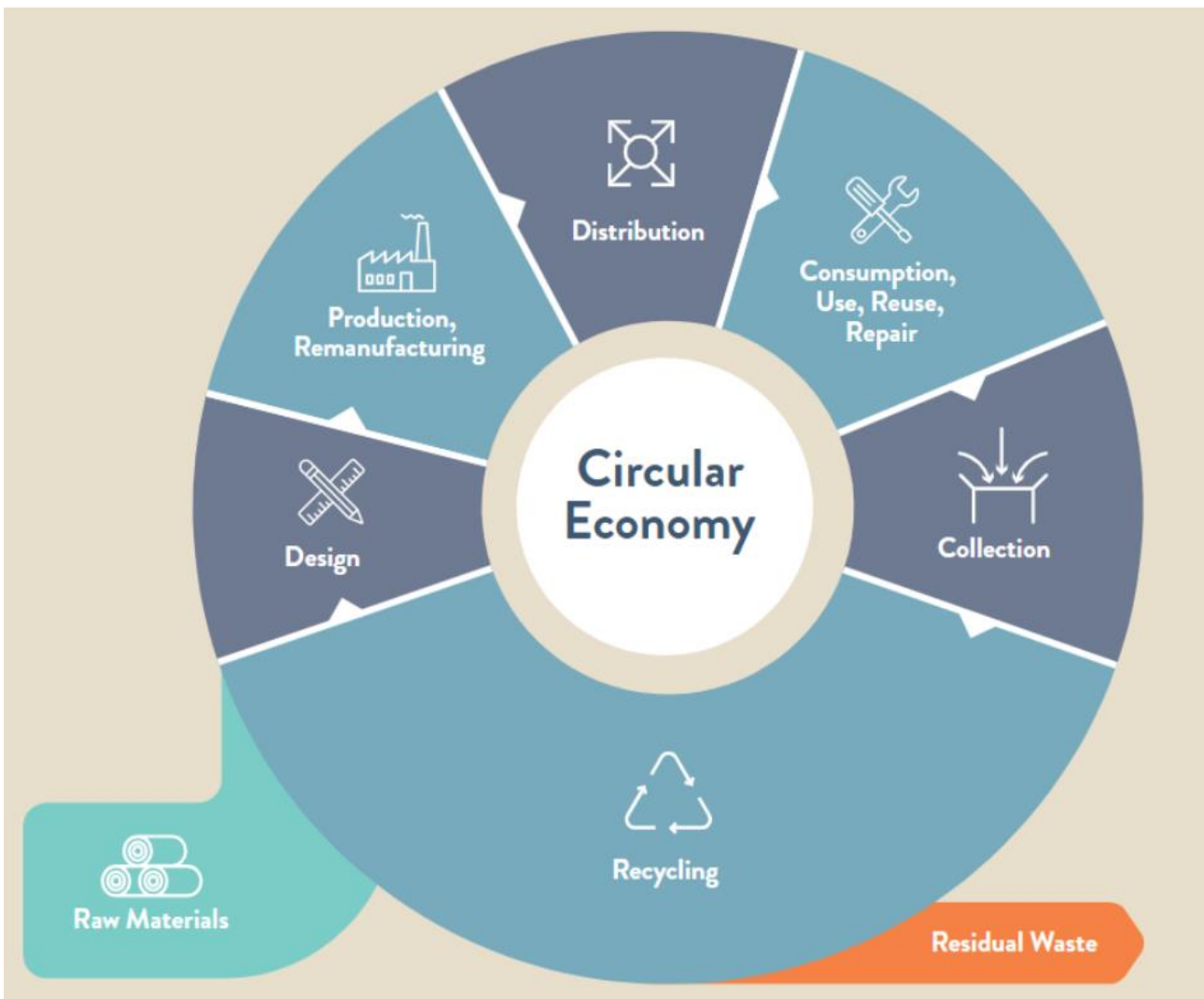


Image 1.2: The Circular Economy (Government of Ireland 2020)

1.4.2 Waste Hierarchy

The Waste Framework Directive defines waste as “any substance or object that the holder discards or intends to or is required to discard”.

The Waste Hierarchy, as shown in Image 1.3, prioritises prevention over reuse, recycling, recovery and disposal. It established the order of preference for the management of waste, with the most preferential management method being to prevent the creation of waste in the first place. The ultimate goal is to reduce, as far as possible, the quantity of waste disposed of to a landfill, thus increasingly treating waste as a resource.

The waste hierarchy supports the need to achieve efficient use of material resources, minimise the amount of waste produced (or otherwise increase its value as a resource) and reduce, as far as possible, the amount of waste that is disposed to landfill.

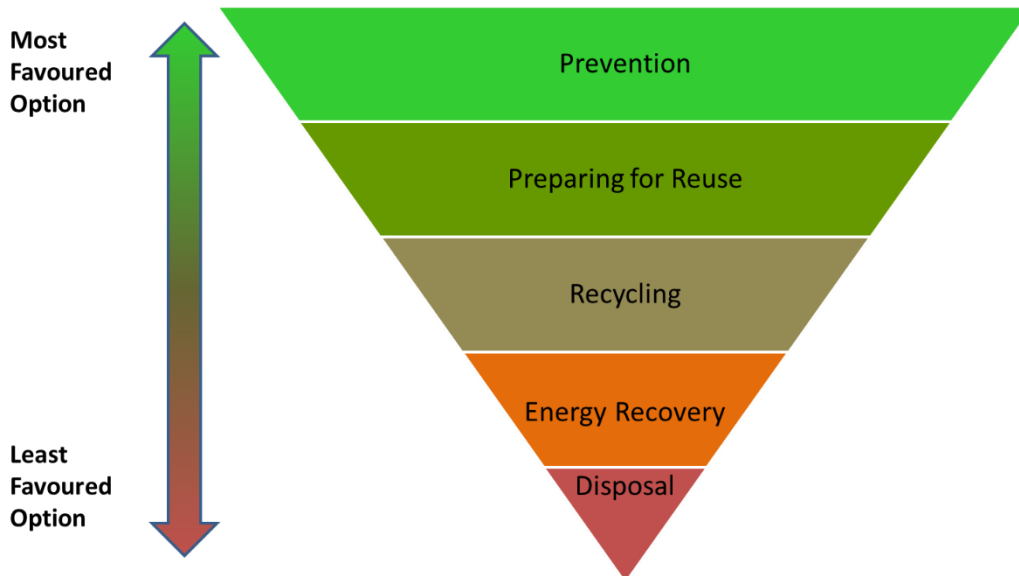


Image 1.3: Waste Hierarchy (as per the Waste Framework Directive)

2. Roles and Responsibilities

The Electricity Supply Board (ESB) will be responsible for the appointment of the contractor. The CEMP, to which this CRWMP is appended, lists specific roles and their responsibilities with respect to the management of the CEMP, including a 'Waste Manager'. Refer to Section 1.5 of the CEMP for further details on other Environmental Project Construction Team roles.

The appointed contractor will appoint a suitably qualified person as Waste / Resource Manager to implement and maintain the CRWMP. The Waste / Resource Manager will be responsible for the following:

- Detailing and maintaining the CRWMP, and updating it as appropriate;
- Implementing the CRWMP throughout the Excavation, and Construction Phases of the Proposed Development;
- Following each update or revision of the CRWMP, providing the CRWMP to the Client, appointed Contractor(s) and all relevant personnel;
- Ensuring that all personnel are instructed about the objectives of the CRWMP and informed of the responsibilities which fall upon them as a consequence of its provision. This will be carried out during the induction process for new personnel;
- Communicating the requirements of the CRWMP using for example, toolbox talks, prominently displayed notices and audits as relevant;
- Maintaining accurate records of waste / surplus materials generated and the costs associated with waste generation and management; and
- Ensuring, where training is required regarding the handling and management of waste on-site, that it is provided, where required.

The appointed contractor and all personnel handling wastes must be in a position to:

- Distinguish reusable materials from material suitable for recycling;
- Ensure maximum segregation of waste and recyclables at source;
- Co-operate with the appointed Contractor(s) on best locations for stockpiling reusable material;
- Separate material for recovery; and
- Identify and liaise with operators of recovery outlets as appropriate.

Copies of the CRWMP will be made available to all relevant personnel.

The appointed contractor will review this Section of the CRWMP, add in the details of the personnel and outline their specific responsibilities. The hierarchy of all personnel designated with responsibilities under this CRWMP will be included to make clear the reporting chain.

3. Design Approach

3.1 Proposal for Managing Waste Arisings

The Proposed Development, as with any such infrastructure project, will result in the generation of surplus materials and waste. This material will need to be handled in a manner which is in compliance with all applicable legislation as well as the client, local and national policy.

Waste arisings will be managed in accordance with the principles outlined in the Waste Management Hierarchy as outlined in Section 1.4.2. In order of priority, the Waste Management Hierarchy sets out the most desirable approaches to waste management in the following order:

1. Prevention;
2. Reduction / Minimisation;
3. Reuse;
4. Recycle;
5. Other Recovery (including energy recovery); and
6. Disposal.

3.2 Waste Reduction / Prevention

Where reasonably practicable, opportunities for the prevention of waste will be considered throughout all stages of the Proposed Development. Measures such as, design optimisation, careful planning of material use and storage, good practice with respect to the handling of materials, and the reuse of material on site will be prioritised.

In accordance with EPA WMP Guidance (EPA 2021a), the following measures will be implemented to reduce and / or prevent the generation of excess surplus materials and waste throughout the Construction Phase of the Proposed Development:

- Materials required for the construction of the Proposed Development will typically be ordered and managed on a 'Just-In-Time' basis, in so far as is reasonably practicable. This will reduce the potential for over-ordering, and will reduce the potential for materials to be damaged or spoiled due to prolonged storage times;
- Where materials are required to be stored, they will be stored in a suitable manner in an appropriate storage area or receptacle. This will reduce the potential for losses or spills, and reduce the potential for damage due to incorrect storage measures; and
- Waste storage areas will be clearly defined and separated from material storage areas to prevent potential contamination of materials, making them unsuitable for their intended use.

Clean excavated material will be reused within the Proposed Development as fill or for landscaping, where reasonably practicable, to avoid the material needing to be removed for management elsewhere. Where reuse within the Proposed Development is not feasible, either due to the material being inappropriate for such reuses or being in excess of what is required, alternative solutions will be explored to prevent the material becoming a waste. The option to manage any surplus clean soil and stone material as a by-product in accordance with Article 27 of S.I. No. 126 of 2011 – European Communities (Waste Directive) Regulations

2011 (as amended) will be investigated. Where this is deemed to be an appropriate option, the appointed contractor will be responsible for:

- Storage of any Article 27 material in such a manner that does not compromise its suitability for further use under Article 27 (i.e. stored separately to any waste materials, stored away from any potential sources of contamination, etc.);
- Identifying appropriate and compliant locations for the reuse of such material; and
- Submitting the required EPA notification (including completing all assessments and documentation required in order to make that notification).

3.3 Waste Reuse / Recycling

Waste generated during construction of the Proposed Development will be reused on-site, where practicable. Opportunities for recycling will be employed for any waste that cannot be reused.

The appointed contractor will be responsible for maximising reuse and recycling of waste materials arising from the construction of the Proposed Development, and for achieving the waste management targets set by the Client. Disposal will only be considered as a last resort where there are no viable options for reuse or recycling available.

The following measures will be implemented by the appointed contractor in order to maximise the potential for reuse or recycling of any waste generated by the Proposed Development:

- Clean excavated soil and stone, which is not suitable for reuse within the Proposed Development or elsewhere as a by-product in accordance with Article 27, will be managed as a waste:
 - Waste soil and stone will be stockpiled on-site in advance of removal by a contractor in possession of an appropriate Waste Collection Permit. Waste will be collected in a timely manner and will not be stored for longer than six months. Where there is a requirement for storage in excess of six months, the appointed contractor will be responsible for attaining the applicable waste facility consent (Certificate of Registration or Waste Facility Permit from the local authority, or waste licence from the EPA);
 - Stockpile sizes and forms will be appropriate to the nature of material being stockpiled. Different material types will not be mixed in stockpiles;
 - Where materials have different end uses (i.e. reuse on site, reuse as a by-product, or being treated as a waste) they must be stockpiled separately to prevent contamination; and
 - Any waste soil and stone generated will be taken to a suitably licensed or permitted waste facility.
- Suitable waste storage receptacles will be made available for all recyclable waste types (e.g. skips or collection areas will be enclosed where required to prevent damage from the weather);
- Waste will be segregated at source to improve the level of reuse and recycling, with labelling / signage used to denote where each waste stream is to be stored; and
- Waste which is unsuitable for reuse / recycling will be stored separately to recyclables in order to prevent contamination.

3.4 Other Waste

Hazardous waste generated on-site will be managed by the appointed contractor in accordance with applicable legislation. Where all viable options for reuse / recycling have been exhausted, only then will waste be disposed of. This type of waste will likely be composed of predominantly mixed municipal wastes and hazardous waste. Where cross contamination of other waste streams occurs, this can also render a reusable or recyclable waste unsuitable for reuse / recycling, resulting in a requirement for disposal.

Typical types of hazardous waste on construction projects generally consist of:

- Batteries;
- Oil-contaminated items (e.g. oily rags, filters);
- Bentonite from HDD works;
- Fluorescent lightbulbs (where used in temporary site offices and welfare facilities);
- Packaging for hazardous material (e.g. paint cans, fuel / oil drums);
- Contaminated spill clean-up materials (e.g. absorbents, cloths);
- Contaminated soils (if encountered during excavation); and
- Bituminous mixtures containing coal tar (potential to encounter in road planings where there are road surfacing materials dating from pre-1980s).

Hazardous waste generated on-site will be managed by the appointed contractor in accordance with applicable legislation and national policy as follows:

- Appropriate, segregated waste receptacles will be provided for the storage of the different hazardous waste streams, with each hazardous waste type to be stored separate from other hazardous waste types;
- Hazardous waste storage will be on hardstanding and/or bunded to avoid leaking of contaminated material into the underlying soil;
- Appropriate signage will be used to denote the disposal areas for hazardous waste;
- Hazardous waste will only be collected by contractors in possession of a suitable Waste Collection Permit and will be disposed of to a suitably licensed hazardous waste facility; and
- Records of hazardous waste will be kept and retained for a minimum of three years in accordance with the requirements of S.I. No. 163 of 1998 - Waste Management (Hazardous Waste) Regulations, 1998.

4. Key Materials, Quantities and Costs

4.1 Introduction

The most environmentally sustainable means of managing excavated material is its prevention and minimisation (refer to Section 1.4). The appointed contractor will be responsible for the implementation of these measures for the Proposed Development. In recent years there has been a shift in focus on best practice waste management and waste minimisation in construction and an increase in the reuse of construction by-products in projects.

4.2 Key Materials / Waste

It is anticipated that the main waste streams which are likely to arise during the Construction Phase as a result of excavation activities as well as from surplus construction materials and damaged materials. These are listed in Table 4.1. The List of Waste (LoW) code is provided for each waste type, with an asterisk (*) denoting any waste types which are hazardous.

Table 4.1: Main Waste Types Likely to be Generated During Construction

Waste Type	LoW Code
Concrete	17 01 01
Wood, glass and plastic	17 02 01 – 17 02 04*
Bituminous mixtures	17 03 01* - 17 03 03*
Metals	17 04 01 – 17 04 11
Soil and Stones	17 05 04
Wastes of liquid fuels	13 07 01* – 13 07 03*
Absorbents, filter materials, wiping cloths and protective clothing	15 02 02* – 15 02 03
Batteries and accumulators	16 06 01* – 16 06 06*
Vegetation	20 02 01
Waste packaging	15 01 01 – 15 01 11*
Municipal waste (separately collected fractions)	20 01 01 – 02 01 99
Mixed municipal waste	20 03 01
Note: Codes with an * are hazardous waste types	

4.3 Estimated Material / Waste Quantities

The waste types and estimated quantities likely to be generated during the Construction Phase of the Proposed Development are set out in Table 4.2. The total forecast of surplus excavation material from the Proposed Development will be 255,727 tonnes, which is equivalent to approximately 3% of the C&D waste management baseline per annum for the EMWR set out in Table 1.1.

Table 4.2: Estimate of Waste Quantities During the Construction Phase

Location	Waste / Surplus Material Type	Quantity (m ³)	Quantity (tonnes)	
Cable Route				
In-Carriageway	Asphalt*	3,666	8,432	
	Engineered Fill	14,663	32,259	
	Subsoil	31,160	46,740	
Off-Road / In-Verge	Subsoil	16,848	25,272	
	Engineered Fill (Haul Roads)	20,992	46,182	
Permanent Access Tracks	Top Soil	3,192	4,469	
Belcamp Substation				
Permanent Access Tracks	Topsoil	80	112	
Earthworks	Subsoil	11,200	16,800	
Woodland Substation				
Earthworks	Subsoil	50	75	
Enabling Works				
Passing Bays	Asphalt*	578	1,329	
	Engineered Fill	2,310	5,082	
	Subsoil	1,733	2,600	
Construction Platforms	Engineered Fill	4,050	8,910	
	Subsoil	1,350	2,025	
Compounds	Engineered Fill	25,200	55,440	
Totals By Material			Proportion of Total (%)	
	Asphalt*	4,243	9,761	3.1
	Topsoil	3,272	4,581	2.4
	Subsoil	62,341	93,512	45.5
	Engineered Fill	67,215	147,873	49.0
	Total	137,072	255,727	100

Construction works areas, site offices and temporary facilities are also likely to generate waste during the Construction Phase (e.g. municipal type wastes by construction employees, packaging, food waste, etc.). Segregation facilities will be provided on the construction site to ensure that recovery and recycling of such materials is maximised.

Hazardous wastes which are likely to arise include waste electrical and electronic equipment, batteries, oil / fuel residues and oil contaminated items. With specific regard to asphalt / bituminous waste, while the overall quantity will be relatively small, this material may contain coal tar which would be categorised as hazardous waste. It is conservatively assumed at this stage that 50% of road surface material could contain coal tar and would be categorised as hazardous waste. This would result in a potential hazardous waste quantity of 5,019 tonnes. Typically, hazardous waste generated in Ireland is transported to and disposed of at facilities in England or it is diverted from landfill through cold recycling applications. The Hazardous Waste capacity in England in 2022 was 11,882,411 tonnes (United Kingdom Government Waste Statistics 2022). In the worst-case scenario of all potential coal tar waste going to landfill from the Proposed Development, this would represent approximately 0.0004% of capacity.

The Construction Phase will require the importation of a number of key construction materials for the Proposed Development works. This material will include items such as engineering fill, concrete and asphalt. Table 4.3 provides an estimate of the quantities of the major materials required to complete the Construction Phase of the Proposed Development.

Table 4.3: Estimate of Material Quantities Required for the Construction Phase

Location	Imported Material Type	Quantity (m ³)	Quantity (tonnes)
Cable Route			
In-Carriageway	Asphalt	3,666	8,431
	Engineered Fill	21,079	46,373
	Concrete / CGBM B	20,546	-
Off-Road / In-Verge	Engineered Fill (Haul Roads)	20,992	46,182
	Concrete / CGBM B	11,085	-
Permanent Access Tracks	Engineered Fill	4,788	10,534
Joint Bays	Concrete	796	-
Belcamp Substation			
Permanent Access Tracks	Engineered Fill	120	264
Civils & Foundations	Concrete	1,964	4,714
400kV GIS Hall	Steel	-	127
Woodland Substation			
Civils & Foundations	Concrete	107	257
Enabling Works			
Passing Bays	Asphalt	578	1,328
	Engineered Fill	2,310	5,082
	Subsoil	1,733	2,599
Construction Platforms	Engineered Fill	4,050	8,910
	Subsoil	1,350	2,025
Compounds	Engineered Fill	25,200	55,440

In addition to the quantities outlined in Table 4.3 there will be equipment and plant required for the substations, such as shunt reactors, transformers (current and voltage), cable sealing ends, surge arrestors, gantries, post insulators, disconnectors, circuit breakers, GIS bushings, bulk head lighting and lighting masts. There will also be approximately 150 drums of insulated copper cabling (37.5km multiplied by three phases) required for the cable route. These items will be acquired for the project pre-fabricated from specialist manufacturers.

4.4 Route Options for Resource / Waste Management

4.4.1 Article 27

Surplus excavation materials may be declared a by-product (under Article 27 of S.I. No. 126 of 2011 – European Communities (Waste Directive) Regulations 2011 (as amended)) for reuse in one or more known construction projects.

By-product notifications to the EPA provide an opportunity for reuse of surplus clean soil and stone material arising from construction activity. This can apply to locations other than authorised recovery facilities (e.g. quarries operating under planning permission, parks or other developments requiring earthworks and importation of clean soil and stone). This option can bring significant economic benefits while facilitating beneficial reuse of by-products. This plays a role in Ireland’s implementation of Circular Economy principles.

An Article 27 notification to the EPA, under Article 27, is required to achieve by-product status for soil and stones. It is noted that the use of Article 27 is limited to clean soil and stone, and it must be demonstrated to the EPA that the following four conditions are met:

- Further use of the soil and stone is certain;

- The soil and stone can be used directly without any further processing other than normal industrial practice;
- The soil and stone is produced as an integral part of a production process; and
- Further use is lawful in that the soil and stone fulfil all relevant requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

Where it is proposed to use an Article 27 EPA notification in relation to excavation material from the Proposed Development, the appointed contractor will be responsible for submission of the Article 27 notification to the EPA. Where it is proposed to use soil from offsite with an Article 27 notification, the appointed contractor will be responsible for carrying out any necessary due diligence regarding the material and ensuring that all EPA guidelines relating to that Article 27 notification have been complied with before the soil is imported into the site. Where feasible, appropriate and available, Article 27 materials arising from other sites will be used in the development of this site. The appointed contractor is responsible for ensuring all applicable regulatory requirements under waste, planning and other laws are complied with prior to movement of excavation material. Any hazardous waste arising will be managed in accordance with the applicable legislation.

This Section of the CRWMP will be updated by the appointed contractor with the specific details if / when a by-product end user has been identified and the By-Product Notification has been made to the EPA.

4.4.2 Waste Management

Where removal of wastes from the Proposed Development is unavoidable, it will be delivered by the appointed contractor only to facilities which are authorised under the Waste Management Act and which hold the appropriate Waste Licence, Waste Facility Permits, or Certificates of Registration.

Where the appointed contractor proposes to deliver excavated materials from the Proposed Development to facilities holding a Certificate of Registration, Waste Facility Permit or EPA Waste Licence, the appointed contractor will be responsible for ensuring the authorisation is valid and allows acceptance of the relevant LoW Code. Waste will only be transported from site by vehicles in possession of an appropriate Waste Collection Permit for the type of waste being transported and the area in which it is being transported. The appointed contractor will retain records of the wastes transported from the site and the Waste Collection Permits of the transporters.

The location and availability of appropriate waste management facilities for management of all waste arising from the Proposed Development will need to be reviewed by the appointed contractor in advance of the commencement of construction, and updated throughout the Construction Phase as required. Where practicable, waste facilities near to the Proposed Development will be used in order to reduce the impacts associated with transportation of the waste.

Suitable waste facilities will be identified for each waste stream. The appointed contractor will keep records of Waste Licences, Waste Facility Permits, or Certificates of Registration for any facilities being used by the Proposed Development. Waste will only be transported from site by vehicles in possession of an appropriate Waste Collection Permit for the type of waste being transported and the area in which it is being transported. The appointed contractor will retain records of the wastes transported from the site and the Waste Collection Permits of the transporters.

4.5 Cost of Resource Management

The total cost associated with the management of surplus materials and waste from the Proposed Development will be calculated. At this preliminary stage in the Proposed Development, the costs of materials and waste disposal are unknown. Once exact quantities of materials and wastes are known, the full

costs can be calculated by the appointed contractor. Such calculations will be reviewed and amended as needed throughout the Construction Phase.

The costs of waste management will depend on the waste management routes selected and waste management contractors used. The Landfill Levy as per S.I. No. 189/2015 - Waste Management (Landfill Levy) Regulations 2015 is currently €75 per tonne of waste being disposed of to landfill. It will therefore be economically advantageous to divert as much material as possible away from the disposal route. This will be weighed up by the appointed contractor in advance of, and during, the Construction Phase of the Proposed Development to find the best solutions.

The total cost of waste management associated with the Proposed Development will be calculated in regard to the purchase of costs of materials, handling costs, storage costs, transportation costs, revenue from sales, disposal costs etc. Costs will be recorded for the range of C&D materials and waste arising.

5. Site Management

The following management measures will be included in the CRWMP and will be implemented, in so far as is reasonably practicable:

- Waste and materials will be stored in suitable containers and at suitable locations to avoid cross-contamination or pollution due to leakages or littering. Where required, bunding or drip trays will be used to contain any potential leakages. Any stockpiling required will be appropriately sized and segregated;
- Where waste generation cannot be avoided, waste disposal will be minimised;
- Opportunities for reuse of materials, by-products and wastes will be sought throughout the Construction Phase;
- Possibilities for reuse of clean non-hazardous excavation material as fill on the site or in landscaping works will be considered following appropriate testing to ensure material is suitable for its proposed end use;
- Where excavated material cannot be reused within the Proposed Development works, opportunities for reuse as a by-product in accordance with Article 27 of .I. No. 126 of 2011 – European Communities (Waste Directive) Regulations 2011 (as amended) will be sought. Where this is also unsuitable, material will be sent for recovery or recycling;
- Source segregation: All materials will be segregated at source during construction works and removed offsite to a permitted / licensed facility for recycling;
- Material management: 'Just-in-time' delivery, where practicable, will be used to minimise material wastage;
- General construction waste and by-products will be reused within the Proposed Development, where practicable, or appropriately reused (in accordance with Article 27 of .I. No. 126 of 2011 – European Communities (Waste Directive) Regulations 2011 (as amended))), recovered, recycled or disposed of offsite, as arranged by the appointed contractor;
- Any hazardous waste arising will be managed by the appointed contractor in accordance with the applicable legislation; and
- Waste auditing: The quantity and types of waste and materials leaving site during the Construction Phase will be recorded by the appointed contractor. The name, address and authorisation details of all facilities and locations to which waste and materials will be delivered will be recorded along with the quantity to each facility. Records will show material, which is recovered, which is recycled and which required disposal.

5.1 Waste / Resource Manager

As outlined in Section 2, the Waste / Resource Manager will take responsibility for all aspects of waste management at the different stages of the Construction Phase and overall implementation of the CRWMP and associated procedures.

The Waste / Resource Manager will be technically competent and appropriately trained, and will take responsibility to ensure the objectives and measures contained within this CRWMP are transposed into the detailed CRWMP, and are subsequently implemented including associated target reuse / recycling rates. The Waste / Resource Manager will facilitate effective communication of the waste management objectives with all operatives associated with the Proposed Development (including site staff, external contractors and suppliers).

The Waste / Resource Manager will maintain accurate records on the quantities of waste / surplus materials generated and the real cost (including purchasing) associated with waste generation and management. The recording of summary information will further assist the implementation of the plan.

The Waste / Resource Manager will ensure that reporting and recording requirements are met and all necessary resources are in place to support the implementation of the detailed CRWMP.

5.2 Site Personnel

All site personnel will be responsible for adhering to the requirements of the CRWMP which are applicable to their role on the Proposed Development. This includes, but is not limited to, helping in the maintenance of a clean and tidy site, compliant storage of waste and materials, adherence to all waste management rules and notices as applicable to their role and work location, and reporting (and responding to where applicable) any spills or waste issues that may arise to the Waste / Resource Manager.

5.3 Training

All site personnel will be made aware of their responsibilities with respect to the implementation of this CRWMP. This will be covered through training, including:

- Site induction training for new site operatives; and
- Periodic toolbox talks to refresh operatives on their requirements, particularly after updates to the CRWMP or following any incidents or issues arising from improper waste management practices.

The topics to be covered in training will include:

- The site-specific waste management procedures and role of all site operatives in implementing these procedures;
- The key personnel responsible for waste and resource management;
- Commitments and targets for waste and materials management;
- Information on the waste storage areas, including any specific storage requirements for specific materials;
- Detail how waste and materials will be segregated and the importance of adhering to the required source segregation policies;
- Details on response to incidents such as spills;
- Information on the handling of any hazardous wastes; and
- Document control requirements.

5.4 Sourcing and Management of Materials and Waste Services

The appointed contractor will be responsible for the sourcing of materials and the appointment of suitable waste contractors. Considerations when identifying these will include transportation requirements for imported materials and exporting of waste, material sources, sustainability within supply chains, availability of materials, costs of material supply and waste management, and opportunities for waste minimisation through agreements to return unused surplus materials. All of these considerations will be weighed when procuring suppliers or waste contractors to ensure the most efficient and sustainable resource and waste management.

5.5 Record Keeping

Records of all waste and materials will be kept by the appointed Contractor(s). These records will include, but not be limited to:

- Records of updates to the CRWMP;
- Minutes of meetings with respect to materials and waste management;
- Records of deliveries of materials on site;
- Records of waste quantities collected from site;
- A copy of Waste Licences / Waste Facility Permits / Certificates of Registration for any waste facilities to which waste from the site is transported;
- A copy of Waste Collection Permits for any waste collection vehicles being used to transport the waste to the waste facilities;
- Copies of any Waste Transfer Forms from the transfer of hazardous waste;
- Copies of any Transfrontier Shipment paper work where any waste from the site is to be shipped outside of Ireland for treatment / disposal (if applicable);
- Training records;
- Records of any site inspections and audit findings and any remedial actions undertaken as a result; and
- Records of any environmental incidents.

5.6 Communications

The requirements and contents of the CRWMP will be communicated to site operatives through site induction training and toolbox talks as outlined in Section 5.3.

The Waste / Resource Manager will be the designated contact person for any communications associated with waste and resource management during the Construction phase. They will be responsible for any communications with the Local Authorities, Client, local community or any other interested parties. This may include:

- Regular updates (as required) to the Client on resource and waste targets, procedures or issues;
- Providing the CRWMP to the relevant Local Authority if requested;
- Management of any resource or waste-related complaints received by the appointed Contractor(s);
- Engagement with the Client, Local Authorities or EPA with respect to any site inspections / audits, including being available to the inspector / auditor during any site visits, providing any requested records, and liaising with respect to close out of any corrective or follow-up actions required; and
- Preparation of a final report on resource and waste management on completion of the Proposed Development.

5.7 Audits / Inspections

Audits / inspections are an important aspect of environmental management of the Construction Phase of the Proposed Development. These will be carried out by the Waste / Resource Manager on a regular basis to ensure that the CRWMP is effective and fit for purpose. Audits / inspections may also be carried out by the Client (or someone acting on their behalf), by the Local Authorities or by the EPA.

Regular audits / inspections by the Waste / Resource Manager will aid in the identification of potential issues or areas for improvement and will aid in the regular review and update of the CRWMP. These inspections / audits will range from regular checks of the materials and waste storage areas to ensure they are kept tidy and being utilised correctly, to larger audits of the project's performance against the targets / KPIs set at the start of the Construction Phase. Where issues are identified they will be remedied as quickly as possible.

Where audits / inspections are undertaken by the Client, the Local Authorities or the EPA, the Resource / Waste Manager will be responsible for accommodating this, including meeting with the auditor(s) / inspector(s), escorting them to any places they wish to see on site, and providing them with any information or records they wish to examine. Where non-compliances or areas for improvement are identified by the auditor(s) / inspector(s), the Resource / Waste Manager will be responsible for actioning these and reporting on progress towards close-out to the auditor(s) / inspector(s).

Remedial actions will always be taken as quickly as possible. Where actions can be taken immediately (i.e. housekeeping issues, signage issues, etc.) these will be closed out as soon as practicable. For actions required in relation to policies or procedures, these will be actioned as soon as reasonably practicable and by an agreed close-out date.

6. Proposed Development Infrastructure

For the Construction Phase of the Proposed Development, temporary Construction Compounds have been proposed at various locations and are illustrated in Section 4.5.6 in Chapter 4 (Proposed Development Description) in Volume 2 of the EIAR (included in the planning application pack). The Temporary Construction Compounds (TCCs) are as follows:

- TCC0: Chainage 0, located off the Redbog Road, with an approximate area of 1ha;
- TCC1: Chainage 3,550, located off the R156, with an approximate area of 0.8ha;
- TCC2: Chainage 10,600, located off the R156, with an approximate area of 1ha;
- TCC3: Chainage 21,600, located off the Ballymacarney Road, with an approximate area of 1.6ha;
- TCC4: Chainage 26,850, located off the R121, with an approximate area of 1ha;
- TCC5: Chainage 34,800, located off Stockhole lane, with an approximate area of 1ha; and
- TCC6: Chainage 37,700 located off Stockhole Lane adjacent to Belcamp Substation, with an approximate area of 1.6ha.

The temporary Construction Compounds will contain site office and welfare facilities for construction personnel. Car parking facilities will also be provided at these sites. Materials such as topsoil, subsoil, concrete etc., will be stored at the Temporary Construction Compounds for reuse as necessary. All necessary authorisations, under the Waste Management Act, will be obtained prior to undertaking temporary storage.

There is also a temporary HDD Compound at both the reception and launch locations at each HDD crossing. These compounds will not be used for the storage of materials for the wider route or for site offices but will be used to facilitate the works required adjacent to and under the motorways and railway. A laydown area is also required for each HDD crossing. The temporary HDD Compounds will be located within the Planning Application Boundary and are as follows:

- M3 HDD Compound West (HDD 1a): Chainage 12,850, located off the Woodpark Road, with an approximate area of 0.23ha;
- M3 HDD Compound East and Laydown Area (HDD 1b): Chainage 13,050, located off the R147, with an approximate area of 0.31ha;
- M2 HDD Compound South (HDD 2a): Chainage 23,400, located off the R121, with an approximate area of 0.15ha;
- M2 HDD Compound North and Laydown Area (HDD 2b): Chainage 23,600, located off the R121, with an approximate area of 0.45ha;
- M1 HDD Compound West (HDD 3a): Chainage 34,250, located off the Stockhole Lane, with an approximate area of 0.22ha; and
- M1 HDD Compound East and Laydown Area (HDD 3b): Chainage 34,450, located off the Stockhole Lane, with an approximate area of 0.43ha.

With respect to resource and waste management at the Temporary Construction Compounds, the appointed contractor will, at a minimum:

- Set up designated storage locations for materials and waste, including areas for stockpiling;
- Put up signage to indicate what materials or waste will be stored, and the specific storage locations;
- Provide appropriate storage receptacles for each material, i.e. bunded storage cabinets, drip trays, bins, skips, secure containers for hazardous waste, etc.;
- Ensure any storage areas will be suitably contained or bunded as required;
- Ensure storage areas are large enough and are safely accessible for any personnel or vehicles which need to access them;
- Situate storage areas away from areas which pose a high risk to human or natural environments, and they will be set up in accordance with any mitigation measures or planning conditions as applicable (e.g. suitable buffer zones, maximum heights, suitable bunding, etc.); and
- Ensure storage areas are kept tidy, and that materials are not stored longer than required.

The storage areas will be set up in a location and configuration which provide adequate space for deliveries or collections to take place.

6.1 References

Department of Environment, Climate and Communications (DECC) (2022). Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less'

Department of Communications, Climate Action and Environment (DCCAE) (2020). A Waste Action Plan for a Circular Economy - Ireland's National Waste Policy 2020-2025

Eastern Midlands Waste Region (EMWR) (2015). Eastern Midlands Region Waste Management Plan 2015 - 2021

Environmental Protection Agency (EPA) (2015). EPA Research 146 Design Out Waste Factsheets

EPA (2018). Waste Classification – List of Waste and Determining if Waste is Hazardous or Non-Hazardous

EPA (2019). Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations 2011

EPA (2021a). Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects

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Directives and Legislation

Directive 1999/31/EC of 26 April 1999 on the landfill of waste

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives

Directive 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC

Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 on Shipments of Waste

Number 10 of 1996 - Waste Management Act 1996 (as amended)

Number 12 of 1997 – The Litter Pollution Act 1997 (as amended)

Number 26 of 2022 – Circular Economy and Miscellaneous Provisions Act 2022

S.I. No. 163 of 1998 – Waste Management (Hazardous Waste) Regulations 1998

S.I. No. 419/2007 - Waste Management (Shipments of Waste) Regulations 2007

S.I. No. 820/2007 - Waste Management (Collection Permit) Regulations 2007 (as amended)

S.I. No. 821/2007 - Waste Management (Facility Permit and Registration) Regulations 2007

S.I. No. 86/2008 - Waste Management (Facility Permit and Registration) Regulations 2008 (as amended)

S.I. No. 189/2015 Waste Management (Landfill Levy) Regulations 2015

S.I. No. 126 of 2011 – European Communities (Waste Directive) Regulations 2011 (as amended)

S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2020