

# **Appendix 14-1**

## **Resource Waste Management Plan**



**Tier 1 Resource and Waste  
Management Plan**  
**Newtown Transmission Gas Pipeline and  
Associated Above Ground Infrastructure**

**Gas Networks Ireland**

**November 2025**

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## 1. Introduction

MWP has prepared this Tier 1 Resource and Waste Management Plan (RWMP) on behalf of Gas Networks Ireland (GNI). This proposed development comprises of the construction and operation of the Newtown Gas Transmission Pipeline, Above Ground Installation (AGI) compound and Kilshane Block Valve (BV) extension. The proposed development is separate from, but associated with, a proposed 293MW gas-fired power generation plant and associated Gas Insulated Switchgear (GIS) substation and underground 220kV transmission connection, hereafter referred to as the Kilshane Energy Facility. An **Environmental Impact Assessment Report (EIAR)** and **Appropriate Assessment (AA) Screening Report** have also been prepared for the proposed development.

The purpose of this plan is to provide information necessary to ensure that the management of construction and demolition (C&D) waste at the site is undertaken in accordance with current legal and industry standards.

This Tier 1 C&D RWMP includes information on the legal and policy framework for C&D waste management in Ireland, estimates of the type and quantity of waste to be generated by the proposed development and makes recommendations for management of the different waste streams to be generated during the construction phase of the project. The RWMP will be viewed as a 'live' document and will be regularly revisited and revised as necessary throughout a project's lifecycle so that opportunities to maximise waste reduction/efficiencies are exploited throughout, and that data is collected on an ongoing basis so that it is as accurate as possible.

This RWMP will be implemented in addition to and read in conjunction with the Waste Management section of **Construction Environmental Management Plan (CEMP)** prepared for the proposed development by MWP and **Chapter 14 Material Assets – Waste** of the EIAR.

### 1.1 Aim of the Plan

The aim of this plan is to provide sufficient information to ensure that the management of construction waste is undertaken in accordance with all relevant legislation and best practice standards including:

- Waste Management Acts 1996 - 2011 and associated Regulations;
- Protection of the Environment Act 2003 as amended;
- Litter Pollution Act 1997 as amended;
- Eastern-Midlands Region Waste Management Plan 2015 – 2021; and
- Draft National Waste Management Plan for a Circular Economy (NWMPE) (2023).

The principal aim of this plan is to ensure efficient use of material resources, maximised recycling, reduce waste at source and reduce the quantity of waste that requires final off-site disposal to landfill in accordance with the waste hierarchy. A secondary aim is to facilitate the transition to a more circular economy thereby minimising the need for new inputs of virgin materials and energy, while reducing environmental pressures linked to resource extraction, emissions, and waste management.

### 1.2 Format of the Plan

This is a 'live' document which will be updated and added to throughout the construction phase of the project. This document will provide a framework for resource and waste management and will clearly identify the processes that will be implemented onsite, whilst also seeking to ensure compliance with relevant waste

legislation, government policy objectives and project specific waste objectives. The Plan will provide a mechanism for monitoring and auditing waste management performance and compliance for the duration of the project. The evolution of a single plan through a project lifecycle is recommended to ensure preventative and resource efficiency initiatives are undertaken, data are captured, and targets are set and measured throughout the project. This plan will evolve through the project from initial pre-construction phase followed by implementation at construction phase.

## **1.3 Construction & Demolition Waste Management in Ireland**

### **1.3.1 National Level**

The implementation of the *Waste Management Act* in 1996 provided a legal basis for waste management, practice, and infrastructure in Ireland. Following the implementation of this Act, government policy moved from primarily relying on landfill disposal towards a more sustainable system of waste treatment through the promotion of recycling and recovery.

The Irish Government issued a policy statement in September 1998, *Changing Our Ways*, which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. The target for C&D waste in this report was to recycle at least 50% of C&D waste within a five-year period (by 2003), with a progressive increase to at least 85% over fifteen years (i.e. 2013).

In response to the *Changing Our Ways* report, a task force (Task Force B4) representing the waste sector of the already established Forum for the Construction Industry, released a report entitled '*Recycling of Construction and Demolition Waste*' concerning the development and implementation of a voluntary construction industry programme to meet the Government's objectives for the recovery of C&D waste.

In 2011 the revised EU Waste Framework Directive was transposed into Irish law by the *European Commission (Waste Framework Directive) Regulations 2011 (SI 126 of 2011) (EC, 2008)*. The Waste Framework Directive focusses on a sustainable and efficient materials management strategy and provides a legal basis for the waste hierarchy. Therefore, the waste hierarchy presented in **Figure 1-1** should be applied as a priority in Ireland.

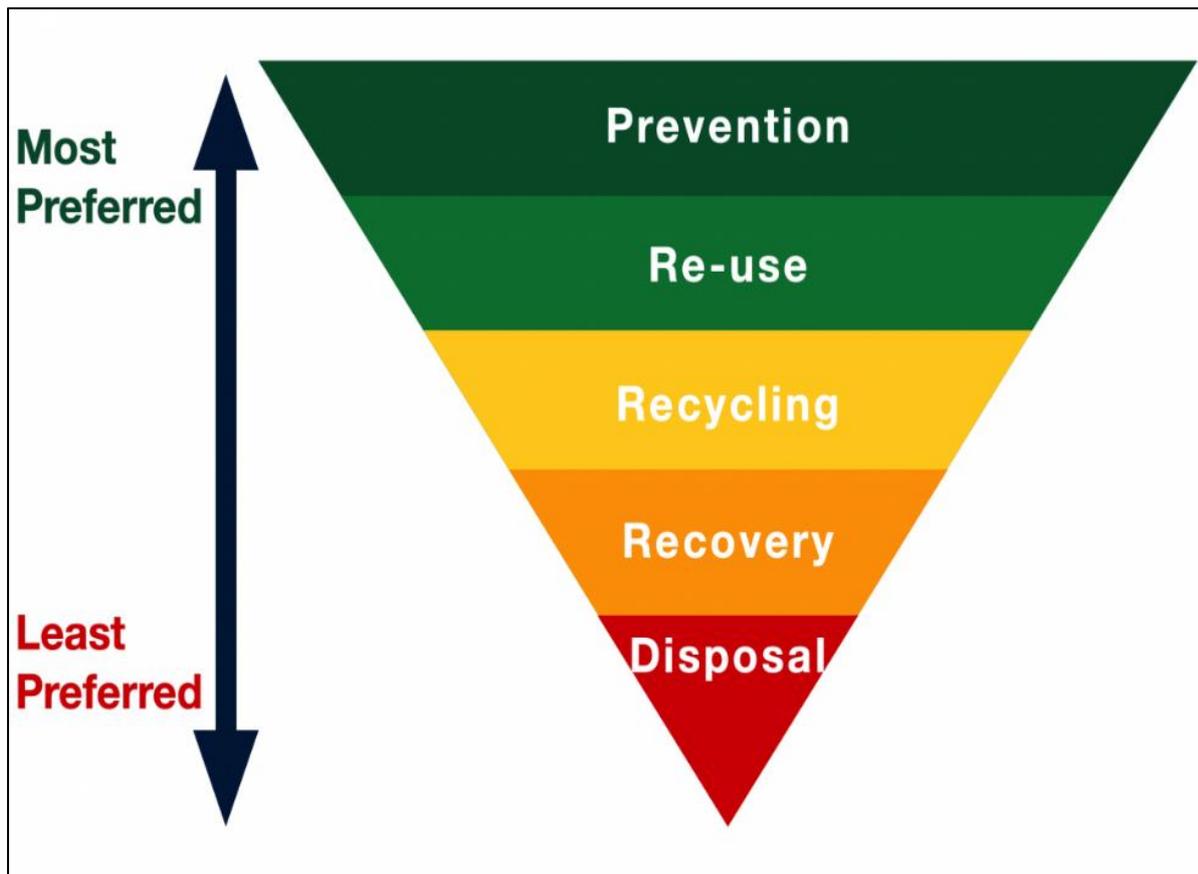


Figure 1-1: Waste Hierarchy (source: EPA)

In September 2020, the Irish Government published a policy document outlining a new action plan for Ireland to cover the period of 2020-2025. This plan, 'A Waste Action Plan for a Circular Economy' (WAPCE), replaces the previous national waste management plan, "A Resource Opportunity" (2012), and was prepared in response to the 'European Green Deal' which sets a roadmap for a transition to an altered economical model, where climate and environmental challenges are turned into opportunities.

The WAPCE sets the direction for waste planning and management in Ireland up to 2025. This reorientates policy from a focus on managing waste to a much greater focus on creating circular patterns of production and consumption. Other policy statements of a number of public bodies already acknowledge the circular economy as a national policy priority.

The policy document contains over 200 measures across various waste areas including circular economy, municipal waste, consumer protection and citizen engagement, plastics and packaging, construction and demolition, textiles, green public procurement, and waste enforcement.

One of the first actions to be taken was the development of the Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less' (2021) to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021. It is anticipated that the Strategy will be updated in full every 18 months to 2 years.

The *Circular Economy and Miscellaneous Provisions Act, 2022* was signed into law in July 2022. The Act underpins Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will work to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for the first time in Irish law,

incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market, and tackles illegal fly-tipping and littering.

The Environmental Protection Agency (EPA) of Ireland issued '*Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects*' in November 2021. These guidelines replace the previous 2006 guidelines issued by The National Construction and Demolition Waste Council (NCDWC) and the Department of the Environment, Heritage and Local Government (DoEHLG) in 2006. The guidelines provide a practical approach which is informed by best practice in the prevention and management of C&D wastes and resources from design to construction of a project, including consideration of the deconstruction of a project. These guidelines have been followed in the preparation of this document and include the following elements:

- Predicted C&D wastes and procedures to prevent, minimise, recycle and reuse wastes;
- Design teams roles and approach;
- Relevant EU, national and local waste policy, legislation and guidelines;
- Waste disposal/recycling of C&D wastes at the site;
- Provision of training for resource manager (RM) and site crew;
- Details of proposed record keeping system;
- Details of waste audit procedures and plan; and
- Details of consultation with relevant bodies i.e. waste recycling companies, Local authority, etc.

Section 3 of the Guidelines identifies thresholds above which there is a requirement for the preparation of a bespoke RWMP for developments. The new guidance classifies developments on a two-tiered system. Developments which do not exceed any of the following thresholds may be classed as Tier 1 development, which require a simplified RWMP:

- New residential development of less than 10 dwellings;
- Retrofit of 20 dwellings or less;
- New commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 1,250m<sup>2</sup>;
- Retrofit of commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 2,000m<sup>2</sup>; and
- Demolition projects generating in total less than 100m<sup>3</sup> in volume of C&D waste.

Developments above these thresholds are classed as Tier 2 projects.

This development requires a RWMP as a Tier 1 development as it not is above any one of the above criteria.

Other guidelines followed in the preparation of this report include '*Construction and Demolition Waste Management – a handbook for Contractors and Site Managers*' published by FÁS and the Construction Industry Federation in 2002 and the previous guidelines '*Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects*' (2006).

These guidance documents are considered to define best practice for C&D projects in Ireland and describe how C&D projects are to be undertaken such that environmental impacts and risks are minimised and maximum levels of waste recycling are achieved.

### 1.3.2 Regional Level

In terms of waste management, the receiving environment is largely defined by Fingal County Council (FCC) as the local authority responsible for setting and administering waste management activities in the area. This is governed by the requirements set out in the National Waste Management Plan for a Circular Economy 2024 – 2030, developed by the Regional Waste Management Planning Offices (RWMPO) which replaces the Eastern Midlands Region (EMR) Waste Management Plan 2015-2021.

The national plan sets the direction for waste prevention and management across Ireland for the period 2024 to 2030. It aims to transition from a linear "take-make-use-dispose" model to a circular economy, focusing on reducing waste generation, promoting reuse and recycling, and achieving a target of 0% total waste growth per person. Municipal landfill charges in Ireland are based on the weight of waste disposed.

In the Leinster Region, charges are approximately €130 - €150 per tonne of waste which includes a €85 per tonne landfill levy introduced under the *Waste Management (Landfill Levy) (Amendment) Regulations 2023*.

The Fingal Development Plan 2023 – 2029 came into effect in 2023 and sets out a number of objectives for the Fingal region in line with the objectives of the of the National climate action policy and emphasises the need to take action to address climate action across all sectors of society and the economy. In the waste sector, policy on climate action is focused on a shift towards a 'circular economy' encompassing three core principles: designing out waste and pollution; keeping products and material in use; and regenerating natural systems. Further policies and objectives can be found within the development plan:

#### Policies:

- IU20: Support the implementation of existing waste management policy and promote education and awareness on all issues associated with waste management, both at industry and community level, including the promotion of waste reduction by encouraging reuse, recycling and recovery of waste. Fingal County Council will continue to promote and support the objectives of the Eastern and Midlands Region Waste Management Plan 2015–2021, or such plans as may be updated;
- IUP21: Have regard to European Union, National and Regional waste and related environmental policy, legislation, guidance and codes of practice to improve management of material resources and wastes.
- IUP24: Promote and encourage the establishment of re-use, recycling and repair activities to prevent and minimise waste generation and disposal, in accordance with the Eastern Midlands Region Waste Management Plan 2015–2021 (or any subsequent plan); and
- CAP26: Have regard to existing Best Practice Guidance on Waste Management Plans for Construction and Demolition Projects as well as any future updates to these Guidelines in order to ensure the consistent application of planning requirements.

#### Objectives:

- IUO34: Require the provision of appropriate, well designed, accessible space to support the storage, separation and collection of as many waste and recycling streams as possible in all new commercial and residential developments within the County;
- DMSO241 Construction and Demolition Waste Management Plan Requirements; and

- DMSO242 Guidance for Construction and Demolition Waste Management Plans.

### **1.3.3 Legislative Requirements**

The primary legislative instruments that govern waste management in Ireland and applicable to the project are:

- Waste Management Act 1996 (No. 10 of 1996) as amended;
- Environmental Protection Act 1992 (No. 7 of 1992) as amended;
- Litter Pollution Act 1997 (No. 12 of 1997) as amended;
- Planning and Development Act 2000 (No. 30 of 2000) as amended; and
- Circular Economy and Miscellaneous Provisions Act 2022.

One of the guiding principles of European waste legislation, which has in turn been incorporated into the Waste Management Act 1996 - 2011 and subsequent Irish legislation, is the principle of “*Duty of Care*”. This implies that 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). As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final destination, waste contractors will be employed to physically transport waste to the final destination. Following on from this is the concept of “*Polluter Pays*” whereby 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 that the client ensures that the waste contractors engaged by construction contractors 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 as a result of any of these activities.

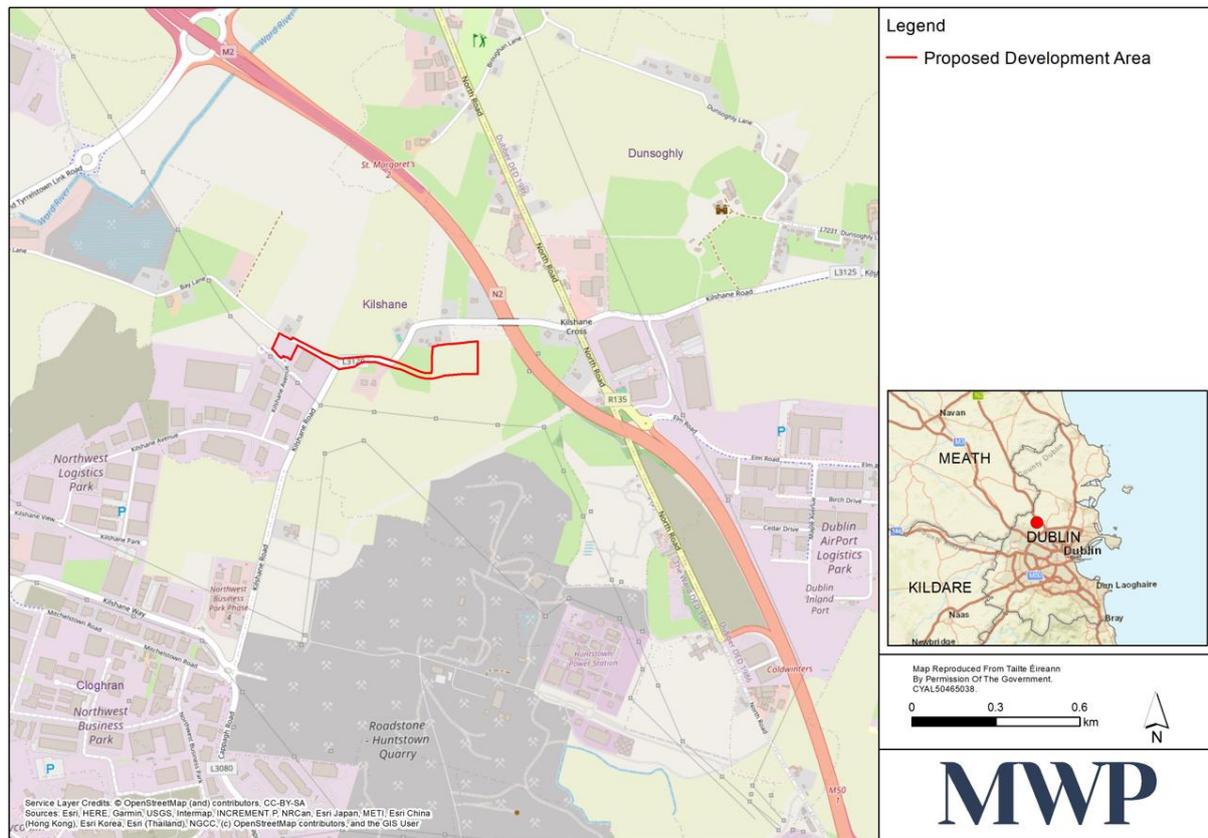
A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the *Waste Management (Facility Permit & Registration) Regulations 2007* and Amendments, or a waste or Industrial Emissions Directive (IED) licence granted by the EPA. The COR/permit/licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and/or disposed of at the specified site.

## **2. Project Description**

### **2.1 Location, Size and Scale of the Development**

The proposed development is located in the townland of Kilshane on lands at Kilshane Road (L3120) and Bay Lane, Kilshane, Finglas, Dublin 11. The area of the proposed development within the designated boundary extends to c. 3.14Ha. The proposed development is located northwest of the M50 motorway and on the western side of the N2 national road and the R135 regional road. The surrounding area is characterised by agricultural fields and industrial uses such as logistics, power stations, and additional business park operations. The BV extension and a portion of the pipeline are located in an area zone for General Employment (GE) according to the Fingal Development Plan (2023-2029). The AGI and the remainder of the pipeline are location on land zone for Heavy

Industry (HI). Roadstone Huntstown Quarry and Huntstown Power Station are located on lands to the south of the proposed development and the site is located to the east and north of Ballycoolin and Rosemount Industrial Estates. Refer to **Figure 2-1** for site location.



**Figure 2-1: Site Location**

The Applicant, Gas Networks Ireland (GNI), is applying to the Commission for Regulation of Utilities (CRU) for S39A<sup>1</sup> consent to construct an underground transmission gas pipeline between the proposed Kilshane Block Valve (BV) Extension to the existing Kilshane BV station, and the proposed AGI, which together make up the proposed development. GNI will also be seeking planning permission from Fingal County Council for the AGI and BV extension developments. Refer to **Figure 2-2** for layout of the proposed Newtown AGI, Kilshane BV extension and the GNI139 pipeline route. The underground transmission gas pipeline (named Newton Gas Transmission Pipeline) and associated infrastructure in the proposed development will be owned and operated by GNI.

Details of the design of the proposed development are also provided in the following sections, supported by excerpts from engineering drawings provided within the consent application. It should be noted that these drawings have been reduced in scale within the **EIAR** for more convenient examination. The larger drawings to a correct scale are cross-referenced and may be inspected in the consent application file.

<sup>1</sup> Gas Act 1976 (as amended)

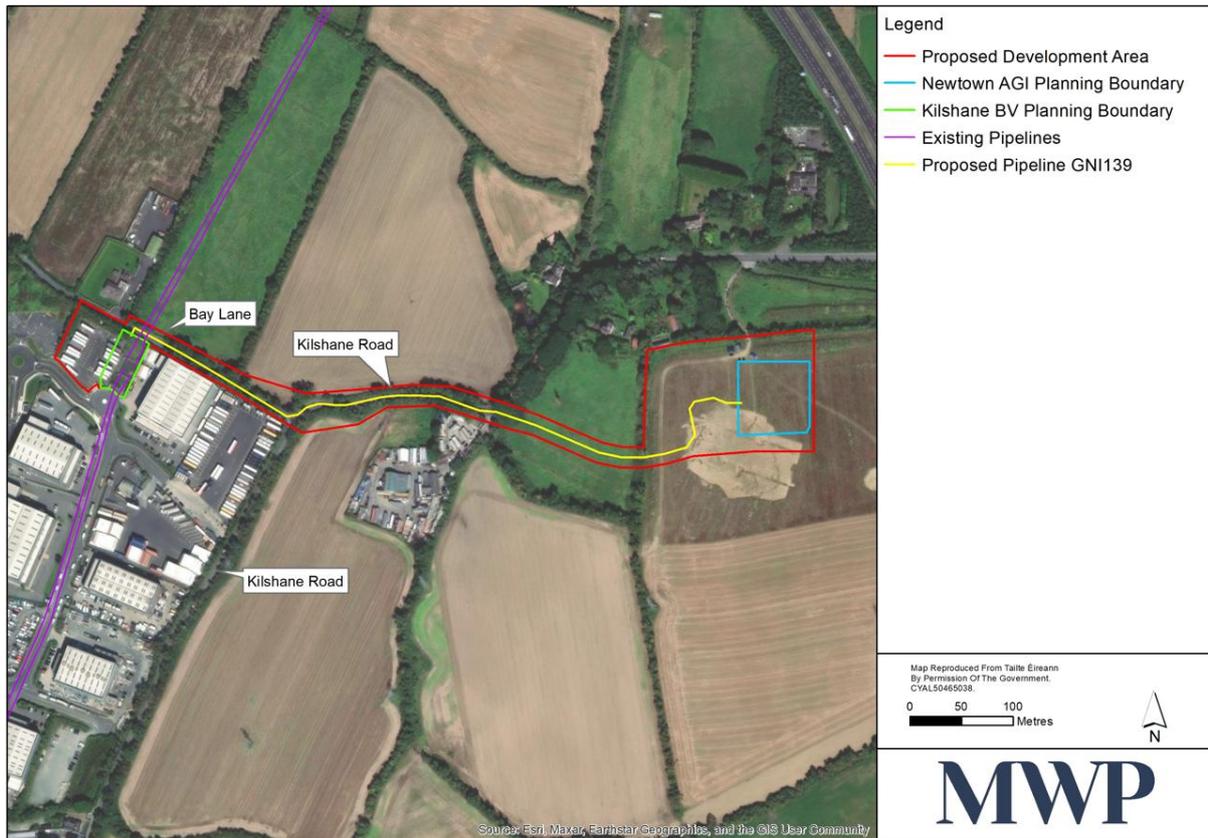


Figure 2-2: Site Layout

### 2.1.1 Block Valve (BV) Extension – Tie in Point & Pigging Compound

The above ground elements considered within this EIAR are subject to an application to Fingal County Council (FCC) as a Section 32 application under the Planning and Development Act 2000, as amended.

It is proposed to extend the existing Kilshane Block Valve to accommodate the tie in point for the planned GNI139 Newtown Pipeline on to the existing gas transmission line, and to facilitate temporary pig launching facilities<sup>2</sup>. The area of the site currently measures 16.6m x 16.6m. The new BV site will include a 22.57m x 43.31m x 2.4m high fenced enclosure. The site will have no telemetry requirements and will provide a pipeline isolation valve for GNI139 pipeline. A new access roadway is also required from the Kilshane Avenue roundabout. Kilshane BV site fencing shall be extended north in the direction of Bay Lane into an unused greenfield site, and west into land currently being used as a car park. Refer to **Figure 2-3**.

<sup>2</sup> The pig launcher uses fluid pressure to launch a projectile called a pig through the pipe. The export facility contains a device to safely insert pigs into the pipeline, referred to as a pig launcher.



Figure 2-3: Approximate Tie in Location

### 2.1.2 Main Gas Pipeline

The pipeline will connect into a 400mm Nominal Bore (NB) branch connecting pipe between BGE36 and BGE72 transmission pipelines running through Kilshane BV. The location of the existing pipelines is shown in **Figure 2-2**. A 3m deep excavation will be undertaken to allow the new pipeline tie into the existing pipeline. A new pipework arrangement will then be placed in the trench. **Figure 2-3** illustrates the planned layout around Kilshane BV extension.

The length of the pipeline from Kilshane BV boundary fence to Newtown AGI boundary fence will be approximately 715m. Upon exiting the BV site, the pipeline will continue by means of open-cut excavation for approximately 0.1km through the BV site before turning 90 degrees onto Bay Lane. From there, it will be laid within the road in Bay Lane for approximately 180m. It will be routed within the road using open-cut method. The images below show the section of Bay Lane next to the proposed Kilshane BV extension. The area where the pipe will enter the road can be seen in **Figure 2-4**.



**Figure 2-4: Location gas pipeline enters Bay Lane looking southeast**

The pipeline will terminate at a proposed AGI located within the Kilshane Energy Facility site.

The AGI compound comprises an internal access roadway and local surface water drainage system, PIG Trap (launch and receiving point for inspection and maintenance modules), heat exchangers, meters and boilers, regulators & instrument housing, and all ancillary service connections. The compound will be secured by means of security fencing. A 3D CAD render of the AGI is shown below in **Figure 2-5**.

### **2.1.3 Above Ground Installation (AGI)**

The pipeline will terminate at a proposed AGI located within the Kilshane Energy Facility site. The purpose of the AGI is to reduce the pressure of the gas from TX high pressure 70 Barg to 32.8Barg to feed the gas engines. The AGI compound comprises an internal access roadway and local surface water drainage system (to tie into the Kilshane Power station drainage system), PIG Trap (launch and receiving point for inspection and maintenance modules), heat exchangers, meters and boilers, regulators & instrument housing, and all ancillary service connections. The compound will be secured by means of security fencing. A 3D CAD render of the AGI is shown below in **Figure 2-5**.

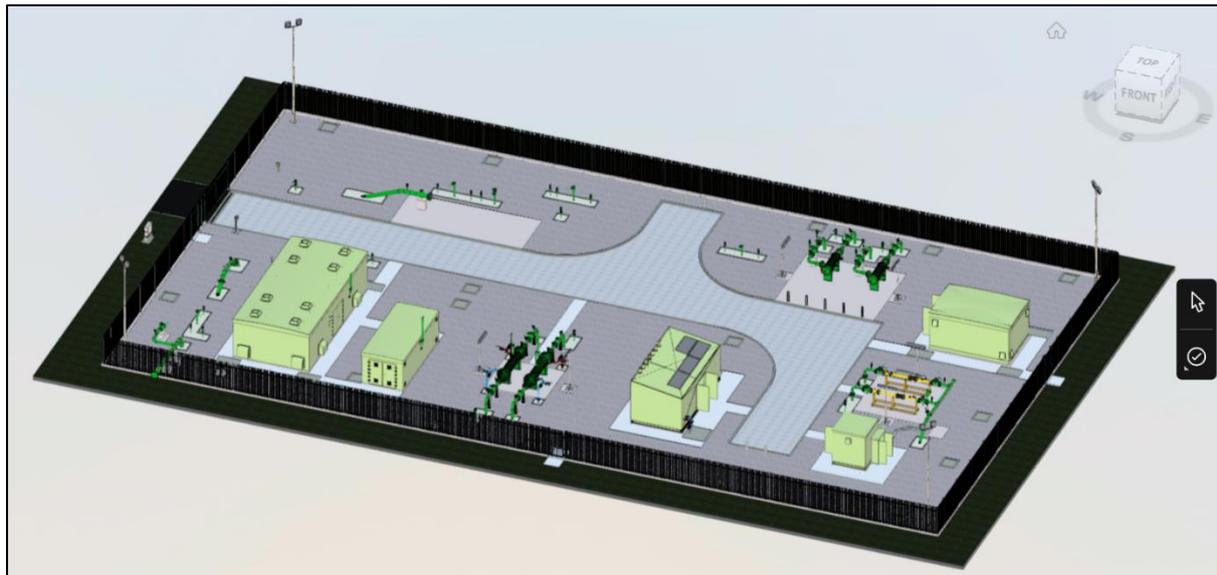


Figure 2-5: 3d Model of Newtown AGI

## 2.2 Details of the Non-Hazardous Wastes to be produced

There will be soil and stone excavated to facilitate the installation of the underground transmission gas pipeline, BV extension and AGI. It has been estimated by the project engineers that c. 5,890m<sup>3</sup> of material will be excavated. This volume consists of c. 1400 m<sup>3</sup> of soil for the gas transmission pipeline, 550m<sup>3</sup> for the BV enabling works, 390 m<sup>3</sup> for the BV, 650 m<sup>3</sup> for the AGI and 2900m<sup>3</sup> for topsoil stripping within the customer site.

It is envisaged that approximately 50% of material will be able to be retained onsite and be re-used during the reinstatement process. Site investigation and topographical design will determine the exact quantity of material that can be reused. The remaining material displaced by the proposed development will need to be removed offsite and taken for appropriate offsite reuse, recovery, recycling and / or disposal.

During the construction phase, there may be a surplus of building materials, such as timber off-cuts, plastics, metals and waste from contractors generated. Plastic and cardboard waste from packaging and supply of materials will also be generated. The contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

Waste will also be generated from construction workers e.g. organic / food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided on site during the construction phase. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices

## 2.3 Potential Hazardous Wastes to be produced

### 2.3.1 Contaminated Soil

Site investigations have been undertaken at the BV extension site. Details of site investigation at the BV extension site are included in **Appendix 7-1** of this **EIAR**. Three trial pits (TP01 to TP03) were excavated at the site and environmental samples were taken at varying depths.

Rilta suite of analysis was carried out on samples for landfill disposal criteria. Analysis was undertaken on a range of determinants, including:

- Metals;
- Speciated total petroleum hydrocarbons (TPH);
- Speciated polycyclic aromatic hydrocarbons (PAH);
- BTEX compounds;
- Volatile Organic Compounds (VOCs);
- Semi-Volatile Organic Compounds (SVOCs);
- Polychlorinated biphenyls (PCBs);
- Phenols;
- Organic matter;
- Total Organic Carbon (TOC);
- Cyanides;
- Asbestos screen;
- Sulphate and sulphide;
- Sulphur;
- Phosphate;
- Calcium;
- pH; and
- Waste acceptance criteria (WAC).

The results indicate that all determinands are present at low concentrations and are well below the relevant hazardous waste classification threshold. Total petroleum hydrocarbons (TPH) and associated aromatic fractions were detected at only minor levels, while heavy metals, PAHs, and PCBs were generally below or close to laboratory limits of detection. The soils are therefore considered to be non-hazardous and suitable for disposal under the non-hazardous Waste Acceptance Criteria (WAC). Overall, the analytical results indicate that the soils do not pose a risk of contamination or require special hazardous waste management measures.

Prior to any soil being removed from site, environmental soil testing and waste classification will be undertaken to determine the soils suitability and classification for reuse, recycling or disposal.

If any potentially contaminated material is encountered, it will need to be segregated from clean/inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled '*Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous*' using the HazWasteOnline application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC*, which establishes the criteria for the acceptance of waste at landfills.

If Asbestos or Asbestos Containing Material (ACMs) are identified in the ground, the removal of asbestos will only be carried out by a suitably permitted waste contractor in accordance with *S.I. No. 386 of 2006 Safety, Health and*

*Welfare at Work (Exposure to Asbestos) Regulations 2006-2010*. All asbestos will be taken to a suitably licensed waste facility.

In the event that hazardous soil, or historically deposited waste is encountered during the construction phase, the contractor will notify FCC and provide a Hazardous / Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal / treatment, in addition to information on the authorised waste collector(s).

### **2.3.2 Fuel, Oils and Chemicals**

Hazardous materials (fuels, oils, and chemicals) will be used at the site during the Construction Phase. As per industry standards, any fuel and oils temporarily stored onsite will be stored in double skinned / appropriately bunded storage tanks, in a secure dedicated fuel storage location onsite. All other chemicals including paints, varnishes, glues, adhesives, degreasing agents and cleaning agents will be securely stored in a dedicated temporary bunded chemical store onsite.

All machinery including any generators / pumps used onsite will be checked at the start of each work shift for evidence of any fuel or oil leaks (and removed offsite for any repairs as may be required).

Fuel, oil, and chemical spill kits will be available at the designated storage areas, along with the relevant Safety Data Sheets (SDS). SDS contain information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the relevant chemical. All site operatives will receive training in appropriate refuelling methods and machinery checks, and chemical handling methods to be implemented onsite. Taking account of these control measures, along with the fact that the volumes of paints, varnishes, glues, adhesives etc. will be minor, it is not expected that any waste fuel, oil, or chemicals will be generated during the Construction Phase.

### **2.3.3 Other known Hazardous Substances**

Waste Electrical and Electronic Equipment (WEEE) (containing hazardous components), printer toner/cartridges, batteries (Lead, Ni-Cd or Mercury) and/or fluorescent tubes and other mercury containing waste may be generated from during C&D activities or temporary site offices. These wastes (if encountered) will be stored in appropriate receptacles in designated areas of the site pending collection by an authorised waste contractor.

### **2.3.4 Invasive Plant Species**

A site walkover was undertaken by an MWP ecologist in January 2024 to determine the presence or absence of any Third Schedule invasive species. This walkover included the entire site, and around part of the outside perimeter to search for any invasive plant species. No invasive plant species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) were recorded onsite. If any are detected during the construction phase of the development, then an invasive species management plan will be produced and submitted to FCC.

Many specimens of buddleia were identified within the proposed development site, particularly around the existing BV and along the drainage ditch in the customer field. Each buddleia plant can produce up to 3 million seeds that can remain viable in the soil for many years. It creates competition for resources such as pollinators, light and space and poses a threat to native plant species. Buddleia is not listed on the Third Schedule of the

European Communities Regulations 2011 (S.I. 477 of 2015) however the following treatment for removal according to the National Roads Authority (NRA – now TII) is recommended<sup>3</sup>:

**Chemical control:** It is recommended that plants are cut back to a stump during active growth (late spring to early summer) and then immediately treated with a systemic weed killer (brushed on). Foliar application of herbicide may be adequate for smaller infestations of younger plants but must be followed up on a monthly basis.

**Physical control:** Physical removal buddleia is only suitable for very small infestations of this species. If this is the chosen method of removal, care should be taken to remove all parts of the plant as branches are capable of re-rooting from cuttings. The plants should not be removed when in seed as there would be a risk of spreading the seeds further. Where removal of mature plants is not immediately feasible, the flower heads should be removed in June before they go to seed. It is essential to plant the ground with native species immediately following removal to prevent new seedlings taking hold. Seeding buddleia plants can be removed manually from newly grassed areas prior to mowing.

### 3. Roles and Responsibilities

The *Best Practice Guidelines on the Preparation of Resource Waste Management Plans for Construction and Demolition Projects* promotes that a Resource Manager (RM) will be appointed. The RM may be performed by number of different individuals over the life cycle of the Project, however it is intended to be a reliable person chosen from within the Planning/Design/Contracting Team, who is technically competent and appropriately trained, who takes the responsibility to ensure that the objectives and measures within the Project RWMP are complied with. The RM is assigned the requisite authority to meet the objective and obligations of the RWMP. The role will include the important activities of conducting waste checks/audits and adopting construction and demolition methodology that is designed to facilitate maximum reuse and/or recycling of waste.

#### 3.1 Role of the Client

The Client (the Applicant) is the body establishing the aims and the performance targets for the project.

- The Client (GNI) has commissioned the preparation and submission of the RWMP as part of the design and planning submission;
- The Client is to commission the preparation and submission of an updated RWMP as part of the construction tendering process;
- The Client will ensure that the RWMP is agreed on and submitted to the local authority prior to commencement of works on site; and
- The Client is to request the end-of-project RWMP from the Contractor.

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<sup>3</sup> <https://www.tii.ie/media/rtmi2ebi/management-of-noxious-weeds-and-non-native-invasive-plant-species-on-national-road-schemes.pdf>

### 3.2 Role of the Client Advisory Team

The Client Advisory Team or Design Team (Fingleton White and MWP) is, environmental consultants and engineers as required, and is responsible for:

- Drafting and maintaining the RWMP through the design, planning and procurement phases of the project;
- Appointing a RM to track and document the design process, inform the Design Team and prepare the RWMP;
- Including details and estimated quantities of all projected waste streams with the support of environmental consultants/scientists. This will also include data on waste types (e.g. waste characterisation data, contaminated land assessments, site investigation information) and prevention mechanisms (such as by-products) to illustrate the positive circular economy principles applied by the Design Team;
- Managing and valuing the construction work with the support of quantity surveyors;
- Handing over of the RWMP to the selected Contractor upon commencement of construction of the development, in a similar fashion to how the safety file is handed over to the Contractor; and
- Working with the Contractor as required to meet the performance targets for the project.

### 3.3 Contractor

The future construction Contractors have not yet been decided upon for this RWMP. However, once selected they will have major roles to fulfil. They will be responsible for:

- Updating, implementing and reviewing the RWMP throughout the construction phases (including the management of all suppliers and sub-contractors) as per the requirements of these guidelines;
- Identifying a designated and suitably qualified RM who will be responsible for implementing the RWMP;
- Identifying all hauliers to be engaged to transport each of the resources / wastes off-site;
- Implementing waste management policies whereby waste materials generated on site are to be segregated as far as practicable;
- Identifying all destinations for resources taken off-site. As above, any resource that is legally classified as a 'waste' must only be transported to an authorised waste facility;
- By-product notifications addressed with the 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) will be maintained for the duration of the project; and
- Preparing a RWMP Implementation Review Report at project handover.

## 4. Design Approach

The client and the design team have integrated the EPA (2021) guidelines into the design workshops, to help review processes, identify and evaluate resource reduction measures and investigate the impact on cost, time, quality, buildability, second life and management post construction. Further details on these design principals can be found within the aforementioned guidance document.

The design team have undertaken the design process in line with the international best practice principles to firstly prevent wastes, reuse where possible and thereafter sustainably reduce and recover materials. The below sections have been the focal point of the design process and material selections and will continued to be analysed and investigated throughout the design process and when selecting material.

The approaches presented are based on international principles of optimising resources and reducing waste on construction projects through:

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

### 4.1 Designing For Prevention, Reuse and Recycling

Undertaken at the outset and during project feasibility and evaluation, the Client and Design Team considered:

- Establishing the potential for any reusable site assets (, structures, equipment, materials, soils, etc.); and
- Enabling the optimum recovery of assets on site.

In accordance with good practice, excavated materials will be reused onsite where feasible, including for raising levels and landscaping purposes, if suitable. Any excess excavated material to be transported offsite for use as notified By Product material or will be transported to an appropriately licenced, permitted, or registered waste facility. The soil will be characterised in accordance with EPA, '*Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous*' and *Council Decision, 2003* on establishing criteria and procedures for the acceptance of waste at landfills.

An application may be made to the EPA under Article 27 of the European Communities (Waste Directive) Regulations 2011 for the use of excess soil or materials as a by-product if a definite use and need for this material can be determined.

During the construction, the contractor will review availability of recycled aggregates and other materials in the local area and decide on the most sustainable options. The contractor will review 'new' materials to be used as part of the proposed development, which contain a recommended percentage of recycled content if they meet the functional, performance and regulatory requirements and are available locally at a reasonable cost.

Design for Reuse and Recycling is the most efficient way of designing low carbon infrastructure and feeds into the circular economy as opposed to a linear economy where product is treated as 'waste' at the end of its life.

## 4.2 Designing for Green Procurement

Green procurement integrates environmental considerations that include a combination of cost and quality into the procurement process. In order to help achieve this, both operational and embodied carbon targets for this project will be set out early on in collaboration with the design team in order to ensure that green procurement can take place. Through comparative data on embodied carbon, low carbon materials options will be favoured where possible.

Waste prevention and minimisation pre-procurement have been discussed and will be further discussed in this section. The Design Team will discuss proposed design solutions, encourage innovation in tenders and incentivise competitions to recognise sustainable approaches. They will also discuss options for packaging reduction with the main Contractor and subcontractors/suppliers using measures such as 'Just in Time' (JiT) delivery and use ordering procedures that avoid excessive waste. The Green procurement extends from the planning stage into the detailed design and tender stage and will be an ongoing part of the long-term design and selection process for this development.

## 4.3 Designing for Materials Optimisation

As stated in the EPA (2021) guidelines, the key design principle for design for material optimisation is to ensure manufacturers and construction companies adopt lean production models, including maximising the reuse of materials onsite. This helps to reduce the environmental impacts associated with transportation of materials and from waste management activities. This includes investigating the use of standardised sizes for certain materials to help reduce the amount of offcuts produced on site, focusing on promotion and development of off-site manufacture

## 4.4 Designing for Flexibility and Deconstruction

Design flexibility has and will be investigated throughout the design process to ensure that where possible products (including buildings) only contain materials that can be recycled and are designed to be easily disassembled. Material efficiency is being considered for the duration and end of life of a building project to produce; flexible, adaptable spaces that enable a resource-efficient, low-waste future change of use; durability of materials and how they can be recovered effectively when maintenance and refurbishment are undertaken and during disassembly/deconstruction.

It will be the contractor's responsibility to ensure that all products (including buildings) only contain materials that can be recycled and are designed to be easily disassembled, where possible.

# 5. Key Materials, Quantities and Costs

## 5.1 Project Resource Targets

Project specific resource and waste management targets for the site have not yet been set and this information will be updated once these targets have been confirmed by the client. However, it is expected for projects of this nature that a minimum of 70% of waste is fully re-used, recycled or recovered. Target setting will inform the setting of project-specific benchmarks to track target progress. Typical Key Performance Indicators (KPIs) that may be used to set targets include (as per guidelines):

- Weight (tonnes) or Volume (m<sup>3</sup>) of waste generated per construction value;

- Weight (tonnes) or Volume (m<sup>3</sup>) of waste generated per construction floor area (m<sup>2</sup>);
- Fraction of resource reused on site;
- Fraction of resource notified as by-product;
- Fraction of waste segregated at source before being sent off-site for recycling/recovery; and
- Fraction of waste recovered, fraction of waste recycled, or fraction of waste disposed.

## 5.2 Main C&D Waste Categories

The main non-hazardous and hazardous waste streams that will be generated by the construction activities at this site are shown in **Table 5-1**. The List of Waste (LoW) code (as effected from 1 June 2015) (also referred to as the European Waste Code or EWC) for each waste stream is also shown.

It should be noted that the summary list presented in **Table 5-1** is a non-exhaustive list and it will be the Contractors responsibility to ensure all waste streams generated onsite during the Construction Phase for this project are appropriately characterised, managed and disposed of in accordance with all relevant waste management legislation.

**Table 5-1: Typical waste types generated and EWCs which may be relevant to the proposed development (individual waste types may contain hazardous substances)**

Waste Material	LoW/EWC Code(s)
Concrete, bricks, tiles, ceramics	17 01 01-03 & 07
Wood, glass and plastic	17 02 01-03
Treated wood, glass, plastic, containing hazardous substances	17-02-04*
Bituminous mixtures, coal tar and tarred products	17 03 01*, 02 & 03*
Metals (including their alloys) and cable	17 04 01-11
Soil and stones	17 05 03* & 04
Gypsum-based construction material	17 08 01* & 02
Paper and cardboard	20 01 01
Mixed C&D waste	17 09 04
Green waste	20 02 01
Electrical and electronic components	20 01 35 & 36
Batteries and accumulators	20 01 33 & 34
Liquid fuels	13 07 01-10
Chemicals (solvents, pesticides, paints, adhesives, detergents etc.)	20 01 13, 19, 27-30
Insulation materials	17 06 04
Organic (food) waste	20 01 08
Mixed Municipal Waste	20 03 01
Construction Materials containing Asbestos	17 06 05*

## 5.3 Demolition Waste Generation

There will be no demolition required as part of the proposed development.

## 5.4 Construction Waste Generation

Table 5-2 shows the predicted construction waste generation for the proposed development based on the area of construction and other information available to date along with the indicative targets for management of the waste streams. The estimated quantities for the main waste types (with the exception of soil and stones) are based on waste generation rate per m<sup>2</sup>. These have been calculated from the schedule of development areas provided by the design team.

**Table 5-2: Estimated off-site reuse, recycle and disposal rates for construction waste**

Waste Type	Tonnes/m <sup>3</sup>	Reuse		Recycle/Recovery		Disposal	
		%	Tonnes/m <sup>3</sup>	%	Tonnes/m <sup>3</sup>	%	Tonnes/m <sup>3</sup>
Mixed C&D	7.0 Tonnes	10	0.7 Tonnes	80	5.6 Tonnes	10	0.7 Tonnes
Timber	6.0 Tonnes	40	2.4 Tonnes	55	3.3 Tonnes	5	0.3 Tonnes
Metals	1.7 Tonnes	5	0.1 Tonnes	90	1.5 Tonnes	5	0.1 Tonnes
Concrete	1.3 Tonnes	30	0.4 Tonnes	65	0.9 Tonnes	5	0.1 Tonnes
Other	3.2 Tonnes	20	0.6 Tonnes	60	1.9 Tonnes	20	0.6 Tonnes
Excavated Soil/Stones	5890m <sup>3</sup>	50	2945m <sup>3</sup>	50	2945m <sup>3</sup>	0	0
Imported Stone	400m <sup>3</sup>	0	0	100	400m <sup>3</sup>	0	0

It has been estimated by the project engineers that c. 5,890 m<sup>3</sup> of material will be excavated. Any suitable excavated material will be temporarily stockpiled for reuse as fill, where possible. It is anticipated that approximately 50% of the excavated soil will be reinstated as backfill. However, due to the site location and the nature of the anticipated excavations, it will not be possible to reuse all of the excavated material on-site. For example, when the excavations involve the removal of tarmac and hardcore, which are typically not suitable for reuse, this excavated material will need to be exported as waste. Where material is removed off-site it will be taken for appropriate reuse, recovery and / or disposal.

It is estimated that approximately 400m<sup>3</sup> of imported stone will be required for the temporary works area. This material will be used to provide a stable working platform, access routes, and support areas for construction plant. All stone used for the temporary works will be recovered and recycled following completion of the works. Recovered material will be cleaned, graded, and stored for reuse in future construction phases or other approved projects, reducing the requirement for additional imported material and minimising waste sent to disposal.

It should be noted that until final materials and detailed construction methodologies have been confirmed, it is difficult to predict with a high level of accuracy the construction waste that will be generated from the proposed works as the exact materials and quantities may be subject to some degree of change and variation during the construction process.

## 5.5 Proposed Resource Waste Management Options

Waste materials generated will be segregated on site, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source where feasible. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. There are numerous waste contractors in the FCC Region that provide this service.

All waste arisings will be handled by an approved waste contractor holding a current waste collection permit. All waste arisings requiring disposal off-site will be reused, recycled, recovered or disposed of at a facility holding the appropriate registration, permit or licence, as required.

Some of the sub-contractors on site will generate waste in relatively low quantities. The transportation of non-hazardous waste by persons who are not directly involved with the waste business, at weights less than or equal to 2 tonnes, and in vehicles not designed for the carriage of waste, are exempt from the requirement to have a waste collection permit (*Ref. Article 30 (1) (b) of the Waste Collection Permit Regulations 2007 as amended*). Any sub-contractors engaged that do not generate more than 2 tonnes of waste at any one time can transport this waste offsite in their work vehicles (which are not design for the carriage of waste). However, they are required to ensure that the receiving facility has the appropriate COR / permit / licence.

Written records will be maintained by the contractor(s) detailing the waste arising throughout the C&D phases, the classification of each waste type, waste collection permits for all waste contactors who collect waste from the site and COR/permit or licence for the receiving waste facility for all waste removed off site for appropriate reuse, recycling, recovery and/or disposal. Dedicated bunded storage containers will be provided for hazardous wastes which may arise such as batteries, paints, oils, chemicals etc, if required.

The management of the main waste streams is outlined as follows:

### Soil and stone

The Waste Management Hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling/recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. The excavations are required to facilitate construction works so the preferred option (prevention and minimisation) cannot be accommodated for the excavation phase.

It is anticipated that the majority (50%) of the excavated soil will be reinstated as backfill. However, due to the site location and the nature of the anticipated excavations, it will not be possible to reuse all of the excavated material on-site. When this material is removed off-site it could be reused as a by-product (and not as a waste), if this is done, it will be done in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011. Article 27 requires that certain conditions are met and that by-product notifications are made to the EPA via their online notification form. Excavated material for this purpose will not be removed from site until approval from the EPA has been received. The potential to reuse material as a by-product will be confirmed during the course of the excavation works, with the objective of eliminating any unnecessary disposal of material.

The next option (beneficial reuse) may be appropriate for the excavated material pending environmental testing to classify the material as hazardous or non-hazardous in accordance with the *EPA Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* publication. Clean inert material may be used as fill material in other construction projects or as engineering fill for waste licensed sites. Beneficial reuse of surplus excavation material as engineering fill may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end-use.

Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site as a by-product (and not as a waste), this

will be done in accordance with Article 27. Similarly, if any soils/stones are imported onto the site from another construction site as a by-product, this will also be done in accordance with Article 27. Article 27 will be investigated to see if the material can be imported onto this site for beneficial reuse instead of using virgin materials.

If the material is deemed to be a waste, then removal and reuse/recovery/disposal of the material will be carried out in accordance with the *Waste Management Acts 1996 – 2011 as amended, the Waste Management (Collection Permit) Regulations 2007 as amended* and the *Waste Management (Facility Permit & Registration) Regulations 2007 as amended*. Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered.

In the event that contaminated material is encountered and subsequently classified as hazardous, this material will be stored separately to any non-hazardous material. It will require off-site treatment at a suitable facility or disposal abroad via Transfrontier Shipment of Wastes (TFS).

#### Bedrock

It is not anticipated that bedrock will be encountered during the excavation phase of this development. However, if encountered it is envisaged that all bedrock will be removed offsite and will not be crushed onsite unless the appropriate waste permit has been obtained from FCC.

#### Silt & Sludge

During the construction phase, silt and petrochemical interception will be carried out on runoff and pumped water from site works, where required. Sludge and silt will then be collected by a suitably licensed contractor and removed offsite.

#### Concrete Blocks, Bricks, Tiles & Ceramics

The majority of concrete blocks, bricks, tiles and ceramics generated as part of the construction works are expected to be clean, inert material and will be recycled, where possible. If concrete is to be crushed on-site, the appropriate mobile waste facility permit will be obtained from FCC.

#### Hard Plastic

As hard plastic is a highly recyclable material, much of the plastic generated will be primarily from material off-cuts. All recyclable plastic will be segregated and recycled, where possible.

#### Timber

Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc., will be disposed of in a separate skip and recycled off-site.

#### Metal

Metals will be segregated into mixed ferrous, aluminium cladding, high grade stainless steel, low grade stainless steel etc., where practical and stored in skips. Metal is highly recyclable and there are numerous companies that will accept these materials.

#### Glass

Glass materials will be segregated for recycling, where possible.

#### Waste Electrical and Electronic Equipment (WEEE)

Any WEEE will be stored in dedicated covered cages/receptacles/pallets pending collection for recycling.

### Other Recyclables

Where any other recyclable wastes such as cardboard and soft plastic are generated, these will be segregated at source into dedicated skips and removed off-site.

### Non-Recyclable Waste

C&D waste which is not suitable for reuse or recovery, such as polystyrene, some plastics and some cardboards, will be placed in separate skips or other receptacles. Prior to removal from site, the non-recyclable waste skip/receptacle will be examined by a member of the waste team (see **Section 6**) to determine if recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

### Asbestos

If Asbestos or ACMs are identified in the ground or in any of the structures/materials during C&D, it will be removed by a suitably qualified contractor and in accordance with S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010. All asbestos will be taken to a suitably licensed waste facility.

### Other Hazardous Wastes

On-site storage of any hazardous wastes produced (i.e. contaminated soil if encountered and/or waste fuels) will be kept to a minimum, with removal off-site organised on a regular basis. Storage of all hazardous wastes on-site will be undertaken so as to minimise exposure to on-site personnel and the public and to also minimise potential for environmental impacts. Hazardous wastes will be recovered, wherever possible, and failing this, disposed of appropriately.

It should be noted that until a construction contractor is appointed it is not possible to provide information on the specific destinations of each construction waste stream. Prior to commencement of construction and removal of any construction waste offsite, details of the proposed destination of each waste stream will be provided to FCC by the project team.

## **5.6 Tracking and Documentation Procedures for Off-Site Waste**

All waste will be documented prior to leaving the site. Waste will be weighed by the contractor, either by weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site by the nominated project RM (see **Section 6**).

All movement of waste and the use of waste contractors will be undertaken in accordance with the *Waste Management Acts 1996 - 2011, Waste Management (Collection Permit) Regulations 2007 as amended and Waste Management (Facility Permit & Registration) Regulations 2007 as amended*. This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO. The nominated project RM (see **Section 6**) will maintain a copy of all waste collection permits on-site.

If the waste is being transported to another site, a copy of the Local Authority waste COR/permit or EPA Waste/IE Licence for that site will be provided to the nominated project RM (see **Section 6**). If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) notification document will be obtained from Dublin City Council (as the relevant authority on behalf of all local authorities in Ireland) and kept on-site along with details of the final destination (COR, permits, licences etc.). A receipt from the final destination of the material will be kept as part of the on-site waste management records.

All information will be entered in a waste management recording system to be maintained on site.

## 5.7 Estimated Cost of Waste Management

At this preliminary stage, it would not be feasible to estimate the total cost of waste management and disposal associated with the proposed development. Estimated costs will be determined by the Contractor and included in the revised RWMP.

The total cost of C&D waste management will be measured and will take into account handling costs, storage costs, transportation costs, revenue from rebates and disposal costs.

An outline of the costs associated with different aspects of waste management is outlined below.

### 5.7.1 Reuse

By reusing materials on site, there will be a reduction in the transport and recycle/recovery/disposal costs associated with the requirement for a waste contractor to take the material off-site.

Clean and inert soils, gravel, stones etc. which cannot be reused on site may be used as access roads or capping material for landfill sites etc. The preferred option will be to use this material on other construction sites as Article 27 by product. This material is often taken free of charge or a reduced fee for such purposes, reducing final waste disposal costs.

### 5.7.2 Recycling

Salvageable metals will earn a rebate which can be offset against the costs of collection and transportation of the skips.

Clean uncontaminated cardboard and certain hard plastics can also be recycled. Waste contractors will charge considerably less to take segregated wastes, such as recyclable waste, from a site than mixed waste.

Timber can be recycled as chipboard. Again, waste contractors will charge considerably less to take segregated wastes such as timber from a site than mixed waste.

### 5.7.3 Disposal

Landfill charges in the Leinster region are currently at around €130 - €150 per tonne which includes a €85 per tonne landfill levy specified in *the Waste Management (Landfill Levy) (Amendments) Regulations 2023*. In addition to disposal costs, waste contractors will also charge a collection fee for skips.

Collection of segregated C&D waste usually costs less than municipal waste. Specific C&D waste contractors take the waste off-site to a licensed or permitted facility and, where possible, remove salvageable items from the waste stream before disposing of the remainder to landfill. Clean soil, rubble, etc. is also used as fill/capping material, wherever possible.

## 6. Site Management

A member of the construction team will be appointed as the project RM to ensure commitment, operational efficiency and accountability during the C&D phases of the proposed development.

## 6.1 Resource Manager Training and Responsibilities

The nominated RM will be given responsibility and authority to select a waste team if required, i.e. members of the site crew that will aid them in the organisation, operation and recording of the waste management system implemented on site.

The RM will have overall responsibility to oversee, record and provide feedback to the client on everyday waste management at the site. Authority will be given to the RM to delegate responsibility to sub-contractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and material salvage.

The RM will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for waste management on site. The RM will also be trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused on site and be knowledgeable in how to implement this RWMP.

## 6.2 Site Crew Training

Training of site crew is the responsibility of the RM and, as such, a waste training program will be organised. A basic awareness course (environmental induction) will be held for all site crew to outline the RWMP and to detail the segregation of waste materials at source. This may be incorporated with other site training needs such as general site induction, health and safety awareness and manual handling.

This basic course will describe the materials to be segregated, the storage methods and the location of the Waste Storage Areas (WSAs). A sub-section on hazardous wastes will be incorporated into the training program and the particular dangers of each hazardous waste will be explained.

As a minimum the following will be included in the induction, as per the EPA (2021) guidelines:

- Scope and content of the RWMP;
- Project commitments and targets;
- List of anticipated resources and wastes and volumes to be generated;
- Procedures for the proper identification and segregation of resources and wastes;
- Temporary storage and the location of the WSAs; and
- Clear instruction on hazardous wastes will be incorporated into the training programme and the particular dangers of each hazardous waste.

The course will be provided and delivered by the Contractor and be tailored to suit the tasks and responsibilities of site personnel from management and supervisory level through to site operatives. Toolbox talks on resource management will be provided on a continuous basis. Regular toolbox talks will ensure site staff are aware of the resource management practices associated with their work and the appropriate control measures that are required to carry out their work in compliance with the RWMP.

## 6.3 Tracking and Tracing / Record Keeping

Records will be kept for all waste material which leaves the site, either for reuse on another site, recycling or disposal. A recording system will be put in place to record the waste arising's on site.

A waste tracking log will be used to track each waste movement from the site. On exit from the site, the waste collection vehicle driver will stop at the site office and sign out as a visitor and provide the security personnel or RM with a waste docket (or Waste Transfer Form for hazardous waste) for the waste load collected. At this time, the security personnel will complete and sign the Waste Tracking Register with the following information:

- Date;
- Time;
- Waste Contractor/;
- Company waste contractor appointed by e.g. Contractor or subcontractor;
- Collection Permit No.;
- Vehicle Reg.;
- Driver Name;
- Docket No.;
- Waste Type; and
- EWC/LoW.

The waste vehicle will be checked by security personal or the RM to ensure it has the waste collection permit no. displayed and a copy of the waste collection permit in the vehicle before they are allowed to remove the waste from the site.

The waste transfer dockets will be transferred to the RM on a weekly basis and can be placed in the Waste Tracking Log file. This information will be forwarded onto the FCC Waste Regulation Unit when requested.

Each subcontractor that has engaged their own waste contractor will be required to maintain a similar waste tracking log with the waste dockets/ TF maintained on file and available for inspection on site by the main contractor as required. These subcontractor logs will be merged with the main waste log.

Waste receipts from the receiving waste facility will also be obtained by the site contractor(s) and retained. A copy of the Waste Collection Permits, CORs, Waste Facility Permits and Waste Licences will be maintained on site at all times and will be periodically reviewed by the RM. Subcontractors who have engaged their own waste contractors, will provide the main contractor with a copy of the waste collection permits and COR/permit/licence for the receiving waste facilities and maintain a copy on file, available for inspection on site as required.

A copy of the Waste Collection Permits, CORs, Waste Facility Permits and Waste Licences will be sent to the FCC Waste Regulation Unit prior to any material being removed from site.

## **6.4 Outline Waste Audit Procedures**

### **6.4.1 Responsibility for Waste Audit**

The appointed RM will be responsible for conducting a waste audit at the site during the C&D phase of the development. Contact details for the nominated RM will be provided to the FCC Waste Regulation Unit after the main contractor is appointed and prior to any material being removed from site.

### **6.4.2 Review of Records and Identification of Corrective Actions**

A review of all the records for the waste generated and transported off-site will be undertaken mid-way through the project. If waste movements are not accounted for, the reasons for this will be established in order to see if and why the record keeping system has not been maintained. The waste records will be compared with the established recovery/reuse/recycling targets for the site.

Each material type will be examined, in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved. Waste management costs will also be reviewed.

Upon completion of the C&D phase, a final report will be prepared, summarising the outcomes of waste management processes adopted and the total recycling/reuse/recovery figures for the development.

## **6.5 Consultation with Relevant Bodies**

### **6.5.1 Local Authority**

Once construction contractors have been appointed, and prior to removal of any C&D waste materials offsite, details of the proposed destination of each waste stream will be provided to the FCC Waste Regulation Unit.

FCC will also be consulted, as required, throughout the excavation and construction phases in order to ensure that all available waste reduction, reuse and recycling opportunities are identified and utilised and that compliant waste management practices are carried out.

### **6.5.2 Recycling/Salvage Companies**

Companies that specialise in C&D waste management will be contacted to determine their suitability for engagement. Where a waste contractor is engaged, each company will be audited in order to ensure that relevant and up-to-date waste collection permits and facility COR/permits/licences are held. These permit details will be sent to the FCC Waste Regulation Unit. In addition, information regarding individual construction materials will be obtained, including the feasibility of recycling each material, the costs of recycling/reclamation and the means by which the wastes will be collected and transported off-site, and the recycling/reclamation process each material will undergo off site.

## **7. Site Infrastructure**

It is proposed that from the outset of construction activities, a dedicated and secure Waste Staging Area (WSA) containing bins, and skips into which all waste materials generated by C&D site activities, will be established within the active construction phase of the development site.

- The WSA will be set out to reduce any potential for impact on sensitive human (e.g. residential) or natural (water courses, ecological sites, etc.) and a suitable buffer will be applied to mitigate any impact;
- Spill kits will be located within the site compound with clearly labelled instructions on how they will be used to clean up fuel/oil spills;
- All vehicle and plant oils and liquid construction materials will be stored in secure impermeable storage units;

- All diesel-powered generators where required will be inspected on at least a weekly basis by a delegate of the RM to ensure they are not leaking diesel or oils;
- All empty containers containing residual quantities of oils, greases and hydrocarbon based liquids will be stored in a dedicated, clearly labelled impermeable container;
- In order to ensure that the construction contractor correctly segregate waste materials, it is the responsibility of the site RM to ensure all staff are informed by means of clear signage and verbal instruction and made responsible for ensuring site housekeeping and the proper segregation of construction waste material;
- The site location deliveries / removals are to phone ahead and use Just in Time (JIT) delivery processes; receive precise directions and named person to liaise with on site; and
- The Contractor is to erect required signage approaching site and ensure deliveries are programmed to cause minimal disruption.

A review will be undertaken of onsite waste management infrastructure by the RM to identify any improvements which may be required and ensure adequacy of site signage and need for any repairs or upgrades, adequacy of storage infrastructure and need for any repairs or upgrades and compliance with resource segregation protocols and observed contamination in any resource streams and assessment of observed Contractor and subcontractor work practices for compliance with the RWMP.

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