AtkinsRéalis

Environmental Impact Assessment Report (EIAR) Volume 2 – Chapter 14 — Resource and Waste Management

Uisce Eireann

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BALLINA AND LOUGH TALT WATER SUPPLY UPGRADE

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Abbreviations

Abbreviation	Term
BPS	Booster Pumping Station
BPT	Break Pressure Tank
C&D	Construction and Demolition
CEDS	Circular Economy Design Standard
CEMP	Construction Environmental Management Plan
CURWMP	Connacht Ulster Regional Waste Management Plan
CRU	Commission for Regulations of Utilities
DECC	Department of the Environment, Climate and Communications
DoCCAE	Department of Communications, Climate Action and Environment
EC	European Commission
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
EU	European Union
EWC	European Waste Catalogue
GHG	Greenhouse Gas
GPP	Green Public Procurement
HDD	Horizontal Directional Drilling
ICW	Integrated Constructed Wetland
IEMA	Institute of Environmental Management and Assessment
LoW	List of Waste
NHWMP	National Hazardous Waste Management Plan
NWCPO	National Waste Collection Permit Office
RAP	Reclaimed Asphalt Pavement
RWI&PS	Raw Water Intake and Pumping Station
RWMP	Resource and Waste Management Plan
RWPO	Regional Waste Management Planning Offices
WAC	Waste Acceptance Criteria
WACPE	Waste Action Plan for a Circular Economy
WEEE	Waste Electrical and Electronic Equipment
WMC	Waste Management Coordinator
WTP	Water Treatment Plant
WSZ	Water Supply Zone

Glossary

Term	Meaning
Article 27 By-Product	Material meeting regulatory criteria to be considered a by-product rather than waste.
Article 28 End-of-Waste	Process through which recovered material ceases to be classified as waste.
Circular Economy	Economic model focused on reducing waste through reuse, repair and recycling.
Construction and Demolition Waste	Waste generated from construction, demolition and excavation activities.
Cut and Fill Balance	Matching excavation and fill requirements to minimise material import and export.
End-of-Waste Status	Legal status where recovered material becomes a product rather than waste.
Green Public Procurement	Procurement approach favouring goods and services with reduced environmental impacts.
Hazardous Waste	Waste with properties requiring specialised handling and disposal.
Integrated Constructed Wetland	Engineered wetland used for treatment and management of water or residuals.
Reclaimed Asphalt Pavement	Recovered asphalt reused in manufacture of new bituminous products.
Residuals Management	Management of sludge and treatment by-products generated in water treatment.
Resource and Waste Management Plan	Project plan describing waste prevention, reuse, recycling and disposal.
Soil Recovery Facility	Authorised facility for recovery and beneficial reuse of soil and stone.
Waste Acceptance Criteria	Criteria determining suitability of waste for disposal or recovery facilities.
Waste Electrical and Electronic Equipment	Discarded electrical or electronic equipment requiring specialist recycling.
Waste Hierarchy	Priority order of prevention, reuse, recycling, recovery and disposal.
Waste Management Coordinator	Person responsible for waste compliance and implementation of the RWMP.
Waste Recovery	Process of reusing, recycling or recovering value from waste materials.
Zero Recoverable Waste to Landfill	Objective of diverting all recoverable materials away from landfill.

14. Resource and Waste Management

14.1 Introduction

This EIAR chapter has been prepared by AtkinsRéalis and assesses the likely significant effects of the Proposed Development on the receiving environment, particularly in terms of resource consumption ('materials') and waste management. The Proposed Development which is the subject of this planning applications is described in Chapter 3: Project Description of this EIAR. The assessment will consider the likely significant effects arising from material use and waste generation and management during the construction, and operational phases of the Proposed Development. The Study Area for this chapter is based on the construction footprint for the various elements of the scheme, and the project redline boundary (including compounds and temporary land take areas).

The design of the scheme has evolved through comprehensive design iterations, with an emphasis on minimising materials consumption and waste production where practicable to avoid or reduce likely significant effects.

This assessment is in line with the EPAs Guidelines on the Information to be Contained in an Environmental Impact Assessment Reports (2022).

This Chapter summarises the related waste regulatory and policy frameworks (Section 14.2), describes the methods used to assess the identified effects regarding resource and waste (Section 14.3.2), the existing baseline conditions for resource and waste management in Ireland and in County Mayo and County Sligo (Section 14.4.), and the predicted effects of the Proposed Development on resources and waste (Section 14.5). The proposed mitigation measures required to prevent, reduce or offset any significant adverse effects and the anticipated likely residual effects after mitigation measures have been applied is provided in Section 14.6. This chapter was prepared by personnel from AtkinsRéalis with relevant experience and qualification in resource and waste management.

Other topics and indirect effects related to resource and waste management, such as construction phase traffic effects, land, soils and geology are considered in the following chapters:

- Description of the Proposed Development (Chapter 3);
- Mineral resources are considered in the Land, Soils and Geology chapter (Chapter 9);
- Water (Hydrology and Hydrogeology) (Chapter 10);
- Effects arising from embodied carbon in the construction materials (Chapter 12 – Climate);
- Roads, Traffic & Transportation (Chapter 15); and
- Material Assets (Chapter 16).

This chapter is also supported by the following documents:

- Preliminary Construction Resource Waste Management Plan (PCRWMP) (Appendix 14-1, Volume 3 of the EIAR);
- Preliminary Construction Environmental Management Plan (PCEMP) (Appendix 3-3, Volume 3 of the EIAR); and
- Ground Investigation Contract Factual Report (Irish Drilling Ltd, Appendix 9-1, Volume 3 of the EIAR).

14.1.1 Desktop Assessment

A desktop study was carried out which included the following:

- Review of applicable policy and legislation which creates a legal framework for resource and waste management in Ireland.
- A review of the Irish Concrete Federation annual production of materials in Ireland (Source: Irish Concrete Federation 2024) to ascertain the national availability of construction aggregates, concrete and steel.
- A review of existing and proposed waste management facilities was completed in County Mayo and County Sligo.
- Description of the typical waste materials/arisings that will be generated during the construction and operational phases of the Proposed Development.
- Identification of design solutions and/or mitigation measures to prevent waste generation and promote management of waste across the Proposed Development was undertaken in accordance with the waste management hierarchy.
- Identification of opportunities to minimise resource use during construction and operation of the Proposed Development.

14.1.2 Site Investigation

A site investigation was carried out by Irish Drilling Ltd in 2025 which involved the installation of several boreholes, trial pits and slit trenches through the study area. Soil samples were taken from a number of the boreholes/trial pits and submitted to an analytical laboratory for environmental testing. The information gathered from the investigation allowed a waste classification of the soils throughout the site. The findings of the investigation are detailed in Section 14.4 of this chapter.

14.2 Waste Legislation and Policy Context

This assessment has been undertaken with consideration of the requirements of key legislative and policy documents, relevant legislation that were considered during the assessment process for this project are as follows:

- Planning and Development Regulations 2001 (as amended)
- Planning and Development Act, 2000 (as amended)
- Waste Classification – List of Waste and Determining if Waste is Hazardous or Non-Hazardous (EPA 2018)
- Guidelines on the information to be contained in Environmental Impact Assessment Reports. Environmental Protection Agency (EPA), 2022
- European Union (EU) Environmental Impact Assessment (EIA) Directive 2011/92/EU as amended by Directive 2014/52/EU (hereafter referred to as the “EIA Directive”)
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (hereafter referred to as the “EIA Regulations”)
- The EIA Regulations 2018 (Government of Ireland 2018)

- Green Public Procurement, Guidance for the Public Sector (EPA 2024c)
- IEMA Guide to: Materials and Waste in Environmental Impact Assessment (IEMA 2020)
- Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities (EPA 2020a)
- National By-Product Criteria, Reference Number BP-N001/2023, for site-won asphalt (EPA, 2023a)
- National By-Product Criteria, Reference Number BP-N002/2024 for greenfield soil and stone (EPA, 2024d)
- Guidance on Soil and Stone By-products in the context of Article 27 of the European Communities (Waste Directive) Regulations 2011 (EPA 2019a).
- Position Paper Regulation 27 Consultation to Inform development of Draft Guidelines for Brownfield soil and stone by-products material incorporating a PFAS screen (EPA, 2026)
- Waste Management Act 1996, as amended
- Landfill Directive (99/31/EC)
- Circular Economy (Waste Recovery Levy) Regulations 2024
- Circular Economy and Miscellaneous Provisions Act 2022 (S.I. No. 26 of 2022)
- Whole of Government Circular Economy Strategy Whole of Government Circular Economy Strategy 2026-2028 Accelerating Action
- Position Paper Regulation 27 Consultation to inform development of Draft Guidance for Brownfield soil and stone by-product material incorporating a PFAS screen
- Waste Management (Facility Permit and Registration) (Amendment) Regulations 2019 (S.I. No. 250 of 2019)
- Waste Management (Landfill Levy) Regulations 2008 – S.I. No. 199 of 2008

A summary of the planning policy, legislation, technical guidance and standards relevant to Waste Management is provided below in Table 14-1.

Table 14-1 — Planning policy, legislation, technical guidance and standards

Document Title	Description / Relevance
Directive 2008/98/EC on Waste (Waste Framework Directive)	1. The Waste Framework Directive outlines that waste management shall be carried out without endangering human health or harming the environment, in particular; A) Without risk to water, air, soil, plants or animals B) Without causing a nuisance through noise or odours C) Without adversely affecting the countryside or places of special interest.

Document Title	Description / Relevance
	2. The Waste Framework Directive sets out measures to strengthen the defined concepts and principles, the 'polluter pays', 'waste management hierarchy' and the 'extended producer responsibility' 3. The Waste Framework Directive highlights 2 necessary targets to be achieved in order comply with its defined objectives: ▪ 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 ▪ by 2025, the preparing for re-use and the recycling of municipal waste shall be increased to a minimum of 55 % by weight. Rising to 60% by weight by 2030 and 65% by weight by 2035
A New Circular Economy Action Plan for a Cleaner and More Competitive Europe	The Circular Economy Action Plan was adopted by the European Commission (EC) in March 2020 as way of accelerating the change required by the European Green Deal (Implemented in 2015), launching a step towards the Green Deal's strategy for a climate-neutral, resource-efficient and competitive economy. The Plan presents a range of inter-connected initiatives to set the foundation for '*a strong and coherent product policy framework that will make sustainable products, services and business models the norm and transform consumption patterns so that no waste is produced in the first place*.' The framework targets seven key product value chains, including construction and buildings. The Action Plan highlights that this sector is responsible for about 50% of all extracted materials and over 35% of the EU's total waste generation. The Greenhouse Gas emissions for this sector equate are estimated to be between 5-12% of total nations GHG emissions. To tackle this, the Plan promotes a number of circularity principles. Two of which are relevant to construction waste and excavated soils as follows: *'Considering a revision of material recovery targets set in EU legislation for construction and demolition waste and its material-specific fractions'* *'Promoting initiatives to reduce soil sealing, rehabilitate abandoned or contaminated brownfields and increase the safe, sustainable and circular use of excavated soils.'*
National Waste Management Plan for a Circular Economy 2024-2030	As stated in the plan '*The Regional Waste Management Planning Offices (RWPO), under the auspices of the County and City Management Association National Oversight Group, have co-ordinated the preparation of this plan which is the first 'National Waste Management Plan for a Circular Economy'. This Plan sets out a framework for the prevention and management of waste in Ireland for the period 2024 to 2030 and seeks to influence sustainable consumption and prevent the generation of waste, improve the capture of materials to optimise circularity and enable compliance with policy and legislation'*. The plan sets out a range of national targets in response to the policy framework set out in the Waste Action Plan for Circular Economy (WACPE), targets for reuse, repair, resource consumption and

Document Title	Description / Relevance
	a reduction in contamination. Targets of relevance to the Proposed Development include: ▪ *'Target 1B Construction Materials - Construction and Demolition Waste generated: 12% Reduction in C&D Waste by 2030'* ▪ *'Target 2A Material Compliance Recycling - Material Compliance in the Dry Recycling Bin: 90% Material Compliance in the Dry Recycling Bin'* ▪ *'Target 2B Material Compliance Residual - Material Compliance in the Residual Bin: 10% per annum increase in Material Compliance in the Residual Bin (90% by end of 2030)'*
A Waste Action Plan for a Circular Economy 2022-2025	The Waste Action Plan for a Circular Economy is Ireland's roadmap for waste planning and management. It was issued by the Department of Communications, Climate Action and Environment in September 2020. The Plan sets out a range of national aims and targets to be implemented between 2020-2025, and the measures by which these will be achieved. The Plan is conceived around the proposed waste-related measures in The Second Circular Economy Action Plan (March 2020). The Plan is intended to decouple economic growth from resource use, accelerating Ireland towards a circular economy and championing sustainability by maximising the full value of materials used. Improved design, durability, repair and recycling/reuse are noted as the necessary drivers. The Plan highlights the following measures: ▪ *'We will put in place incentives to encourage the use of recycled materials including examining a possible levy on the use of virgin aggregates in construction projects to incentivise the use of recycled C&D materials, or build thresholds into Green Public Procurement'* ▪ *'Working with other stakeholders we will seek national end-of-waste decisions for specific C&D waste streams'* ▪ *There is a strong focus on Regulation 27 (by-products) and Regulation 28 (end-of-waste) decision-making process. These processes are to be streamlined, and detailed guidance will be developed for specific problematic materials*
Whole of Government Circular Economy Strategy 2026-2028 Acceleration Action	Developed under the provision of the Circular Economy and Miscellaneous Provisions Act 2022, this Strategy has a statutory basis. It sets legally required targets and actions for key priority sectors: construction (the built environment), the bioeconomy (including agriculture), retail, packaging, textiles, and electronics and electronic equipment. This document sets out several targets for the Construction/Built Environment including the publication of the Circularity Roadmap for the Construction Sector, 45% reduction in GHG emissions (against the 2018 levels) by 2030 for commercial and public buildings, achievement of a 12% reduction in C&D waste arisings, and from 2028 at least 10% by weight, of construction materials procured by public bodies for infrastructure projects and public non-residential buildings will comprise recycled materials.

Document Title	Description / Relevance
Regulation 27 (by Product) and Regulation 28 (end of waste (EOW))	The purpose of this regulation (S.I. No. 660/2024 Waste management Act 1996 (End-Of-Waste) Regulations 2024) is to enhance the circular economy by making EOW criteria clearer and encourage the use of waste as a resource. These mechanisms provide clarity on when materials can be used as resources rather than treated as waste. As a result, they are delivering cost savings for construction and other sectors. For the purposes of this chapter Regulation 27 and Regulation 28 are identified as Article 27 and Article 28 respectively as these terms align with EPA Notifications.
National Hazardous Waste Management Plan (2021–2027)	The EPA prepared a revised National Hazardous Waste Management Plan (NHWMP) for Ireland covering a six-year period from 2021 to 2027. It sets out the priorities to be pursued over the next six years and beyond to improve the prevention and management of hazardous waste, taking into account the progress made since the previous revised plan, and the waste policy and legislative changes that have occurred since the previous revised plan was published. The objectives outlined in the plan are as follows: ▪ *'Support and drive priority prevention actions by industry and the public to reduce the generation of hazardous waste'* ▪ *'Support the identification of adequate and appropriate collection infrastructure for all hazardous wastes with a view to mitigating environmental and health impacts'* ▪ *'Endorse the proximity principle such that hazardous wastes are treated as close to the point of production as possible – including within Ireland, taking into account the need for specialised installations for certain types of waste.'* ▪ *'Support effective regulation of the movement and management of hazardous wastes in line with national policy priorities'* ▪ *'Promotion of safe reuse and recycling pathways in support of the circular economy.'* In order to accelerate and ensure cohesive action across the priority topics within the plan, there are 20 recommendations presented, they are each grouped into one of the following categories: 1. Policy & Regulation (4) 2. Prevention (4) 3. Collection & Treatment (9) 4. Implementation (3)
EU Construction & Demolition Waste Management Protocol	The EU Construction & Demolition Waste (CDW) Management Protocol was introduced by the EU in 2016 and later revised in August 2024. This revised Protocol aims to enhance C&D waste management processes at all stages of the value chain and increase the confidence in the quality of products prepared for re-use and materials for recycling. The Protocol outlines a number of rules and includes examples of best practices, technologies and tools from across the EU in the following areas:

Document Title	Description / Relevance
	▪ Identification of C& D waste and construction products through pre-demolition and pre-renovation audits ▪ Selective demolition ▪ Source separation and collection ▪ Preparing for re-use and recycling ▪ Waste logistics ▪ Waste processing ▪ Quality management ▪ Policy and framework conditions. The Protocol sets out the best practices in managing C&D waste, to enable projects such as the Proposed Development to minimise C&D waste, maximise reuse and recycling to meet or exceed the targets set within the Waste Framework Directive.
UÉ's National Water Resources Plan	The National Water Resources Plan – Framework Plan (Irish Water 2021) sets out Uisce Éireann's 25-year strategy towards a safe, sustainable, secure and reliable drinking water supply for everyone, dealing with the supply and demand over the short, medium and long term throughout Ireland. Technical Appendix K, Residuals (Irish Water 2021), of the NWRP – Framework Plan sets out how it is planned to manage the residuals generated (Solid and water) from the water treatment processes in an economical, environmentally acceptable manner (Operational waste). The plan notes that new WTPs are likely to increase the quantity of residuals produced during the initial water treatment process due to design, so proposals for the consideration and minimisation at the design stage have been set out, for example, process opitmisation or additional processes should be considered to minimise the amount of residuals produced. The plan outlines Uisce Éireann's objective of moving towards a circular economy promoting productive reuse and recycling of residuals. A number of potential reuses of residuals relating to a circular economy model are outlined in Technical Appendix K Residuals (Irish Water 2021), such as: ▪ The cement industry provides a sustainable option for the use of WTP solid residuals as a product, displacing aluminium containing raw materials such as bauxite. ▪ WTP residual can also be used as a product as an alternative to the raw materials currently used in brick manufacture. ▪ Residual can be used as a product by being incorporated into the material used to cover and remediate landfill sites that are being closed. ▪ WTP residuals can be utilised in Wastewater Treatment Plants (WwTPs), as a product to improve nutrient removal and dewaterability of the WwTP biosolids, displacing coagulant chemical usage for this purpose.

Document Title	Description / Relevance
	▪ Long term storage of the WTP residuals could provide a stockpile for future use as products in industry and a buffer to industrial production patterns. ▪ A small amount of residual is currently exported to facilities in Northern Ireland and other European countries while outlets are being developed in Ireland.
Uisce Éireann Sustainability Framework	The Uisce Éireann Sustainability Framework is based around four pillars, Environment, Social, Collaboration and Governance ensuring a holistic view of sustainability in water and wastewater services. There are a number of initiatives and targets that are relevant to the Proposed Development, including: ▪ Engage with 70% of our top suppliers, both sub-contractors & material suppliers; ▪ Zero recoverable waste to landfill by 2030; ▪ Circular economy outlets for sludge by 2026; ▪ Reuse of decommissioned materials in upgrade projects; and ▪ Use of more sustainable materials (e.g. low carbon cement, high % recycled content in pipes, bio plastics etc.), switching to a circular business model approach.
Mayo County Development Plan	The Mayo County Development Plan 2022-2028 (Mayo County Council 2022) sets out the following, that are relevant to this chapter: **Waste Management Policy INP 4:** To liaise and work in conjunction with Irish Water in the delivery of an adequate level of wastewater services infrastructure to ensure that sufficient wastewater infrastructure/ capacity is available for the settlements set out in the County Settlement Hierarchy, including supporting and facilitating the identified wastewater projects. **Waste Management Policy INP 5:** To collaborate with Irish Water in contributing towards compliance with the relevant provisions of the Urban Wastewater Treatment Regulations 2001 and 2004 and the Wastewater Discharge (Authorisation) Regulations 2007 as amended. **Waste Management Policy INP 7:** To support the Implementation of the Connacht Ulster Regional Waste Management Plan 2015-2021(as amended) or replacement plan with particular emphasis on reuse, recycling and disposal of residual waste in the most appropriate manner where it can be demonstrated that the development will not have significant adverse effects on the environment, the integrity of the Natura 2000 network, traffic safety, residential or visual amenity. **Waste Management Policy INP 8:** To promote the sustainable management of waste generation and investment in different types of waste treatment and support a healthy environment, economy and society. **Waste Management Objective INO 10:** Promote prioritising prevention, reuse, recycling and recovery, and to sustainably manage residual waste. New

Document Title	Description / Relevance
	developments shall take account of the provisions of the Connacht Ulster Regional Waste Management Plan 2015-2021(as amended) and observe those elements of it that relate to waste prevention and minimisation, waste recycling facilities and the capacity for source segregation. **Waste Management Objective INO 12:** To continue to expand environmental awareness initiatives designed to create increased public awareness of waste prevention, minimisation, reuse and resource efficiency. **Rural Settlement and Village Settlement Plan Policy RSVP 10:** To liaise and work in conjunction with Irish Water in the delivery of an adequate level of water and wastewater services in rural settlements and villages, including pursuing wastewater treatment upgrades, where appropriate, through Irish Water's Small Towns and Villages Growth Programme. **Sustainable Buildings and Structure Policy BEP 16:** To promote and support the re-use and re-purposing of extant building stock, in the first instance, over demolition and rebuilding building, where practical, with reference to the loss of our historic building stock, sense of place and the environmental cost.
Sligo County Development Plan	The Sligo County Development Plan 2024-2030 (Sligo County Council 2024) sets out the following, that are relevant to this chapter: **Policy P-WWT-2:** Require sustainable collection, treatment and discharge of wastewater effluent generated within the County and ensure that effluent/sludge is treated and reused in accordance with the required EU standards and UÉ's National Wastewater Sludge Management Plan (and any superseding plans). Sligo County Council notes in the Development Plan that they support '*the sustainable management of waste and seek to enable a significant reduction in the production of waste in County Sligo, in line with the principles of the Waste Action Plan for a Circular Economy'.* It is stated that identification and provision of facilities for the reception of C&D waste needs to be accounted for in the Proposed Development planning and design processes.
Ballina Local Area Plan	The Ballina Local Area Plan (Mayo County Council 2024) 2024-2030 sets out the following, that are relevant to this chapter: **Climate Action Policy 4:** Support a successful transition to a circular economy where waste and resources are minimised in accordance with emerging legislation and national strategy including the Circular Economy Programme 2021-2027, as amended or superseded. **Waste Management Policy IESP 12:** Protect environmental quality in Ballina through the implementation of European, national and regional policy and legislation relating to air quality, greenhouse gases, climate change, light pollution, noise pollution and waste management. **Waste Management Policy IESP 13:** Support waste reduction and sustainable waste management through prevention, reduction and recycling and by facilitating the provision of adequate waste infrastructure, such as bring banks, at locations that will not adversely affect residential amenity or environmental quality.

Document Title	Description / Relevance
Northern & Western Regional Assembly – Regional Spatial and Economic Strategy 2020-2032	The Regional Spatial and Economic Strategy of the Northern and Western Regional Assembly provide a roadmap for effective regional development but setting out a range of Regional Policy Objectives (RPOs). Some of the main objectives of the plan are to reduce landfill, increase recovery and increase generation of energy. Investment of up to €650m will be spent on waste treatment infrastructure and waste management activities, this level of investment is almost split equally between the public and private sector. However, the Regional Spatial and Economic Strategy notes that '*the main policy guidance for Waste Infrastructure in the region is found in the Connacht Ulster Regional Waste Management Plan (CURWMP) 2015-2021*'. Mayo County Council is the regional lead for the implementation of this plan. **RPO 8.8 -** The Assembly supports the implementation of the CURWMP 2015 – 2021 in terms of infrastructure provision. **RPO 8.9 -** The Assembly supports the requirement that the provision of waste infrastructure is integrated and coordinated with economic development and the planned development of the region as set out in this strategy and the NPF. **RPO 10 -** The siting of waste infrastructure shall in urban areas generally be on lands zoned for industrial use and in non-urban areas shall accord with the principles of proper planning and sustainable development. Environmental constraint mapping can be used to aid this process. **RPO 11 -** The Assembly supports the move towards regional and national self-sufficiency in terms of waste management infrastructure in accordance with the proximity principle and with the circular green economy.

14.2.1 Legislative Exemptions

Article 2(1) of the Waste Framework Directive sets out a list of the exclusions from the scope of the Directive which includes:

(c) 'Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated.'

Therefore, any materials from the Proposed Development that fall under this provision are not deemed to be relevant to the requirements of EU and national waste legislation.

The European Waste Directive Framework (WFD) defined the concept of a 'by-product'. This concept was transposed into Irish law through Regulation 27 of the European Communities (Waste Directive) Regulations 2011 as amended. Under certain circumstances, this enables an economic operator to decide that materials are by-products rather than waste. The following must be met to fulfil this requirement:

(a) *'Further use of the substance or object is certain'*

(b) *'The substance or object can be used directly without any further processing other than normal industrial practice'*

(c) *'The substance or object is produced as an integral part of a production process'*

(d) *'Further use is lawful in that the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts'*

By-products are not regulated by waste management legislation, so classifying material as a by-product means that it is not required to be managed as per that legislation. For construction projects like the Proposed Development, site-won asphalt and excavated greenfield soil and stone can be classified as by-products under this exemption so long as they fulfil the conditions above and the conditions outlined under the National By-Product Criteria. An Article 27 registration is also required to be submitted to the Local Authority. The economic operator and destination for the material must adhere to all relevant requirements for this exemption to be permitted.

Where material is found to have originated from a non-greenfield site, an Article 27 notification is submitted with supporting documentation to the EPA for its decision. Material from non-greenfield sites will require sufficient relevant evidence to prove that the notified material is uncontaminated. The Appointed Contractor will be aware of the requirements the EPA's forthcoming Guidance for Brownfield Soil and Stone by-product material, incorporating a PFAS Screening Tool. The Appointed Contractor will be familiar with the proposed Pollutant Limit Values (PLVs), the appropriate land use scenarios and the flow diagram for the use of PLV.

14.2.2 End-of-Waste Materials

If the material from the Proposed Development is classified as waste rather than a by-product, Regulation 28 of the European Communities (Waste Directive) Regulations 2011 (Article 6 of the Waste Framework Directive (2008), as amended) allows for waste materials to be given end-of-waste status after recovery or recycling process, once the criteria outlined in the legislation is met. This allows a specific material with an intended use to be classifies as not waste, subject to a case-specific end-of-waste assessment but is classed as a product (an Article 28). This means it no longer falls under the jurisdiction of any waste management legislation and can re-enter the supply chain as a new product.

14.2.3 EPA Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities

In January 2020, the EPA (2020a) issued 'Guidance on Waste Acceptance Criteria at Authorised Soil Recover Facilities'. This guidance applies to all authorised soil recovery facilities under the Waste Management Act as amended and provides guidance on developing maximum concentrations and/or soil trigger levels for relevant contaminants in soil and stone from non-greenfield sources that will be acceptable to the EPA. The EPA currently has a Position Paper Regulation 27 Consultation document to inform the development of Draft Guidance for Brownfield Soil and Stone by-products material incorporating a PFAS Screen. The document is intended to assist developers and environmental consultants with brownfield soil by-product notifications. The planned guidance will use pollutant limit values for the protection of human and environmental health based on use scenarios and vulnerabilities of the site. Interim ambient concentrations are being examined for use as pollutant limit values for PFAS.

14.2.4 Waste Framework Directive

In 2011 the revised EU Waste Framework Directive was transposed into Irish law by the European Commission (Waste Framework Directive) Regulations 2011 (S.I. No. 126 of 2011) (EC, 2008). The Waste Framework Directive focused on sustainable and efficient materials management strategy and provides a legal basis for the waste hierarchy as shown in Figure 14-1.

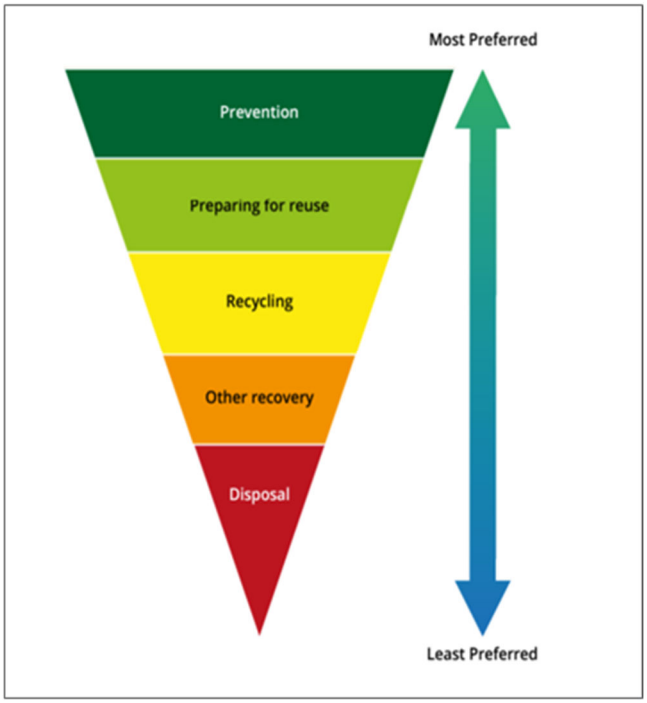


Figure 14-1 — Accepted Best Practice Waste Hierarchy (EPA, 2021) and Directive 2008/98/EC

The EU (Waste Directive) Regulations 2011 sets out exclusions from the scope of the Directive which includes the following under Article 3(1)(c):

"Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which is was excavated".

Materials from the Proposed Development which meet this criteria (Article 3(1)(c)) are not subject to the requirements of EU and National waste legislation.

For the Proposed Development, excavated soil and stone can be categorised as by product provided the material meets the conditions under Regulation 27. The economic operator and destination(s) for the material or objects must adhere to all applicable requirements for this exemption to be permitted.

14.2.5 Waste Management Act 1996 as amended

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 policy document entitled 'Changing our Ways' (DoECLG, 1998) set specific targets for recycling and consolidated the now familiar waste hierarchy of prevention, minimisation, reuse/recycling, energy recovery and disposal. This approach was supported by subsequent legislation.

Any surplus excavated materials will be removed off site as either a waste, or where appropriate, as a by-product. As discussed in Section 14.2.1 above, material that will be used as a by-product will need to meet the requirements provided above.

Material that is deemed as a waste will be handled as per the requirements of the Waste Management Act 1996 as amended. Collection and transport of the material for disposal will follow the requirements of the Waste Management

(Collection Permit) Regulations 2007 as amended. The final recycling/re-use/disposal sites for the material will follow the Waste Management (Facility Permit & Registration) Regulations 2007 as amended. Depending on the volume of waste material, disposal may require disposal at an EPA licenced facility.

Waste management at the sites is included in the Preliminary Construction Resource and Waste Management Plan (RWMP) for the Proposed Development and is provided in Appendix 14-1.

Other legislation relative to this Chapter includes:

- S.I. No. 821 of 2007 – Waste Management (Facility Permit and Registration) Regulations 2007, as amended;
- S.I. No. 820 of 2007 – Waste Management (Collection Permit) Regulations 2007, as amended;
- S.I. No. 250 of 2019 – Waste Management (Facility Permit and Registration) (Amendment) Regulations 2019;
- S.I. No. 126 of 2011 – European Communities (Waste Directive) Regulations 2011, as amended; and,
- S.I No. 323 of 2020 – European Union (Waste Directive) Regulations 2020 ('the Waste Directive Regulations').

Waste Policy

AtkinsRéalis reviewed EU, National and Local Policy waste documents including:

- RWMPO (2024). National Waste Management Plan for the Circular Economy 2024-2030 (RMPO, 2024);
- A Resource Opportunity – Waste Management Policy In Ireland. Dept. of the Environment, Community and Local Government 2012;
- A Waste Action for a Circular Economy – Ireland's National Waste Policy 2020-2025 report;
- The National Waste Management Plan for a Circular Economy 2024 -2030;
- EU Construction & Demolition Waste Management Protocol (EC 2024);
- Dept. of the Environment, Climate and Communications (DECC) (2021). Whole of Government Circular Economy Strategy 2026-2028 Accelerating Action, 2025 (DCC, 2021);
- EPA (2019). Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations 2011 (EPA, 2019);
- European Commission (2024). EU Construction and Demolition Waste Management Protocol and Guidelines (EC, 2024);
- Mayo County Development Plan 2022–2028 (MCC, 2022);
- Sligo County Development Plan 2024–2030 (SCC, 2024); and
- Uisce Éireann Sustainability Requirements (Unpublished) – Interim (2025).

14.2.6 A Resource Opportunity Waste Management Policy

In 2012 the Government published a new policy document entitled 'A Resource Opportunity Waste Management Policy in Ireland' (DoECLG, 2012). This document sets out the steps to be implemented on a national scale to make further progress on resource efficiency and seeking the elimination of landfilling of municipal waste in Ireland. This approach is further supported by subsequent guidance including the EPA publication *'Green Procurement:* Guidance for the Public Sector' (EPA, 2024a) which clearly states the following Core Green Public Procurement (GPP) Criteria for the Construction sector. This document clearly sets out the responsibility of the Contractor with regard to waste management and disposal, as follows:

'*The Contractor must apply appropriate measures in order to reduce and recover waste that is produced during the construction activity. The Contractor shall prepare and submit a waste management plan with its tender which shall form part of the Construction Management Plan to be agreed with the Contracting Authority in advance of the commencement of works. The waste management plan must be prepared in accordance with the Department of Environment, Community and Local Government Best practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition projects (2006).'*

'Contractors are responsible for disposing of all waste generated under the contract in accordance with the Waste Management Act 1996 as amended. The Contractor must have full use of, or access to, waste disposal facilities with appropriate licenses and permits. The Contractor must provide copies of valid EPA Waste licences and Local Authority Waste Permits (including those relating to their subcontractors or brokers, where applicable) for collection and waste treatment/disposal/export facilities.'

14.2.7 A Waste Action for a Circular Economy – Ireland's National Waste Policy 2020-2025

According to the EPA's updated '*Green Public Procurement: Guidance for the Public Sector': 'Ireland has committed to implementing green public procurement (GPP) in all tenders using public funds by 2023'*. The Department of Communication, Climate Action and Environment (DoCCAE) published '*A Waste Action for a Circular Economy – Ireland's National Waste Policy 2020-2025'* report, in 2020. This document was prepared in response to the European Green Deal and sets out a roadmap for the transition to a new economy, where climate and environmental challenges are instead seen as opportunities. This report replaces the previous National Waste Management Plan '*A Resource Opportunity Waste Management Policy in Ireland'* (2012).

The *'Waste Action for a Circular Economy'* report focuses on transition to a circular economy, shown in Figure 14-2, and the need to plan for C&D waste management at the earliest possible stage in a construction project, ideally at concept stage.

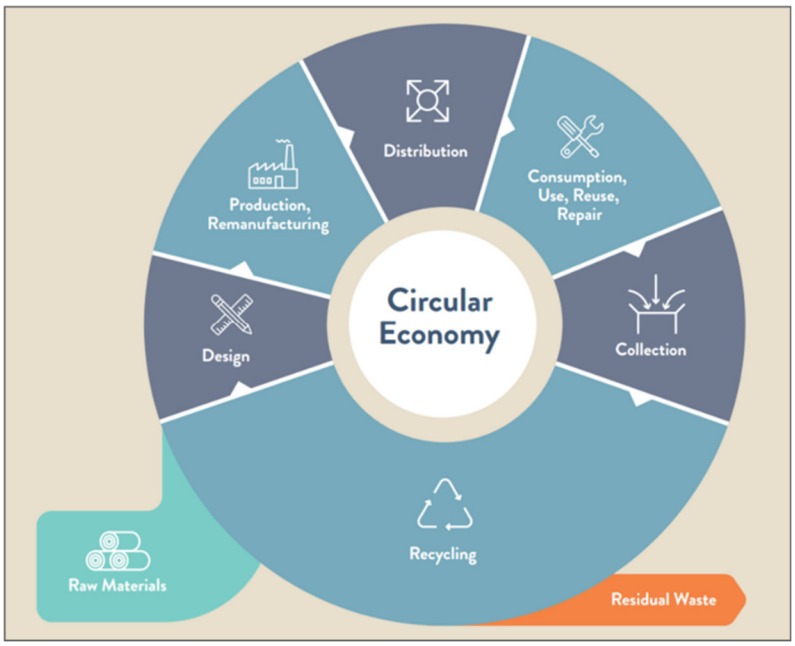


Figure 14-2 — The Circular Economy (DoCCAE, 2020)

14.2.8 National Waste Management Plan for Circular Economy 2024-2030

The National Waste Management Plan for a Circular Economy 2024 -2030 sets out the framework for the prevention and management of waste across Ireland and replaces the regional waste management plans. This document is a statutory document underpinned by national and EU waste legislation, and reflects the targets set out for C&D waste in the Waste Framework Directive (WFD). The strategic vision of the Plan is to rethink the approach to managing waste, and to move towards a 'circular economy' approach where resources are reused or recycled as much as possible and the overall generation of waste is minimised. In order to achieve this vision, the National Waste Management Plan has set out a number of specific and measurable performance targets in relation to Construction and Demolition waste:

- Achieve a proposed 2% reduction per annum for total construction and demolition waste in order to achieve a cumulative 12% reduction by 2030 (Baseline is 9 million tonnes)
- Achieve a proposed recovery rate of 70% of C&D waste (excluding natural soils and stones and hazardous wastes) to be sent for reuse, recycling and other recovery

The National Waste Management Plan aims to “prioritise waste prevention and circularity in the construction and demolition sector to reduce the resources that need to be captured as waste.

14.2.9 Dept. of the Environment Whole of Government Circular Economy Strategy 2026-2028 Accelerating Action, 2025

This document aims to transition Ireland from a ‘take-make-waste’ model to a sustainable circular economy. This strategy is a response to the need to protect the environment, future-proof the economy against climate change and supply chain disruptions. It includes statutory targets for key sectors like agriculture, retail, packaging, textiles, and electronic equipment, as well as cross-cutting measures to make significant contributions to the circular transition. The vision is for Ireland to become a recognised leader in circularity by 2030. This strategy coupled with the Waste Action Plan for a Circular Economy (WAPCE) 2020-2025 establishes an ambitious suite of measures to improve Ireland’s waste management systems, minimise waste and improve resource efficiency. Appendix II of the Circular

Economy Strategy (Compendium of Targets) has listed several targets that are applicable to the Proposed Development, for example:

- Action T1: 35% reduction in emissions (against 2018 levels) by 2030 from construction materials;
- Action T2: 12% reduction of C&D waste arisings by 2030; and
- T3: Action by 2028, a minimum proportion of 10% of construction materials procured by public bodies under new (post 2025) contract arrangements comprise recycled materials.

14.2.10 National Waste Management Plan for a Circular Economy 2024-2-30

The Regional Waste Management Planning Offices (2024) National Waste Management Plan for a Circular Economy 2024-2030 found that Ireland's Construction & Demolition (C&D) is in excess of the EU average. In 2021, 60% of the total waste generated in Ireland was C&D waste. Ireland generated 9 million tonnes of C&D waste in 2021. Soils and stones account for the largest fraction of waste stream (typically 70-80% of the total stream) and increasing to 85% between 2019 and 2021. The remaining 15% comprised concrete, brick, tile and gypsum and mixed unsegregated C&D waste comprising 27% of C&D waste.

Soil and stone may also be managed as Article 27 by-product. In June 2019 the EPA issued 'Guidance on Soil and Stone By-Products' to support the sector followed by more general guidance in May 2020.

The EPA has developed national By-Product criteria for two construction waste streams:

- Greenfield Soil & Stone used in developments with planning permission or an exemption from the need for planning permission which provides for the use of this by-product material (BP-N002/2024), and,
- Site won asphalt for use as a raw material in Reclaimed Asphalt Pavement (RAP) plants for the manufacture of bituminous mixtures which was implemented in late 2023 (BP-N001/2023).

Construction waste materials may also be reused outside the waste regulation regime once these materials have achieved Article 28 end-of waste status. To date, the EPA has granted end of-waste status to four operators for recycled aggregates and national end-of-waste criteria have also been developed by the EPA for recycled aggregate. In order to produce recycled aggregates in accordance with the national decision, the producer must register with EPA.

In 2026, the EPA published a Position Paper Regulation 27 Consultation document to inform the development of Draft Guidance for Brownfield Soil and Stone by-products material incorporating a PFAS Screen. The document is intended to assist developers and environmental consultants with brownfield soil by-product notifications. The planned guidance will use pollutant limit values (PLVs) for the protection of human and environmental health based on use scenarios and vulnerabilities of the site. Interim ambient concentrations are being examined for use as pollutant limit values for PFAS. The final Guidance document will be in place when construction of the Proposed Development commences. The Appointed Contractor will be responsible for ensuring that these guidelines are adhered to throughout the contact.

14.2.11 Uisce Éireann Sustainability Framework

Uisce Éireann has prepared a Sustainability Framework based on the pillars of Environment, Social and Collaboration with ambitions across the pillars. Regarding waste, UÉ requires all wastes to be classified and managed in accordance

with waste management legislation. Waste must be transported off site by registered waste transport companies and delivered to permitted/licensed waste management facilities.

The UÉ Sustainability Framework includes an ambition to "*embed circular economy principles in all capital projects*". Specifically, it includes a target of "*zero recoverable waste to landfill by 2030*" and an initiative around the "*use of more sustainable materials … switching to circular business model approach*". During the design process, a Contractor will ensure that Circular Economy solutions are included in the construction proposals.

14.2.12 EPA National By-Product Criteria for Site-Won Asphalt (road planings) from road developments), 2023

Published by the EPA in 2023 (BP-N001/2023), this document supports waste prevention and promotes the circular economy by tackling the generation of construction waste, the largest waste stream in the country. It establishes detailed criteria determining when site-won asphalt from a pavement development, destined for use as a raw material in a Reclaimed Asphalt Pavement (RAP) plant for the manufacture of bituminous mixtures, is a by-product and not a waste.

14.3 Study Assessment and Methodology

The potential environmental effects on resources and waste generation and management associated with the Proposed Development were assessed for the construction and operational phases.

14.3.1 Methodology

The likely significant effects of the Proposed Development on resources and waste are assessed using the IEMA guidance (IEMA 2020). These guidelines outline assessment criteria based on the sensitivity of the receiving environment and the magnitude of the effect. This information was used to determine the likely significant effects of construction and operation of the Proposed Development on the environment resulting from the consumption of resources (construction materials) and the generation of waste. AtkinsRéalis has estimated, based on the Project Description (Chapter 3), the types and quantities of materials that may be used during the construction and operation of the Proposed Development.

Wastes generated during construction and operation will be managed in accordance with the waste hierarchy shown in Figure 14-1 above. The circular economy principles will be a priority to prevent waste generation and to prevent wastes going to landfill for disposal. There is no EPA licenced municipal landfill sites in County Mayo or County Sligo. There are 3 EPA licenced municipal waste landfill sites in Ireland. The effects of hazardous waste generation during the operation of the Proposed Development has been scoped out because it is anticipated that only small quantities of hazardous waste will arise and consequently no significant effect is anticipated. Regardless, hazardous waste will be managed as per the requirements for EU and National waste management legislation.

All wastes that may arise during construction of the Proposed Development and require removal off site have been assessed against the assessment criteria from the IEMA guidance (IEMA 2020) by considering the scale and nature of the effects in the context of waste management facilities and landfill capacity in the region.

The following information was considered during our assessment of the effects of the Proposed Development on waste and waste treatment capacity in the area and resource availability:

- A desk top assessment of current waste and by-product management facilities in County Mayo and County Sligo.

- An assessment of the types and quantities of waste that will be generated during the construction of the Proposed Development has been carried out and is discussed further in Section 14.4. Soil sampling was carried out during the site investigation and samples were submitted to an analytical laboratory to determine the chemical composition of the soils. This information was used to classify the material as either inert, non-hazardous or hazardous. This is further discussed in Section 14.4. Opportunities for materials re-use as fill or for landscaping purposes was considered in the Project Description.

- The surplus materials and the ability of the waste infrastructure in the area to handle this material. There are several sites in County Mayo and Sligo that can accept surplus material as a by-product under Article 27. Registration for such surplus materials would be made to Mayo and Sligo County Council, or notifications would be submitted to the EPA for determination.

- An assessment of the resources required for the Proposed Development against national stock levels of that material e.g. aggregates etc.

For the assessment of the effects of the Proposed Development on resources, the estimated quantities of construction materials for the Proposed Development was compared to the resource availability on a national basis. The estimates for construction materials is based on the information set out in Chapter 3 – Project Description. For the construction phase, the availability of the following resources were examined; ready-mix concrete, blocks, aggregates and steel. Data on the availability of resources during the operational phase, for examples chemicals, filters etc. was not available.

14.3.2 Effects Assessment Criteria

The IEMA guidance – Material and Waste in Environmental Impact Assessment (2020) establishes a standard approach to undertaking waste assessments for environmental impact assessment reports. The IEMA guidelines assess the availability of waste sites, either landfill or waste management facilities, to accept materials from the Proposed Development. The assessment of the effect is based on the sensitivity of the receptor and the magnitude of the effect. These are discussed in the following sections.

14.3.2.1 Assessing Sensitivity of the Receptor for Waste

The sensitivity of waste is reliant on the availability of a region or county's waste handling capacity either in the form of final disposal (landfill/incineration) or a region or county's capacity to accept waste for recycling, or re-use. The IEMA guidance recognises that waste processing and waste recovery facilities diverts waste from landfills. By following the waste hierarchy (Figure 14-1) these waste acceptance facilities are maximising the benefits of recycling and reducing a region or nations dependence on waste disposal. This aligns with other EU (The Green Deal) and National Programmes and Policies as discussed in Section 14.2 above.

The sensitivity of landfill void capacity has been determined by the criteria set out in Table 14-2. For the purposes of this assessment, waste management facility capacity has also been included.

Table 14-2 — Sensitivity Criteria for Inert and Non-Hazardous Landfill Void capacity

Value	Inert and Non-Hazardous Landfill
Very High	The Proposed Development will reduce capacity by > 10%
High	The Proposed Development will reduce capacity by 6-10%
Medium	The Proposed Development will reduce capacity by 1-5%

Low	The Proposed Development will reduce capacity by <1%
Negligible	The Proposed Development will not reduce capacity

14.3.2.2 Assessing Sensitivity of the Receptor for Materials

The sensitivity of the receptor is dependent upon the availability and type of materials that will be used during construction of the Proposed Development. The sensitivity of materials is determined by identifying where one or more of the threshold criteria detailed in Table 14-3 are met. In this table materials are considered to be a receptor and a source of effect.

Table 14-3 — Sensitivity Criteria for Materials (IEMA 2020)

Value	Description
Very High	Key materials required for the construction of the Proposed Development are known to be insufficient in terms of production, supply and/or stock
High	Key materials required for the construction of the Proposed Development are forecast to be insufficient in terms of production, supply and/or stock
Medium	Key materials required for the construction of the Proposed Development are known to suffer from some potential issues in terms of supply and/or stock
Low	Key materials required for the construction of the Proposed Development are generally free from known issues regarding supply and/or stock
Negligible	Key materials required for the construction of the Proposed Development are known to be free from known issues regarding supply and/or stock

14.3.2.3 Assessing Magnitude for Waste

The assessment methodology for the magnitude of effects from waste generation particularly during construction has been determined by assessing the capacity of waste management facilities in County Mayo and County Sligo and how the available capacity would be reduced based on the Proposed Project. There are no municipal landfill sites in Mayo or Sligo. There is no hazardous waste landfill site in Ireland. For the purposes of this assessment the annual waste acceptance limits on the waste permits/licences held by waste operators in the Mayo and Sligo regions was used as a measure of waste capacity in the region. This is shown in Table 14-4.

Table 14-4 — Determination of Magnitude of Effects for Waste Management (IEMA, 2020)

Waste	No Change	Negligible	Minor	Moderate	Significant
	Zero waste generation and disposal from the Proposed Development	Waste generated by the Proposed Development will reduce regional authorised waste management	Waste generated by the Proposed Development will reduce regional authorised waste management	Waste generated by the Proposed Development will reduce regional authorised waste management	Waste generated by the Proposed Development will reduce regional authorised waste management

Waste	No Change	Negligible	Minor	Moderate	Significant
		infrastructure intake capacity by <1%.	infrastructure intake capacity by 1-5%.	infrastructure intake capacity by 6-10%.	infrastructure intake capacity by >10%.

14.3.2.4 Assessing Magnitude for Materials

The assessment for the magnitude of effects from material used in the construction phase of the Proposed Development comprises a percentage-based assessment that determines the materials consumption based on the National baseline capacity market. This is shown in Table 14-5.

Table 14-5 — Determination of Magnitude of Effects for Materials (IEMA 2020)

Materials	No Change	Negligible	Minor	Moderate	Significant
Resource Use (Materials)	No materials required	No individual material type is equal to or greater than 1% by volume of the regional baseline availability	One or more materials is between 1-5% by volume of the regional baseline availability	One or more materials is between 6-10% by volume of the regional* baseline availability	One or more materials is >10% by volume of the regional* baseline availability

The effects approach taken from the IEMA guidance was supplemented by the EPA guidance to establish the waste and resource management significance criteria for this assessment of the waste and resource management. The reader is referred to Chapter 1, Table 1-3 – Definitions of Significance of an Effect (EPA, 2022) for a description of effects according to the EPA 2022 guidelines.

For this, it is assumed that:

- ‘No change’ in the Tables 14-3 and 14-4 refers to ‘Imperceptible’ in the EPA’s guidelines
- ‘Negligible’ in the Tables 14-3 and 14-4 refers to ‘Not Significant’ in the EPA’s guidelines
- ‘Minor’ in the Tables14-3 and 14-4 refers to ‘Slight’ in the EPA’s guidelines
- ‘Moderate’ in the Tables14-3 and 14-4 refers to ‘Moderate’ in the EPA’s guidelines
- ‘Significant’ in the Tables14-3 and 14-4 refers to ‘Significant, Very Significant, Profound’ in the EPA’s guidelines.

14.3.2.5 Determining Significance

Significant effects are determined by considering the magnitude of the effects within the context of the sensitivity of receptors affected as shown in Table 14-6 (IEMA 2020). For waste and resources, an effect is considered ‘significant’ if it fall within the Moderate, Large or Very Large category shown in Table 14-6. Similarly, an effect for waste and resources is considered ‘not significant’ if it falls into the Neutral or Slight category in Table 14-6.

Table 14-6 — Determining Significance for Waste (IEMA 2020)

		Magnitude of Impact				
		No Change	**Negligible**	**Minor**	**Moderate**	**Significant**
Sensitivity of Receptor	**Very High**	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
	Medium	Neutral	Neutral/Slight	Slight	Moderate	Moderate or Large
	Low	Neutral	Neutral/Slight	Neutral or Slight	Slight	Slight or Moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

Sustainability was considered throughout the design of the Proposed Development and opportunities to re-use/recycle material was considered. These are considered in Section 14.6 of this chapter – Mitigation and Monitoring Measures.

14.3.3 Difficulties in Compiling this Information

AtkinsRéalis used the most recent data on waste management facilities in Mayo and Sligo at the time of preparing the EIAR. Waste capacity or waste facility handling volumes in the area are based on current available data from either the EPA for waste licenced sites or the Local Authority for permitted sites. Conditions may have changed since the publication of the baseline data for waste handling capacities (Appendix 14-2) in Mayo and Sligo, and an operator may not be in a position to accept a type or quantity of waste material.

The assessment of by-product use options is based on the current legislation and Government guidelines. It is anticipated that construction for the Proposed Development will take approximately 3 years. The start time for construction is dependent on the grant of planning from ACP. It is recommended that the Appointed Contractor reviews updated waste legislation, Programmes or Policies relating to waste management, the Circular Economy and the EPA's Guidelines on Brownfield Sites etc. to identify sustainable waste prevention and/or management options.

Estimates on the cut and fill volumes is based on the Proposed Development's design information and the site investigations. There is an assumption that a large portion of the materials on site will be suitable for re-use elsewhere as landscaping or as non-engineering fill.

Assumptions on the volumes and densities of raw materials and waste generated during construction was based on standard conversation factors for the material type.

It has been assumed that bitumen waste generated during the installation of the water main along the roads will be suitable for processing at a local Reclaimed Asphalt Pavements (RAP) reuse facility and therefore will be classed as 'by-product'. The Appointed Contractor will determine if the bitumen material is suitable for re-use at a RAP site or if unsuitable determine if it can be accepted at a facility that holds a waste permit or licence to accept this material.

It has been assumed that all hazardous waste generated by the Proposed Development will be treated in Ireland and none will be exported for treatment/disposal.

It has been assumed that the volume of peat that will be excavated at Windy Gap and during the installation of the pipework at the inlet and outlet from the break pressure tank is equivalent to the volume of pipe placed within the

trench and the tank placed in the ground. The Appointed Contractor will maximise the re-use of the excavated peat on site for landscaping purposes around the break pressure tank.

The availability of construction resources may be impacted by other construction or infrastructure projects that may be happening concurrently with the build of the Proposed Development. This has been assessed in Chapter 20 Cumulative Effects.

The EU Waste Framework Directive (2008) targets a minimum of 70% recovery of C&D waste (excluding clean excavated soil and stone wastes LoW 17 04 05). It has been assumed for this project that these targets, as a minimum will be achieved by preparing the surplus material for reuse, recycling or material recovery.

14.4 The Existing (baseline) Environment

A desk-based assessment was carried out to determine the baseline conditions for resources and waste within the Study Area. Baseline data for waste arisings in the region were gathered from EPA and Local Authority data. Details on the availability of aggregates, stone, concrete and steel were gathered from industry databases.

14.4.1 Construction Phase – Materials

The construction phase of the Proposed Development will require a range of construction materials. It is likely that aggregates will be the largest (by volume) followed by concrete and steel. Table 14-7 shows the national annual production of the main construction materials that will be used for the Proposed Development (Irish Concrete Federation, 2024). There will be a requirement for 1,200 mm pipe at the intake at Wherrew, 30 km of pipe with a diameter ranging from 450 mm to 710 mm. Other specialist materials like pumps, storage tanks, doors, electrical equipment, solar panels etc. will be required at the different construction sites.

Table 14-7 — Irish Concrete Federation annual production of materials in Ireland (Source: Irish Concrete Federation, 2024)

Material Type	Annual Production
Ready-mixed concrete	5,000,000 m^3
Concrete Blocks	135,000,000
Aggregates	38,000,000 tonnes
Bituminous road surfacing materials	2,000,000 tonnes
Paving Products	2,000,000 m^2
Crude Steel	146,932tonnes*

*There is minimal steel production within Ireland and most of it is sourced from Europe. Source: WITS/UN Comtrade

In Ireland there are over 350 large active quarries. There are several active quarries in County Mayo with one or two sites close to the site of the Proposed Development. These quarries can supply rock, sand and aggregates to the Proposed Development during the construction stage. In line with UÉ's sustainability goals, Contractors will be encouraged to source materials locally.

It is unlikely that steel will be sourced either locally or nationally due to the lack of steel suppliers and manufactures in Ireland. Steel is therefore likely to be imported from Europe.

14.4.2 Operational Phase – Materials

It is not anticipated that the new infrastructure will require any major replacements or repairs during the first five years of operation. Maintenance of equipment will be carried out at the frequencies required by UÉ's maintenance schedules for water treatment plants.

Materials that will be consumed during the operational phases include:

- Coagulation dosing and mixing chemicals
- pH correction chemicals
- Flocculant
- Disinfection using sodium hypochlorite
- Fluoridation chemicals
- Diesel for operation of generators
- General office consumables
- Electrical and electronic equipment
- Routine maintenance equipment such as paint, grease, filters, and consumables.

These are standard materials that are supplied and used in water treatment processes nationwide. The range of chemicals required for water treatment is readily available from international chemical manufacturers and suppliers operating in Ireland.

14.4.3 Construction Phase – Waste Generation

A desk-top assessment was carried out to identify the waste handling capacities in County Mayo is 822,810 tonnes per annum and 124,100 tonnes in County Sligo.

The Environmental Protection Agency prepared a report (2025) on the quantities and types of C& D waste produced in Ireland (Table 14-8). The headline data includes:

- An increase in C&D waste from 8.3 million tonnes in 2022 to 9 million tonnes in 2023
- The dominant type of C&D waste in Ireland is soil and stone (81%)
- Ireland surpassed the European recovery target of 70% by backfilling or recycling 73% of its non-hazardous C&D waste, excluding soil and stone
- Over 200,000 tonnes of metal was recycled/ recovered from C&D waste in 2023 and recycled into secondary raw materials
- 95% of our C&D waste is treated in Ireland. The remaining 5% is metal exported for recycling.
- Most C&D waste was recovered by backfilling (81%), while 7.5% went for disposal and 10% was recycled.

- Reclaimed Asphalt Pavement (RAP) arising for 2023 was approximately 500,000 tonnes.

Table 14-8 — Composition of C&D waste collecting in Ireland in 2024 (EPA, 2025)

C&D Waste Type	Tonnage	Portion of Total
Soil, Stone & dredging spoil	6,059,978	77%
Mixed C&D waste	845,936	11%
Concrete, brick, tile and gypsum	578,053	7%
Metal	208,252	3%
Bituminous mixtures	99,313	1%
Segregated wood, glass and plastic	60,862	1%
Total	7,852,393	100%

Reclaimed Asphalt Pavement (RAP) arising for 2023 was approximately 500,000 tonnes (Irish Asphalt Pavement Association (IAPA, 2023), and 600,000 tonnes for 2024 (European Asphalt Pavement Association (EAPA), 2026).

Most treatment of C&D waste took place in Ireland in 2023 (95%). Backfilling (a recovery operation) is the most significant treatment of C&D waste. Metal C&D waste are nearly 100% recycled and recycled segregated wood, paper and glass amounts to 57%. Disposal was mainly used for C&D waste residues. In 2022, Irish hazardous waste facilities treated 170,000 tonnes of hazardous waste to non- hazardous status. In the same year nearly all (99%) of contaminated soil was treated in Ireland at hazardous waste facilities. It can be assumed that any contaminated soils generated during the construction of the Proposed Development can be treated in Ireland and none will be exported for treatment or disposal.

Backfilling, the most popular treatment option, is a waste recovery operation that is used when suitable for the land improvements for reclamation purposed in excavated areas (worked out quarries). The final disposal/recycling options for the surplus material generated during the construction phase will depend on the levels of contamination, if any, in the material. Disposal/recycling options that the Contractor can consider includes:

- Licensed soil recovery facilities that can accept uncontaminated soil and stone
- Lined inert landfill sites that are licenced to accepted soil and stone with low levels of contamination
- Non-hazardous landfill sites that can accept soil and stone and other types of C&D waste with relatively low levels of contamination. These sites would be licenced by the EPA to recycle or dispose of the classes of waste.
- Hazardous wastes that may arise can be sent to Irish hazardous waste treatment facilities that can treat the waste to non-hazardous status. The treated non-hazardous can be further treated or exported for final disposal.

The following section of this chapter provides details on the landfill sites and waste management facilities within the Study Area that can be used by the Contractor for reuse/recovery of surplus soil and stone generated from the construction of the Proposed Development. There are a number of waste permitted and licensed facilities located in County Mayo and County Sligo for management of waste from the construction industry as well as municipal sources. These include soil recovery facilities, inert C&D waste facilities, material recovery facilities, and waste transfer stations. Following any prevention, minimisation, reuse, landscaping measures for the Proposed Development, any residual excavated C&D waste will require recovery/disposal. A review of suitable EPA licensed sites and Local Authority registered waste facilities within the County Mayo and Sligo that can accept surplus C&D waste is provided in Appendix 14-2. These facilities are permitted or certified to operate Class 5, Class 6 and/or Class 7 waste activities as described in the Third Schedule of the Waste Management (Facility Permit and Registration) Regulations 2007

(S.I. No. 821 of 2007) and the Waste Management (Facility Permit and Registration) (Amendment) Regulations 2019 (S.I. No. 250 of 2019).

The annual waste handling capacity for C&D waste in County Mayo is 822,810 tonnes. The annual waste handling capacity for C&D waste in County Sligo is 124,100 tonnes. This equates to 946,910 tonnes per annum in the area of the Proposed Development.

Under these Regulations, **Class 5** activity is:

'*Recovery of excavation or dredge spoil, comprising natural materials of clay, silt, sand, gravel or stone and which comes within the meaning of inert waste, through deposition for the purposes of the improvement or development of land, where –*

(a) the activity shall have the principal objective that the waste serves a useful purpose in replacing other materials which would have had to be used for that purpose, thereby conserving natural resources,

(b) the waste-related activity consists of the direct use of the waste material without further processing other than normal industrial practice, and

(c) the total quantity of waste recovered at the facility is less than 200,000 tonnes.'

Under these Regulations, **Class 6** activity is:

'Recovery of inert waste (other than excavations or dredgings comprising natural materials of clay, silt, sand, gravel or stone) through deposition for the purposes of the improvement or development of land, where –

(a) the activity shall have the principal objective that the waste serves a useful purpose in replacing other materials which would have had to be used for that purpose, thereby conserving natural resources, and

(b) the waste-related activity consists of the direct use of the waste material without further processing other than normal industrial practice, and

(c) the total quantity of waste recovered at the facility is less than 50,000 tonnes'.

Under these Regulations, **Class 7** activity is:

'Recovery of inert waste arising from the construction and demolition activity, including concrete, bricks, tiles, or other such material, at a facility (excluding land improvement or development) where –

a) the annual intake shall not exceed 50,000 tonnes, and

b) the maximum quantity of residual waste consigned from the facility for collection, onward transport and submission to disposal at an authorised facility shall not exceed 7,500 tonnes per annum'.

Under these Regulations, **Class 10** activity is:

'The recovery of waste (not mentioned elsewhere in this part of the third schedule), other than hazardous waste, where:

(a) the annual intake does not exceed 50,000 tonnes, and

(b) the maximum quantity of residual waste consigned from the facility for onward transport and submission to disposal at an authorised facility shall not exceed 7,500 tonnes per annum'.

When appointed, it is recommended that the Appointed Contractor reviews the status of the waste permits and Certification of Registration issued by Mayo County Council and Sligo County Council for the sites given in Appendix 14-2, Volume 3 of the EIAR. The individual classes (Class 5, Class 6, Class 7 and Class 10) have a maximum quantity of waste that can be recovered (25,000 tonnes, 10,000 tonnes, 10,000 tonnes and 50,000 tonnes respectively). The Class 7 and 10 activities are limited to 7,500 tonnes of residual waste leaving the facility per annum. These facilities can be used by the Contractor for discrete smaller volumes of waste that may be generated at a site during the construction phase. The decision on which facility to use will be the decision of the Contractor and is likely to be dependent on the volume of waste that the facility can accept to ensure compliance with their annual limits.

14.4.3.1 C&D Waste – Hazardous

There is one facility in the area that can accept hazardous materials should it arise during the construction phase. The total amount of hazardous classified waste permitted is 3,650 tonnes per annum. Waste management contractors such as Enva could be contracted by the Appointed Contractor may also consider a waste management contractor, like Enva, to handle, transport and dispose of any hazardous C&D waste found within the red line boundary.

14.5 Assessment of the Effects of the Proposed Development on Resources and Waste

The following section presents an assessment of the potential significant effects of the Proposed Development on resources and waste during the construction and operational phases. The significant effects assessment is carried out in the absence of mitigation except where mitigation has been incorporated into the design, for example, use of surplus clean soil and stone for landscaping/habitat creation at Lisglennon WTP. Mitigation measures are presented in Section 14.6 of this chapter.

The likely significant effects on resources and waste generation will predominately arise during the Construction Phase. Waste generation and resource use during the Operation Phase will be typical of a water services infrastructure and is not expected to be significant. The assessment of effects reported in this section considers the depletion of resources and the effects of waste generation from the Proposed Development begin sent to recovery and re-use facilities in the area and the consequential effects on the annual waste acceptance volumes limits established in the waste permit for these facilities.

Estimates of the cut and fill balance for the Proposed Development is based on the Project Description and that a large portion of the excavated material will be re-used on site.

14.5.1 Do Nothing Scenario

In the Do-Nothing Scenario the Proposed Development would not be constructed. Consequently no resources would be used to construct the development and no waste(s) would be generated. The trends in resource use and landfill capacity would continue unaffected.

14.5.2 Effects of Construction Phase on Resources

The quantities of key material that will be used for the construction of the Proposed Development and the re-instatement of the road after pipe-laying is presented in Table 14-9. For the purposes of the EIAR, the worst case

scenario has been assessed i.e. only virgin materials will be used for construction. The Contractor will seek to maximise the re-use of material where suitable and meets engineering requirements and suitability.

Table 14-9 — Summary of Estimated Materials used for Construction

Material	Estimated Tonnage	Estimated m^3
Aggregates	107,691	71,794
Concrete	-	29,526
Steel	58	
Asphalt	-	5,784
Block and bricks	-	670

In line with Uisce Éireann's sustainability goals, the use of secondary, recycled or other sustainable products is encouraged. Opportunities for re-using aggregates/stone particularly during the laying of the trunk water mains in the road is encouraged where this material meets UÉ's specification for back fill materials. The Appointed Contractor may also consider cold in-situ recycling of the road surface as an option.

The baseline assessment for resources (Table 14-7) found that there was 38,000,000 tonnes of aggregates and 5,000,000 m^3 of concrete manufactured in Ireland in 2024 (Irish Concrete Federation, 2024). Aggregates comprise between 60% and 80% of concrete mix and about 95% of asphalt. The total amount of aggregates required for the Proposed Development is estimated at 71,794 m^3 (107,691 tonnes based on a conversation rate X1.5) based on the information provided in Table 14-9. This equates to 0.28 % of the national baseline availability. The estimated volumes of concrete that will be used for the Proposed Development is 29,526 m^3. This equates to approximately 0.6 % of Ireland total annual production of concrete. It is estimated that 58 tonnes of steel will be used to complete the construction of the Proposed Development. This equated to 0.04 % of the steel imported.

Therefore, the magnitude of the effects for construction materials for the Proposed Development is considered to be **Negligible** based the guidelines given in Table 14-5. The sensitivity resources is also **Negligible**. Overall the Proposed Development will have a **Not Significant** effect on resources.

14.5.3 Effects of the Operational Phase on Resources

The quantities of the key materials likely to be used during the operation of the Proposed Development is given in Table 14-10. Water treatment at Lisglennon Water Treatment Plant is likely to consume the majority of these materials.

Table 14-10 — Summary of anticipated Annual Consumption of Materials

Material	Average Consumption per annum
Sulphuric Acid	936 m^3
Aluminium Sulphate	100 m^3
Polymer	4,800 kg
Sodium Hypochlorite	120 m^3
Hydroflourosilicic Acid	46 m^3
Calcium Carbonate	163 m^3

A desk top assessment of the suppliers of water treatment chemicals did not identify any known shortages in supply of these chemicals. Uisce Éireann typically require a 30-day stock for liquid chemicals and a 90-day stock for solid chemicals (like calcium carbonate).

The significance of the effect of the operation of the Proposed Development on material with a low sensitivity and a negligible magnitude of effect is **Neutral or Slight**. Therefore the effects of the operation of the Proposed Development on materials and resources is **Not Significant**.

14.5.4 Assessment of the Effects of the Proposed Development during Construction on Waste

During the design phase of the Proposed Development, changes in design and layout were undertaken to minimise the quantities of waste that would be generated. The changes in design included maximising the re-use of soil and stone at the individual sites as non-engineering fill, where suitable, or for landscaping purposes at the individual sites.

The majority of Construction Phase waste will be derived from ground works with a large portion of excavations happening during the installation of the water mains. In agricultural land topsoil will be stripped along the Construction Working Width, set aside and a trench of suitable excavation depths will be excavated to allow pipe installation. The sub-soil will be placed in a separate stockpile. After pipe installation the Appointed Contractor will backfill the open trench with suitable subsoil and topsoil. The Appointed Contractor will be required to manage surplus materials as per the requirements of the Waste Hierarchy (Figure 14-1).

A site investigation was carried out by Irish Drilling Ltd (IDL) in 2025. Part of the investigation required environmental sampling and testing of the soil samples. 64 soil samples were taken and submitted to an analytical laboratory (Envirolab Laboratory) for chemical analysis. Waste Acceptance Criteria (WAC) testing was also undertaken to inform the type of landfill which could be considered suitable for the waste should this be the proposed waste management route. The laboratory reports are available in Appendix 14 of the IDL report given in Appendix 9-1 in Volume 3 of the EIAR. A preliminary waste assessment was undertaken using the HazWasteOnline waste classification tool to provide a potential waste classification of the Made Ground and natural soils at the site based on the 64 samples collected during the intrusive investigations from the silt trenches, trial pits and boreholes. The chemical analysis suite (Rilta Suite) included the following parameters:

- pH;
- Total organic carbon (TOC);
- Asbestos fibres & asbestos quantification (if necessary);
- Cyanides (free, total & complex);
- Sulphate;
- Metals (antimony, arsenic, barium, boron, cadmium, copper, total chromium, hexavalent chromium, lead, mercury, molybdenum, nickel, selenium, and zinc);
- Monohydric phenols;
- Polyaromatic hydrocarbons (PAHs);
- Benzene, toluene, ethylbenzene and xylenes (BTEXs);
- Total petroleum hydrocarbons (Aliphatic & Aromatic >C5-C40);
- Polychlorinated biphenyls (PCB);
- Methyl acrylate (chosen because of the proximity of the old Ashai Plant); and
- Acrylonitrile (chosen because of the proximity of the old Ashai Plant).

The sampling locations are shown in Appendix 17 (‘As-Built’ Site Plans) in the Irish Drilling Limited Site investigation Report given in Appendix 9.1, Volume 3 of the EIAR.

A summary of the Preliminary waste classification of each sample is provided in Table 14-11. The laboratory reports for the soil samples is provided in Appendix 14 of the IDL report as provided in Appendix 9-1 Volume 3 of the EIAR.

Table 14-11 — Waste Classification for soil samples taken during the Site Investigation (Refer to Appendix 17 for site locations provided in Appendix 9-1 in Volume 3)

Location ID[1]	Sample Depth (m bgl)	Material Type	Waste Classification (Hazardous/Non-Hazardous)	Waste Acceptance Criteria (WAC)	
				Inert Landfill	Non-Haz Landfill
ST-TEL-09	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-LG01	0.5	Natural	Non-Hazardous	Pass	Pass
TP-LG02	0.5	Natural	Non-Hazardous	Pass	Pass
TP-LG04	0.5	Natural	Non-Hazardous	Fail (TOC)	Pass
TP-LG06	0.4	Natural	Non-Hazardous	Pass	Pass
TP-LG07	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-LG08	0.4	Natural	Non-Hazardous	Pass	Pass
TP-LG09	0.5	Natural	Non-Hazardous	Pass	Pass
TP-LR02	0.5	Natural	Non-Hazardous	Pass	Pass
TP-LR04	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-LR06	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-M01	0.5	Natural	Non-Hazardous	Pass	Pass
TP-M02	0.6	Natural	Non-Hazardous	Pass	Pass
TP-M03	0.5	Natural	Non-Hazardous	Pass	Pass
TP-M04	0.5	Natural	Non-Hazardous	Fail (TOC)	Pass
TP-M05	0.5	Natural	Non-Hazardous	Pass	Pass
TP-M06	0.5	Natural	Non-Hazardous	Pass	Pass
TP-M07	0.5	Natural	Non-Hazardous	Pass	Pass

[1] (See Appendix 17 of IDL Site Investigation Report, presented in Appendix 9-1 Volume 3 of the EIAR)

Location ID[1]	Sample Depth (m bgl)	Material Type	Waste Classification (Hazardous/Non-Hazardous)	Waste Acceptance Criteria (WAC)	
				Inert Landfill	Non-Haz Landfill
TP-M08	0.3	Natural	Non-Hazardous	Pass	Pass
TP-M09	0.5	Natural	Non-Hazardous	Pass	Pass
TP-M11	0.5	Made Ground	Non-Hazardous	Fail (TOC)	Pass
TP-M16	0.5	Natural	Non-Hazardous	Fail (TOC)	Pass
TP-M21	0.5	Made Ground	Non-Hazardous	Fail (TOC)	Pass
BH-M05	1.5	Natural	Non-Hazardous	Fail (Sulphate)	Pass
BH-M06	0.5	Made Ground	Non-Hazardous	Fail (Sulphate/TOC)	Pass
BH-M08	0.5	Made Ground	Hazardous (HP7 HP11 – TPH)	N/A	N/A
BH-M10	0.5	Made Ground	Non-Hazardous	Pass	Pass
ST-TEL-13	0.5	Made Ground	Non-Hazardous	Pass	Pass
ST-WC-07	0.5	Made Ground	Non-Hazardous	Pass	Pass
STWM16	1.5	Natural	Non-Hazardous	Fail (TOC)	Pass
STWM22	1.7	Natural	Non-Hazardous	Fail (TOC)	Pass
TP-M22	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-M25	0.5	Made Ground	Non-Hazardous	Fail (TOC)	Pass
TP-M27	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-M28	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-M29	0.4	Made Ground	Non-Hazardous	Fail (TOC)	Pass
TP-M32	0.5	Natural	Non-Hazardous	Pass	Pass
TP-M35	0.5	Natural	Non-Hazardous	Pass	Pass
BH-M14	0.5	Natural	Non-Hazardous	Pass	Pass

Location ID[1]	Sample Depth (m bgl)	Material Type	Waste Classification (Hazardous/Non-Hazardous)	Waste Acceptance Criteria (WAC)	
				Inert Landfill	Non-Haz Landfill
ST-WM-45	0.8	Made Ground	Non-Hazardous	Pass	Pass
TP-M36	0.5	Natural	Non-Hazardous	Pass	Pass
TP-M37	0.4	Natural	Non-Hazardous	Pass	Pass
TP-M39	0.5	Natural	Non-Hazardous	Fail (TOC)	Pass
TP-M52	0.4	Natural	Non-Hazardous	Fail (TOC)	Pass
BH-M22	0.5	Natural	Non-Hazardous	Pass	Pass
ST-TEL44	0.5	Natural	Non-Hazardous	Fail (Sulphate)	Pass
TP-M66	0.5	Natural	Non-Hazardous	Pass	Pass
ST-WM-83	0.5	Natural	Non-Hazardous	Pass	Pass
BH-M24	1	Natural	Non-Hazardous	Fail (DOC/TOC)	Pass
TP-M75	0.5	Natural	Non-Hazardous	Fail (TOC)	Pass
TP-M78	0.5	Natural	Non-Hazardous	Fail (TOC)	Pass
TP-M80	0.4	Made Ground	Non-Hazardous	Pass	Pass
TP-M83	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-M88	0.4	Natural	Non-Hazardous	Fail (TOC)	Pass
TP-M92	0.4	Natural	Non-Hazardous	Fail (TOC/Chloride/Sulp/TDS)	Pass
TP-R02	0.6	Natural	Non-Hazardous	Pass	Pass
TP-R03	0.5	Natural	Non-Hazardous	Pass	Pass
TP-R04	0.5	Natural	Non-Hazardous	Pass	Pass
TP-M98	0.3	Natural	Non-Hazardous	Pass	Pass

Location ID[1]	Sample Depth (m bgl)	Material Type	Waste Classification (Hazardous/Non-Hazardous)	Waste Acceptance Criteria (WAC)	
				Inert Landfill	Non-Haz Landfill
TP-T01	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-T02	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-T03	0.5	Made Ground	Non-Hazardous	Pass	Pass
TP-T04	0.5	Natural	Non-Hazardous	Pass	Pass
TP-WH01	0.5	Natural	Non-Hazardous	Pass	Pass

The analysis shows that the material is predominately clean soil and stone and will be suitable for reuse at the site for landscaping or non-structural fill and similar uses at other infrastructure development sites using the National By-Products Criteria for Greenfield Soil and Stone (BP-N002/2024). The proposed EPA Guidance on Regulation 27 Guidance for Brownfield Soil and Stone by-product material incorporating a PFAS screen, when published states that if it can be verified that the soil and stone by-product is to be used as a topsoil growth medium within the top 1 metre of the surface then the Total Organic Carbon limit of 2.4% does not apply. One soil sample was reported to be hazardous due to the presence of diesel in the sample. The remaining 63 nr. soil samples were reported as non-hazardous. The Waste Acceptance Criteria (WAC) assessment found that over half of the soil samples were reported as being inert and could be accepted at an inert landfill site for disposal, if final disposal to landfill was a chosen option for waste management. The remainder of the WAC analysis were reported as being non-hazardous and this material could be disposed of to a non-hazardous landfill site if this disposal route was chosen. Based on the analytical results, the soil samples were classified into 4 categories: Category A, Category B, Category C and Category D, as described in Table 14-12.

Table 14-12 — Soil Categories

Category A	Natural Soils only. Free from contamination (based on EPA recovery facility licence limits)
Category B	Natural soils or Made Ground. Meets inert waste acceptance limits
Category C	Natural Soils or Made Ground. Meets non-hazardous waste acceptance limits
Category D	Natural Soils or Made Ground. Hazardous properties identified in laboratory analysis

The volumes of excavated materials falling into these waste categories is shown in Table 14-13. It is proposed to use the Uisce Éireann's General Fill and Site Won – Topsoil as backfill material guidance document in the portions of the proposed works within green-field areas. The Uisce Éireann (UÉ) standard STD-LD-21 (IW-STD-LD-001) Note 4 states that "Selected excavated material may be used in green-field areas above granular pipe surround material subject to review by Irish Water". This will require approval by UÉ. A conservative estimate found that approximately 14,000 m^3 of excavated material is suitable as backfill.

It is proposed to recover and reuse intact rock and repurpose it for use as pipe bedding for the pipeline in green-fields. The UÉ standard STD-LD-21 (IW-STD-LD-001) Note 5 states that the "Pipe bedding shall comply with WIS 4-08-02

and IGN 4-08-01 granular material shall be 14mm to 5mm graded aggregate or 10mm or 14 single sized aggregate to is EN 13242". This will be dependent on the volume of clean bedrock excavated during construction, cost of transportation and crushing of the bedrock into the specified size, and compliance with acceptability requirements of nearby disposal outlets.

A small portion of demolition waste will be generated (375 m^3) at the Lough Talt Water Treatment site. This material will consist largely of concrete and block which can be recycled under an Article 28 application. The road surface (95 m^3) to be removed from the Lough Talt Water Treatment site, can be sent to a RAP plant for reuse, if suitable. Excavation works will be required at the existing sites and the proposed new sites at Bonniconlon and Windy Gap.

Waste generated during Installation of Pipeline and Sites

The installation of the water pipeline will generate large volumes of bitumen and stone (from road installation) and soil and stone (from agricultural sites) over the 30 km. Groundworks at the various sites will also generate surplus soil and stone and peat. Table 14-13 provides an overview of the quantities of materials that will be excavated during the construction of the Proposed Development. This indicates that approximately 71% of the excavated material (67,143 m^3) is surplus and will required removal off site and the remaining 29% (27,496 m^3) will be suitable for reuse as fill/landscaping on site. Surplus clean inert soil and stones will go off-site as a by-product rather than a waste. In line with UÉ's Sustainability Policy, disposal of waste to landfill will be avoided.

Table 14-13 — Excavated Material Quantities and estimated quantities for reuse

Description of Works	Estimated Total Volume of Excavation (m^3)	Estimated Volume of Excavated Material for Re-use / Recovery on site (m^3)	Estimated Volume of Excavated Material to be taken off-site for reuse/recovery (m^3)
Pipelines	79,095	16,951	62,144
Sites	15,544	10,545	4,999
Total m^3 (%)	94,639	27,496 (29%)	67,143 (71%)

It is estimated that 94,639 m^3 of material that will be excavated during construction of the Proposed Development. The Proposed Development has allowed for 27,496 m^3 of excavated material to be reused on site as backfill for the water mains trenches, infill and landscaping throughout the site. As a worst case scenario an estimated 67,143 m^3 of material comprising soil and stone and peat will be surplus and will be removed off site. This material is non-hazardous soil and stone and peat that will be taken off site for reuse as by-product under Article 27. The laboratory analysis confirmed that this material is non-hazardous, natural ground, with some made ground in places. The Appointed Contractor will seek opportunities to maximise the reuse of this remaining material during construction to reduce this volume further.

The Contractor's Waste Management Co-ordinator will maintain transportation dockets, weighbridge and disposal documentation. The information will be provided electronically to UÉ via their Waste Tracker Tool on a monthly basis. The bitumen portion of these waste arisings (estimated at 2,539 m^3) can be sent to an Reclaimed Asphalt Pavement (RAP) site under Article 27 (By-product) for reuse as a future road pavement.

The site investigation identified areas of peat along the pipeline route and at a number of the sites particularly at the site of the Windy Gap Break Pressure Tank. It is estimated that approximately 13,500 m^3 of peat waste will be generated during installation of the water mains pipe. Approximately 34 m^3 of peat will be excavated during the construction of the Break Pressure Tank at Windy Gap. Where suitable excavated peat will be used for landscaping within the Windy Gap BPT site. The surplus material will be taken off site for reuse or disposal. This material would be classed as a waste produce under the pre-mitigation scenario. The Appointed Contractor will examine opportunities to manage this material for beneficial use, for example opportunities for use in peatland rehabilitation projects or peatland restoration. This will avoid the material being classed as a waste.

Trenchless methods such as HDD or pipe-ramming will be used for river/streams and drain crossings. Full details on the methods are described in Section 3.3.3.3 Construction in the Project Description (Chapter 3). The surplus materials (soil and stone) generated by these methods will be stored at the launch sites. The material will be stored a minimum 20 m from any watercourses. This material will be used for landscaping purposes or infill in other parts of the sites. Alternatively, the Contractor in agreement with local landowner, could use the surplus clean soil and stone for agricultural benefit. If the benefiting land is within the red line boundary then a Section 5 Declaration will be required from the local authority. If the benefiting land is outside the red line boundary then waste permits from the local authority will be required.

Wastes Generated during the Construction of the Proposed Development

The estimated quantities of waste that will be generated during the construction phase of the Proposed Development is outlined in Chapter 3 (Proposed Development) and is reproduced in Table 14-14. Other wastes that will arise during the construction of the Proposed Development includes concrete waste, drilling waste, metal waste, and other construction wastes like timber, packaging etc. As part of site induction training, contractors will be made aware of the CEMP and Resource Waste Management Plan for the Proposed Development.

It is estimated that 1,200 tonnes of concrete waste will be generated from demolition work, reservoir construction, foundations etc. Suitable demolition concrete will be removed from site by a licenced contractor and transferred to a facility for recovery if the end of waste criteria are met. This will be done under an Article 28.

Construction wastes like timber, metals, electronic wastes will be segregated into separate labelled skips. When the skips are full the Appointed Contractor will organise collection of the skips by a licenced waste carrier to a permitted/licenced facility that can accept this material for recycling or reuse. Records of this material taken off site will be recorded by the Appointed Contractor and reported monthly to Uisce Éireann.

An asbestos survey was carried out by OHSS in March 2025. The report is given in Appendix 11- Asbestos Refurbishment Survey in the IDL Report in Appendix 9-1 Volume 3 of this EIAR. The survey identified the presence of asbestos crocidolite gaskets in the pump room at Wherrew Pumping Station (which have since been removed), floor tiles in the store room, asbestos slates on the roof. Asbestos slates were identified on the roof of Lisglennon Dewatering Building, Lisglennon Raw Water Pumping Station and Lisglennon Water Treatment Plant. Asbestos containing materials (ACM) constitute a risk under the Safety Health and Welfare at Work (Construction) Regulations 2013 and should be addressed in the Preliminary Health & Safety Plan. ACM identified during construction will be removed by a licenced asbestos removal company and disposed of at a licenced facility that can handle/transfer asbestos waste for disposal. Disposal records will be maintained by the Appointed Contractor and made available to Uisce Éireann.

Municipal waste generated by the construction team on site will be segregated on-site. Waste will be segregated into mixed municipal waste, recyclables, glass and food (compostable) waste. These wastes will be sent to waste recovery facilities.

If hazardous waste is encountered during construction this will be managed by the Appointed Contractor as per the requirements of the Waste management (Hazardous Waste) Regulations 1998 as amended. Hazardous waste will be segregated from non-hazardous wastes. The Appointed Contractor will place properly labelled bins for the collection of hazardous wastes. The hazardous waste bins, when full, will be collected by a licenced waste haulier and transferred to a permitted/licenced site that can handle and treat hazardous material (for example Enva in Rathcoole). Records will be maintained for all hazardous wastes taken off site during construction and will be made available to Uisce Éireann.

Table 14-14 — Estimated Quantities of Waste generated during Construction of the Proposed Development

Waste Stream	Estimated Quantity (tonnes)	Basis
Soil and stone unsuitable for reuse	121,000	Derived from 67,143 m³ unsuitable excavated material using 1.8 t/m³ bulk density
Soil and stone reused/recovered on site	49,500	Derived from 27,500 m³ reusable excavated material
Concrete	1,200	Reservoir construction, chambers, foundations, hardstandings and limited demolition works
Masonry	150	Existing chambers, plinths and ancillary structures
Bituminous materials	5,840	Road crossings, reinstatement and site access modifications
Ferrous / non-ferrous metals	300	Pipework, valves, decommissioned plant and structural steel
WEEE	50	MCCs, telemetry, SCADA, instrumentation and electrical infrastructure at existing sites
Cabling	20	Electrical and control system modifications
Timber	80	Formwork, pallets and packaging timber
Plastic	60	Pipe offcuts, membranes and packaging
Packaging waste	120	Project-wide material deliveries
Mixed C&D waste	250	General construction waste not otherwise segregated
Municipal waste	50	Site offices and welfare facilities
Hazardous waste including asbestos containing materials	15	Oils, contaminated absorbents, batteries and chemical residues, and possibly asbestos containing materials
Total (excluding reused soil on site)	129,135	
Total waste generated (t)	178,635	Includes reusable excavated material

Management of wastes will follow the requirements of the CEMP and the RWMP. The Waste Management Co-ordinator will be responsible for managing all waste handling on site, removal from site and maintenance of by-product/waste leaving the site.

14.5.5 Assessment of the effects of waste arising during operation of the Proposed Development

During operation the majority of waste generation will arise from the treatment process at Lisglennon Water Treatment Plant. There will be small quantities of hazardous wastes generated during equipment maintenance of the Water Treatment Plant and the pumping stations. Small quantities of municipal wastes, recyclables associated with operations at the Water Treatment Plant will also be generated.

Used filter wash water from the rapid gravity filters and Granular Activated Carbon filters at the treatment plant will be conveyed to the new used wash water equalisation tanks and used wash water settlement tanks prior to onward transfer to the sludge balancing tank.

Residuals will then be transferred from the sludge balancing tank to the existing picket fence thickener. Sludge will be conditioned through polymer dosing and thickened within the existing picket fence thickener. Thickened sludge will then be transferred to the proposed sludge holding tank prior to dewatering.

Sludge dewatering will be undertaken using upgraded mechanical dewatering equipment, including polymer dosing, plate press, sludge collection and filtrate return systems. Filtrate and supernatant streams generated from the residuals management process will be returned to the head of the treatment process or to the appropriate upstream process stage, subject to final detailed design and operational requirements.

Dewatered sludge will be stored securely on site prior to removal by an appropriately authorised contractor. It will be transported to an appropriately authorised facility for treatment and recovery, with beneficial reuse prioritised where practicable in line with circular economy principles, regulatory requirements and Uisce Éireann's residuals management approach. It is estimated that 116 m^3 (approximately 30 t/month) of dewatered sludge will be produced per month. The residual water sludges generated at the Lisglennon WTP are non-hazardous (LoW 19 09 – '*wastes produced from the preparation of water intended for human consumption or water for industrial uses'*). To support Uisce Éireann's residual management strategy by minimising waste to landfill to a maximum of 10% of the total generated, their Framework Plan sets out several ambitions for the potential reuse of residuals, for example:

- In integrated constructed wetlands or reed bed systems as a beneficial product for nutrient removal
- In cement manufacturing as an alternative to aluminium-containing raw materials such as bauxite
- In brick manufacturing as an alternative to raw materials
- In landfill remediation, incorporated into the material used to cover and remediate old landfill sites
- Discharge to wastewater treatment plants to improve nutrient removal and dewatering of wastewater treatment plant residuals
- Long-term storage for future usage
- Export while suitable outlets are being developed in Ireland.

Small quantities of hazardous wastes, for example, oils and diesel etc. will be generated on site during maintenance. Uisce Éireann has standard environmental management procedures during maintenance and Contractors will be required to follow these guidelines. Standard mitigation measures such as 110% bunding of hazardous materials, correct labelling and disposal of hazardous materials and recording movement of hazardous materials will be followed. The volumes of hazardous waste that will be stored on site will be small thus minimising the risk to the environment. Uisce Éireann will have a contract with an appropriately approved licenced waste contractor to remove and dispose of the hazardous materials. Records or waste volumes, transport and disposal will be maintained by the Uisce Éireann site manager. Delivery of water treatment chemicals to the site will be via bulk delivery and it is not anticipated that chemical packaging, IBCs or plastic drums will be held on site. Based on the environmental controls at the sites and Uisce Éireann's standard operating procedures, the effects of hazardous waste generation on the environment during operation at the sites is Not Significant.

Other wastes that will be generated during operations at the site includes wastes generated at the welfare facilities located in parts of the Proposed Development. The welfare facilities at the sites will discharge to a wastewater storage

tank which will be regularly emptied by a licenced waste contractor and disposed of at a licenced wastewater treatment plant.

In summary, the quantities of WTP residual water sludge is estimated to be 116 m^3/month. This equates to an estimated annual quantity of 1,392 m^3. Currently 90% of WTP sludge generated at Uisce Éireann's water treatment plants nationwide is recovered/reused with the remaining 10% going to a non-hazardous landfill site for disposal. Uisce Éireann is aiming to reduce the 10% water treatment sludge going to landfill in the future. This material will be handled by a licenced waste contractor and the 10% of the sludge that will be disposed of in a non-hazardous licenced landfill site The significance of the effect of the operation of the Proposed Development on sludge handling and disposal will have a **low** sensitivity to landfill void capacity and a **negligible** effect on waste capacity. Therefore the effects of the operation of the Proposed Development on sludge handling and disposal is **Not Significant**.

14.5.6 Summary of the effects of the Proposed Development on Resources and Waste without Mitigation Measures

Materials and Resources

Construction

Aggregates and concrete are the main materials/resources that will be used to construct the Proposed Development. As is shown in Table 14-7, national production rates for aggregates and concrete has steadily increased since 2013. This trend is expected to continue as new quarries open nationwide. In 2024 the estimated volumes of aggregates and concrete manufactured in Ireland were 38,000,000 tonnes and 5,000,000 m^3 respectively, and this upward trend is expected to continue in the future. Supplies of steel are prone to fluctuations and are dependent on world economics and demand and their supply is more uncertain. The IEMA uses aggregate as a proxy indicator to determine the magnitude of the effects on materials and resources. It is estimated that 0.28 % the national baseline availability of aggregates will be used during construction of the Proposed Development. Therefore, the magnitude of the effects for construction materials for the Proposed Development is considered to be **Negligible** based the guidelines given in Table 14-5. The sensitivity resources is also **Negligible**. Overall, the Proposed Development will have a **Not Significant** effect on resources.

Operation

Section 14.5.3 above states that the effects of the operation of the Proposed Development on materials and resources is **Not Significant**.

Waste

Construction

The waste capacity for inert and non-hazardous wastes in County Mayo is estimated to be 822,810 tonnes per annum. The waste capacity for inert and non-hazardous wastes in County Sligo is estimated to be 124,100 tonnes per annum.

Construction will be phased over the contract period of 3 years with several construction packages running concurrently, for example construction of the new plant at Lisglennon Pumping Station and main truck accommodation works and the existing process upgrades and new sludge works at Lisglennon WTP. The majority of the earth works will take place in the first 24-month period of the contract and it is estimated that 67,143 m^3 (121,000 tonnes) of a maximum surplus material will be taken off-site for reuse (see Table 14-13). Table 14-16 shows that approximately 700 tonnes of mixed non-hazardous wastes like timber, metal, municipal waste etc. will be taken off site for reuse/recycling throughout the construction period.

The surplus material comprising soil and stone and peat will be generated over 2 years of the construction programme, equating to approximately 60,428 tonnes per annum. As a worst-case scenario i.e. no mitigation measures, it is assumed that the surplus material will be sent for disposal. Surplus material generated from the construction of the Proposed Development is calculated to use approximately 6% of the annual waste handling capacity in County Mayo and County Sligo. Based on the magnitude of effect on waste being **Moderate** and the sensitivity criteria being **Medium**, the effects of the waste generated by the Proposed Development is of **Moderate Significance** because it will reduce the authorised waste management infrastructure intake capacity by 6-10% in Counties Mayo and Sligo. This is based on pre-mitigation measures being installed during construction.

Operation

During operation of the Proposed Development the quantities of waste that will be generated will be small. The effects of this waste quantities and types is **Not Significant**.

14.5.7 Do-nothing Scenario

This assessment assumes that under the 'Do-Nothing' scenario the Proposed Development would not be developed. No construction or demolition will take place; therefore the do-nothing scenario will have a neutral and imperceptible effect on the generation of waste production and there will be no need to manage it. The existing Lough Talt Water Treatment Plant will continue to supply the water supply zone in Sligo. However, this plant can only remain operational for 10 years as per the granting of their planning application in May 2019 while a new public drinking water source is developed to facilitate provision of a new treated water supply to the Lough Talt RWSS area, while accommodating future growth and water supply rationalisation in the surrounding areas including Ballina RWSS.

14.6 Mitigation

14.6.1 Mitigation measures for waste during Construction Phase

The waste hierarchy (Figure 14-1) prioritises waste prevention and minimisation, followed by reuse, recycling/recovery, energy recovery (e.g., incineration), and lastly, disposal. All contractors are legally required to manage waste in compliance with relevant legislation, ensuring it is stored, transferred, treated, and disposed of safely during the Construction Phase. Waste management must not endanger human health or the environment. This includes risks to water, air, soil, flora, fauna, or nuisance due to noise or odour.

A Construction and Environmental management Plan (CEMP) has been prepared for the Proposed Development. The CEMP has outlined standard operating procedures for the management of waste at the site. The Appointed Contractor will be responsible to ensure that the requirements of the CEMP and the Resource and Waste Management Plan (RWMP) are implemented. The Appointed Contractor will be responsible for preparing a site specific CEMP. As a minimum the site specific CEMP will include the mitigation and monitoring measures given in Chapter 21 of the EIAR.

Key design approaches and initiatives were identified throughout the design and planning stage to minimise waste production and optimise material recovery where feasible. The Contractor will ensure that the following initiatives are relevant to the final design and construction phases of the Proposed Development:

- Management of construction waste at the sites and the Contractors Compounds will be in compliance with relevant legislation and best practice. Its primary goal is to promote efficient resource use, minimise waste generation, and reduce landfill disposal in line with the waste hierarchy shown in Figure 14-1.

- Waste generated during construction will be managed in accordance with the Waste Framework Directive and a minimum of 70% by weight of the C&D waste generated will be reused, recycled or subject to material recovery. Surplus excavated material generated during construction, where suitable, will be reused on site or in other parts of the Proposed Development.

- The Appointed Contractor will be required to maximise the use of secondary or recycled aggregates in line with tender specifications. Virgin aggregates shall only be employed where secondary aggregates do not fulfil UÉ's structural requirements and/or are unavailable. Reuse of top soil and subsoil excavated during the installation of the water main will be maximised where possible. The reuse of topsoil and subsoil for land reclamation or agricultural benefit will be explored by the Contractor.

- In line with the Best Practice Guidelines on the Preparation of Resource Waste Management Plans for Construction and Demolition Projects (EPA,2021), a Waste Management Coordinator (WMC) will be appointed by the Contractor. This role may be fulfilled by different individuals throughout the project lifecycle but must be assigned to a technically competent and appropriately trained member of the Contractors team.

- The Contractor will prepare and finalise a Resource and Waste Management Plan (RWMP) for the Proposed Development in accordance with Section 5.5 of the UÉ Circular Economy Design Standard (CEDS).

- The WMC will be responsible for ensuring compliance with the objectives and measures outlined in the Contractors RWMP and is granted the necessary authority to do so.

- The Appointed Contractor will be required to prepare a Demolition Plan in advance of each building or structure to be demolished at the Lough Talt WTP site.

- The Waste Management Coordinator (WMC) will be responsible for carrying out training for sub-contractors and site inductions. All site personnel will receive a comprehensive environmental and waste management training prior to commencing work. This induction will include information on resource and waste management aligned with the Resource & Waste Management Plan (RWMP). The training will be tailored to the roles and responsibilities of all personnel, from management to site operatives. Key control measures, such as refuelling procedures and storage of oil, fuel, and chemicals—will be clearly communicated to ensure compliance with site-specific environmental requirements.

- The WMC will be responsible for preparing a RWMP Implementation Review Report at project handover.

- The WMC will be responsible for the compliant management of all waste generated by construction activities and will be responsible for preparing and implementing a Construction Environmental Management Plan (CEMP), identifying construction methodologies for the Project and standard operating procedures that will be implemented to minimise the impact. The CEMP will include all mitigation measures as outlined in the EIAR and all relevant planning conditions.

- Circular economy principles will be incorporated within the management of materials during the Construction Phase in order to reduce the amount of materials used and waste generated by the Proposed Development.

- The WMC will ensure that any facilities to which waste or by-product is brought are licensed / permitted / registered in compliance with waste management legislation. Similarly, the transportation of waste away from any of the construction sites or compounds will be carried out by vehicles in possession of Waste Collection Permits in compliance with legislation.

- The Contractor(s) will also be responsible for management of the ordering of supplies, ensuring that supplies are ordered as needed to avoid over-ordering or the requirement for long-term storage of materials, thus reducing the potential for damage or expiration of supplies while being stored on site.

- The WMC will be required to complete Uisce Éireann's Waste Tracker. Monthly waste management reports will be provided to the Site Manager and Uisce Eireann. The Contractor will classify the material as non-hazardous or hazardous. Non-hazardous materials shall be divided into various categories, for example soil & stone (m^3), steel (tonnes), timber (tonnes), clean block and brick (m^3). Hazardous wastes can be divided for example into contaminated soil (m^3), fuels (litres), blacktop (m^3) etc.

- All waste transport and disposal / recovery must be carried out in accordance with relevant waste management legislation (outlined in Section 14.2) and any subsequent future legislation which may apply. The Waste Management Coordinator, nominated by the Contractor, will be responsible for ensuring correct tracking and documentation procedures are undertaken for all waste removed from site during the project. Each consignment of waste removed from site will be tracked and recorded. A site record detailing the date, truck registration, waste type, estimated volume and destination will be filed onsite for each consignment, along with the corresponding truck docket and weighbridge record at the offsite disposal / recovery destination. A copy of the relevant waste collection permits and waste permit / waste licence for the relevant disposal / recovery facilities will be available onsite for the duration of the project.

- Waste materials will be segregated onsite into the various waste streams, via. dedicated labelled skips and storage areas. All waste will be removed from Site by one or more waste haulage contractor(s) who hold a current valid waste collection permit issued by the National Waste Collection Permit Office (NWCPO). All waste materials generated during the construction phase will be removed offsite to an appropriately permitted or licenced waste disposal / recovery facility. All waste removed offsite will be appropriately characterised (under the correct LoW / EWC code), transported and disposed of in accordance with relevant waste management legislation (including but not limited to the Waste Management Act of 1996, 2001 and 2003 and all subsequent waste management regulations as amended). All waste management and disposal / recovery records will be maintained onsite throughout the project and will be uploaded to UÉ's Waste Tracker on a monthly basis.

The use of trenchless methods e.g. HDD for river/stream crossings will reduce the quantity of material excavated and consequently reduce the amount of waste that will be generated during pipe installation.

The site investigation identified the presence of rock close to the surface at the site of the Lisglennon WTP. The Contractor will assess the suitability of the rock for reused on site or at another site within the redline boundary of the Proposed Development.

In the event that hazardous waste is encountered during the construction of the Proposed Development, it will be managed as per the Waste Management (Hazardous Waste) Regulations 1998 (as amended) (S.I. No. 163 of 1998) and other applicable legislation. Hazardous waste, such as contaminated soil or waste fuels, will be stored on-site only temporarily and removed regularly. Storage will be managed to minimise exposure risks and environmental impacts. Hazardous waste will be recovered where possible or otherwise disposed of appropriately. Any hazardous waste will be stored separately to non-hazardous waste, with individual hazardous waste streams segregated from each other. Appropriate signage will be put in place to denote hazardous waste storage locations. Contaminated land excavated will be removed by licensed waste carriers to a suitably licensed facility. Treatment options for hazardous waste reuse and recovery will be explored, depending on the nature of the waste and its hazardous properties. All hazardous waste which cannot be treated will be disposed of through a suitably licensed waste contractor at a suitably licensed/permitted facility which can accept hazardous waste. As per legislative requirements, records of all hazardous waste generated and removed from site will be retained by the WMC for a minimum period of three years by the appointed Contractor(s). This includes documentation such as Waste Transfer Forms, any applicable Transfrontier shipment records and any records on the treatment or ultimate disposal of the hazardous waste. All site personnel will receive a comprehensive environmental and waste management training prior to commencing work. This induction will include information on resource and waste management aligned with the CEMP, and the RWMP.

14.6.2 Article 27 By Products and Article 28 End of Waste

It is estimated that 120,857 tonnes of surplus soil and stone and 17,683 tonnes of peat will arise during the construction of the Proposed Development. Based on the geotechnical testing carried out at the site, it is likely that surplus soil and stone and rock will be predominately non-hazardous and suitable for reuse as landscaping or non-structural fill. The site investigations and laboratory tests have shown that the soil and stones at the site is inert/non-hazardous. This classification of the material will allow this material not to be classed as a waste, if taken off site, but as a by-product that can be used elsewhere. The Appointed Contractor will be required to manage the excavations in a manner that follows the waste hierarchy (Figure 14-1) and to investigate opportunities to reuse surplus excavated soil on stone and peat on site before removing it off site under an Article 27 (By-products) or Article 28 (End of Waste) process (see Section 14.2.1 and Section 14.2.2 respectively). By reducing the quantities of surplus soil and stone going off-site, the burden on the waste management facilities in County Mayo and County Sligo would reduce. For example, if the Contractor reduced the quantity of surplus materials by 25,000 tonnes, the reuse of this material on site would reduce the waste acceptance capacity of the waste management facilities in Mayo and Sligo to 5%. This reduction would change the effects assessment for waste to **Slight Significance.**

Surplus greenfield soil and stone generated during construction of the Proposed Development will be managed in accordance with the EPA's National By-Product Criteria BP-N002/2024 as amended, where suitable. Brownfield soil and stone will be managed in accordance with Article 27 or at an EPA licenced Soil and Stone Recovery Facility (see Appendix 14-2 for a list of suitable sites in County Mayo and County Sligo). This will allow the subject materials to be used without becoming legally defined as a waste and will be pursued as a priority as waste 'prevention' is preferrable in the waste hierarchy. This approach also supports a circular economy approach and is aligned with the UÉ Sustainability Framework including an ambition to "embed circular economy principles in all capital projects". Specifically, it includes a target of "zero recoverable waste to landfill by 2030 ". Prior to works, the EPA will be notified of the by-product decision and intent for the use of Article 27 for any non-greenfield site material. Notifications must be submitted online using the Environmental Data Exchange Network (EDEN) online portal. This allows the EPA to maintain a register of by-product notifications which are available for public inspection online to include details of origin and destination sites for soil and stone by-product.

The Appointed Contactor will assess other major projects in the area at the time of construction to see if excavated material can be used in these projects. The excavated material must meet the criteria set out in the EPA's (2019) Guidance on Soil and Stone By-Products, and the National By-Products Criteria for Greenfield Soil and Stone (BP-N002/2024) in order to be classified as a by-product.

For by-product material that has originated from greenfield sites, either Mayo County Council or Sligo County Council will be informed through registration using the EPA EDEN portal via the 'By-Products Module'.

Based on the Proposed Development and the estimated quantities of surplus excavated soil and stone it is assumed that as a minimum, the Article 27 by-product mechanism will divert 70% of excavated soil and stone and excavated rock from landfill.

Site won bitumen will be managed in accordance with EPA's National By-Product Criteria (BP-N001/2023). The WMC will maintain records on the quantities of bitumen leaving the site. The bitumen will be transported by a permitted waste haulage contractor to a licenced Reclaimed Asphalt Pavement (RAP) site. Waste acceptance dockets will be kept and filed by the WMC and will be made available for review by Uisce Éireann or their Agents. The WMC will complete UÉ's electronic Waste Tracker and submit the records to UÉ monthly. These records will form part of the Post Construction Waste Management Report that will be submitted to Uisce Éireann at the end of the contract.

Concrete and other suitable waste streams will be taken off site to an Article 28 End of Waste site/facility where the site is within a reasonable distance from the construction site.

The Proposed Project will require the excavation of peat deposits at Windy Gap BPT and sections of the pipeline between here and the Lough Talt WTP will be managed as a valuable resource for beneficial use rather than disposed of. Surplus peat resources following reinstatement along the trunk main will be made available to Bord na Móna for beneficial end-use such as peatland rehabilitation or peatland restoration and thereby will not become wastes.

The UÉ Sustainability Framework includes an ambition to “embed circular economy principles in all capital projects”. Specifically, it includes a target of “zero recoverable waste to landfill by 2030” and an initiative around the “use of more sustainable materials … switching to circular business model approach”. The use of Article 27 and Article 28 for managing surplus materials generated during construction will support Uisce Éireann’s sustainability goals.

14.6.3 General Site Maintenance

A number of waste management practices will be implemented by the Appointed Contractor in order to manage waste arisings in an orderly manner to minimise the effects in so far as is possible:

- A regular programme of site tidying will be established to ensure a safe and orderly site;
- Debris netting will be erected to prevent materials being scattered by the wind;
- Food waste will be strictly controlled on all parts of the site in order to minimise the attraction of vermin and other pests;
- In the event of any litter or debris escaping the site, it will be collected immediately and removed to storage on site, and subsequently recovered / disposed of in the normal manner;
- Waste receptacles such as skips will be labelled and secured so as to minimise impact from fly-tipping;
- Waste will be collected in a timely fashion so as to prevent overly large volumes of waste accumulating;
- Provision of a site layout map showing key areas such as first aid posts, material storage, spill kits, material and waste storage and welfare facilities;
- Waste and chemical inventories will be developed/recorded/updated;
- Details of site managers contact numbers and public information signs (including warning signs) will be provided at the boundaries of the working areas. Any complaints from the public regarding waste and housekeeping will be entered in the complaints register and actioned as required;
- Provision of appropriate waste management facilities at each working area and regular collections to be arranged; and
- No bonfires or burning of waste materials will take place.

Inspections of construction activities will be carried out by the Contractor on a daily basis to ensure all necessary waste management measures relevant to the construction activities are being effectively implanted by construction staff, ensuring legal and contractual conformity.

Daily Inspections:

The daily inspections should include, but not be limited to, checking that:

- The site boundary is marked out and respected;

- All waste is appropriately stored and segregated;
- Waste skips are covered to prevent wind-blown litter;
- Drip trays are in place for all stored equipment and plant;
- All chemicals/fuels are stored with appropriate containment/bunds/cover;
- Construction noise is within permitted limits and does not create a nuisance;
- Dust does not create a nuisance; and
- Fencing/hoarding is secure.

Weekly Inspections

The inspections should include, but not be limited to confirming that:

- Daily checklists have been completed;
- Waste storage areas have been checked and there is no build-up of waste materials;
- Spill kits have been checked and contain all relevant materials;
- The performance of all pollution control equipment has been checked and the equipment is working effectively;
- Noise reduction/monitoring equipment has been checked and is operating effectively;
- Temporary septic tanks are not overfull/discharging; and
- Special control measures identified in any relevant Permit/Planning Conditions and RWMP are adhered to.

A register with will be kept of all inspections conducted by the WMC to facilitate monitoring of any key performance indicators and to measure progress against any waste management performance targets that may apply.

14.6.4 Site Compounds and Temporary Working Areas

Indicative Site Compound locations and temporary working areas (TWAs) will be required during construction to facilitate the safe movement of vehicles, staff and unloading and offloading equipment, as well as accommodate storage of materials, waste management and welfare facilities. The overall layout of temporary compounds will be set out by the Contractor and will, as a minimum, comply with the following:

- Access and egress will be through the existing paved access roads off the main road.
- A set down area will be allocated for overnight plant storage and a laydown area for materials. Items including waste management, power generation and storage of materials are incorporated into the temporary design. The location of the site compound set up allows for close monitoring of the works.
- A dedicated area within the compound for refuelling plant or any other equipment that is bunded and has the necessary spill kit equipment available as and when required.

- Dedicated areas for storage of diesel, refuelling area, storage of waste, site office for keeping records will also be included.

- All site compounds and associated TWAs will be included within the Red Line Boundary.

14.6.5 Communications

The following communication tasks are recommended for the Contractors Waste Management Co-ordinator (WMC) throughout the construction phase:

- Internal Reporting: Regularly report resource usage statistics and performance against targets to UÉ and the Contractor management. These updates should be a standing agenda item at site meetings;

- Regulatory Engagement: Liaise with Mayo County Council, Sligo County Council and the EPA during site inspections or enforcement audits. All corrective actions must be documented and reported accordingly;

- Stakeholder Communication: Engage with external stakeholders, including the local authorities, the EPA, NPWS, IFI and the public, as appropriate, regarding on-site resource management practices particularly at the main compound and the individual site compounds; and,

- Final Reporting: Upon project completion, the Appointed Contractor will prepare a comprehensive report detailing resource management outcomes, including reuse and recovery rates and final destinations of off-site materials. This report must be submitted to the UÉ, Contractor management, and the local authorities. The local authority may require formal sign-off as a condition of planning compliance.

The Contractor will prepare a Post Construction Waste Management Report. The report will contain details of all wastes generated and removed from the site during construction. Wastes shall be classified as non-hazardous and hazardous and details on the volumes of waste that were sent for re-use/recycling, as byproduct or end of waste shall be provided. The Contractor will provide details on the final waste acceptance/disposal sites used during the contract and the associated waste types and volumes transported to these sites. Evidence of the volumes/weights and types of waste delivered to these sites shall be provided in the form of waste acceptance receipts or landfill site dockets.

14.6.6 Mitigation Measures for Resource use during Construction

The UÉ Sustainability Framework includes an ambition to "*embed circular economy principles in all capital projects*". Specifically, it includes a target of "*zero recoverable waste to landfill by 2030*" and an initiative around the "*use of more sustainable materials … switching to circular business model approach*". To support these requirements, the Contractor will, where possible, ensure all products (including buildings) only contain materials that can be recycled and are designed to be easily disassembled, where possible. As per the EPA (2021) guidelines '*consider material efficiency for the duration and end of life of a building project; 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*'. .

The Contractor will prepare a Resource Waste Management Plan (RWMP) for the Proposed Development as per Section 5.5 of the UÉs Circular Economy Design Standard. The RWMP will clearly align with UÉs sustainability ambitions e.g. zero recoverable waste to landfill. The content of the RWMP will include:

- Introduction and Background

- Project Description

- Roles and responsibilities
- Design approach including the management of materials outlined in the Article 27 By-Products & End of Waste section.
- Key Materials and Quantities
- Site Infrastructure
- Materials Management
- Reporting Requirements (UÉs Waste Tracker IDD-FM-06) and auditing protocols.

Where possible materials will be re-used/recycled to reduce the need for procurement of new materials. In accordance with the UÉ Sustainability Strategy Interim the Contractor will consider circular solutions at each phase in the UÉ capital projects.

When selecting suppliers, the Contractor(s) will evaluate their technical capabilities to ensure they can meet the project's requirements. This helps eliminate unsuitable candidates early and provides suppliers with a clear understanding of UÉ's sustainability priorities and submission expectations. Where possible, the Contractor will seek to maximise the use of prefabricated structures and components where feasible, encouraging a process of assembly rather than construction.

The Contractor will be responsible for sourcing materials for the construction phase of the Proposed Development. Contractors will seek to engage with local suppliers for aggregates, concrete and stone. This will support UÉs Sustainability Goals. Specialist equipment such as pumps and dosing systems are more likely to be supplied by specialist manufacturers. Table 14-15 provides information on the numbers of suppliers for primary resources in County Mayo.

Table 14-15 — Construction Material outlets in County Mayo

Material	Number of facilities in County Mayo and Sligo
Ready-Mix	9
Precast Concrete	9
Concrete Blocks	10
Aggregate	9

14.7 Monitoring Requirements

14.7.1 Monitoring during the construction phase

The Preliminary CRWMP (Appendix 14-1, Volume 3 of the EIAR) prepared as part of this planning application states the Appointed Contractor will be responsible for maintaining waste records and documentation for the duration of the construction phase. The Appointed Contractor will track and monitor all waste volumes transported offsite. All waste records will be maintained onsite throughout the project and the WMC will be responsible for updating Uisce Éireann's Waste Tracker on a monthly basis. Compliance with the requirements of the Construction Environmental Management Plan will be a requirement throughout the project construction phase. Environmental monitoring and reporting requirements as per the grant of planning will be the responsibility of the Contractor.

14.7.2 Monitoring during the operational phase

As no significant negative operational effects of the Proposed Development on material assets are identified, no operational monitoring measures are required.

14.8 Cumulative Effects

Cumulative effects on waste management have been considered between both project elements and with other proposed / committed future developments within the vicinity of the study area. A review of Mayo County Council, Sligo County Council and An Coimisiún Pleanála planning files, identified the following proposed developments that may use waste management facilities in County Mayo and Sligo. These proposed developments are:

- **Office of Public Works (OPW) – DPE63-14-2018** – River Deel Flood Relief Scheme
- **BP Mitchell Haulage and Plant Hire Ltd. – 319173 / 2360182** – Inert Waste Recovery Facility
- **Mayo Data Hub Limited – 322575** – Data Centre Development
- **Lisglennon AD Limited – 313975** – Anaerobic Digestion Biogas Facility and Pipeline
- **Mercury Renewables (Carrowleagh) Limited – 317560** – Windfarm and Hydrogen Plant
- **Ardagh GAA Club – 211063** – Club Facility Development
- **Killala Community Windfarm DAC – 19260** – Wind Turbine Development
- **Killala Community Windfarm DAC – 17619** – Wind Farm Development
- **Mullafarry Quarry Ltd – 21342** – Quarry Restoration
- **Mullafarry Quarry Ltd – 211284** – Quarry Extension
- **BP Mitchell Haulage & Plant Hire Ltd. – 21708** – Quarry Operation Continuation
- **Killala Community Windfarm DAC – 2012** – Energy Storage Facility
- **SSE Renewables (Ireland) Ltd. – 18358** – Battery Storage Facility
- **SSE Renewables (Ireland) Ltd. – 2560108** – BESS Facility
- **Mayo Renewable Limited – 2360134** – Biomass Energy Plant
- **Constant Energy – 2360266** – Hydrogen Plant and Energy Centre
- **Schutz Ireland Ltd. – 2460699** – Industrial Facility Expansion
- **Schutz (Ireland) Ltd. – 2460295** – Industrial Development Works
- **Aqua Comms (Ireland) Ltd.** – 22562 – Cable Landing Station Extension
- **Stephen Hannick – 2460701** – Agricultural Development

- **Lorcan Brennan – 22757** – Land Reclamation Works
- **Conor Ruane – 2560595** – Land Reclamation Works
- **Martin Carey – 22652** – Access Road Development
- **Noreen Hackett – 2560027** – Commercial Unit Development
- **Siobhan Henry & Declan Kiely** – 2560391 – Residential Development
- **Holgrove Ltd. – 19393** – Building Extension
- **Ballina Rugby Football Club** – 2253 – Car Park Upgrade
- **IDA Ireland** – 211376 – Access Road Infrastructure
- **Joseph Corcoran** – 20646 – Land Reclamation
- **Paul Hanley** – 2460315 – Land Reclamation
- **EirGrid PLC** – 2360261 – Overhead Line Upgrade
- **St Joseph's National School** – 2460330 – School Extension
- **Bonniconlon Youth Hub** – 2460631 – Community Sports Development
- **H-Gen Renewables Ltd.** – 21881 – Wind Turbine Development
- **ESB Networks** – 21581 – Communication Structure

These projects include a mixture of infrastructure, renewable energy, agricultural, commercial, and residential developments.

14.8.1 Cumulative Effects on Waste

Several of the proposed projects listed above will have required an Environmental Impact Assessment Report to support the planning application. In compliance with EU environmental and waste management legislation, the developers for these projects will have prepared Resource Waste Management Plans that align to the EU Waste Hierarchy, waste prevention and the circular economy. Waste prevention and minimisation will have been incorporated into the design to avoid waste generation and disposal costs. It is likely that projects such as the OPW River Deel Flood Relief Scheme will have a requirement for soil and stone to construct embankments along the flood relief scheme. It is anticipated that the waste volumes generated for smaller projects like for example the Bonniconlon Youth Hub, St. Josephs National School extension, EirGrid Overhead Line upgrade and the Ballina Rugby Club car park upgrade will be small. Mullafarry Quarry Ltd **–** Quarry Restoration will require clean, non-hazardous soil and stone for the quarry restoration.

Given that the identified projects, including the Proposed Development, avoidance of waste generation will help to mitigate potential effects on waste generation and management, there are no remaining mechanisms by which the effects could be cumulative or accumulate. As a result, no significant cumulative effects on waste are predicted for any of the other proposed projects on an individual basis.

14.8.2 Cumulative Effects on Resources

Several of the proposed projects listed above will have a requirement for construction materials, for example concrete, blocks, bituminous road surfacing products, aggregates and steel. The baseline assessment for resources nationwide (Table 14-7) found that there was 38,000,000 tonnes of aggregates and 5,000,000 m^3 of concrete manufactured in Ireland in 2024 (Irish Concrete Federation, 2024). Based on the Project Description it is estimated that the Proposed Development will use 0.28 % of the national annual production of aggregates. The estimated volumes of concrete that will be used for the Proposed Development is approximately 0.6 % of Ireland total annual production of concrete. It is estimated quantity of steel that will be used to complete the construction of the Proposed Development is approximately 0.04 %.

It is assumed that the proposed developments listed above will not happen concurrently and therefore the demand for construction materials will be on a phased basis. The national production levels for construction materials will far exceed the requirements of the proposed developments in the area and it is considered that there will be not cumulative effects on resources.

14.9 Residual Effects

Taking account of the proposed mitigation measures for waste management, the residual effects of the Proposed Development will be short-term and imperceptible during the construction phase, and long-term and imperceptible during the operational phase. There will be no likely significant residual effects associated with waste management and / or generation.

The proposed development will result in a permanent positive residual effect on the water supply network by increasing the security of the water supply to the counties Mayo and Sligo.

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