

**PURSER**

RECEIVED: 02/11/2024

Volume 2:

**15**

# Material Assets: Waste

## 15.0 Material Assets: Waste

### 15.1 Introduction

This chapter of the EIAR provides an assessment of the potential impacts of the Proposed Development on Material Assets: Waste.

This chapter has been prepared by Rachel Redmond, Environmental Consultant with Enviroguide. Rachel has a Bachelor of Science (Hons) in Environmental Science from University College Cork. Rachel has worked as an Environmental Consultant with Enviroguide since 2023 and has over 3 years of experience as an environmental consultant preparing Environmental Impact Assessment Reports of a similar scale and nature to the Proposed Development.

This chapter has been approved by Catherine Keogan, Technical Director and EIA Lead at Enviroguide. Catherine is an environmental consultant with 20 years' experience in consultancy, specialising in EIAs for a wide range of infrastructure developments.

### 15.2 Methodology

#### Regulations and Guidance

The methodology adopted for the assessment will take cognisance of relevant guidelines, in particular the following:

- Environmental Protection Agency (EPA) (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)
- EPA (2021) Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects
- Waste Framework Directive (Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste) as amended by Directive (EU) 2018/851
- European Union (Waste Directive) Regulations 2020, S.I. No. 323 of 202
- Waste Management Acts 1996 (as amended)
- National Waste Management Plan for a Circular Economy 2024 – 2030
- Article 27 of the European Communities (Waste Directive) Regulations 2011
- Draft First revision to the National Planning Framework (NPF)
- National Biomethane Strategy
- European Green Deal (2019)
- Regional Spatial and Economic Strategy for the Southern Region
- Tipperary County Development Plan 2022 – 2028.

The scope of the work undertaken for the impact assessment included a desk-based study of waste management services within the defined study area. The desk study involved collecting all the relevant data for the site and the surrounding area including published information and details pertaining to the Proposed Development provided by the Applicant and design team. Information on waste management in the vicinity of the site was assembled by reviewing the following information:

- Construction Management Plan (DOBA, 2024)
- <http://mywaste.ie>

## 15.2.1 Prediction and Assessment of Impacts

Impacts will vary in quality from negative, to neutral or positive. The effects of impacts will vary in significance on the receiving environment. Effects will also vary in duration. The terminology and methodology used for assessing the 'impact' significance and the corresponding 'effect' throughout this chapter is described in Table 15.1.

Quality of Effects	Definition
Negative	A change which reduces the quality of the environment.
Neutral	No effects, or effects that are imperceivable, within the normal bounds of variation or within the margin of forecasting error.
Positive	A change that improves the quality of the environment.
Significance of Effects / Impacts	Definition
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very significant	An effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the environment.

RECEIVED: 02/01/2024

Profound	An effect which obliterates sensitive characteristics
Duration of Effects / Impacts	Definition
Momentary	Effects lasting from seconds to minutes.
Brief	Effects lasting less than a day.
Temporary	Effects lasting one year or less.
Short-term	Effects lasting one to seven years.
Medium-term	Effects lasting seven to fifteen years.
Long-term	Effects lasting fifteen to sixty years.
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration.

**Table 15 1: Definition of Effects (EPA, 2022)**

## 15.2.2 Legislation and Guidance

The below legislation and guidelines are of relevance to the Proposed Development, and demonstrate where anaerobic digestion / biomethane production, circular economy principles and efficient waste management will aid in achieving goals and objectives.

### Local and National Waste Management Plans

#### National Waste Management Plan for a Circular Economy 2024 -2030 ('the Plan')

The Plan sets out the framework for the prevention and management of waste across Ireland, in which local authorities are required to make a waste management plan for their functional areas. This document is a statutory document underpinned by national and EU waste legislation, and reflects the targets set out for construction and demolition 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 Plan has set out a number of specific and measurable performance targets in relation to construction and demolition waste:

- Achieve a 2% reduction per annum is proposed for total construction and demolition waste to achieve a cumulative 12% reduction by 2030 (baseline is 9 million tonnes); and
- Achieve 70% construction and demolition waste sent for reuse, recycling and other recovery of construction and demolition waste (excluding natural soils and stones and hazardous wastes).

The 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”.

To achieve the objectives set out in the Plan, it is imperative that robust resource and waste management plans are developed for and designed into the pre-construction, construction and operational phases of the proposed development.

## **A New Circular Economy Action Plan for a Cleaner and more competitive Europe (2020)**

The European Commissions communication on a new circular economy action plan for a cleaner and more competitive Europe (2020) sets out to provide an agenda for achieving a cleaner future and building on circular economy actions, ensuring that the regulatory framework is streamlined and made fit for a sustainable future.

Section 2.3 outlines ‘circularity in production processes’ which includes “*supporting the sustainable and circular bio-based sector through the implementation of the bioeconomy action plan*”.

## **Bioeconomy Action Plan 2023 – 2025**

The Bioeconomy Action Plan 2023 – 2025 outlines the below seven pillars as the pillars of the bioeconomy:

- Governance and Awareness
- Research, Development and Innovation
- Nature, Climate, Energy and Circular Economy
- Agriculture, Food, Forestry and the Marine
- Communities, Regions and Cities
- Industry and Enterprise
- Knowledge and Skills

Section 3 outlines the need to align Ireland’s circular economy and bioeconomy policies to ensure ‘co-benefits’ such as public awareness and participation. This section also highlights that the production of biomethane is a valuable component of a functioning bioeconomy.

Action 3.4 is as follows:

*“Ensure a consistent approach which strikes a balance between bioenergy production and the development of our bioeconomy.”*

Section 4 outlines the pillar Agriculture, Food, Forestry and the Marine which includes the following action which outlines the need for biomethane development: Action 4.2 *Develop bioeconomy innovation support services to support sustainable biomass production and uptake of biobased solutions and innovation*

The steps to delivery of this action are as follows:

*“4.2.1 Integrate bioeconomy advisory services within the:*

- *EI and IDA supports* • *Teagasc Climate Action Programme*
- *EPA advisory activities on climate and circular economy*
- *BIM and Marine Institute on blue bioeconomy*

- *SEAI on bioenergy and biobased products*

*4.2.2 Develop project development assistance for bioeconomy developments initially aligned with agri-centric biomethane development.”*

Section 6 outlines Industry and Enterprise which also outlines the importance of biomethane generation:

*“Additional biobased innovation opportunities for industry through biorefining will be explored alongside the development of Anaerobic Digestion (AD) and biomethane plants to ensure that biobased options are developed commercially. In this respect, it is vital that biobased businesses assess their use of biobased resources adequately”.*

### **Article 27 of the European Communities (Waste Directive) Regulations 2011**

Under Article 27 of the European Communities (Waste Directive) Regulations 2011 (SI No. 126 of 2011) as amended (referred to hereafter as Article 27), uncontaminated soil and stone free from anthropogenic contamination which is excavated during the Construction Phase of a development can be considered a by-product and not a waste, if (a) further beneficial use of the material is certain, (b) it can be used directly without any further processing, (c) it is produced as an integral part of the development works and (d) the use is lawful and will not have any adverse environmental or human health impacts (EPA, 2019). For Article 27 to apply, the beneficial use mentioned in point (a) above must be identified for the entirety of the excavated soil from the Proposed Development prior to its production, with that use taking place within a definite timeframe, for it to be regarded as certain.

### **Draft First Revision to the National Planning Framework (NPF) (2023)**

National Planning Framework was initially published in 2018 which replaced the National Spatial Strategy as the overall spatial planning and development strategy for Ireland. This framework is required to be updated every six years. The draft first revision to the National Planning Framework (2023) was published.

Chapter 9 of the NPF – Climate Transition and Our Environment outlines the overarching aims which include:

- Resource Efficiency and Transition to a Zero Carbon Economy
- Protecting, conserving and enhancing our natural capital
- Creating a clean environment for a healthy society.

Additionally, there is an emphasis within this chapter on Circular Economy and includes for the following National Policy Objective:

#### **National Policy Objective 68**

*Support the circular and bio economy including in particular through greater efficiency in land and materials management, promoting the sustainable re-use of existing buildings and structures, while conserving cultural and natural heritage, the greater use of renewable resources and by reducing the rate of land use change from urban sprawl and new development.*

Biomethane is outlined within the NPF as a need to aid in reaching Ireland's target of 5.7 TWh of biomethane by 2030.

### **National Biomethane Strategy (2024)**

The National Biomethane Strategy was created to develop a strategy which would aid in delivering on the target of producing 5.7 TWh per annum of biomethane by 2030. The strategy is agriculturally lead and has a focus on the supply of feedstocks including slurries. Ireland has been recognised as having one of the largest potentials for biomethane production in Europe due to the extent of the agricultural sector within Ireland.

### **Regional Spatial and Economic Strategy (RSES) for the Southern Region**

The Regional Spatial and Economic Strategy (RSES) provides the framework through which the NPF's strategies and the related Government policies and objectives will be delivered for the southern region as part of the wider Project Ireland 2040. The RSES has identified three priority areas for action to address climate: decarbonisation, resource efficiency, and climate resilience.

One of the key objectives of the RSES is to support Tipperary County Council with the expansion of the bioeconomy sector. Tipperary has been recognised as a location which can lead in the bioeconomy sector which will be centred on the National Bioeconomy campus in Lisheen. It is acknowledged within the RSES that infrastructure will need to be developed within the surrounding area to ensure that the economic potential of the bioeconomy campus is met.

### **European Green Deal (2019)**

The European Green Deal was set out to reset the European Commission's commitment to addressing climate and other environmental-related challenges. European Green Deal plays an important role in the EC's strategy to implement the UN's 2030 agenda and sustainable development goals. Section 2.1.2 of the Green Deal details the need for decarbonising the energy system in order to reach climate objectives in 2030 and 2050. It states that "a power sector must be developed that is based largely on renewable sources, complemented by the rapid phasing out of coal and decarbonising gas". Additionally, the European Green Deal details circular economy principles and how the deal will support and accelerate the EU's industry transition to a sustainable model of inclusive growth.

Please refer to Chapter 4 for a more comprehensive policy review.

### **Tipperary County Development Plan 2022 - 2028**

The site is within the jurisdiction of Tipperary County Council. The key anaerobic digestion objectives within the Tipperary County Development Plan 2022 - 2028 include;

3-D - *'Support and facilitate the objectives of the 'Waste Action Plan for a Circular Economy' (DECC, 2020) across the delivery of our services.'*

- 10-C - *'To continue to support renewable energy development and to maintain a positive framework for development through the review of the Renewable Energy Strategy over the lifetime of the Plan.'*
- 10-D - *'Support the emerging bioeconomy sector, including continued support for the National Bioeconomy Campus at Lisheen, Co. Tipperary.'*
- 10-E - *'Support the diversification of the agriculture sector as part of decarbonisation, and its role in energy production, including anaerobic digestion and green gas production.'*

## 15.3 Baseline Environment

The site is situated in Lisheen, Co. Tipperary, within the footprint of the former Lisheen Mine complex. It is a brownfield site, reflecting its historical industrial use, with all mining and associated activities having ceased, and the land since rehabilitated and levelled.

The site lies within the jurisdiction of Tipperary County Council who is the local authority for setting waste management objectives and plans in the area. The site is also located within the southern waste region which previously would have been managed in accordance with the Regional Waste Management Plan 2015 – 2021, however this has since been superseded by the National Waste Management Plan for a Circular Economy 2024 – 2030.

Ballaghveny Landfill is an operational landfill which accepts non-hazardous municipal and construction and demolition waste from pre-approved contractors only. Ballaghveny Landfill is located approximately 28km northwest of the site.

For further details, please refer to Chapter 3 - Site Location and Context.

## 15.4 Potential Impacts of the Proposed Development

### 15.4.1 Do-Nothing Impacts of the Proposed Development

In the 'Do Nothing' scenario, the Proposed Development does not proceed and there would be no excavation, construction or operational waste generated at the site. This would result in a missed opportunity to realise policy and legislative objectives including the national biomethane strategy as outlined in Chapter 5;

#### **National Biomethane Strategy**

*Ireland's target to produce 5.7 TWh of biomethane by 2030 requires a large-scale anaerobic digestion (AD) industry. The proposed facility would help meet this target by generating biomethane from agricultural waste. Without the project, Ireland's renewable energy transition and energy independence goals would be hindered, increasing reliance on fossil fuels.*



In the “do-nothing” scenario, the anaerobic digestion facility would not proceed and therefore the feedstocks would need to be disposed of in a different manner. Moreover, biogas will not be produced and methane would not be captured.

## 15.4.2 Construction Phase

During the construction phase, waste management objectives for the Proposed Development are as follows, and will facilitate material reuse and recycling, where possible, and seek to divert waste from landfill:

- Prevention: The Contractor will prevent and minimise waste generation where possible by ensuring large surpluses of construction materials are not delivered to the Site through coordination with the suppliers, operating a ‘just-in-time’ delivery scheme and ensuring sub-contractors conform to the Construction Environmental Management Plan;
- Reuse: Reusing wastes and surplus materials where feasible and in as many high value uses as possible;
- Recycle: Recycling wastes where possible such as introducing on-site crushers to produce waste derived aggregates which, subject to appropriate testing and approvals, may be re-used in the Proposed Development; and
- Disposal: Where disposal of waste is unavoidable, this will be undertaken in accordance with the Waste Management Act 1996, as amended.

The construction phase will give rise to the requirement to remove and bring quantities of various materials to and from the site. Construction and excavation related wastes will be created during the construction phase. This has the potential to impact on the local waste management network.

Waste will be produced from surplus building materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, plastic, cables etc. Packaging waste including plastic wrap and cardboard is also expected to be produced. Wherever possible waste will be segregated onsite into skips or other appropriate receptacles. All waste will be stored in a Waste Storage Area (WSA). Suitably qualified and permitted nominated waste management contractors will collect specific waste streams as receptacles are filled. The following waste materials will be source separated in suitably sized receptacles, stored in the WSA and transferred off site for appropriate processing, recycling and recovery:

- Concrete, bricks, tiles and ceramics,
- Timber;
- Metal;
- Glass;
- Plasterboard;
- Plastic and cardboard packaging;
- Green waste; and
- Soils, stone and bedrock.

A skip will be provided for non-hazardous construction and demolition waste not suitable for reuse or recovery. Prior to removal, the skip will be examined by the waste manager or delegate to confirm that the skip does not contain recyclable materials that have been incorrectly disposed of. Hazardous wastes require specialist handling and removal. On-site storage of hazardous wastes will be minimised, with specialist removal off-site organised on a regular basis.

All waste generated during construction will only be recovered or disposed of as an authorized site which has a current waste license or waste permit in accordance with the Waste Management Acts, 1996 (as amended). This will not apply to the reuse of excavated uncontaminated soil or other naturally occurring material within the site boundary. If surplus, reusable excavation material arises onsite which must be taken offsite, the offsite re-use of material will be prioritised to minimise the potential loss of valuable good quality soil and subsoil to landfill as a waste.

The Proposed Development will result in various classifications of waste arising throughout the construction phase. If not managed and stored properly, the waste could give rise to contamination of land, water or air due to uncontrolled release to the receiving environment. If litter and food waste is not managed correctly onsite, it is likely to attract vermin within the Site of the Proposed Development and the surrounding areas. Unmitigated, the likely effect of construction waste generated from the Proposed Development is significant, with short-term, negative effects.

### 15.4.3 Operational Phase

During the operational phase, the Proposed Development will provide a means for the disposal of the following feedstocks, utilising it to produce a renewable biomethane:

- Whole Crop Rye
- Straw-horse manure
- Bellygrass sludge
- Dairy sludge and dewatered manure
- Pulverised Straw
- Recycle/dirt water

The above feedstocks will be used in the anaerobic digestion process will generate renewable biogas and a bio-based fertilizer. The biogas will be utilised as a renewable energy source and the bio-based fertiliser will be returned to the supply farms. The operational phase of the Proposed Development represents a closed-loop system whereby the inputs, some of which would otherwise be classified as waste, are turned into renewable energy and a bio-based fertiliser. The operational phase of the Proposed Development is not likely to generate a large volume of waste. The Proposed Development will be a typical circular economy-type project in that there will be no wastes at the end of the process.

AD can make a significant contribution to the management of organic wastes in Ireland. AD will reduce reliance on landfill capacity which will become an increasingly scarce outlet in the coming years.

AD not only recovers energy from feedstocks and farm wastes, but it also produces a nutrient rich digestate which is suitable for use as a bio-based fertiliser. This reduces reliance on artificial fertilisers that are becoming increasingly expensive to manufacture. The nutrients in digestate, particularly nitrogen, are more freely available for plant uptake than in untreated organic waste sources leading to improved recycling of nutrients. Thus, the use of digestate has water and air quality environmental benefits as it decreases organic pollution potential. It would also reduce the risk of spreading microbial contamination thus creating greater biodiversity in the countryside.

The bio-based fertiliser will be returned to farms and facilities which provide the crop-based feedstock, resulting in a circular process which reduces the use of artificial fertilisers on the supply farms.

The Proposed Development will aid in the disposal of the below feedstocks:

Feedstock	Tonnes per Annum	Percentage of Total
Whole crop Silage	8,000	8.16%
Farmyard Manure	30,000	30.61%
Bellygrass Sludge	30,000	30.61%
Dairy Sludge and Dewatered Manure	15,000	15.31%
Broiler Manure	15,000	15.31%
<b>TOTAL</b>	<b>98000</b>	<b>100.00%</b>

Table 15 2: Feedstock Types and quantities. Source: Nua Bioenergy, 2024.

The main waste expected at the Proposed Development include general packaging waste, general office waste and municipal canteen waste from employees onsite. It is proposed that there will be 4-6 permanent employees on the site during the operational hours of the Proposed Development. This waste will be segregated appropriately and will be collected by an appropriately licenced waste contractor according to best practice.

## 15.5 Mitigation Measures

### 15.5.1 Construction Phase

The following mitigation measures are recommended for the construction phase of the Proposed Development regarding Waste Management:

- Waste materials will be separated at source and will follow the CMP.
- Prior to the commencement of the construction phase detailed calculations of the quantities of topsoil, subsoil and green waste will be prepared, and soils will be tested to confirm they are clean, inert or non-hazardous;
- Beneficial use must be identified for the entirety of the excavated soil from the Proposed Development prior to its production for the excavated soil and stone to be considered as a by-product under Article 27 of the European Communities (Waste Directive) Regulations, 2011;

RECEIVED: 02/11/2024

- A suitably competent and fully authorised waste management company will be employed to manage waste arising for the construction phase. The appointed waste contractor must have the relevant authorisations for the collection and transport of waste materials, issued by the National Waste Collection Permit Office (NWCPO);
- All waste materials will be transported to an appropriately authorised facility, which must have the relevant authorisations for the acceptance and treatment of the specific waste streams, i.e., a Certificate of Registration (COR) or a Waste Facility Permit (WFP) as granted by a Local Authority, or a Waste/Industrial Emission Licence as granted by the Environmental Protection Agency; and
- All waste quantities and types will be recorded and quantified, and records will be retained onsite for the duration of the construction phase.

These mitigation measures will ensure that the waste arising from the construction phase of the Proposed Development is dealt with in compliance with provisions of the Waste Management Act 1996, as amended, associated Regulations and Litter Pollution Act 1997, and The National Waste Management Plan for a Circular Economy 2024-2030. The mitigation measures will also ensure optimum levels of waste reduction, reuse, recycling and recover are achieved and will promote more sustainable consumption of resources.

The CMP (DOBA, 2024) details further measures for the construction phase as follows:

**Source Segregation:**

*Metal, timber, glass and other recyclable material will be segregated and removed off site to a permitted/licensed facility for recycling. Waste stream colour coding and photographs will be used to facilitate segregation. Office and food Waste arising on site will be source separated at least into dry mixed recyclables, biodegradable residual Wastes. Paints, sealants and hazardous chemicals etc. will be stored in secure, bunded locations. All hazardous Waste will be separately stored in appropriate lockable containers prior to removal from site by an appropriate Waste collection holder. Waste bins, containers, skip containers and storage areas will be clearly labelled with Waste types which they should contain, including photographs as appropriate. The site will be maintained to prevent litter and regular litter picking will take place throughout the site.*

**Material Management:**

*“Just in time” delivery will be used so far as is reasonably practicable to minimise material wastage. Waste generated on site will be removed as soon as practicable following generation for delivery to an authorised Waste facility. The Contractor will ensure that any off-site interim storage facilities for excavated material have the appropriate Waste licences or Waste facility permits in place.*

Refer to the Construction Management Plan (DOBA, 2024) for further information.

## 15.5.1.1 Resource Management

A Construction Management Plan (DOBA, 2024) has been prepared for the Proposed Development which estimates the waste arisings from the construction phase. Table 15-3 provide calculations of the volume of waste predicted from the construction phase.

Type	Proposed Developable Floor Area (m <sup>2</sup> )	Gross Floor Area (m <sup>2</sup> )	Average m <sup>3</sup> / 100m <sup>2</sup>	Construction Waste (m <sup>3</sup> )
Industrial Building	c. 23,673		13	3,077

**Table 15-3 Predicted Waste Arisings during the Construction Phase (DOBA, 2024).**

The Contractor will ensure that waste generation on site is minimised and that waste removed from site for recovery or disposal is reduced where feasible.

The site has been designed so that the cut and fill onsite is balanced to minimise off-site waste / disposal. Excavated material from the site preparation works is to remain onsite and will be reused in the landscaping and berms at the site. There is no intention of discarding the excavated soil, and it is expected that no further processing of the soils is required in order for it to be reused. It is proposed to import approximately 10,000 m<sup>3</sup> of selected structural stone and material for placement under roads and buildings.

Where the removal of waste from the Proposed Development during the construction phase is unavoidable, it will be delivered by the Contractor to licensed Waste facilities which are authorised under the Waste Management Act 1996, as amended, and which hold the appropriate certificate of registration, Waste facility permit or EPA licence.

Additionally, the CMP states that *“there are existing buildings on the site that will require a Refurbishment and Demolition Asbestos Survey prior to commencing demolition works. The Contractor, should ACMs be uncovered during the works, shall handle ACMs in accordance with the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006, as amended and associated approved Codes of Practice. The Contractor shall be responsible for preparing specified Risk Assessment and Method Statements for the identification and removal of all ACMs on site”*.

## 15.5.2 Operational Phase

The following mitigation measures are recommended for the operational phase of the Proposed Development regarding Waste Management:

- All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the targets set out in The National Waste Management Plan for a Circular Economy 2024-2030; and

- General waste including day-to-day office waste and municipal waste from staff areas will be segregated and collected by a suitably licenced contractors.

## 15.6 Residual Effects

### 15.6.1 Construction Phase

The CMP (DOBA, 2024) outlines construction resource and waste management mitigations which largely reduces the predicted effect of the Proposed Development on the waste infrastructure. It is expected that the effects are minimised due to:

- The prevention and mitigation measures proposed within this and other chapters of the EIAR;
- Compliance with national legislation and the allocation of adequate time and resources dedicated to efficient waste management practices;
- Continued use of permitted/licensed waste hauliers and facilities.
- Waste removed from the facility will be managed appropriately and will avoid environmental impacts or pollution. In addition, the correct management and storage of waste will avoid litter or pollution issues at the site; and,
- Designs which set out that the cut and fill volumes on the site during site preparation works will be approximately the same. This will reduce the volume of excess material during the excavation process. It is proposed that all materials will be reused onsite in landscaping and berms.

The residual effects on waste management are considered to be not significant, negative and short-term largely due to the small volume of waste materials expected as a result of the construction design and methods outlined above.

### 15.6.2 Operational Phase

The Proposed Development will utilise feedstocks and farm wastes to create useful biogas and bio-based fertiliser. The process utilises feedstock – a portion of which is waste, to generate products which can be used in full. The Proposed Development encapsulates the circular economy principles, as the process is cyclical in nature whereby the digestate at the end of the process will be returned to supply farms for use as a bio-based fertiliser. The trucks delivering feedstock will leave the site and return to the source site with bio-based fertiliser.

The Proposed Development will provide a means for the disposal of wastes which are otherwise often difficult to dispose of. Additionally, the use of the bio-based digestate is considered to be more environmentally friendly than that of manure spreading, as the AD process captures the gasses emitted from manure for use in energy.

There is no waste associated with the process, as the feedstocks will be fully used up within the anaerobic digestion process, resulting in bio-based fertiliser which will be returned to supply farms for fertilising and biogas a renewable energy source.

The only waste expected from the site is that from employees, site visitors and office supplies.

Following the implementation of mitigation measures, including segregation of waste and the employment of a suitably licenced waste contractor the residual effects of the Proposed Development on waste management in the area is considered to be long term, positive and not significant in nature.

### **15.6.3 Worst-Case Scenario**

A worst-case scenario in relation to waste would be where a previously unclassified hazardous waste stream arose on the site during excavations, which was not identified and segregated appropriately and resulted in the contamination of a non-hazardous waste stream, such as soil and stones, resulting in a large volume of hazardous waste that would require specialist removal and treatment. Additionally, the contaminated soil and stones would no longer be fit for use for fill and landscaping and would need to be replaced with imported materials.

However, taking account of the avoidance and mitigation measures, the worst-case scenarios are deemed to be an unlikely scenario.

### **15.7 Indirect and / or Secondary Effects**

No significant indirect effects of the Proposed Development waste infrastructure on the surrounding area includes are foreseen during the construction and operational phase.

### **15.8 Monitoring**

During the construction phase, monitoring of construction waste will be in accordance with the construction management plan.

During the operational phase, all incoming feedstock quantities and types will be recorded and quantified, and records will be retained onsite.

## 15.9 Interactions

Waste management has the potential to interact with other environmental receptors as follows:

- **Population and Human Health:** The improper removal, handling and storage of hazardous waste could result in a long term and negative effect on the health of construction workers however it is considered to be unlikely. Potential impacts on population and human health are addressed in Chapter 7.
- **Biodiversity:** The improper handling and storage of waste during the construction and operational phases could result in a long term, slight and negative impact on biodiversity. Potential impacts and mitigation measures are outlined Chapter 8 (Biodiversity).
- **Land, Soils, Geology and Hydrogeology:** Improper handling and improper segregation of hazardous or contaminated wastes could lead to the contamination of soil and stones excavated from the site and the contamination of water. This has the potential to result in long term, negative, moderate effects. Mitigation measures, potential impacts and residual effects are addressed in Chapter 9 and 10.
- **Traffic and Transportation:** The delivery of feedstocks, removal of digestate and the removal of municipal waste from the Proposed Development has the potential to cause long-term, not significant, negative effects on the local traffic and transport. Potential impacts on traffic are addressed in Chapter 13.

## 15.10 Potential Cumulative Effects

Cumulative effects can be defined as “*impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project*”. Effects which are caused by the interaction of effects, or by associated or off-site projects, are classed as indirect effects. Cumulative effects are often indirect, arising from the accumulation of different effects that are individually minor.

### 15.10.1 Construction Phase

Developments under construction and proposed in the vicinity of the site have been considered. In the worst case scenario, the below developments might overlap with the Proposed Development leading to an increase in municipal wastes in the area due to the increased number of contractors. Additionally, the volume of construction and demolition wastes would increase with an increased number of construction developments in the area.

The following developments (as set out in Chapter 21) have the potential to overlap with the Proposed Development.

Project No.	Project Name / Type	Screened In / Out
1	Acorn Recycling Workshop and Truck Washout	Screened In



RECEIVED: 02/11/2024

Project No.	Project Name / Type	Screened In / Out
2	Irish Bioeconomy Foundation Research and Development Unit	Screened In
3	Glanbia Biorefinery (1)	Screened In
4	Glanbia Biorefinery (2) (Modifications to Application Reg. Ref. 18601296)	Screened In
5	Soleirtricity Solar PV Farm	Screened In
6	Revive Environmental	Screened In
7	O'Grady Agricultural Shed and Milking Unit	Screened Out
8	O'Grady Livestock Underpasses	Screened Out
9	Cooleeney Cheese	Screened Out
10	Cooleeney Cheese	Screened Out
11	Cooleeney Cheese	Screened Out
12	NaringTech	Screened In
13	Hogan's Drain & Pipe Cleaning	Screened Out
14	Derryville Environmental Solutions	Screened Out
15	Derryville Environmental Solutions	Screened In
16	Lisheen III Wind Farm	Screened Out
17	Lisheen III Wind Farm	Screened Out
18	Bruckana windfarm limited	Screened Out
19	Templederry Energy Resources Solar Farm	Screened Out
20	Engie Developments Solar Farm	Screened Out
21	Shannon Resources (former Galmoy Zinc and Lead Mine)	Screened Out
22	Overhead electricity line from Thurles to the Borrisoleigh.	Screened Out
23	Borrisbeg Wind Farm	Screened Out
24	Gromane Limited	Screened Out

Table 15-4 Cumulative Schemes in the area

There will be a greater demand on existing local waste management services and on regional waste acceptance facilities

However, the capacity of waste collection companies and waste management facilities in County Tipperary have been designed with forward planning and expansion in mind to cater for a growing population. It is necessary that all the developments provide the infrastructure and services to assist with segregating waste at source, in order to reduce the generation and disposal of non-recyclable mixed waste.

The predicted cumulative effect will be short term, not significant, and negative.

## 15.10.2 Operational Phase

Existing waste collections currently take place in the local area and during the operational phase, the Proposed Development will be added to an existing collection route. The above developments will be required to have waste management plans in place. Additionally, the capacity of waste collection companies and waste management facilities in County Tipperary have been designed with forward planning and expansion in mind to cater for a growing population.

The likely effect will be neutral and not significant on waste management facilities in the area in the long term.

## 15.11 Difficulties Encountered

No difficulties were encountered while compiling this chapter.

## 15.12 References

- Department of Communications, Climate Action and Environment (DCCAE) (2021) A Waste Action Plan for a Circular Economy – Ireland’s National Waste Policy 2020-2025.
- DOBA, Construction Management Plan, 2024.
- Environmental Protection Agency, 2022, Guidelines on the Information to Be Contained in Environmental Impact Assessment Reports.
- Environmental Protection Agency, 2021, Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction and Demolition Projects.
- European Green Deal (2019)
- European Union, A New Circular Economy Action Plan for a Cleaner and more competitive Europe (2020)
- Government of Ireland, Bioeconomy Action Plan 2023 – 2025
- Government of Ireland, Draft First Revision to the National Planning Framework (NPF) (2023)
- Government of Ireland, National Biomethane Strategy (2024)
- Government of Ireland, National Waste Management Plan for a Circular Economy 2024 -2030
- Litter Pollution Act 1997.
- Local Government Ireland (2024) The National Waste Management Plan for a Circular Economy 2024-20230.
- Regional Spatial and Economic Strategy (RSES) for the Southern Region
- Tipperary County Council, Tipperary County Development Plan 2022 - 2028
- Waste Directive Regulations 2011 (SI No. 126 of 2011)
- Waste Framework Directive (Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste) as amended by Directive (EU) 2018/851.
- Waste Management Acts 1996-2011 (as amended).